Command Line Interface Reference, Modes E - F, StarOS Release 21.24

First Published: 2021-06-30

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CONTENTS

About this Guide

Note Control and User Plane Separation (CUPS) represents a significant architectural change in the way StarOS-based products are deployed in the 3G, 4G, and 5G networks. Unless otherwise specified, it should not be assumed that any constructs (including, but not limited to, commands, statistics, attributes, MIB objects, alarms, logs, services) referenced in this document imply functional parity between legacy/non-CUPS and CUPS products. Please contact your Cisco Account or Support representative for any questions about parity between these products.

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This preface describes the *Command Line Interface Reference* and its document conventions.

This reference describes how to use the command line interface (CLI) to interact with the products supported by the StarOS™. The CLI commands are organized by command modes in the code and in this reference. The

command modes are presented alphabetically. The description of each command states the command's function, describes its syntax, presents limitations when applicable, and offers an example of its usage.

CLI Command Sections

The following table describes the individual sections in the command descriptions presented in this reference.

Section	Description
Product	The product(s) supporting the CLI command.
Privilege	The user privilege levels having access to the CLI command. For more information on user types and user privileges, refer to the *CLI Administrative Users* section in the *Command Line Interface Overview* chapter.
Mode	The command and configuration mode sequences to the CLI configuration mode for the CLI command. For more information on command modes, refer to the *CLI Command Modes* section in the *Command Line Interface Overview* chapter.
Syntax	The command's syntax. For more information on CLI command syntax, refer to the *CLI Command Syntax* section in the *Command Line Interface Overview* chapter.
	Description of the keyword(s) and variable(s) in the command.
Usage	Information about the command's usage including dependencies and limitations, if any.
Example	Example(s) of the command.

Conventions Used

The following tables describe the conventions used throughout this documentation.

Notice Type	Description
Information Note	Provides information about important features or instructions.
Caution	Alerts you of potential damage to a program, device, or system.
Warning	Alerts you of potential personal injury or fatality. May also alert you of potential electrical hazards.

Typeface Conventions	Description
Text represented as a `screen display`	This typeface represents displays that appear on your terminal screen, for example: `Login:`
Text represented as **commands**	This typeface represents commands that you enter, for example: **show ip access-list** This document always gives the full form of a command in lowercase letters. Commands are not case sensitive.
Text represented as a **command** *variable*	This typeface represents a variable that is part of a command, for example: **show card** *slot_number* *slot_number* is a variable representing the desired chassis slot number.
Text represented as menu or sub-menu names	This typeface represents menus and sub-menus that you access within a software application, for example: Click the **File** menu, then click **New**

Command Syntax Conventions	Description
{ keyword or *variable* **}**	Required keyword options and variables are those components that are required to be entered as part of the command syntax. Required keyword options and variables are surrounded by grouped braces { }. For example: **sctp-max-data-chunks { limit** *max_chunks* **| mtu-limit }** If a keyword or variable is not enclosed in braces or brackets, it is mandatory. For example: **snmp trap link-status**

Command Syntax Conventions	Description
[keyword or *variable* **]**	Optional keywords or variables, or those that a user may or may not choose to use, are surrounded by brackets.
|	Some commands support multiple options. These are documented within braces or brackets by separating each option with a vertical bar. These options can be used in conjunction with required or optional keywords or variables. For example: **action activate-flow-detection { intitiation | termination }** or **ip address [count** *number_of_packets* **| size** *number_of_bytes* **]**

Supported Documents and Resources

Related Documentation

The most up-to-date information for this product is available in the product *Release Notes* provided with each software release.

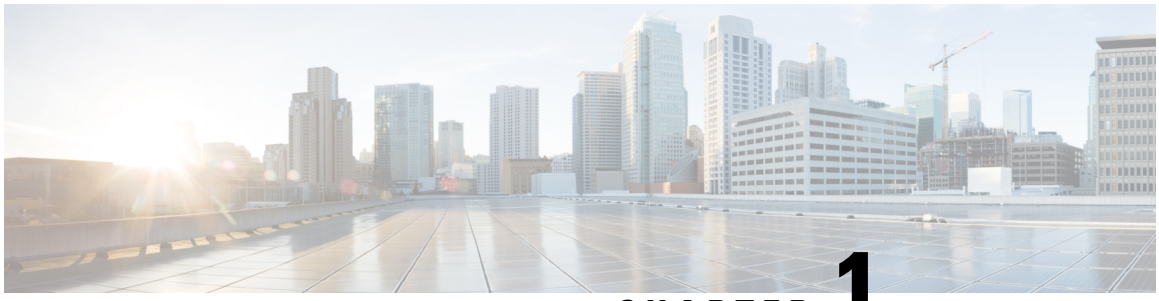
The following related product documents are also available:

- *AAA Interface Administration and Reference*
- *GTPP Interface Administration and Reference*
- *IPSec Reference*
- Platform-specific System Administration Guides
- Product-specific Administration Guides
- *Release Change Reference*
- *SNMP MIB Reference*
- *Statistics and Counters Reference*
- *Statistics and Counters Reference - Bulk Statistics Descriptions*
- *Thresholding Configuration Guide*

Contacting Customer Support

Use the information in this section to contact customer support.

Refer to the support area of http://www.cisco.com for up-to-date product documentation or to submit a service request. A valid username and password are required to access this site. Please contact your Cisco sales or service representative for additional information.



CHAPTER 1

EAP Authentication Configuration Mode Commands

Command Modes

The EAP Authentication Configuration Mode is used to configure the Extensible Authentication Protocol (EAP) authentication methods for the crypto template.

Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration

configure > context *context_name* **> crypto template** *template_name* **ikev2-dynamic > authentication eap-profile** *profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(cfg-crypto-tmpl-ikev2-tunnel)#
```

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

eap-aka

Configures shared key values for the Extensible Authentication Protocol-Authentication and Key Agreement (EAP-AKA) authentication method used by subscribers using this crypto template.

Product

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration

configure > context *context_name* **> crypto template** *template_name* **ikev2-dynamic > authentication eap-profile** *profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(cfg-crypto-tmpl-ikev2-tunnel)#
```

Syntax Description

```
eap-aka { encrypted key hex | key hex }
```

encrypted key *hex*

Specifies that the shared key is to be encrypted as a 16-character alphanumeric string or a hexadecimal number beginning with "0x".

key *hex*

Specifies that the shared key is to be transmitted in clear text as a 16-character alphanumeric string or a hexadecimal number beginning with "0x".

Usage Guidelines

Use this command to set shared key parameters for subscribers using the EAP-AKA authentication method.

Example

The following command configures a clear-text shared key value for the EAP-AKA method:

```
eap-aka key aa11223344556677
```

eap-gtc

Configures shared key values for the EAP-GTC authentication method used by subscribers using this crypto template.

Product

ASN-GW

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration

configure > context *context_name* **> crypto template** *template_name* **ikev2-dynamic > authentication eap-profile** *profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(cfg-crypto-tmpl-ikev2-tunnel)#
```

Syntax Description

```
eap-gtc { encrypted key value | key value }
```

encrypted key *value*

Specifies that the shared key is to be encrypted as a 16-character alphanumeric string.

key *value*

Specifies that the shared key is to be transmitted in clear text as a 16-character alphanumeric string.

Usage Guidelines

Use this command to set shared key parameters for subscribers using the EAP-GTC authentication method.

Example

The following command configures a clear-text shared key value for the EAP-GTC method:

```
eap-gtc key aa11223344556677
```

eap-md5

Configures shared key values for the EAP-MD5 authentication method used by subscribers using this crypto template.

Product

ASN-GW

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration

configure > context *context_name* **> crypto template** *template_name* **ikev2-dynamic > authentication eap-profile** *profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(cfg-crypto-tmpl-ikev2-tunnel)#
```

Syntax Description

eap-md5 { encrypted key *value* **| key** *value* **}**

encrypted key *value*

Specifies that the shared key is to be encrypted as a 16-character alphanumeric string.

key *value*

Specifies that the shared key is to be transmitted in clear text as a 16-character alphanumeric string.

Usage Guidelines

Use this command to set shared key parameters for subscribers using the EAP-MD5 authentication method.

Example

The following command configures a clear-text shared key value for the EAP-MD5 method:

```
eap-md5 key aa11223344556677
```

end

Exits the current configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `end`

Usage Guidelines Use this command to return to the Exec mode.

exit

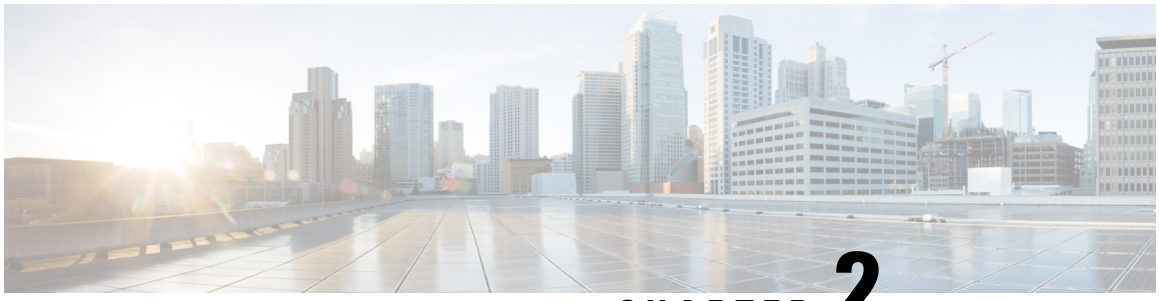
Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `exit`

Usage Guidelines Use this command to return to the parent configuration mode.



CHAPTER 2

EAP Configuration Mode Commands

The EAP Configuration Mode is used to configure parameters comprising an Extensible Authentication Protocol (EAP) used to support authentication on the system.

Command Modes

Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context *context_name* **> eap-porfile** *profile_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(cfg-ctx-eap-profile)#`

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
exit
```

Usage Guidelines Use this command to return to the parent configuration mode.

max-retry

Configures the maximum number of times the system will retry communicating with another EAP device.

Product ASN-GW

PDIF

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context *context_name* **> eap-porfile** *profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(cfg-ctx-eap-profile)#
```

Syntax Description

```
max-retry num
default max-retry
```

max-retry *num*

Specifies the number of times to retry EAP communication with another device as an integer from 1 to 65535. Default: 16

Usage Guidelines Use this command to set a maximum retry number for communicating with other EAP devices.

Example

The following command sets the maximum number of retries to *50*:

```
max-retry 50
```

mode

Configures the system as one of three types of EAP devices: authenticator pass-through, authenticator server, or peer.

Product ASN-GW

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context *context_name* **> eap-porfile** *profile_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(cfg-ctx-eap-profile)#`

Syntax Description

mode { authenticator-pass-through | authenticator-server | peer } default mode

default

Configures the default mode of Authenticator-pass-through.

authenticator-pass-through

Configures the system as an authenticator pass-through allowing EAP authentication to be performed by another server.

This is the default setting for this command.

authenticator-server

Configures the system as an authenticator server. This allows the system to respond to EAP requests.

peer

Configures the system as a peer device requiring it to make EAP requests of another server or pass-through device.

Usage Guidelines

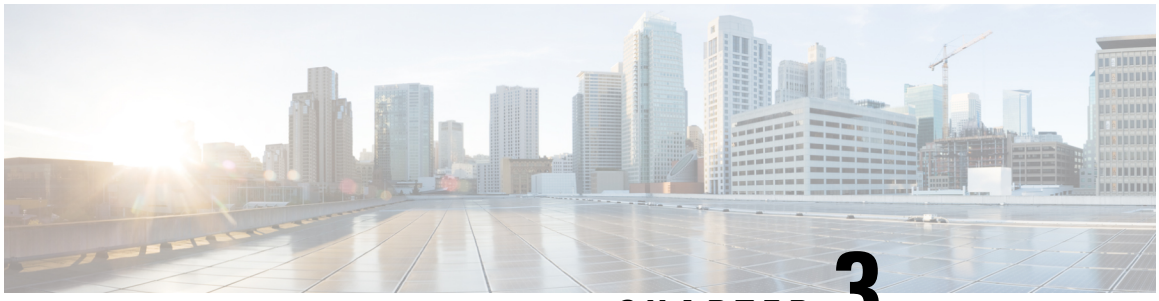
Use this command to configure the system to perform as one of three types of EAP devices and configure settings in an EAP mode.

EAP Mode Configuration Mode commands are defined in the EAP Mode Configuration Mode Commands chapter.

Example

The following command configures the system to perform as an authenticator pass-through:

mode authenticator-pass-through



CHAPTER 3

EAP Mode Configuration Mode Commands

The EAP Mode Configuration Mode is used to configure the Extensible Authentication Protocol (EAP) authentication method supported by the system.

Command Modes

Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context *context_name* **> eap-porfile** *profile_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(cfg-ctx-eap-profile)#`

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description **exit**

Usage Guidelines Use this command to return to the parent configuration mode.

method

Configures the EAP method used for authentication.

Product ASN-GW

PDIF

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context *context_name* **> eap-porfile** *profile_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(cfg-ctx-eap-profile)#`

Syntax Description **method { eap-aka | eap-gtc | eap-md5 } [priority** *num* **]**

eap-aka | eap-gtc | eap-md5

Specifies one of the following methods:

- **eap-aka**: Specifies that the EAP-AKA method is to be used for authentication.
- **eap-gtc**: Specifies that the EAP-GTC method is to be used for authentication.
- **eap-md5**: Specifies that the EAP-MD5 method is to be used for authentication.

priority *num*

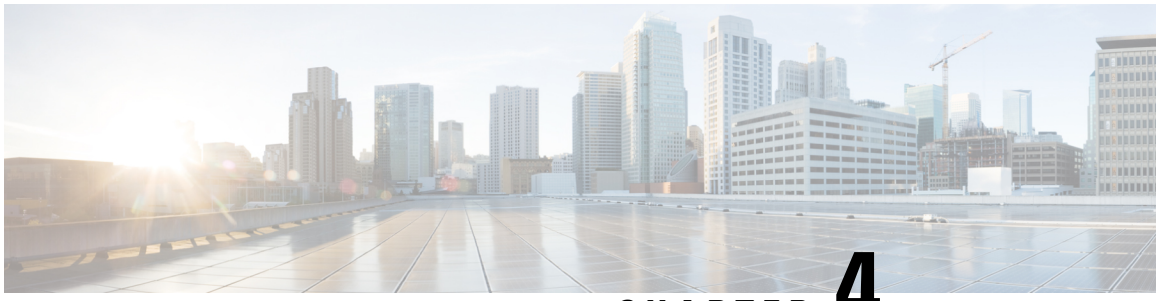
Specifies a priority order for a specific EAP authentication method an integer from 1 though 65535.

Usage Guidelines Use this command to specify the EAP authentication method(s) to use and to place multiple methods in priority order.

Example

The following command sets EAP-AKA as one of the EAP authentication methods and places it as priority of 3:

method eap-aka priority 3



CHAPTER 4

EDR Format Configuration Mode Commands

The EDR Format Configuration Mode enables configuring Event Data Record (EDR) formats.

Command Modes

Exec > ACS Configuration > EDR Format Configuration

active-charging service *service_name* > **edr-format** *format_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-acs-edr)#
```

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

attribute

This command allows you to specify the fields and their order in EDRs.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDR Format Configuration

active-charging service *service_name* > **edr-format** *format_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-acs-edr)#
```

Syntax Description

```
attribute attribute { [ format { MM/DD/YY-HH:MM:SS | MM/DD/YY-HH:MM:SS:sss
 | MM/DD/YYYY-HH:MM:SS | MM/DD/YYYY-HH:MM:SS:sss | YYYY/MM/DD-HH:MM:SS |
 MM/DD/YYYY-HH:MM:SS:sss | YYYYMMDDHHMMSS | YYYYMMDDHHMMSSsss | seconds
} ] [ localtime ] | [ { ip | tcp } { bytes | pkts } { downlink | uplink
} ] priority priority }
no attribute attribute [ { ip | tcp } { bytes | pkts } { downlink | uplink
 } ] [ priority priority ]
```

no

If added previously, removes the specified attribute from the EDR format.

attribute

Specifies the attribute.

attribute must be one of the following:

Attributes	Description
bandwidth-policy	This attribute reports the bandwidth policy name of subscriber. Bandwidth policy can be configured or applied to subscriber by — • binding with APN (static) • binding with Rulebase (static) • receiving from AAA server (dynamic) **Important** This attribute field is customer specific. For more information, contact your Cisco account representative.
radius-called-station-id	This attribute reports the Called Station ID of the mobile handling the flow.
radius-calling-station-id	This attribute reports the Calling Station ID of the mobile handling the flow.
radius-fa-nas-identifier	This attribute reports the RADIUS NAS identifier of Foreign Agent (FA).
radius-fa-nas-ip-address	This attribute reports the RADIUS IP address of Foreign Agent (FA).
radius-nas-identifier	This attribute reports the RADIUS NAS identifier.
radius-nas-ip-address	This attribute reports the RADIUS NAS IP address. Note that this attribute is interchangeable with **sn-st16-ip-addr** for the user.
radius-user-name	This attribute reports the user name associated with the flow.

Attributes	Description
sn-3gpp2-always-on	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-bsid	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-esn	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-ip-qos	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-ip-technology	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-release-indicator	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-service-option	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-session-begin	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-3gpp2-session-continue	This option has been deprecated. To configure this attribute see the rule-variable, on page 27 command.
sn-acct-session-id	This attribute reports the unique session identifier for accounting.

Attributes	Description
sn-app-protocol	

Attributes	Description
	This attribute reports the application protocol for the flow. A value indicating the protocol, such as one of the following: • ACS_PROTO_UNKNOWN = 0 • ACS_PROTO_GTP = 1 • ACS_PROTO_IP = 2 • ACS_PROTO_TCP = 3 • ACS_PROTO_UDP = 4 • ACS_PROTO_HTTP = 5 • ACS_PROTO_HTTPS = 6 • ACS_PROTO_FTP = 7 • ACS_PROTO_FTP_CONTROL = 8 • ACS_PROTO_FTP_DATA = 9 • ACS_PROTO_WTP = 10 • ACS_PROTO_WSP = 11 • ACS_PROTO_WTP_WSP_CONNECTION_ORIENTED = 12 • ACS_PROTO_WSP_CONNECTION_LESS = 13 • ACS_PROTO_DNS = 14 • ACS_PROTO_ICMP = 15 • ACS_PROTO_POP3 = 16 • ACS_PROTO_SIP = 17 • ACS_PROTO_SDP = 18 • ACS_PROTO_SMTP = 19 • ACS_PROTO_EMAIL = 20 • ACS_PROTO_MMS = 21 • ACS_PROTO_FILE_TRANSFER = 22 • ACS_PROTO_WWW = 23 • ACS_PROTO_RTP = 24 • ACS_PROTO_RTSP = 25 • ACS_PROTO_IMAP = 26

Attributes	Description
	• ACS_PROTO_FLOW = 27 • ACS_PROTO_CCA = 28 • ACS_PROTO_P2P = 29 • ACS_PROTO_RTCP = 30 • ACS_PROTO_ICMPV6 = 31 • ACS_PROTO_TFTP = 32 • ACS_PROTO_PPTP = 33
	• ACS_PROTO_GREv1 = 34 • ACS_PROTO_PPTP_GRE = 35 • ACS_PROTO_SIP_ADV = 36 • ACS_PROTO_SIP_BASIC_ADV = 37 • ACS_PROTO_H323 = 38 • ACS_PROTO_ESP = 39 • ACS_PROTO_AH = 40 • ACS_PROTO_RTSPSTREAM = 41
sn-cf-category-classification-used	For Category-based Content Filtering, this attribute reports the last classification used by system for the flow, or blank if classification was never successfully performed. For URL Blacklisting, specifies category of the blacklisted URL in the Blacklist database.

Attributes	Description
sn-cf-category-flow-action	For Category-based Content Filtering, this attribute reports the last action taken for the flow, or blank if content filtering was never performed. The following are the possible values: • allow • content-insert • discard • redirect-url • terminate-flow For URL Blacklisting, this attribute reports the last action taken for the flow, or blank if Blacklist matching was never performed. The following are the possible values: • discard • terminate-flow • redirect-url • www-reply-code-terminate-flow
sn-cf-category-policy	For Category-based Content Filtering, this attribute reports the category policy identifier that was used for the flow, or blank if content filtering was never attempted for the flow.
sn-cf-category-rating-type	For Category-based Content Filtering, this attribute reports the type, either "static" or "dynamic" that was last successfully performed for the flow, or blank if content filtering was never successful for the flow. For URL Blacklisting, specifies "blacklisting".
sn-cf-category-unknown-url	This attribute reports the identifier for unknown URL under content filtering action. It holds either "1" for unknown URLs or "0" for the URLs having static rating in its database.
sn-charge-volume	This attribute reports the total charge volume excluding bytes/packets dropped/retransmitted by ECS. This behavior can be changed by configuring to allow dropped/retransmitted bytes/packets to be included in the net volume. See the **edr sn-charge-volume** command in the *ACS Rulebase Configuration Mode Commands* chapter.

Attributes	Description
sn-charging-action	This attribute reports the name of last charging action matched against flow. **Important** This attribute configuration currently supports only static and predefined rules and ruledefs. It will NOT be supported for dynamic rules installed by PCRF.
sn-closure-reason	This attribute reports the reason for termination of the flow/EDR: • 0: Normal end of flow • 1: End of flow by handoff processing • 2: Subscriber session terminated • 3: Inter-chassis Session Recovery switchover • 12: Completion of transaction • 13: End of VoIP call event This is supported only in release 12.2. • 14: End of VoIP call event This is supported in 14.0 and later releases. • 16: ACS_EDR_OCS_REACHABLE • 17: ACS_EDR_OCS_UNREACHABLE • 18: ACS_EDR_INTERIM_VOLUME_EXHAUST • 19: ACS_EDR_INTERIM_TIME_EXHAUST • 20: ACS_EDR_OCS_STATUS_UNKNOWN • 21: ACS_EDR_TETHERING_SIGNATURE_CHANGE
sn-correlation-id	This attribute reports the RADIUS correlation identifier.
sn-direction	This attribute reports the direction of the first packet for the flow. It has following values: • **toMobile**: This value appears when direction of first packet is towards mobile node. • **fromMobile**: This value appears when direction of first packet is towards mobile node. • **unknown**: This value appears when the original originator of a flow can not be determined (for example, a flow that is interrupted due to a Inter-chassis Session Recovery switchover).

Attributes	Description
sn-duration	This attribute reports the duration between the last and first packet for the record.
sn-end-time [format *format* **] localtime**	This attribute reports the timestamp for last packet of flow in UTC.
sn-fa-correlation-id	This attribute reports the RADIUS Correlation Identifier of the Foreign Agent (FA).
sn-fa-ip-address	This attribute reports IP address of the Foreign Agent (FA).
sn-filler-blank	This attribute inserts a blank filler field, generates an empty EDR field.
sn-filler-zero	This attribute inserts a "0" in the EDR field.
sn-flow-end-time	This attribute reports the time of flow-end EDR generation—when EDRs are generated at hagr, session-end, timeout, or normal-end-signaling conditions. **sn-start-time** and **sn-end-time** fields of flow end-condition EDRs cannot be used to determine the duration of the flow if intermediate EDRs are generated (rule-match or transaction-complete or any other intermediate EDR). **sn-start-time** field in an EDR gives the time the first packet was received after the last EDR was generated. So, whenever an EDR is generated, this field is reset to the time the EDR gets generated. So the **sn-start-time** field in flow end-condition EDRs may not have the time of the first packet received on that flow. It will have the time at which the last EDR was generated or the first packet time if no EDR was generated for that flow. **sn-end-time** field gives the time at which the last packet on the flow was received. Flow end-condition EDRs may not be generated immediately after receiving the last packet. For example, in case of session-end or timeout EDRs, last packet time and EDR generation time may be different. **sn-flow-start-time** gives the time of the first packet of the flow (irrespective of whether intermediate EDRs were generated), and **sn-flow-end-time** gives the time when EDRs are generated at hagr, session-end, timeout or normal-end-signaling conditions. The values of these fields will be populated in EDRs only for hagr, session-end, timeout and normal-end-signaling EDRs.

Attributes	Description
sn-flow-id	This attribute reports the flow-id assigned internally by the ECS module to each flow.
sn-flow-start-time	This attribute reports the time of the first packet of the flow (irrespective of whether intermediate EDRs were generated). Also see **sn-flow-end-time**.
sn-format-name	This attribute reports the name of the EDR/UDR format used.
sn-group-id	This attribute reports the sequence group ID of the record.
sn-ha-ip-address	This attribute reports IP address of the Home Agent (HA).
sn-ip-pool-name	This attribute reports the IP pool name corresponding to the current flow in EDR.
sn-ip-protocol-name	This attribute reports the IP protocol name for the flow. For IANA registered IP Protocol (Layer 4 Protocol) name, like TCP, UDP, AH, ESP, ICMP, etc.
sn-nat-binding-timer	For Network Address Translation (NAT) in-line service, this attribute reports the port chunk hold timer.
sn-nat-gmt-offset	For NAT in-line service, this attribute reports the GMT offset of the node generating NAT bind record.
sn-nat-ip	For NAT in-line service, this attribute reports the NAT IP address of the port chunk.
sn-nat-last-activity-time-gmt	For NAT in-line service, this attribute reports the time when the last flow in a specific NAT set of flows was seen.
sn-nat-no-port-packet-dropped	For NAT in-line service, this attribute reports the number of packets dropped because of no NAT IP/port.
sn-nat-port-block-end	For NAT in-line service, this attribute reports the last port number of the port chunk.
sn-nat-port-block-start	For NAT in-line service, this attribute reports the starting port number of the port chunk.
sn-nat-port-chunk-alloc-dealloc-flag	For NAT in-line service, this attribute reports whether the port chunk is allocated or released.

Attributes	Description
sn-nat-port-chunk-alloc-time-gmt	For NAT in-line service, this attribute reports when the port chunk was allocated.
sn-nat-port-chunk-dealloc-time-gmt	For NAT in-line service, this attribute reports when the port chunk was released.
sn-nat-realm-name	For NAT in-line service, this attribute reports the name of the NAT realm.
sn-nat-subscribers-per-ip-address	For NAT in-line service, this attribute reports the subscriber(s) per NAT IP address.
sn-nemo-vrf-name	This attribute indicates the VRF name associated with UE behind the Network Mobility Services (NEMO) Mobile Router (MR). **Important** This is a customer-specific attribute, and is available only with NEMO license.
sn-ocs-server-reachable	This attribute indicates the state of the OCS server. This attribute supports the following values: • OCS_SERVER_NOT_APPLICABLE = 0 • OCS_SERVER_UNREACHABLE = 0 + 1 • OCS_SERVER_REACHABLE = 0 + 2
sn-parent-protocol	This attribute reports the parent protocol of the flow. An integer value like in **sn-app-protocol**; for RTCP/RTP flows, the parent protocol may be RTSP or SIP; for GRE flows, the parent protocol will be PPTP, and so on.
sn-port-service-name	This attribute reports the registered name for the server port. For IANA registered/Well Known Transport Port name mapping for the Server Port like SSL, HTTP, DNS, FTP, TELNET, SSH, Diablo, Rainbox six, UnReal_UT etc. This port service name mapping is done based on the Server port, which means if the flow is "FromMobile", the sn-server-port is mapped as the service name port. If the flow is "ToMobile", the sn-subscriber-port is mapped as the service name.
sn-rulebase	This attribute reports the name of the ECS rulebase applied.
sn-ruledef-name	This attribute reports the ruledef name corresponding to the last charging action matched. **Important** This is a customer-specific attribute.

Attributes	Description
sn-rating-group	This attribute reports the rating group corresponding to last charging action matched. **Important** This attribute configuration currently supports only static and predefined rules and ruledefs. It will NOT be supported for dynamic rules installed by PCRF.
sn-sequence-no	This attribute reports the unique sequence number (per **sn-sequence-group** and **radius-nas-ip-address**) of EDR identifier and linearly increasing in EDR file.
sn-server-port	This attribute reports the TCP/UDP port number of the server in a subscriber's data flow.
sn-service-id	This attribute reports the Service ID corresponding to last charging action matched. **Important** This attribute configuration currently supports only static and predefined rules and ruledefs. It will NOT be supported for dynamic rules installed by PCRF.
sn-st16-ip-addr	This attribute reports the IP address of the chassis handling this flow. **Important** Note that this attribute is interchangeable with **radius-nas-ip-address** for other systems.
sn-start-time [format *format* **] localtime**	This attribute reports the timestamp for last packet of flow in UTC.
sn-subscriber-imsi	This attribute reports the IMSI number of the subscriber.
sn-subscriber-nat-flow-ip	For NAT in-line service, this attribute reports the NAT IP address of NAT-enabled subscriber.
sn-subscriber-nat-flow-port	For NAT in-line service, this attribute reports the NAT port number of NAT-enabled subscriber.
sn-subscriber-port	This attribute reports the TCP/UDP port number of the Mobile handling subscriber data flow.
sn-volume-amt { ip | tcp } { bytes | pkts } { uplink | downlink }	This attribute reports IP/TCP protocol-specific volume amount of downlink/uplink bytes/packets during a flow. This includes all the bytes/packets received by ECS, including the bytes/packets dropped and retransmitted by ECS.

Attributes	Description
sn-volume-dropped-amt { ip | tcp } { bytes | packets } { downlink | uplink }	For Stateful Firewall in-line service, this attribute reports IP/TCP protocol-specific volume amount of downlink/uplink bytes/packets dropped by Stateful Firewall during a flow.
sn-volume-ip-with-rtsp-or-rtp bytes { downlink | priority | uplink }	This attribute reports the IP volume amount of downlink/uplink bytes of an RTSP flow and the RTP flows controlled by it, or Comma Separated Value (CSV) position priority of this field. If **uplink** or **downlink** is not specified it shows the total of both.
sn-vrf-name	This attribute indicates the VRF name associated with the base session of NEMO. **Important** This is a customer-specific attribute.
subscriber-ipv4-address	For NAT in-line service, this attribute generates the subscriber IPv4 address in the NBR.
subscriber-ipv6-address	For NAT in-line service, this attribute generates the subscriber IPv6 prefix in the NBR.
transaction-charge-downlink-bytes	This attribute reports the total charge downlink bytes for the transaction. Excludes the dropped/retransmitted bytes from the total transaction downlink bytes.
transaction-charge-downlink-packets	This attribute reports the total charge downlink packets for the transaction. Excludes the dropped/retransmitted packets from the total transaction downlink packets.
transaction-charge-uplink-bytes	This attribute reports the total charge uplink bytes for the transaction. Excludes the dropped/retransmitted bytes from the total transaction uplink bytes.
transaction-charge-uplink-packets	This attribute reports the total charge uplink packets for the transaction. Excludes the dropped/retransmitted packets from the total transaction uplink packets.
transaction-downlink-bytes	This attribute reports the total downlink bytes for the transaction.
transaction-downlink-packets	This attribute reports the total downlink packets for the transaction.
transaction-uplink-bytes	This attribute reports the total uplink bytes for the transaction.
transaction-uplink-packets	This attribute reports the total uplink packets for the transaction.

format { MM/DD/YY-HH:MM:SS | MM/DD/YY-HH:MM:SS:sss | MM/DD/YYYY-HH:MM:SS | MM/DD/YYYY-HH:MM:SS:sss | YYYY/MM/DD-HH:MM:SS | MM/DD/YYYY-HH:MM:SS:sss | YYYYMMDDHHMMSS | YYYYMMDDHHMMSSsss | seconds

Specifies the timestamp format.

In releases prior to 18.0, the current timestamps available in the EDR format configuration allow recording of time information only up to seconds level. In 18.0 and later releases, new timestamp formats are added to allow recording of time information up to milliseconds granularity.

This feature enables to record timestamps of the events at finer granularity. The timestamps will be populated according to the selected timestamp format whenever any of the predefined events/event triggers for generating EDRs is encountered.

localtime

Specifies timestamps with the local time. By default, timestamps are displayed in GMT/UTC.

{ ip | tcp }{ bytes | pkts }{ downlink | uplink }

Specifies bytes/packets sent/received from/by mobile.

priority *priority*

Specifies the position priority of the value within the EDR record. Lower numbered priorities (across all attribute, event-label, and rule-variable) occur first.

priority must be an integer from 1 through 65535. Up to 50 position priorities (across all attribute, event-label, and rule-variable) can be configured.

Usage Guidelines

Use this command to set the attributes and priority for EDR file format.

A particular field in EDR format can be entered multiple times at different priorities. While removing the EDR field using the **no attribute** command either you can remove all occurrences of a particular field by specifying the field name or a single occurrence by additionally specifying the optional **priority** keyword.

In 21.1 and later releases, a maximum of 75 EDR attribute fields can be configured in an EDR record. The limit is expanded from 50 fields up to 75 fields.

Example

The following is an example of this command:

```
attribute radius-user-name priority 12
```

delimiter

This command allows you to configure a comma or a tab as a delimiter character for EDRs.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDR Format Configuration

active-charging service *service_name* **> edr-format** *format_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-acs-edr)#
```

Syntax Description

```
delimiter { comma | tab }
no delimiter
```

no

This **no** variant reverts back to the default configuration. By default, comma is used as the delimiter for EDRs.

comma

This keyword allows you to specify comma as an EDRdelimiter. Comma is the default configuration.

tab

This keyword allows you to specify tab as an EDR delimiter.

Usage Guidelines

Use this command to configure either comma or tab as the delimiter between EDR fields.

The comma character is currently used as the delimiter between EDR fields. But comma is a valid character for URLs. Thus when a EDR URL contains a comma, the downstream parser encounters issues.

Hence, this feature has been developed to allow TAB as an additional character to be used as the delimiter in the EDR file. For backward compatibility reasons, this CLI configuration is introduced to choose the delimiter character between both comma and TAB.

Example

The following example specifies tab as the delimiter configuration for EDRs:

```
delimiter tab
```

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

```
end
```

Usage Guidelines

Use this command to return to the Exec mode.

event-label

This command allows you to specify an optional event label/identifier to be used as an attribute in the EDRs.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDR Format Configuration

active-charging service *service_name* **> edr-format** *format_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edr)#`

Syntax Description

event-label *event_label* **priority** *priority*
no event-label

no

If previously configured, removes the event label configuration.

event_label

Specifies the event label/identifier to be used as EDR attribute.

event_label must be an alphanumeric string of 1 through 63 characters.

priority ***priority***

Specifies the Comma Separated Value (CSV) position of the attribute (label/identifier) in the EDR.

priority must be an integer from 1 through 65535.

Usage Guidelines

Use this command to configure an optional event label/identifier as an attribute in the EDR and its position in the EDR.

Example

The following is an example of this command:

```
event-label radius_csv1 priority 23
```

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description `exit`

Usage Guidelines Use this command to return to the parent configuration mode.

rule-variable

This command allows you to specify fields and their order in EDRs.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > EDR Format Configuration

active-charging service *service_name* **> edr-format** *format_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edr)#`

Syntax Description

```
rule-variable rule_variable priority priority [ in-quotes ]
no rule-variable rule_variable [ priority priority ]
```

no

If previously configured, removes the specified rule variable configuration.

rule_variable

Specifies the rule variable for the EDR format.

rule_variable must be one of the following options:

- **bearer 3gpp**: 3GPP bearer-related fields:
  - **charging-id**: Charging ID of the bearer flow
  - **imei**: IMEI or IMEISV (depending on the case) associated with the bearer flow. Only available in StarOS 8.1 and later releases.
  - **imsi**: Specific Mobile Station Identification number.
  - **pcrf-correlation-id**: PCRF correlation ID of the bearer flow sent by Gx interface.
  - **rat-type**: RAT type associated with the bearer flow. Only available in StarOS 8.1 and later releases.
  - **sgsn-address**: SGSN associated with the bearer flow. Only available in StarOS 8.1 and later releases. For MIPv6 calls, sgsn-address field is populated with HSGW address.
  - **user-location-information**: User location information associated with the bearer flow. Only available in StarOS 8.1 and later releases.
- **bearer 3gpp2**: 3GPP2 bearer-related fields:
  - **always-on**: 3GPP2 always on indicator

- **bsid**: 3GPP2 BSID
- **esn**: 3GPP2 ESN
- **ip-qos**: 3GPP2 IP QoS
- **ip-technology**: 3GPP2 IP technology
- **release-indicator**: 3GPP2 release indicator
- **service-option**: 3GPP2 service option
- **session-begin**: 3GPP2 session begin indicator
- **session-continue**: 3GPP2 session continue indicator

- **bearer ggsn-address**: GGSN IP address field. For MIPv6 calls, ggsn-address field in EDR will be populated with PGW address.
- **bearer qci**: QCI of the bearer corresponding to the flow for which the EDR is getting generated.
- **dns**: Domain Name System (DNS) related fields:
  - **answer-ip-list**: DNS Host IP list. A maximum of 4 IP addresses will be part of an EDR.
  - **answer-name**: DNS answer name. This depends upon query type.
  - **previous-state**: DNS previous state information
  - **query-name**: DNS query name
  - **query-type**: DNS query type. Numeric value as per the DNS specifications.
  - **return-code**: DNS query response code
  - **state**: DNS current state information
  - **tid**: DNS Transaction Identifier
- **file-transfer**: File Transfer related fields:
  - **chunk-number**: Number of chunks
  - **current-chunk-length**: Length of current chunk
  - **declared-chunk-length**: Declared size of the chunk
  - **declared-file-size**: Declared size of the file
  - **filename**: Name of the file being transferred
  - **previous-state**: Previous state of session
  - **state**: Current state of session
  - **transferred-file-size**: Transferred size of the file
- **flow**:Flow related fields:
  - **ip-control-param**: First 8 bytes of IPv6 header is inserted in EDRs.

- **tethered**: Tethering detected on flow. Enables/disables tethering detection result field in EDRs sent to MUR.
- **tethered-application**: Application based tethering detected on flow.
- **tethered-dns**: DNS-based tethering detected on flow. Either 0 or 1.
- **tethered-ip-ttl**: IP-TTL based tethering detected on flow.
- **ttl**: Time To Live/Max hops value received in the first packet of the flow.

- **ftp**: File Transfer Protocol (FTP) related fields:
  - **client-ip-address**:
  - **client-port**
  - **command name**: Command sent
  - **connection-type**
  - **filename**: File name being transferred in any of the FTP-related FTP command
  - **pdu-length**: FTP PDU length
  - **pdu-type**
  - **previous-state**: Previous state of FTP session
  - **reply code**
  - **server-ip-address**
  - **server-port**
  - **session-length**: Total length of FTP session
  - **state**: Current state of FTP session
  - **url**: URL of file
  - **user**: User identifier

- **http**: Hypertext Transport Protocol (HTTP) related fields:
  - **accept**: Content types that are acceptable for the response
  - **attribute-in-data**: Dynamic header field in application payload
  - **attribute-in-url**: Dynamic header field in URL
  - **content disposition**
  - **content length**
  - **content type**
  - **cookie**: HTTP cookie header
  - **domain**
  - **dnt**

- **header-length**: HTTP header length
- **host**
- **payload-length**: Payload length
- **pdu-length**
- **previous-state**: Previous state of session
- **referer**
- **reply code**: HTTP response
- **request method**: HTTP request method
- **session-length**: Total length of HTTP session
- **state**: Current state of session
- **transaction-length**: Total length of HTTP transaction
- **transfer-encoding**: Transfer encoding
- **uri**: Uniform Resource Identifier
- **url**: Uniform Resource Locator
  - **length** *size*: This optional filter allows the user to configure the HTTP URL length from 1 to 4095. The EDR rule-variable "HTPP URL" supports the maximum length of 4095. That is, any URL greater than the maximum length is truncated and then written to EDR.

    In 17.0 and later releases: The length of HTTP URL is from 1 to 4095.

    In 15.0 and 16.0 releases: The length of HTTP URL is from 1 to 255.

    In releases prior to 15.0: The length of HTTP URL is from 1 to 127.
- **user-agent**
  - **length** *size*: This optional filter allows the user to configure the HTTP User-Agent length from 1 to 255. In releases prior to 15.0, the EDR rule-variable "HTPP User-Agent" supports the maximum length of 127. That is, any user-agent greater than 127 is truncated and then written to EDR.
- **version**
- **x-header**: extension header
- **ad-delivered**, **ad-replaced**, **compression-bytes-in**, **compression-bytes-out**, **dns-resolution-locally**, **dns-resolution-remotely**, **tpo-enabled**

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

- **icmp**: Internet Control Message Protocol (ICMP) related fields:

- **code**: ICMP code
- **type**: ICMP type

- **icmpv6**: Internet Control Message Protocol Version 6 (ICMPv6) related fields:
  - **code**: ICMPv6 code
  - **type**: ICMPv6 type

- **imap**: Internet Message Access Protocol (IMAP) related fields:
  - **cc**: IMAP e-mail CC field
  - **command**: IMAP command
  - **content**
  - **date**: IMAP e-mail Date field
  - **final-reply**: IMAP final reply
  - **from**: IMAP e-mail From field
  - **mail-size**: IMAP size of e-mail in RFC822 format
  - **mailbox-size**: IMAP number of e-mails in the mailbox
  - **message-type**: IMAP message type
  - **previous-state**: IMAP session previous state
  - **session-length**: IMAP session length
  - **session-previous-state**: IMAP session previous state
  - **session-state**: IMAP session state
  - **state**: IMAP state
  - **subject**: IMAP e-mail Subject field
  - **to**: IMAP e-mail To field

- **ip**: Internet Protocol (IP) related fields:
  - **dst-address**: destination IP address
  - **protocol**: Protocol being transported by IP packet
  - **server-ip-address**: IP address of server. This field in EDR contains either the IPv4 or IPv6 address of the server for a particular flow (flow level). The maximum length of this field is 48 characters. For an IPv6 address, the maximum length is 45 characters; for an IPv4 address, the maximum length is 15 characters.
  - **src-address**: Source IP address
  - **subscriber-ip-address**: IP address of subscriber. This field in EDR contains either the IPv4 or IPv6 address of the client/subscriber for a particular call (subscriber level). The value of this field does not change for a particular call. The maximum length of this field is 48 characters. For an IPv6

address, the maximum length is 45 characters. For an IPv4 address, the maximum length is 15 characters.

- **total-length**: Total length of packet, including payload
- **version**: IP version

- **mms**: Multimedia Message Service (MMS) related fields:
  - **bcc**
  - **cc**
  - **content location**
  - **content type**
  - **date [format { MM/DD/YYYY-HH:MM:SS | YYYY/MM/DD-HH:MM:SS }]**
  - **from**
  - **message-size**
  - **previous-state**
  - **response status**
  - **state**
  - **subject**
  - **tid**
  - **to**

- **p2p**: Peer-to-peer protocol related fields:
  - **app-identifier { quic-sni | tls-cname | tls-sni }**: P2P application-identifiers - QUIC-SNI, TLS-common name, or TLS-SNI
  - **tls-version**: The TLS version variable is displayed from the P2P dynamic library. The following values of SSL version that is used by UE for the TLS commection on the flow are conisdered:.
    - 0 – Invalid
    - 1 – TLS1.0
    - 2 – TLS1.1
    - 3 – TLS1.2
    - 4 – TLS1.3
  - **bailout-pkt-num** : Number of packets taken by plugin to detect the application in the flow before flow was offload to VPP. This variable is supported only in CUPS.
  - **duration**: P2P protocol duration
  - **protocol**: P2P protocol
  - **protocol-group**: Associated protocol group of the specific P2P protocol/application

- **ssl-params**: Specifies the SSL flow parameters.
  - **cert-issuer-cname**: Specifies the SSL Certificate Issuer CName.
  - **cert-subject-oname**: Specifies the SSL Certificate Subject Organization Name.
  - **cert-issuer-oname**: Specifies the SSL Certificate Issuer Organization Name.
  - **cert-validity**: Specifies the validity of SSL Certificate.
  - **ssl-decode-failure**: Specifies the reason for SSL Decode failure.

- **pop3**: Post Office Protocol version 3 (POP3) related fields:
  - **command name**: Command of POP3 session
  - **mail-size**: Mail size
  - **pdu-length**: Length of POP3 PDU
  - **pdu-type**: Type of packet
  - **previous-state**: Previous state of POP3 session
  - **reply status**: Reply for the POP3 command
  - **session-length**: Total length of POP3 session
  - **state**: Current state of POP3 session
  - **user-name**: User of POP3 session

- **rtcp:** RTP Control Protocol (RTCP) related fields:
  - **control-session-flow-id**: Flow ID of the controlling RTSP/SIP session
  - **jitter**: RTCP interarrival jitter
  - **rtsp-id**: RTSP ID of the RTCP flow
  - **uri**: URI of the control protocol related to the RTCP flow

- **rtp**: Real-time Transfer Protocol (RTP) related fields:
  - **control-session-flow-id**: Flow ID of the controlling RTSP/SIP session
  - **pdu-length**: Length of RTP PDU
  - **rtsp-id**: RTSP ID of the flow
  - **session-length**: Total length of RTP session
  - **uri**: URI of the control protocol related to the RTP flow

- **rtsp**: Real Time Streaming Protocol (RTSP) related fields:
  - **command-id**: RTSP command ID
  - **content type**
  - **date**: RTSP Date field

- **previous-state**: RTSP previous state
- **reply code**
- **request method 1**: play method
- **request method 2**: setup method
- **request method 3**: pause method
- **request method 4**: record method
- **request method 5**: options method
- **request method 6**: redirect method
- **request method 7**: describe method
- **request method 8**: announce method
- **request method 9**: teardown method
- **request method 10**: get-parameter method
- **request method 11**: set-parameter method
- **request packet**
- **rtp-uri**: RTSP RTP-Info stream-uri field
- **session-id**: RTSP session-id field
- **session-length**: Total number of bytes passed through the RTSP data session
- **state**: RTSP state
- **uri**: RTSP uri field
- **uri sub-part**
- **user-agent**: RTSP user-agent field

- **sdp**: Session Description Protocol (SDP) related fields:
  - **connection-ip-address**: IP address in SDP connection field
  - **media-audio-port**: Port used for audio media
  - **media-video-port**: Port used for video media
- **secure-http**: HTTPS related field.
- **sip**: Session Initiation Protocol (SIP) related fields:
  - **call-id**: SIP call-id field
  - **content type**
  - **from**: SIP From field
  - **previous-state**: SIP previous state

- **reply code**
- **request method**
- **request packet**
- **state**: SIP state
- **to**: SIP To field
- **uri**: SIP URI field
- **uri sub-part**

- **smtp**: Simple Mail Transfer Protocol (SMTP) related fields:
  - **command name**: Command of SMTP session
  - **mail-size**: Size of given mail
  - **pdu-length**: Length of SMTP PDU
  - **previous-state**: Previous state of SMTP session
  - **recipient**: SMTP e-mail Recipient field
  - **reply status**: Response for the SMTP command
  - **sender**: SMTP e-mail Sender field
  - **session-length**: Total length of SMTP session
  - **state**: Current state of SMTP session

- **tcp**: Transmission Control Protocol (TCP) related fields:
  - **dst-port**: TCP destination port
  - **duplicate**: TCP retransmitted/duplicate packet
  - **flag**: Current packet TCP flag
  - **os-signature**: OS signature string for IPv4 TCP flow. Enables/disables OS Signature field in EDRs sent to MUR.
  - **out-of-order**: TCP out of order packet analyzed
  - **payload-length**: TCP payload length
  - **previous-state**: Previous state of MS
  - **sn-tcp-accl**: TCP Acceleration enabled on flow. Either 0 or 1.
  - **sn-tcp-accl-reject-reason**: Reason for not accelerating the TCP flow.
  - **sn-tcp-min-rtt**: Specifies minimum RTT observed for accelerated TCP flow.
  - **sn-tcp-rtt**: Specifies smoothed RTT for accelerated TCP flow.
  - **src-port**: TCP source port
  - **state**: Current state of MS

- **tpo-enabled**

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

  - **syn-control-params**: 8 bytes following the TCP Acknowledgement in the TCP SYN packet displayed as hexadecimal string of characters.
  - **syn-options**: All TCP options received in the TCP SYN packet displayed as hexadecimal string of characters.
  - **syn-seq**: The absolute 4 byte value of the sequence number received in the TCP SYN packet displayed as decimal value.
  - **v6-os-signature**: OS signature string for IPv6 TCP flow. Enables/disables OS Signature field in EDRs sent to MUR.

- **tls sni**: TLS/SSL SNI field (SNI rule variable configured for TLS/SSL flows in EDR).
- **traffic-type**: Traffic type of flow (voice or non-voice depending upon flow type).
- **udp**: User Datagram Protocol (UDP) related fields:
  - **dst-port**: UDP destination port
  - **src-port**: UDP source port
- **voip-duration**: Duration of voice call, in seconds. For a flow in which voice call end is detected, output will be a non-zero value. For other flows it will be zero.

  This is no longer supported for P2P in 14.0 and later releases.
- **wsp**: Wireless Session Protocol (WSP) related fields:
  - **content type**
  - **domain**: WSP domain name
  - **host**: WSP host name
  - **pdu-length**: WSP PDU length
  - **pdu-type**: WSP PDU type
  - **reply code**
  - **session-length**: WSP total packet length
  - **tid**: WSP transaction identifier
  - **total-length**: WSP total packet length
  - **url**: WSP URL
  - **user-agent**: WSP user agent
- **wtp**: Wireless Transaction Protocol (WTP) related fields:

- **gtr**: Group Transmission Flag
- **pdu-length**: PDU length of the WTP packet
- **pdu-type**: WTP protocol data unit information
- **previous-state**: WTP previous state information
- **state**: WTP current state information
- **tid**: WTP transaction identifier
- **transaction class**: WTP transaction class
- **ttr**: WTP Trailer Transmission flag

Important For more information on protocol-based rules, see the *ACS Ruledef Configuration Mode Commands* chapter.

priority *priority*

Specifies the CSV position of the field (protocol rule) in the EDR.

priority must be an integer from 1 through 65535.

in-quotes

Specifies placing double quotes (" ") around the specified field in the EDR.

Important In this release, this keyword is only valid for the MMS protocol **to** and **subject** fields. **rule-variable mms to priority** *priority* **[in-quotes] rule-variable mms subject priority** *priority* **[in-quotes]**

Usage Guidelines

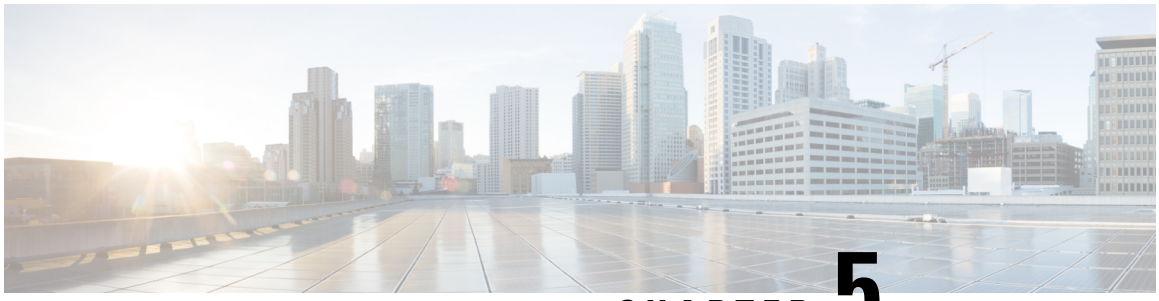
Use this command to specify what field appears in which order in the EDR.

A particular field in an EDR format can be entered multiple times with different priorities. While removing the EDR field using the **no rule-variable** command you can remove all occurrences of a particular field by specifying the field name or a single occurrence by additionally specifying the optional **priority** keyword.

Example

The following is an example of this command:

```
rule-variable tcp dst-port priority 36
```



CHAPTER 5

EDR Module Configuration Mode Commands

The EDR Module Configuration Mode allows you to configure Event Data Record (EDR) file transfer parameters.

Command Modes

Exec > Global Configuration > Context Configuration > EDR Module Configuration

configure > context *context_name* **> edr-module active-charging-service**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-edr)#
```

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

cdr

This command allows you to configure EDR/UDR file transfer parameters.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > EDR Module Configuration

configure > context *context_name* **> edr-module active-charging-service**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-edr)#
```

Syntax Description

cdr { purge { storage-limit *storage_limit* **| time-limit** *time_limit* **} [max-files** *max_records_to_purge* **] | push-interval** *push_interval* **| push-trigger space-usage-percent** *trigger_percentage* **| remove-file-after-transfer |**

```
transfer-mode { pull [ module-only ] | push primary { encrypted-url
encrypted_url | url url } [ [ max-files max_records ] [ max-tasks task_num ] [
module-only ] [ secondary { encrypted-secondary-url encrypted_secondary_url |
 secondary-url secondary_url } ] [ source-address ip_address ] [ via
local-context ] + ] | use-harddisk } | push-count push_count
default cdr [ purge | push-interval | push-trigger space-usage-percent |
 remove-file-after-transfer | transfer-mode [ module-only | push via ] |
 use-harddisk ] +  | push-count
no cdr [ purge | remove-file-after-transfer | use-harddisk ] +
```

default

Configures the default setting for the specified keyword(s):

- **purge**: Disabled
- **push-interval**: 300 seconds
- **push-trigger**: 80 percent
- **remove-file-after-transfer**: Disabled
- **transfer mode**: Pull
- **push via**: LC is used for push
- **use-harddisk**: Disabled

Important The **use-harddisk** keyword is available only on the ASR 5500 chassis.

no

If previously configured, disables the specified configuration:

- **purge**: Disables purging of records.
- **remove-file-after-transfer**: Retains a copy of the file even after it has been pushed or pulled to another server.
- **use-harddisk**: Disables data storage on the ASR 5500 hard disk array.

  Important The **use-harddisk** keyword is available only on the ASR 5500 chassis.

- **push-count** *push_count*: Specifies the number of EDR/CDR/UDR files transferred in each EDR/UDR push SFTP session. Default value is "1". *push_count* is configured as an integer value between 1 and 32, inclusive.

purge { storage-limit *storage_limit* | time-limit *time_limit* } [max-files *max_records_to_purge*]

Specifies to purge/delete the EDR records based on "time" or "volume" limit.

When the configured threshold limit is reached on the hard disk drive, the records that are created dynamically in the */mnt/hd-raid/data/records/* directory are automatically deleted. Files that are manually created should be deleted manually.

- **storage-limit** *storage_limit*: Specifies to start deleting files when the specified megabytes of space is used for storage. The *storage_limit* specifies the volume limit for the record files, in megabytes, and must be an integer from 10 through 143360.
- **time-limit** *time_limit*: Specifies to start deleting files older than the specified time limit. The *time_limit* specifies the time limit for the record files, and must be an integer from 600 through 2592000.
- **max-files** *max_records_to_purge*: Specifies the maximum number of records to purge.

  The *max_records_to_purge* can be 0, or an integer from 1000 through 10000. If the value is set to 0, during each cycle, the records will be deleted until the purge condition is satisfied. If the value is set between 1000 and 10000, during each cycle, the records will be deleted until either the purge condition is satisfied or the number of records deleted equals the configured **max-files** value.

  Default: 0

push-interval *push_interval*

Specifies the transfer interval (in seconds) to push EDR and UDR files to an external file server.

The *push_interval* must be an integer from 60 through 3600.

Default: 300

push-trigger space-usage-percent *trigger_percentage*

Specifies the EDR/UDR disk space utilization percentage, upon reaching which an automatic push is triggered and files are transferred to the configured external server.

The *trigger_percentage* specifies the EDR/UDR disk utilization percentage for triggering push, and must be an integer from 10 through 80.

Default: 80

remove-file-after-transfer

Specifies that the system must delete EDR/UDR files after they are transferred to the external file server.
Default: Disabled

transfer-mode { pull [module-only] | push primary { encrypted-url *encrypted_url* | url *url* } [[max-files *max_records*] [max-tasks *task_num*] [module-only] [secondary { encrypted-secondary-url *encrypted_secondary_url* | secondary-url *secondary_url* }] [source-address *ip_address*] [via local-context] +]

Specifies the EDR/UDR file transfer mode—how the EDR and UDR files are transferred to the external file server.

- **pull**: Specifies that the external server is to pull the EDR files.
- **push**: Specifies that the system is to push EDR files to the external server for ASR 5500.
- **max-files** *max_records*: Specifies the maximum number of files sent per iteration based on configured file size.

Default: 4000

- **max-tasks** *task_num*: Specifies the maximum number of tasks (child processes) that will be spawned to push the files to the remote server. The *task_num* must be an integer from 4 through 8.

  Default: 4

Important Note that increasing the number of child processes will improve the record transfer rate. However, spawning more child will consume additional resource. So, this option needs to be used with proper resource analysis.

- **module-only**: Specifies that the transfer-mode is only applicable to the EDR module; if not configured it is applicable to both EDR and UDR modules. This enables to support individual record transfer-mode configuration for each module.
- **primary encrypted-url** *encrypted_url*: Specifies the primary URL location in encrypted format to which the system pushes the EDR files.

  The *encrypted_url* must be the location in an encrypted format, and must be an alphanumeric string of 1 through 1024 characters.
- **primary url** *url*: Specifies the primary URL location to which the system pushes the EDR files.

  The *url* must be the location, and must be an alphanumeric string of 1 through 1024 characters in the "*//user:password@host:[port]/directory*" format.
- **secondary encrypted-secondary-url** *encrypted_secondary_url*: Specifies the secondary URL location in encrypted format to which the system pushes the EDR files when the primary location is unreachable or fails.

  The *encrypted_secondary_url* must be the secondary location in an encrypted format, and must be an alphanumeric string of 1 through 1024 characters in the "*//user:password@host:[port]/directory*" format.
- **secondary secondary-url** *secondary_url*: Specifies the secondary location to which the system pushes the EDR files when the primary location is unreachable or fails.

  The *secondary_url* must be the secondary location, and must be an alphanumeric string of 1 through 1024 characters in the "*//user:password@host:[port]/directory*" format.
- **source-address** *ip_address*: Configures the source IP address to be used to establish the connection for the SFTP/SSH file-transfer operation.
- **via local-context**: Configuration to select LC/SPIO for transfer of EDRs. The system pushes the EDR files via SPIO in the local context.

use-harddisk

Important The **use-harddisk** keyword is available only on the ASR 5500 chassis.

Specifies that on the ASR 5500 chassis the hard disk the FSC hard disk array be used to store EDR/UDR files. On configuring to use the hard disk for EDR/UDR storage, EDR/UDR files are transferred from DPCs to the hard disk array. Default: Disabled

+

Indicates that multiple keywords can be specified in a single command entry. When the "+" appears in the syntax, any of the keywords that appear prior to the "+" can be entered in any order.

push-count *push_count*

Specifies the number of EDR/CDR/UDR files transferred in each EDR/UDR push SFTP session. Default value is "1". push_count is configured as an integer value between 1 and 32,inclusive.

Note When push_count is set to “1”, file transfer operation is functionally identical to legacy behavior.

Usage Guidelines

Use this command to configure how the EDRs are moved and stored.

On the ASR 5500 chassis, you must run this command only from the local context. If you run this command in any other context it will fail and result in an error message.

If PUSH transfer mode is configured, the external server URL to which the EDR files need to be transferred to must be specified. The configuration allows a primary and a secondary server to be configured. Configuring the secondary server is optional. Whenever a file transfer to the primary server fails for four consecutive times, the files will be transferred to the secondary server. The transfer will switch back to the original primary server when:

- Four consecutive transfer failures to the secondary server occur.
- After switching from the primary server, 30 minutes elapses.

When changing the transfer mode from pull to push, disable the PULL from the external server. Make sure that the push server URL configured is accessible from the local context. Also, make sure that the base directory that is mentioned contains udr directory created within it.

After changing the transfer mode from push to pull, enable external server for ASR 5500. Any of the ongoing PUSH activity will continue till all the scheduled file transfers are completed. If there is no PUSH activity going on at the time of this configuration change, all the PUSH related configuration is nullified immediately.

The **cdr use-harddisk** command is available only on the ASR 5500 chassis. This command can be run only in a context where CDRMOD is running. Configuring in any other context will result in failure with the message *"Failure: Please Check if CDRMOD is running in this context or not."*

The **cdr use-harddisk** command can be configured either in the EDR or UDR module, but will be applicable to both record types. Configuring in one of the modules will prevent the configuration to be applied in the other module. Any change to this configuration must be done in the module in which it was configured, the change will be applied to both record types.

The VPNMgr can send a maximum of 4000 files to the remote server per iteration. However if the individual file size is big (say when compression is not enabled), then while transferring 4000 files SFTP operation takes a lot of time. To prevent this, the **cdr transfer-mode push** command can be configured with the keyword **max-files**, which allows operators to configure the maximum number of files sent per iteration based on configured file size.

Example

The following command retains a copy of the data file after it has been transferred to the storage location:

no cdr remove-file-after-transfer

end

Exits the current configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description **end**

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description **exit**

Usage Guidelines Use this command to return to the parent configuration mode.

file

This command allows you to configure EDR file parameters.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > EDR Module Configuration

configure > context *context_name* **> edr-module active-charging-service**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-edr)#`

Syntax Description

file [charging-service-name { include | omit }] [compression { gzip | none }] [current-prefix *string* **] [delete-timeout** *seconds* **] [directory** *directory_name* **] [edr-format-name] [exclude-checksum-record] [field-separator { hyphen | omit | underscore }] [file-sequence-number rulebase-seq-num] [headers] [name** *file_name* **] [reset-indicator] [rotation [num-records** *number* **| tariff-time minute** *minute_value* **hour** *hour_value* **| time** *seconds* **| volume** *bytes* **]] [sequence-number { length** *length* **| omit | padded | padded-six-length | unpadded }] [storage-limit** *limit* **] [single-edr-format] [time-stamp { expanded-format | rotated-format | unix-format }] [trailing-text** *string* **] [trap-on-file-delete] [unique-seq-num] [xor-final-record] +**
default file [charging-service-name] [compression] [current-prefix] [delete-timeout] [directory] [edr-format-name] [field-separator] [file-sequence-number] [headers] [name] [reset-indicator] [rotation { num-records | tariff-time | time | volume }] [sequence-number] [storage-limit] [time-stamp] [trailing-text] [unique-seq-num] +

default

Configures the default setting for the specified keyword(s).

charging-service-name { include | omit }

Specifies to include/exclude name of the charging service in the file name.

- **include**: Include name of the charging service in the EDR file name.
- **omit**: Exclude name of the charging service in EDR file name.

compression { gzip | none }

Specifies compression of EDR files.

- **gzip**: Enables GNU zip compression of the EDR file at approximately 10:1 ratio.
- **none**: Disables Gzip compression.

current-prefix *string*

Specifies a string to add to the beginning of the EDR file that is currently being used to store EDR records.

string must be an alphanumeric string of 1 through 31 characters.

Default: **curr**

delete-timeout *seconds*

Specifies a timeout period (in seconds) when completed EDR files are deleted. By default, files are never deleted.

seconds must be an integer from 3600 through 31536000.

Default: Disabled

directory *directory_name*

Specifies a subdirectory in the default directory in which to store EDR files.

directory_name must be an alphanumeric string of 1 through 191 characters.

Default: **/records/edr**

edr-format-name

Specifies creation of separate files for EDRs that have different formats. Name of the EDR format is included in the file name.

exclude-checksum-record

When entered, this keyword excludes the final record containing #CHECKSUM followed by the 32-bit Cyclic redundancy check (CRC) of all preceding records from the EDR file.

Default: Disabled (inserts checksum record into the EDR file header)

field-separator [hyphen | omit | underscore]

Specifies the field inclusion/exclusion type of separators between two fields of EDR file name:

- **hyphen**: Specifies to use "-" (hyphen) as the field separator.
- **omit**: Excludes the field separator.
- **underscore**: Specifies to use "_" (underscore) as the field separator.

file-sequence-number rulebase-seq-num

Specifies that the file name sequence numbers must be unique per rulebase and EDR format name combination.

headers

Includes a file header summarizing the record layout.

name *file_name*

Specifies a string to be used as the base file name for EDR files.

Default: **edr**

file_name must be an alphanumeric string of 1 through 31 characters. The file name format is as follows:

base_rulebase_format_sequencenum_timestamp

- *base*: Specifies the type of record in file or contains the operator-specified string.

  Default: edr

- *rulebase*: Specifies the name of the ACS rulebase. EDRs from different rulebases go into different EDR files.
- *format*: Specifies the name of the EDR format if **single-edr-format** is specified, else the format field (and the trailing underscore) is omitted from the file name.

- *sequencenum*: This is a 5-digit sequence number to detect the missing file sequence. It is unique among all EDR files on the system.
- *timestamp*: Contains a timestamp based on file creation time in UTC time in MMDDYYYYHHMMSS format.

EDR files that have not been closed have a string added to the beginning of their filenames.

Filename for an EDR file in CSV format that contains information for rulebase named *rulebase1* and an EDR schema named *edr_schema1* appears as follows:

edr_rulebase1_edr_schema1_00005_01302006143409

If the file name is not configured the system will create files for EDRs/UDRs/FDRs (xDRs) using the following template with limits to 256 characters:

basename_ChargSvcName_timestamp_SeqNumResetIndicator_FileSeqNumber

- *basename*: A global-based configurable text string that is unique per system that uniquely identifies the global location of the system running ACS.
- *ChargSvcName*: A system context-based configurable text string that uniquely identifies a specific context-based charging service
- *timestamp*: Date and time at the instance of file creation. Date and time in the form of "MMDDYYYYHHmmSS" where HH is a 24-hour value from 00-23
- *SeqNumResetIndicator*: A one-byte counter used to discern the potential for duplicated FileSeqNumber with a range of 0 to 255, which is incremented by a value of 1 for the following conditions:
  - Failure of an ACS software process on an individual PAC/PSC.
  - Failure of the system such that a second system takes over. For example, a backup or standby system put in place according to Interchassis Session Recovery.
  - File Sequence Number (FileSeqNumber) rollover from 999999999 to 0
- *FileSeqNumber*: Unique file sequence number for the file with 9 digit integer having range from 000000000 to 999999999. It is unique on each system.

File name for a closed xDR file in CSV format that contains information for ACS system *xyz_city1* and charging service name *preapaid2* with timestamp *12311969190000*, and file sequence number counter reset indicator to *002* for file sequence number *034939002* appears as follows:

xyz_city1_preapaid2_12311969190000_002_034939002

File name for a running xDR file, not closed, in CSV format that contains information for the same parameters for file sequence number *034939003* prefixed with *curr_* and appears as follows:

curr_xyz_city1_preapaid2_12311969190000_002_034939002

Important When the "rulebase name" and "edr-format-name" options are enabled through this **file** command, if the "field-separator" value is "underscore" (default value) then, in the filename, the fields Rulebase name and EDR format name will be separated by "hyphen". If the "field-separator" value is "hyphen" then, in the filename, the fields Rulebase name and EDR format name will be separated by "underscore". This will ensure that the number of the fields in the filename is not increased and does not affect the backend billing system.

reset-indicator

Specifies inclusion of the reset indicator counter value, from 0 through 255, in the EDR file name, and is incremented (by one) whenever any of the following conditions occur:

- An ACSMgr/SessMgr process fails.
- A peer chassis has taken over in compliance with our Interchassis Session Recovery feature.
- The sequence number, see the **sequence-number** keyword, has rolled over to zero.

rotation { num-records *number* | tariff-time minute *minute_value* hour *hour_value* | time *seconds* | volume *bytes* }

Specifies when to close an EDR file and create a new one.

- **num-records** *number*: Specifies the number of records that should be added to the file. When the number of records in the file reaches the specified value, the file is complete.

  number must be an integer from 100 through 10240.

  Default: 1024

- **time** *seconds*: Specifies the period of time (in seconds) to wait before closing the EDR file and creating a new one.

  seconds must be an integer from 30 through 86400.

  Default: 3600

- **tariff-time minute** *minute_value* **hour** *hour_value*: Specifies the time of day (hour and minute) at which the files are rotated once per day.

  minute_value is an integer value from "0" up to "59".

  hour_value is an integer value from "0" up to "23".

  Important The options **time** and **tariff-time** are mutually exclusive and only any one of them can be configured. Other file rotation options can be used with either of them.

- **volume** *bytes*: Specifies the maximum size (in bytes) of the EDR file before closing it and creating a new one.

  bytes must be an integer from 51200 through 62914560.

  Note that a higher setting may improve the compression ratio when the compression keyword is set to gzip.

sequence-number { length *length* | omit | padded | padded-six-length | unpadded }

Specifies including/excluding sequence number in the file name.

- **length** *length*: Includes the sequence number with the specified length.

  length must be the length of the file sequence number, with preceding zeroes, in the file name, and must be an integer from 1 through 9.

Important The **length** keyword is applicable in both EDR and UDR modules. When applied in both modules without the **file udr-seq-num** configuration, the minimum among the two values will come into effect for both the modules. With the **file udr-seq-num** keyword, each module will use its own value of length.

- **omit**: Excludes the sequence number from the file name.
- **padded**: Includes the padded sequence number with preceding zeros in the file name. This is the default setting.
- **padded-six-length**: Includes the padded sequence number with six preceding zeros in the file name.
- **unpadded**: Includes the unpadded sequence number in the file name.

single-edr-format

Creates separate files for EDRs having different formats.

Default: Disabled

storage-limit *limit*

Specifies deleting files when the specified amount of space (in bytes) is used up for EDR/UDR file storage RAM on packet processing cards.

The *limit* must be an integer from 10485760 through 536870912. Default: 33554432

Important The total storage limit is 536870912 bytes (512 MB). This limit is for both UDR and EDR files combined.

time-stamp { expanded-format | rotated-format | unix-format }

Specifies the timestamp of when the file was created be included in the file name.

- **expanded-format**: Specifies the UTC MMDDYYYYHHMMSS format.
- **rotated-format**: Specifies the time stamp format to YYYYMMDDHHMMSS format.
- **unix-format**: Specifies the UNIX format of *x.y*, where *x* is the number of seconds since 1/1/1970 and *y* is the fractional portion of the current second that has elapsed.

trailing-text *string*

Specifies the inclusion of an arbitrary text string in the file name.

string must be an alphanumeric string of 1 through 30 characters.

trap-on-file-delete

Instructs the system to send an SNMP notification (starCDRFileRemoved) when an EDR/UDR file is deleted due to lack of space.

Default: Disabled

unique-seq-num

Specifies that the file sequence numbers that are part of the EDR file names be independently generated. If disabled, a single set of sequence numbers are shared by both UDR and EDR files.

Default: Disabled

xor-final-record

Specifies inserting an XOR checksum (in place of the CRC checksum) into the EDR file header if the **exclude-checksum-record** is left at its default setting.

Default: Disabled

+

Indicates that multiple keywords can be specified in a single command entry. When the "+" appears in the syntax, any of the keywords that appear prior to the "+" can be entered in any order.

Usage Guidelines

Use this command to configure EDR file characteristics.

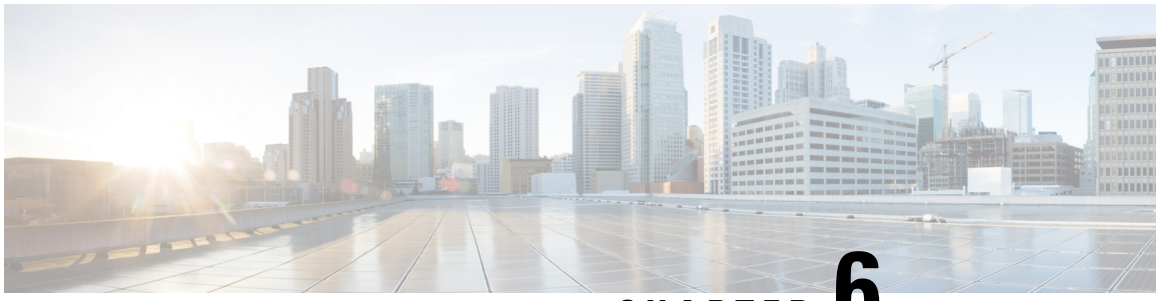
Example

The following command sets the prefix of the current active EDR file to *Current*:

```
file current-prefix Current
```

The following command sets the base file name to *EDRfile*:

```
file name EDRfile
```



CHAPTER 6

eGTP Service Configuration Mode Commands

The eGTP Service Configuration Mode is used to create and manage Evolved GPRS Tunneling Protocol (eGTP) interface types and associated parameters.

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context *context_name* **> egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

Important The commands should be added or removed in the startup config only and not when the node is live.

associate

Configures an association with a GTP-U service where parameters are applied to the GTP-U data flow. For an SGSN being configured for S4 functionality, this command associates a configured GTP-U service that will enable communication with the SGW over the S4 interface.

Product

ePDG

P-GW

SAEGW

SGSN

SaMOG

Important For StarOS releases prior to 16, the ePDG and SGSN are only supported on the ASR 5500 platform.

Important It is recommended to execute the S4 SGSN configuration commands during the maintenance window. After configuring the node, re-start the node to activate the configuration commands. This will ensure that the node is in a consistent state and S4 SGSN service instability scenarios are avoided.

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context *context_name* **> egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Syntax Description

associate gtpu-service *name*
no associate gtpu-service

no

Removes the association to the configured GTP-U service from this service.

gtpu-service *name*

Associates a GTP-U service with this eGTP service. *name* must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to associate a GTP-U service with this eGTP service.

Important If you modify this command, the parent service (service within which the eGTP/GTP-U service is configured) will automatically restart. Service restart results in dropping of active calls associated with the parent service.

Example

The following command associates this eGTP service with a GTP-U service named *gtpu3*:

associate gtpu-service gtpu3

allow-lte-m-rat

Enables **lte-m-rat** as a new RAT type.

Product

ePDG

P-GW

SAEGW

Important For StarOS releases prior to 16, the ePDG and SGSN are only supported on the ASR 5500 platform.

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context *context_name* **> egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-egtp-service)#`

Syntax Description

```
allow-lte-m-rat
[ no ] gtpc node-feature lte-m
```

no

Disables the LTE-M configuration.

gtpc node-feature lte-m

The **gtpc node-feature lte-m** CLI command is disabled by default.

Usage Guidelines

Use this command to enable LTE-M as new RAT type.

collision-handling

Enables operators to configure the behavior of the P-GW for collision handling of the Delete Bearer command (DBcmd) message when the Modify Bearer Request (MBreq) message for the default bearer is pending at the P-GW or S-GW.

Product

P-GW

S-GW

Privilege

Administrator, Security Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context *context_name* **> egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Syntax Description

collision-handling dbcmd-over-mbreq { drop | queue }
[default | no] collision-handling dbcmd-over-mbreq

default

Returns the collision handling for the DBcmd over MBReq transaction to the default behavior. The default behavior is to use pre-StarOS 19.0 behavior: abort the MBReq message and handle the DBcmd message.

no

Disables collision handling for the **dbcmd-over-mbreq** transaction.

collision-handling

Enables collision handling for the **dbcmd-over-mbreq** transaction.

drop

Configures the P-GW to drop the DBcmd message when the MBreq message is pending.

queue

Configures the P-GW to queue the DBcmd message when the MBreq is message is pending.

Usage Guidelines

Use this command when you want more flexibility in configuring the behavior of the P-GW for collision handling of the Delete Bearer command (DBcmd) message when the Modify Bearer Request (MBreq) message for the default bearer is pending at the P-GW.

An EGTP service must be configured in EGTP Service Configuration Mode in order to use this command.

Example

This command configures the P-GW to queue the DBcmd message when the MBreq is message is pending.

collision-handling dbcmd-over-mbreq queue

cups-enabled

Important This command is available in this release only for testing purposes. For more information, contact your Cisco Account representative.

Configures eGTPC service with CUPS mode that is applicable only for SAEGW service.

Product

SAEGW

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context *context_name* **> egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Syntax Description

[no] cups-enabled*name*

no

Removes the association to the configured GTP-U service from this service.

Usage Guidelines

The following services should be in STARTED state, and associated under SAEGW service for SAEGW service to move to STARTED state:

1. All eGTPC services should be configured with cups-enabled CLI.
   - S-GW Ingress Service (which is configured as part of SAEGW S-GW Service)
   - S-GW Egress Service (which is configured as part of SAEGW S-GW Service)
   - P-GW Ingress Service (which is configured as part of SAEGW P-GW Service)
2. Other dependent Services like:
   - Sx Service
   - GTP-U Service

There is no requirement to configure GTP-U service under eGTPC service, in case **cups-enabled** CLI is enabled. If GTP-U service is configured along with cups-enabled CLI, then it will not have any affect.

There is no change in non-CUPS behavior.

Any variation in the above mentioned configuration of SAEGW service will not get the Service in STARTED state. The same would be displayed in **show configuration errors** CLI command.

The **show egtp-service all** for eGTPC and **show saegw-service all** for SAEGW will display if the services are CUPS enabled.

The **cups-enabled** CLI command must not be used for standalone P-GW and S-GW service.

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description **exit**

Usage Guidelines Use this command to return to the parent configuration mode.

gtpc

Configure the GPRS Tunneling Protocol Control (GTP-C) plane settings for this service.

Product ePDG

MME

P-GW

S-GW

SAEGW

SaMOG

SGSN

Privilege Administrator

Command Modes Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context *context_name* **> egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Syntax Description

```
gtpc { allow-on-congestion { apn-name apn_name | arp priority_level } | bind
 { ipv4-address ipv4_address [ ipv6-address ipv6_address ] | ipv6-address
ipv6_address [ ipv4-address ipv4_address ] }  | command-messages {
dual-ip-stack-support } | disable cause-source | echo-interval seconds [
dynamic [ smooth-factor multiplier ] ] echo-max-retransmissoins number |
echo-retransmission-timeout seconds | error-response-handling |
peer-salvation | ip qos-dscp { forwarding_type |
max-remote-restart-counter-change integer } | max-retransmissions num |
node-feature {  cellular-iot network-triggered-service-restoration |
pgw-restart-notification } | path-failure detection-policy { echo |
control-restart-counter-change | echo-restart-counter-change } |
```

private-extension overcharge-protection | reject s2b-ho-no-context | retransmission-timeout *seconds* **| retransmission-timeout-ms** *milliseconds* **}**
no gtpc { allow-on-congestion { apn-name *apn_name* **| arp** *priority_level* **} | bind { ipv4-address** *ipv4_address* [ipv6-address *ipv6_address*] **| ipv6-address** *ipv6_address* **[ipv4-address** *ipv4_address*] **} | command-messages { dual-ip-stack-support } | disable cause-source | echo-interval | error-response-handling | node-feature { cellular-iotnetwork-triggered-service-restoration | pgw-restart-notification } | path-failure detection-policy | private-extension overcharge-protection | reject s2b-ho-no-context }**
default gtpc disable cause-source |{ echo-interval | echo-max-retransmissons | echo-retransmission-timeout disable cause-source| ip qos-dscp | max-retransmissions | node-feature { cellular-iot network-triggered-service-restoration | pgw-restart-notification } | path-failure detection-policy | retransmission-timeout | retransmission-timeout-ms }

no

Disables or removes the configured GTP-C setting.

default

Resets the specified parameter to its default value.

allow-on-congestion { apn-name *apn_name* | arp *priority_level* }

Important ***P-GW, SAEGW, and S-GW only***. This functionality requires that a valid VoLTE license key be installed. Contact your Cisco account representative for information on how to obtain a license.

Enables the prioritized handling for calls under congestion conditions for the specified APN/ARP(s).

- If prioritized APN/ARP handling is enabled, and if the APN/ARP received in a CSReq at the EGTP demux matches any of the configured prioritized APN/ARP values, any valid CSReq will not be rejected at EGTP demux because of congestion control.
- This feature impacts only CSReq handling for new incoming calls.
- P-GW initiated dedicated bearer creation/updating is not changed due to this configuration.

apn-name *apn_name*: Configures the gateway to allow calls for this Access Point Name (APN), even under congestion. *apn_name* is an alphanumeric string of 1 through 64 characters. A maximum of 3 APNs can be configured.

arp *priority_level*: Configures the gateway to allow calls for this ARP, even under congestion. *priority_level* sets the priority value as an integer from 1 to 15. A maximum of 8 ARP values can be configured.

Important There is no APN-to-ARP mapping.

bind { ipv4-address *ipv4_address* [ipv6-address *ipv6_address*] | ipv6-address *ipv6_address* [ipv4-address *iv4p_address*] }

Binds the service to an interface with IPv4 address, IPv6 address, or both.

ipv4-address *ipv4_address* **[ipv6-address** *ipv6_address* **]**: Binds this service to the IPv4 address of a configured interface. Optionally, bind the service to a configured interface with an IPv6 address.

ipv4_address must be entered using IPv4 dotted-decimal notation.

ipv6_address must be entered using IPv6 colon-separated hexadecimal notation.

ipv6-address *ipv6_address* **[ipv4-address** *ipv4_address* **]**: Binds this service to the IPv6 address of a configured interface. Optionally, bind the service to a configured interface with an IPv4 address.

ipv6_address must be entered using IPv6 colon-separated hexadecimal notation.

ipv4_address must be entered using IPv4 dotted-decimal notation.

Important For binding GTP-C service on S2b interface, either IPv6 or IPv4 bind address shall be used. Binding both IPv4 and IPv6 address is not supported on ePDG.

The **ipv6-address** *ipv6_address* **[ipv4-address** *ipv4_address* **]** option is not currently supported on the SGSN.

cellular-iot

Enables the Cellular IoT features supported for eGTP Service.

command-messages dual-ip-stack-support

command-messages: Configuration related to MBC/DBC/BRC messages on S-GW and P-GW.

dual-ip-stack-support: Enables to handle command messages on both IPv4/IPv6 transport if supported. By default feature is enabled.

disable cause-source

disable: Disables functionality at eGTPC level.

cause-source: Disables cause source Bit in Cause IE.

echo-interval *seconds* [dynamic [smooth-factor *multiplier*]]

Configures the duration (in seconds) between the sending of echo request messages. *seconds* is an integer from 60 to 3600.

Default: 60

dynamic: Enables the dynamic echo timer for the eGTP service. The dynamic echo timer uses a calculated round trip timer (RTT) to support variances in different paths to peer nodes.

smooth-factor *multiplier*: Introduces a multiplier into the dynamic echo timer. *multiplier* is an integer from 1 to 5.

Default: 2

max-remote-restart-counter-change *integer*

Specifies the counter change after which the P-GW will detect a peer restart. Note that a peer restart will be detected only if the absolute difference between the new and old restart counters is less than the value configured. For example, if the **max-remote-restart-counter-change** is 10 and the current peer restart counter is 251, then eGTP will detect a peer restart only if the new restart counter is 252 through 255 or 0 through 5. Similarly, if the stored restart counter is 1, eGTP will detect a peer restart only if the new restart counter is 2 through 11.

Valid settings are from 1 to 255.

The recommended setting is 32.

The default setting is 255.

echo-max-retransmissions *number*

Configures the maximum retries for GTP Echo requests. *number* is an integer from 0 to 15. If **echo-max-retransmissions** option is not configured, then the **max-retransmissions** configuration will be used for maximum number of echo retries.

Default: 4

echo-retransmission-timeout *seconds*

Configures the echo retransmission timeout, in seconds, for the eGTP service. *seconds* is an integer ranging from 1 to 20.

If dynamic echo is enabled (**gtpc echo-interval dynamic**) the value set in this command serves as the dynamic minimum (if the RTT multiplied by the smooth factor is less than the value set in this command, the service uses this value).

Default: 3

error-response-handling

Enables error-response-handling on the S-GW. If this command is enabled in the eGTP service, then on receiving a bad response from the peer instead of dropping the message while doing validation eGTP-C informs the S-GW about the bad response received. The S-GW uses this notification from eGTP-C that a bad response is received to send a proper response to the other peer.

peer-salvation

Enables peer salvation for inactive GTPv2 peers for EGTP services in this context. When enabled, this functionality is enabled at the specific egtp-service level.

This functionality should be enabled at the context level if it is enabled at the egtp-service level. The configuration sequence is not dependent on enabling this functionality.

The parameter configured at the context level is used when peer-salvation is enabled. Ensure that peer-salvation is configured at all the configured services of a product. For example, sgw-services (egtp-service).

Note

- The parameter configured at the context level is used when peer-salvation is enabled. Ensure that peer-salvation is configured at all the configured services of a product. For example, sgw-services (egtp-service).
- All the information (peer statistics/recovery counter and so on) of the particular peer is lost after it is salvaged.
- The context level configuration is applied to egtpinmgr and egtpegmgr separately.

ip qos-dscp { *forwarding_type* }

Specifies the IP QoS DSCP per-hop behavior (PHB) to be marked on the outer header of signalling packets originating from the LTE component. This is a standards-based feature (RFC 2597 and RFC 2474).

Note that CS (class selector) mode options below are provided to support backward compatibility with the IP precedence field used by some network devides. CS maps one-to-one to IP precedence, where CS1 is IP precedence value 1. If a packet is received from a non-DSCP aware router that used IP precedence markings, then the DSCP router can still understand the encoding as a Class Selector code point.

The following forwarding types are supported:

- **af11**: Designates the use of Assured Forwarding 11 PHB.

  This is the default setting.
- **af12**: Designates the use of Assured Forwarding 12 PHB.
- **af13**: Designates the use of Assured Forwarding 13 PHB.
- **af21**: Designates the use of Assured Forwarding 21 PHB.
- **af22**: Designates the use of Assured Forwarding 22 PHB.
- **af23**: Designates the use of Assured Forwarding 23 PHB.
- **af31**: Designates the use of Assured Forwarding 31 PHB.
- **af32**: Designates the use of Assured Forwarding 32 PHB.
- **af33**: Designates the use of Assured Forwarding 33 PHB.
- **af41**: Designates the use of Assured Forwarding 41 PHB.
- **af42**: Designates the use of Assured Forwarding 42 PHB.
- **af43**: Designates the use of Assured Forwarding 43 PHB.
- **be**: Designates the use of Best Effort forwarding PHB.
- **cs1**: Designates the use of Class Selector code point "CS1".
- **cs2**: Designates the use of Class Selector code point "CS2".
- **cs3**: Designates the use of Class Selector code point "CS3".
- **cs4**: Designates the use of Class Selector code point "CS4".

- **cs5**: Designates the use of Class Selector code point "CS5".
- **cs6**: Designates the use of Class Selector code point "CS6".
- **cs7**: Designates the use of Class Selector code point "CS7".
- **ef**: Designates the use of Expedited Forwarding PHB typically dedicated to low-loss, low-latency traffic.

The assured forwarding behavior groups are listed in the table below.

	Class 1	Class 2	Class 3	Class 4
Low Drop	AF11	AF21	AF31	AF41
Medium Drop	AF12	AF22	AF32	AF42
High Drop	AF13	AF23	AF33	AF43

Traffic marked with a higher class is given priority during congestion periods. If congestion occurs to traffic with the same class, the packets with the higher AF value are dropped first.

max-retransmissions *num*

Configures the maximum number of retries for packets as an integer from 0 through 15.

After maximum retransmissions is reached, the path is considered to be failed.

Default: 4

node-feature pgw-restart-notification

Enables P-GW Restart Notification functionality. Node will start announcement of new supported features to peer nodes in echo as soon as configuration is added.

From release 17.0 onwards, the S4-SGSN and MME support receiving/advertising the P-GW Restart Notification (PRN). This command option must be configured in order to inform S-GW that S4-SGSN and/or MME supports receiving/advertising the PRN in eGTPC echo request/response messages.

Default: Disabled

node-feature network-triggered-service-restoration

This keyword applies to MME and S-GW only.

Enables Network Triggered Service Restoration (NTSR) functionality as per 3GPP TS 23.007 Release 11 for this eGTP service.

Upon receipt of a Downlink Data Notification (DDN) message including an IMSI, the MME will accept the request and initiate paging including the IMSI in order to force the UE to re-attach. IMSI-based DDN requests contain a zero TEID. Since the UE is not attached, the UE will be paged over the whole MME coverage area.

A different MME may be selected by the eNodeB to service the attach request. Since the MME that serviced the DDN will not be aware that the UE has responded with the attach request, it will stop paging upon a timeout.

path-failure detection-policy echo

Enables session cleanup upon path failure detected via ECHO timeout toward a peer.

Default: Enabled

If disabled, there is no session cleanup upon path failure detected via ECHO timeout toward a peer; however, SNMP trap/logs will continue to indicate path failure.

path-failure detection-policy control-restart-counter-change

Enables path failure detection policy when the restart counter in Echo Request/Echo Response messages changes. Used in conjunction with the **max-remote-restart-counter-change** command.

path-failure detection-policy echo-restart-counter-change

Enables path failure detection policy when the restart counter in Control Request/Control Response messages changes. Used in conjunction with the **max-remote-restart-counter-change** command.

private-extension overcharge-protection

Important From StarOS 19.0 and later releases, this command is obsolete.

Important Use of Overcharging Protection requires that a valid license key be installed. Contact your Cisco account representative for information on how to obtain a license.

Controls whether the PDU will contain overcharge-protection related data in the Indication information element or in the private extension.

- If this keyword is enabled in the eGTP service, then eGTP-C will encode/decode overcharge-protection related data in/from the private extension instead of the Indication IE.
- If this option is disabled in the eGTP service, then the eGTP-C layer will encode/decode overcharge-protection related data in the Indication IE.
- By default, this option is disabled.

reject s2b-ho-no-context

Allows handoff call on S2b interface, even when eGTP-C does not have a UE context.

retransmission-timeout *seconds*

Important In 17.3 and later releases, this option has been deprecated. Use the **retransmission-timeout-ms** option.

Configures GTPv2 control packets (non-echo) retransmission timeout (in seconds) as an integer from 1 to 20.

Default: 5

retransmission-timeout-ms *milliseconds*

Configures the control packet retransmission timeout in GTP, in milliseconds <in steps of 100>, ranging from 1000 to 20000.

Default: 5000

Usage Guidelines

Use this command to configure GTP-C settings for the current service.

This interface assumes the characteristics of an S11 reference point on the S-GW or MME.

For communication between the S4-SGSN and LTE S-GW, the interface assumes the characteristics of an S4 reference point on the S4-SGSN. Before using the **gtpc** command on the S4-SGSN, a new or existing service must be created or entered using the **egtp-service** command in the *Context Configuration Mode*. Once the eGTP service is configured, the service must be associated with the configured 2G and/or 3G services on the S4-SGSN using the **associate** command in the *SGSN Service Configuration Mode* and/or *GPRS Service Configuration Mode.*

Important If you modify this command, the parent service (service within which the eGTP/GTP-U service is configured) will automatically restart. Service restart results in dropping of active calls associated with the parent service.

Important For ePDG, IPv6 bind address must be used as ePDG supports IPv6 as transport on the S2b interface.

Example

The following command binds the service to a GTP-C interface with an IPv4 address of *112.104.215.177*:

```
gtpc bind ipv4-address 112.104.215.177
```

interface-type

Configures the interface type used by this service.

Product

ePDG

MME

P-GW

SAEGW

S-GW

SaMOG

SGSN

Important It is recommended to execute the S4 SGSN configuration commands during the maintenance window. After configuring the node, restart the node to activate the configuration commands. This will ensure that the node is in a consistent state and S4 SGSN service instability scenarios are avoided.

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context *context_name* **> egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Syntax Description

```
interface-type { interface-cgw-egress | interface-epdg-egress |
interface-mme | interface-pgw-ingress [ s2a ] [ s2b ] | interface-sgsn |
 interface-sgw-egress | interface-sgw-ingress }
```

interface-cgw-egress

Specifies the SaMOG Gateway's EGTP interface for egress.

interface-epdg-egress

Specifies that the interface has the characteristics of an ePDG's egress EGTP interface.

interface-mbms-egress

This keyword is for future development.

interface-mme

Specifies that the interface has the characteristics of an eGTP MME S11 reference point to/from an S-GW or an eGTP MME Sv reference point to/from a Mobile Switching Center (MSC).

interface-pgw-ingress [s2a] [s2b]

Specifies that the interface has the characteristics of an eGTP P-GW S5/S8 reference point from an S-GW. The interface assumes the characteristics of either a GTP-C (control Plane) or GTP-U (user plane) reference point.

- **s2a**: P-GW supports the S2a interface. SAEGW does not support the S2a interface at this time.
- **s2b**: P-GW supports the S2b interface. S2b interface support is available on the SAEGW in 18.2 and later releases.

Note The **S2a** and **S2b** keywords will be available only if a valid license is installed. For more information, contact your Cisco account or support representative.

interface-sgsn

Specifies that the interface has the characteristics of an eGTP S-GW S4 reference point to/from an SGSN. On an S4-SGSN, this option specifies that the eGTP service is used for an S4-SGSN and gives the service the characteristics required for messaging towards an S-GW (S4) / MME (S3) / S4-SGSN (S16).

interface-sgw-egress

Specifies that the interface has the characteristics of an eGTP S-GW S5/S8 reference point to an eGTP P-GW. The interface assumes the characteristics of either a GTP-C (control Plane) or GTP-U (user plane) reference point.

interface-sgw-ingress

Specifies that the interface has the characteristics of:

- An eGTP-C S-GW S11 reference point from the MME.
- An eGTP-U S-GW S1-U reference point from the eNodeB.

Usage Guidelines

Use this command to specify the type of interface that this service uses. By configuring this command, the interface takes on the characteristics of the selected type.

Disable specific interface support for P-GW by entering the following command:

```
interface-type interface-pgw-ingress
```

Important If you modify this command, the parent service (service within which the eGTP/GTP-U service is configured) will automatically restart. Service restart results in dropping of active calls associated with the parent service.

Example

The following command configures the interface bound to this service to maintain the characteristics of an eGTP-C S-GW S11 reference point from an MME:

```
interface-type interface-sgw-ingress
```

The following command accepts or rejects Create Session Request (CSR) on GTP based S2a interface:

```
interface-type interface-pgw-ingress s2a
```

pool

This command enables the default S4-SGSN functionality for (flex) pooling and enables inclusion of the configured pool hop-counter count in new SGSN context/identity request messages. This command supports S4-SGSN pooling across the S16 interface. The S16 interface provides a GTPv2 path to a peer S4-SGSN.

Support for the S16 interface is provided as part of the S4 interface license. This command sets the S4-SGSN as the default SGSN within a pool. If the default S4-SGSN receives an inbound SGSN context request, it forwards it to the right SGSN in the pool based on the NRI bits of the P-TMSI.

Product

SGSN

Important It is recommended to execute the S4 SGSN configuration commands during the maintenance window. After configuring the node, restart the node to activate the configuration commands. This will ensure that the node is in a consistent state and S4 SGSN service instability scenarios are avoided.

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > **context** *context_name* > **egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Syntax Description

```
pool { default-sgsn | hop-counter count }
no pool default-sgsn
```

no

Disables the default SGSN pooling functionality or removes the SGSN pool hop-counter IE from the GTP Identity/context requests.

default-sgsn

Enables the default SGSN pooling functionality.

hop-counter *count*

Enables and configures the SGSN pool hop-counter to set the number of hops and to include the configured count in the **new** SGSN Context Requests or the **new** SGSN Identity Requests. *count* is an integer from 1 to 255.

If **default-sgsn** is enabled, then any messages relayed will have the default value of 4 for the counter if the message does not include this hop-counter ID.

Default: 4

Usage Guidelines

Use this command to enable the default flex functionality without exposing the pool (flex) structure. This functionality provides a means for SGSNs outside of the pool to reach a pooled SGSN on the basis of its NRI.

Once the pooling has been enabled, repeat the command using the **hop-counter** keyword to enable inclusion of the hop-counter IE in SGSN context/identity request messages and to configure the count for the pooling hop-counter. If the SGSN is behaving as the 'default SGSN', this SGSN will forward (relay) requests with the hop-count included to the target SGSN.

Example

The following command enables the default pooling functionality which allows an outside SGSN to reach a pooled SGSN:

```
pool default-sgsn
```

The following command sets *25* hops to be included in messages:

```
pool hop-count 25
```

ran-nas decode proto-type-spare cause-value-length

Configures the spare protocol types for the RAN/NAS IE. The cause value and length for the spare protocol type IE can also be configured.

Note

- This CLI configuration is supported only for the S2b interface.
- Spare protocol types are supported only for Failed Create Bearer Response/Failed Update Bearer Response messages.

Product

P-GW

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > **context** *context_name* > **egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-egtp-service)#`

Syntax Description

```
ran-nas decode proto-type-spare cause-value-length <1 | 2>
```

cause-value-length

Specifies the length of cause value to be decoded.

<1 | 2>

The cause length value can be 1 octet or octets. The default value is 2 octets.

Usage Guidelines

Use this command to specify the spare protocol types for the RAN/NAS IE. If there is a mismatch between length of cause value IE and configured CLI value, the IE is ignored.

Example

The following command sets the length of the cause value to be decoded.

```
ran-nas decode proto-type-spare cause-value-length 2
```

validation-mode

Configures the type of validation to be performed on messages received by this service.

Product

ePDG

P-GW

SAEGW

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > **context** *context_name* > **egtp-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-egtp-service)#
```

Syntax Description

```
validation-mode { custom1 | standard }
default validation-mode
```

default

Returns the command to the default setting.

Default: **standard**

{ custom1 | standard }

custom1: Specifies that the message should be validated based on a vendor-specific set of mandatory elements.

standard: Specifies that the message should be validated based on the set of mandatory elements as defined in 3GPP 29.274. This is the default option on an S4-SGSN.

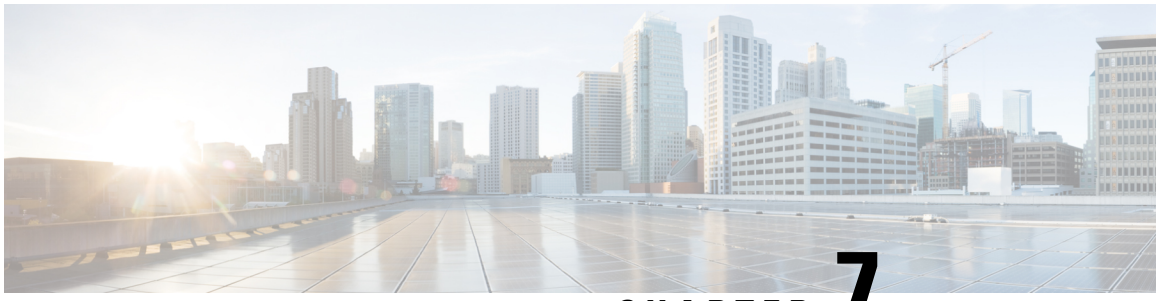
Usage Guidelines

Use this command to specify the type of validation performed on messages received by this service. The information elements contained in messages have mandatory elements and conditional elements. The standard set of elements, as defined by 3GPP 29.274 is checked if this command is set to **standard**. The **custom1** setting is for a vendor-specific set of mandatory elements.

Example

The following command sets the validation mode for incoming messages to *standard*:

```
validation-mode standard
```



CHAPTER 7

EDNS Configuration Mode Commands

The EDNS Configuration Mode enables configuring of EDNS fields and format.

Command Modes

Exec > ACS Configuration > EDNS Configuration

active-charging service *service_name* **> edns**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-acs-edns)#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

Important Commands under this mode are license controlled. Contact your Cisco account representative for detailed information on specific licensing requirements.

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.

fields

This command allows you to enable or disable EDNS Fields Configuration Mode.

Product

P-GW

SAEGW

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDNS Configuration

active-charging service *service_name* **> edns**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edns)#`

Syntax Description

fields *fields_name*
no edns-fields

no

If previously configured, deletes the specified EDNS Fields mode from the EDNS mode.

edns-fields

Defines EDNS fields tag value and enters the edns-fields mode.

Usage Guidelines

Use this command to configure EDNS fields.

On entering this command, the CLI prompt changes to:

[*context_name*]*hostname*(config-acs-edns-fields)#

Also see the *EDNS Fields Configuration Mode Commands* chapter.

Example

The following command enables EDNS Fields Configuration Mode:

edns-fields

The following command disables EDNS Fields Configuration Mode:

no edns-fields

format

This command allows you to enable or disable EDNS Format Configuration Mode.

Product

P-GW

SAEGW

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDNS Configuration

active-charging service *service_name* **> edns**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edns)#`

Syntax Description

format *format_name*
no format *format_name*

no

If previously configured, deletes the specified EDNS Format mode from the EDNS mode.

edns-format

Enables EDNS format configuration.

format_name

Defines the name of EDNS field or EDNS format.

Usage Guidelines

Use this command to configure EDNS fields.

On entering this command, the CLI prompt changes to:

[*context_name*]*hostname*(config-acs-edns-format)#

Also see the *EDNS Format Configuration Mode Commands* chapter.

Example

The following command enables EDNS Format Configuration Mode:

edns-format f1

The following command disables EDNS Format Configuration Mode:

no edns-format f1

security-profile

This CLI command allows you to configure the security profile in EDNS to add mapping with the device-id.

Product

P-GW

SAEGW

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDNS Configuration

active-charging service *service_name* **> edns**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-acs-edns)#
```

Syntax Description

security-profile *security_profile_name*
no security-profile *security_profile_name*

no

If added previously, removes the security-profile configuration.

security-profile

Defines the security profile configuration in the EDNS to add mapping with the device-id.

security_profile_name

Defines the name of the security profile. This is a string of size 1 to 50.

device-id

Defines the device-id to map to an EDNS profile.

device_id_name

Defines the device id name. This is a string of size 1 to 50.

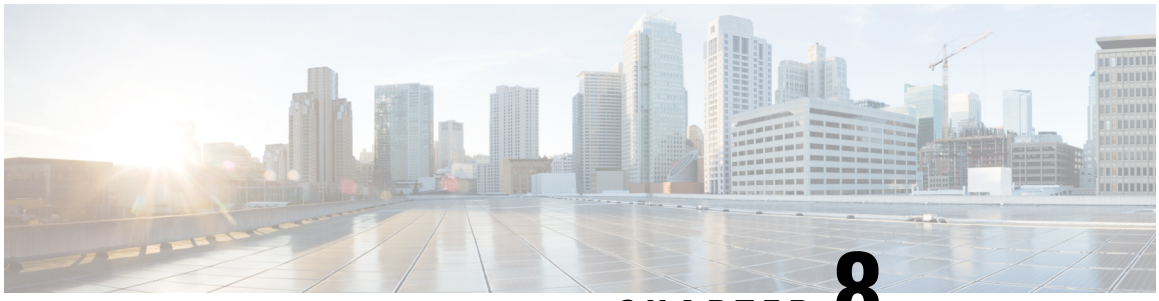
Usage Guidelines

Use this CLI command to configure the security profile in EDNS to add mapping with the device-id.

Example

The following is an example of this command:

```
security-profile s1
```



CHAPTER 8

EDNS Fields Configuration Mode Commands

The EDNS Fields Configuration Mode enables configuring EDNS Fields tag value.

Command Modes

Exec > ACS Configuration > EDNS > EDNS Fields Configuration

active-charging service *service_name* **> edns > fields** *fields_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edns-fields)#`

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

Important Commands under this mode are license controlled. Contact your Cisco account representative for detailed information on specific licensing requirements.

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.

tag

This command allows you to configure a comma or a tab as a delimiter character for EDRs.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDNS > EDNS Fields Configuration

active-charging service *service_name* **> edns > edns-fields** *fields_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edns)#`

Syntax Description

tag { val { imsi | msisdn | pgw-address | apn-name } { encrypt } } | default device-id }
no tag

no

Removes the tag value for EDNS fields.

tag

Defines tag value for EDNS fields

val

Defines tag value for EDNS fields. This is an integer value between 1 and 65535. Tag value will be of 2 bytes.

imsi

Defines the imsi of the subscriber.

msisdn

Defines the msisdn of the subscriber.

pgw-address

Defines the address of the node.

default

Defines the standard opt-code value.

apn-name

Defines the access point name of the subscriber connected to.

device-id

Defines device-id learned during registration.

encrypt

Encrypts the subscriber traffic. This option is available for imsi and msisdn only.

Important If encoding of any of the fields fails, EDNs insert will not happen.

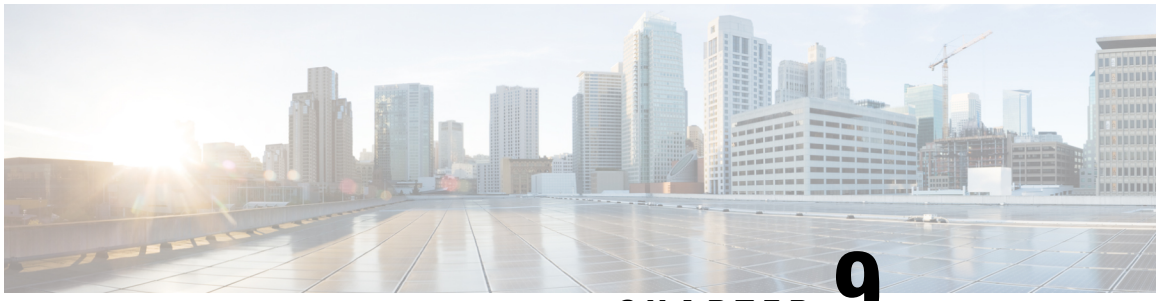
Usage Guidelines

Use this command to configure tag values of EDNS Fields.

Example

The following example defines tag value:

```
tag val imsi encrypt default device-id
```



CHAPTER 9

EDNS Format Configuration Mode Commands

The EDR Format Configuration Mode enables configuring EDNS formats and associating fields with formats.

Command Modes

Exec > ACS Configuration > EDNS > EDNS Format Configuration

active-charging service *service_name* **edns> edns-format** *format_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edns-format)#`

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

Important Commands under this mode are license controlled. Contact your Cisco account representative for detailed information on specific licensing requirements.

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.

fields

This command allows you to configure EDNS Format mode commands.

Product

P-GW

SAEGW

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > EDNS > EDNS Format Configuration

active-charging service *service_name* **edns > edns-format** *format_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edns-format)#`

Syntax Description

fields *fields_name* **encode**
no fields

no

Removes the fields values.

fields

Inserts EDNS fields.

fields_name

Specifies fields name.

encode

Defines fields to be used for encoding EDNS message.

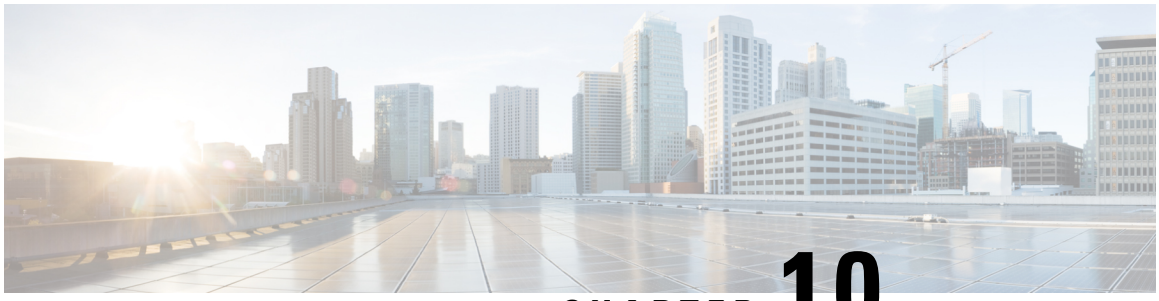
Usage Guidelines

Use this command to configure fields value.

Example

The following example specifies fields in EDNS format mode:

```
fields f1 encode
```



CHAPTER 10

EIR Profile Configuration Mode Commands

The EIR is used for authentication and authorization of a subscribers equipment during an Attach. The EIR database includes information about the subscriber's equipment (UE), such as the International Mobile Equipment Identity (IMEI) and the UE manufacturer's software version number (SV) which is usually paired with the IMEI. The IMEI(SV) can be in one of three lists in the EIR:

- white list - the subscriber equipment is permitted access
- black list - the subscriber equipment is not permitted access
- grey list - the subscriber equipment is being tracked for evaluation or other purposes

To view the configured values of the EIR profile, use the Exec mode **show sgsn-mode** command.

To associate the EIR profile with call control profile, see the call control profile mode's **eir-profile** command.

Command Modes

The EIR Profile configuration mode provides the commands to define Equipment Identify Register (EIR) parameters that can be used by the SGSN on a global level. The SGSN supports a total of 16 instances of the EIR profile.

Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

configure > sgsn-global > eir-profile *eir_profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-eir-profile-eir_profile_name)#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

check-imei-every-n-events

This command performs IMEI check for every N events.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

configure > sgsn-global > eir-profile *eir_profile_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-eir-profile-eir_profile_name)#`

Syntax Description

check-imei-every-n-events *check_frequency*
no check-imei-every-n-events

no

Removes the IMEI check definition from the EIR profile configuration.

check_frequency

The frequency must be an integer from 1 to 15.

When a value is configured, the SGSN skips sending the 'check IMEI' message for the first N-1 event where IMDI/IMEISV is received.

Usage Guidelines

Use this command to perform IMEI check for every N events. If a value is not defined, then by default, the SGSN sends a 'check IMEI' message for every event.

Example

The following command removes the check frequency configuration from the EIR profile:

no check-imei-every-n-events

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

eir-address

This command configures the address of the equipment identify register (EIR).

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

configure > sgsn-global > eir-profile *eir_profile_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-eir-profile-eir_profile_name)#`

Syntax Description

eir-address { isdn *isdn_address* **| point-code** *point_code* **} [source-ssn** *source_ssn* **]**
no eir-address

no

Removes the EIR address from this EIR profile.

isdn *isdn_address*

Configures a standard ISDN E.164 address to identify the EIR. *isdn_address* is an integer from 0 to 9.

point-code *point_code*

Configures a standard SS7 formatted point-code address to identify the EIR. *point_code* must be in dotted-decimal or decimal format. Format options include:

- 0.0.1 to 7.255.7 for point-code in the ITU range.
- 0.0.1 to 255.255.255 for point-code in the ANSI range.
- 0.0.1 to 15.31.255 for point-code in the TTC Range.
- A string of 1 to 11 digits in dotted-decimal to represent a point-code in a different range.

source-ssn *source_ssn*

Configures the source SSN value to be used, to define the subsystem number of the element being identified. *source_ssn* is an integer from 1 to 255. The default value is 149 (SGSN).

Usage Guidelines

Use this command to define a single EIR address to be used for multiple EIRs when this EIR profile is associated with a call control profile.

Example

The following command configures the point-code *255.255.255* with source SSN value *250* for the EIR address :

eir-address point-code 255.255.255 source-ssn 250

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
exit
```

Usage Guidelines Use this command to return to the parent configuration mode.

include-imsi

This command enables inclusion of IMSI in the TCAP message.

Product SGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

configure > sgsn-global > eir-profile *eir_profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-eir-profile-eir_profile_name)#
```

Syntax Description

```
[ no ] include-imsi
```

no

Disables inclusion of IMSI in the TCAP message.

Usage Guidelines Use this command to enable or disable the inclusion of IMSI in the TCAP message for IMSI checking during the IMEI check operation. By default, IMSI checking is not included.

map-include-imsi

This command enables adding IMSI in the MAP message.

Product SGSN

Privilege privilege

Command Modes Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

configure > sgsn-global > eir-profile *eir_profile_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-eir-profile-eir_profile_name)#
```

Syntax Description

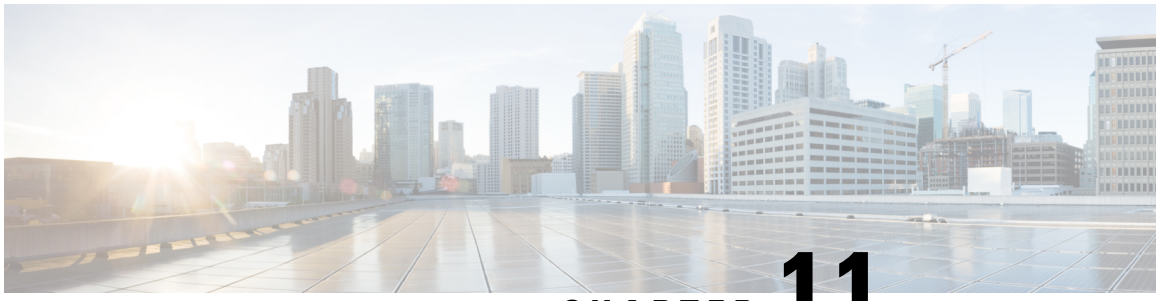
[no] map-include-imsi

no

Disables inclusion of IMSI in the MAP message.

Usage Guidelines

Use this command to enable or disable inclusion of IMSI checking during the check IMEI procedure. By default, IMSI checking is not part of the IMEI check procedure.



CHAPTER 11

eNB Group Configuration Mode Commands

Command Modes

Creates Global eNB and enters eNBG Group configuration mode.

Exec > Global Configuration > LTE Policy > eNB Group Service Configuration

configure > lte-policy > enb-group *enb_group_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(enb-group)#`

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

`end`

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

`exit`

Usage Guidelines Use this command to return to the parent configuration mode.

global-enb-id

Global eNB ID.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration > eNB Group

configure > lte-policy > enb-group

Entering the above command sequence results in the following prompt:

```
[local]host_name(enb-group)#
```

Syntax Description **global-enb-id enbid-list** *enbid_list_name* **| prefix** *network_identifier_name* **bits** *bits*

global-enb-id prefix *network_identifier_name* bits *bits*

Global eNB ID prefix contains bit string which should be matched with Hexadecimal value.
network_identifier_name Must Hexadecimal number between 0x0 and 0xFFFFFFF

enbid-list *enbid_list_name*

Specifies eNB ID list with discrete eNB IDs. *enbid_list_name* must be a string of size string of size 1 to 64.

Usage Guidelines Use this command to create group of eNBs based on eNB ID "prefix" to match with 'bits' of eNBs.

Example

The following command to create group of eNBs based on eNB ID "prefix" to match with 'bits' of eNBs.

global-enb-id prefix *network_identifier_name* **bits** *bits*

relative-mme-capacity

Relative MME Capacity which should be sent to eNB group.

.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration > eNB Group

configure > lte-policy > enb-group

Entering the above command sequence results in the following prompt:

```
[local]host_name(enb-group)#
```

Syntax Description

relative-mme-capacity *relative_mme_capacity*

relative-mme-capacity *relative_mme_capacity*

Relative MME capacity in S1 setup response for eNB which matches grouping criteria.

relative_mme_capacity Must be an Integer from 1 to 255.

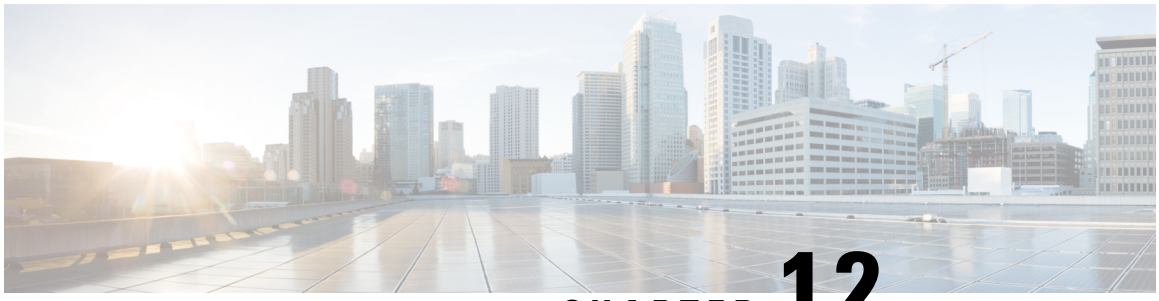
Usage Guidelines

Use this command to configure relative MME Capacity which be sent to eNB group.

Example

The following command to configure relative MME Capacity which be sent to eNB group.

relative-mme-capacity *relative_mme_capacity*



CHAPTER 12

eNBID List Configuration Mode Commands

Command Modes

Creates Global eNB and enters eNBG Group configuration mode.

Exec > Global Configuration > LTE Policy > eNB Group Service Configuration

configure > lte-policy > enbid-list*enbid_list_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(enbid-list)#`

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

`end`

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

`exit`

Usage Guidelines Use this command to return to the parent configuration mode.

enbid

the discrete eNB IDs

.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration > eNBID List

configure > lte-policy > enbid-list

Entering the above command sequence results in the following prompt:

`[local]host_name(enbid-list)#`

Syntax Description **`[ no ] enb-id`** *`discrete_eNB_id`*

no

Disables the configuration of discrete eNB IDs.

enb-id *discrete_eNB_id*

Specifies the discrete eNB IDs. *discrete_eNB_id* must be a Hexadecimal number between 0x1 and 0xFFFFFFF.

enb-id-range

Range of discrete eNB IDs.

.

Product MME

Privilege Administrator

Command Modes Exec > Global Configuration > LTE Policy Configuration > eNBID List

configure > lte-policy > enbid-list

Entering the above command sequence results in the following prompt:

`[local]host_name(enbid-list)#`

Syntax Description **`[ no ] enb-id-range from`** *`starting_eNB_id`* **`to`** *`ending_eNB_id`*

no

Disables the configuration of discrete eNB IDs.

enb-id-range

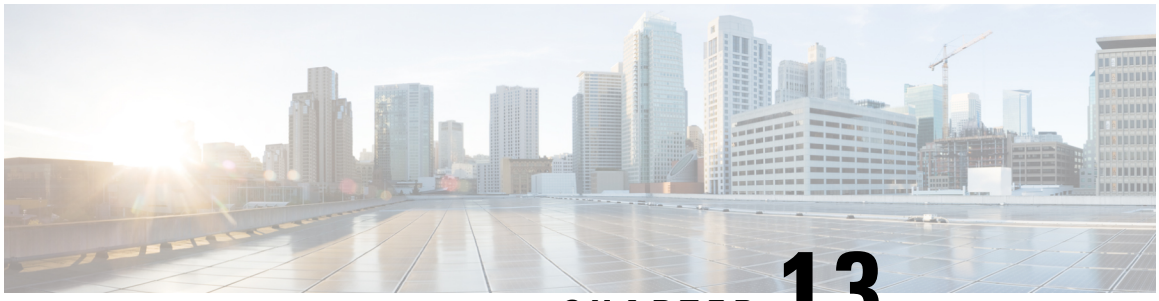
Specifies the range of discrete eNB IDs.

from *starting_eNB_id*

Specifies the starting eNB ID in the range in Hexadecimal. *starting_eNB_id* must be a Hexadecimal number between 0x1 and 0xFFFFFFF.

to *ending_eNB_id*

Specifies the last eNB ID in the range in Hexadecimal. *ending_eNB_id* must be a Hexadecimal number between 0x1 and 0xFFFFFFF.



CHAPTER 13

EPDG Service Configuration Mode Commands

Command Modes

Creates Evolved Packet Data GateWay service and enters EPDG service configuration mode.

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-epdg-service)#`

aaa

This command configures AAA parameters for ePDG service.

Product

ePDG

Privilege

Security Administrator, Administrator

Syntax Description

```
aaa send framed-mtu value
aaa send framed-mtu
```

no

Disables AAA parameters for ePDG service.

send

Configures AVP to be send to AAA server.

framed-mtu *value*

This is the framed-MTU AVP value to be sent in DER, which is an integer from 64 through 1500.

Usage Guidelines

Use this command to configure AAA parameters for ePDG service.

Example

The following command configures framed-MTU AVP value 100 to be send to AAA server for ePDG service.

```
aaa send framed-mtu 100
```

allow

This command allows duplicate precedence in a TFT for a S2b ePDG session.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
[ no ] allow { custom-swm-swu-error-mapping | duplicate-prec-in-tft }
```

no

Disables allowing exception.

custom-swm-swu-error-mapping

Customises mapping of SWm errors with SWu Notify Error Type.

duplicate-prec-in-tft

The duplicate precedence is allowed in a tft for a S2b ePDG session.

Usage Guidelines Use this command to allow exception with Spec or RFC.

Example

The following command is used to allow duplicate precedence in a tft for a S2b ePDG session.

```
allow duplicate-prec-in-tft
```

associate

This command associates configuration of ePDG service to qci-qos mapping and EGTP service.

Product ePDG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
associate { egtp-service egtp_service_name | gtpc-load-control-profile
gtpc_load_control_profile_name | gtpc-overload-control-profile
gtpc_overload_control_profile_name  | qci-qos-mapping qci_qos_mapping |
subscriber-map  subscriber_map_name }
no associate { egtp-service | gtpc-load-control-profile
gtpc_load_control_profile_name | gtpc-overload-control-profile
gtpc_overload_control_profile_name | qci-qos-mapping | subscriber-map }
```

no

Disables association.

egtp-service *egtp_service_name*

The eGTP service should be configured before associating the same with ePDG service.

egtp_service_name is a string and the value must be between *1* and *63*.

gtpc-load-control-profile ***gtpc_load_control_profile_name***

Associates GTPC-load-control-profile for the epdg service.

1 and *64*.

gtpc-overload-control-profile ***gtpc_overload_control_profile_name***

Associates GTPC-overload-control-profile for the ePDG service.

1 and *64*.

qci-qos-mapping ***qci_qos_mapping***

The associated qci-qos mapping table should be configured prior to associating the same with ePDG service.

*qci-qos_mapping*is a string and the value must be between *1* and *63*.

subscriber-map ***subscriber_map_name***

Configures subscriber map association to get PGW address locally.

subscriber_map_name is a string and the size must be between 1 and 64.

Usage Guidelines

Use this command to associate the ePDG service to egtp service or QCI to QoS mapping.

Example

The following command removes the association of epdg service to egtp service.

```
no associate  egtp-service
```

bind

This command binds the services.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
bind address bind_address crypto-template crypto_template_service_name
no bind address
```

no

Disables binding.

address *bind_address*

Specifies the address of the EPDG service. This must be followed by an IPv4 address, using dotted-decimal notation or an IPv6 address, using xx::yy::zz format.

crypto-template *crypto_template_service_name*

Specifyes the crypto template to use, this is a string of size between *0* and *127*.

Usage Guidelines

Use this command to bind the ePDG service.

Example

The following command binds the ePDG Service to the IPv4 address 12.32.44.56.

```
bind address 12.32.44.56
```

data-buffering

This command allows to downlink packets to be buffered, while session is in connecting state. By default it is enabled.

Product

ePDG

Privilege

Security Administrator, Administrator

Syntax Description

```
[ no | default ] data-buffering
```

no

Disables data buffering.

default

Sets / restores the data buffering to its default value. By default, the data buffering is enabled.

Usage Guidelines

Use this command to allow to downlink packets to be buffered, while session is in connecting state.

Example

The following command allows to set the default value of the data-buffering.

```
default data-buffering
```

dns-pgw

Configures context of dns-client.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > **context** *context_name* > **epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

dns-pgw { context *dns_client_context_name* **| selection { topology [weight] | weight } }**
{ no | default } dns-pgw { context | selection { topology [weight] | weight } }

default

Configures context of dns-client to its default value.

no

Disables dns-client's context.

context *dns_client_context_name*

Specifies the dns-client's context name, which is a string and should be between *1* and *79*.

selection { topology [weight] | weight }

Specifies the pgw dns selection criteria.

topology: Enables topology selection.

topology weight: Enables topology with weight.

weight: Enables selection with weight-only, disables topology selection.

Usage Guidelines

Enable/disable PGW Selection based on topology and load-balancing of PGWs on weight's from DNS.

Use this command to configure the source in which dns-client is configured, dns-pgw selection toplogy/weight will be used to enable/disable PGW Selection based on topology and load-balancing of PGWs.

Example

Use the following command to configure dns-client context.

dns-pgw context *21*

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege Security Administrator, Administrator

Syntax Description **end**

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description **exit**

Usage Guidelines Use this command to return to the parent configuration mode.

fqdn

Designates ePDG fully qualified domain name.

Product ePDG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context > ePDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-epdg-service)#`

Syntax Description **fqdn** *epdg_fqdn*
{ no | default } fqdn

default

Resets the ePDG fully qualified domain name to its default setting.

no

Disables ePDG FQDN.

fqdn *epdg_fqdn*

Designates ePDG with fully qualified domain name, name is a string between *1* and *256* alphanumeric characters.

Usage Guidelines Use this command to configure ePDG FQDN under ePDG service which will be used for longest suffix match during dynamic allocation.

Example

Use the following command to disable ePDG FQDN:

```
no fqdn
```

ip

This command configures Internet Protocol (IP) parameters.

Product ePDG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
ip fragment-chain { max-ooo-fragment fragments | timeout secs }
default ip fragment-chain { max-ooo-fragment | timeout }
```

default

Resets the ePDG Internet Protocol(IP) parameters to default values.

fragment-chain

This option configures ip fragment chain settings during TFT handling.

max-ooo-fragment *fragments*

This is the number of fragments to buffer per fragment chain for out-of-order reception before receiving first fragment(for L4 packet filtering).

fragments is an integer value from *0* through *300*.

The default value is 45.

0 represents no buffering is done for out-of-order fragments, correct bearer will be selected with first fragment.

timeout *secs*

This is the time to hold an ip fragment chain.

secs is an integer value from *1* through *10*.

The default value is 5.

Usage Guidelines Use this command to configure ePDG Internet Protocol (IP) parameters.

Example

Use the following command to configure ePDG IP parameter timeout to 6 seconds:

```
ip fragment-chain timeout 6
```

max-sessions

This command configures the approximate maximum number of sessions ePDG service can support, ranging from 0 to 1000000. Default is 1000000.

Product ePDG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
max-sessions value
default max-sessions
```

default

Resets the approximate maximum number of sessions that ePDG service can support to default value (1000000).

value

This is the approximate maximum number of sessions that ePDG service can support, ranging from 0 to 1000000.

The default value is 1000000.

Usage Guidelines Use this command to configure the approximate maximum number of sessions that ePDG service can support.

Example

Use the following command to configure the approximate maximum number of sessions that ePDG service can support to 10.

```
max-sessions 10
```

mobile-access-gateway

Configures MAG context within epdg service.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

mobile-access-gateway context *context_name* **[mag-service** *mag_service_name* **]**
no mobile-access-gateway context

no

Disables MAG context.

mobile-access-gateway context *context_name* [mag-service *mag_service_name*]

context designates the name of the context in which the MAG service is configured. This must be followed by *context_name* of MAG service of size *1* to *79* characters.

mag-service designates the name of the MAG service. This must be followed by *mag_service_name* of size *1* to *63* characters.

Usage Guidelines

Use this command to specify where MIPv6 sessions are routed through this service.

Example

Use the following command to configure MAG context with context name fg.

mobile-access-gateway context *fg*

newcall

Configures new call related behavior.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-epdg-service)#`

Syntax Description

`[ no | default ] newcall duplicate-session notify-delete` *`name`*

no

Disables new call related behavior.

default

Sets the default value for the new call related behavior. ‘notify-delete’ is enabled by default.

duplicate-session

Configures action regarding duplicate session.

notify-delete

Initiate delete session request to PGW during reattach if another PGW is selected. Enabled by default.

Usage Guidelines

Use this command to configure new call related behavior.

Example

The following example configures new call related behavior:

`newcall duplicate-session notify-delete`

pdn-type

This command configures pdn-type related parameters for ePDG service.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-epdg-service)#`

Syntax Description

`[ no ] pdn-type ipv6 path-mtu`

no

Disables pdn-type related parameters for ePDG service.

Usage Guidelines

Use this command to configure pdn-type related parameters for ePDG service.

Example

Use the following command to disable pdn-type related parameters for ePDG service.

```
no pdn-type ipv6 path-mtu
```

pgw-selection

Configures pgw-selection related parameters for the EPDG service.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
[ no ] pgw-selection { agent-info  error-terminate  |
local-configuration-preferred | prefer aaa-pgw-id }
```

no

Disables pgw-selection related parameters for the EPDG service.

pgw-selection agent-info error-terminate

agent-info specifies the action to be taken when MIP6-agent-info is expected but not received from AAA/HSS.

error-terminate terminates the pgw-selection and rejects the call.

local-configuration-preferred

Configures local PGW selection as the preferred mechanism. Applicable for initial attach. Default is AAA/DNS based selection.

prefer aaa-pgw-id

Configures AAA provided PGW ID(IP address/FQDN) selection as the preferred mechanism for initial attach.

Usage Guidelines

Use this command to terminate the pgw-selection and reject the call when MIP6-agent-info is expected but not received from AAA/HSS.

Example

Use the following command to terminate pgw-selection and reject the call.

```
pgw-selection agent-info error-terminate
```

plmn

Configures PLMN related parameters for the EPDG service.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

plmn id mcc *mcc_plmn_id* **mnc** *mnc_plmn_id*
no plmn id

no

Disables PLMN related parameters for the EPDG service.

plmn id mcc *mcc_plmn_id* mnc *mnc_plmn_id*

plmn id mcc *mcc_plmn_id* configures MCC part of PLMN ID for the EPDG service and prompts as " Enter a number, ranging from 200...999 - string of size 3 to 3" . *mcc_plmn_id* is a string of three characters, entered as number between 200 and 999.

mnc *mnc_plmn_id* configures MNC part of PLMN ID for the EPDG service and prompts as " Enter a number, ranging from 00...999 - string of size 2 to 3" . *mnc_plmn_id* is a string of two to three characters, entered as number between 00 and 999.

Usage Guidelines

Use this command to configure PLMN identifier (MCC and MNC Values) for ePDG Service.

Example

Use the following command to configure PLMN identifier MCC *456* and MNC *64* for ePDG service.

```
plmn id mcc 456 mnc 64
```

reporting-action

Configures reporting of events.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > ePDG Service Configuration

configure > **context** *context_name* > **epdg-service** *epdg_service_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-epdg-service)#
```

Syntax Description

```
[ no ] reporting-action event-record
```

no

Disables RTT record generation for this ePDG service.

event-record

Configures event records.

Syntax Description

Use this command to configure the reporting of events for the EPDG service.

Example

The following command configures the reporting of event records:

```
reporting-action event-record
```

setup-timeout

Maximum time allowed for session setup in seconds.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > **context** *context_name* > **epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
setup-timeout time
default setup-timeout
```

default

Sets up the maximum time allowed for a session to default value (as 60 seconds).

setup-timeout *time*

time is an integer value between 2 and 300.

Usage Guidelines

Use this command to configure maximum time allowed for session setup in seconds.

Example

Use the following command to configure maximum session time as *120* seconds:

setup-timeout *120*

subscriber

Configures a subscriber with a given name.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-epdg-service)#`

Syntax Description

[default] subscriber *name*
no subscriber

default

Configures a subscriber with a given default name.

no

Cancels the subscriber configuration.

subscriber *name*

Configures a subscriber with a given name, which is a string of size between 1 and 127.

Usage Guidelines

Use this command to configure the subscriber with a given name.

Example

Use the following command to configure the subscriber as sss.

subscriber *sss*

threshold

This command is used to configure threshold values to set and clear the alarms for each monitoring parameters separately.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
threshold { epdg-ikev2-authentication-failures | epdg-ikev2-setup-attempts
 | epdg-ikev2-setup-failure | epdg-ikev2-setup-failure-rate |
epdg-ikev2-setup-success } threshold_value [ clear clear_value ]
no threshold { epdg-ikev2-authentication-failures |
epdg-ikev2-setup-attempts | epdg-ikev2-setup-failure |
epdg-ikev2-setup-failure-rate | epdg-ikev2-setup-success }
```

no

Disables the configuration of a specific threshold for ePDG service.

epdg-ikev2-authentication-failures *threshold_value*

Configures the threshold value for IKEv2 Authentication Failures.

threshold_value is the threshold value for IKEv2 Authentication Failures, which is an integer between 0 and 1000000.

epdg-ikev2-setup-attempts *threshold_value*

Configures the threshold value for IKEv2 Setup Attempts.

threshold_value is the threshold value for IKEv2 Setup Attempts, which is an integer between 0 and 10000000.

epdg-ikev2-setup-failure *threshold_value*

Configures the threshold value for IKEv2 Setup Failure.

threshold_value is the threshold value for IKEv2 Setup Failure, which is an integer between 0 and 1000000.

epdg-ikev2-setup-failure-rate *threshold_value*

Configures the threshold value for IKEv2 Setup Failure Rate.

threshold_value is the percentage of IKEv2 Setup Failure Rate, which is an integer between 0 and 100.

epdg-ikev2-setup-success *threshold_value*

Configures the threshold value for IKEv2 Setup Success.

threshold_value is the threshold value for IKEv2 Setup Success, which is an integer between 0 and 10000000.

clear *clear_value*

Configures the alarm clear threshold for the following.

- IKEv2 Authentication Failures. *clear_value* is the number of IKEv2 Authentication Failures, which is an integer between 0 and 1000000.
- IKEv2 Setup Attempts. *clear_value* is the number of IKEv2 Setup Attempts, which is an integer between 0 and 10000000.
- IKEv2 Setup Failure. *clear_value* is the number of IKEv2 Setup Failure, which is an integer between 0 and 1000000.
- IKEv2 Setup Failure Rate. *clear_value* is the percentage of IKEv2 Setup Failure Rate, which is an integer between 0 and 100.
- IKEv2 Setup Success. *clear_value* is the number of IKEv2 Setup Success, which is an integer between 0 and 10000000.

Usage Guidelines

Use this command to configure a specific threshold for ePDG service.

Example

The following command configures ePDG IKEV2 Authentication Failures threshold as 50 for a specific ePDG Service.

```
threshold epdg-ikev2-authentication-failures 50
```

timeout idle

Configures the subscriber's time-to-live (TTL) settings for the EPDG service.

Product

ePDG

Privilege

System Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > ePDG Service Configuration

configure > **context** *context_name* > **epdg-service** *epdg_service_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-epdg-service)#
```

Syntax Description

timeout idle *sec* **{ micro-checkpoint-deemed-idle [** *dur* **] | micro-checkpoint-periodicity** *dur* **}**

no timeout idle

default timeout idle

no

Disables idle timeout configuration along with the idle seconds micro-checkpoint duration or deemed idle duration configuration.

default

Configures the default value for subscriber's time out settings. The idle timeout default value is 0. The default value of micro-checkpoint-deemed-idle would be 0 seconds and that for micro-checkpoint-periodicity is 10 seconds.

idle*sec*

Designates the maximum duration a session can remain idle, in seconds, before system automatically terminates the session. Must be followed by number of seconds between 0 and 2147483647. Zero indicates function is disabled.

micro-checkpoint-deemed-idledle*dur*

Configures micro-checkpoint duration when UE is deemed idle for this Subscriber. Default is "0" (disabled). dur is an integer between 10 and 1000.

micro-checkpoint-periodicity*dur*

Configures the micro-checkpoint-periodicity for this Subscriber. Default is "10". dur is the an integer between 10 and 10000.

Syntax Description

Use this command to configure the subscriber's time-to-live (TTL) settings for the EPDG service.

Example

The following command configures the idle timeout to *10* and micro-checkpoint-periodicity to *50* for the subscriber:

```
timeout idle 10 micro-checkpoint-periodicity 50
```

username

Sets the options related to username received from mobile.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > **context** *context_name* > **epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
username { check-mac-address [ failure-handling {  continue | terminate
} ] | mac-address-delimiter { NAI-label | colon | colon-or-NAI-label } |
 mac-address-stripping }
no username { check-mac-address | mac-address-stripping }
```

no

Cancels the options related to username received from mobile.

username { check-mac-address [failure-handling { continue | terminate }] | mac-address-delimiter { NAI-label | colon | colon-or-NAI-label } | mac-address-stripping }

check-mac-address validates Mac address. By default, Mac address is not validated.

failure-handling { **continue** | **terminate** } : MAC Address validation failure handling configuration.

continue ignores failure and continues.

terminate terminates session on request failure.

mac-address-delimiter is the second delimiter to be used to extract the MAC address from username when first delimiter is '@'.

NAI-label NAI-label(.nai) to be used to extract the MAC Address from username as a second delimiter when first delimiter is '@'.

colon Colon(:) to be used to extract the MAC Address from username as a second delimiter when first delimiter is '@' .

colon-or-NAI-la bel Either colon(:) or NAI-Label(.nai) to be used to extract the MAC address from username as a second delimiter when first delimiter is '@'. This is the default option.

mac-address-stripping strips Mac Address from the username. By default, it is disabled.

Usage Guidelines

Use this command to set the options (Validate Mac address / mac-address-delimiter / mac-address-stripping) related to username received from mobile.

Example

Use the following command to set the options related to username received from mobile.

```
username check-mac-address failure-handling terminate
```

vendor-specific-attr

Configures the vendor-specific-attributes values on PMIP based S2b interface.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context > EPDG Service Configuration

configure > context *context_name* **> epdg service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

Syntax Description

```
vendor-specific-attr { dns-server-req { apco |  pco } | pcscf-server-req
 { apco | private-extn } }
default vendor-specific-attr { dns-server-req | pcscf-server-req }
```

default

Configues vendor-specific-attributes to default the value. Default setting is to use APCO IE for DNS Server Address and PrivateExtension IE for PCSCF Server Address.

dns-server-req

Configures the DNS Server Address to be present in PCO/APCO IE.

apco

Configures to use APCO IE to carry information over PMIP based S2b.

pco

Configures to use PCO IE to carry information over PMIP based S2b.

pcscf-server-req

Configures the PCSCF Server Address to be present in APCO/PrivateExtn IE.

apco

Configures to use APCO IE to carry information over GTP based S2b.

private-extn

Configures to use PrivateExtension IE to carry information over GTP based S2b.

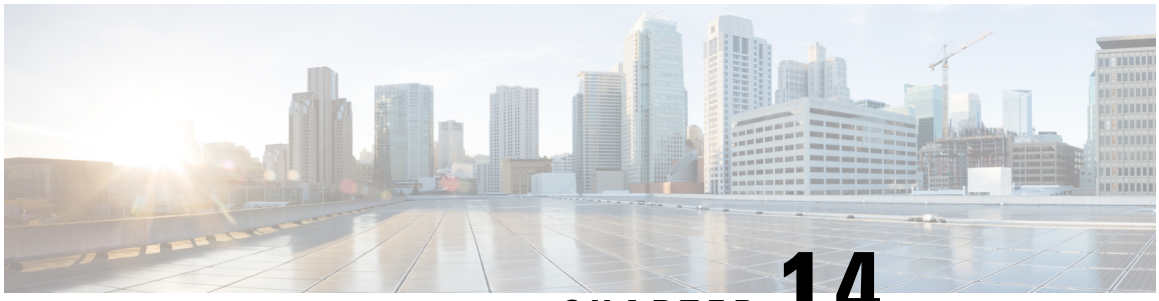
Usage Guidelines

Use this command to configure the vendor-specific-attributes values on PMIP based S2b interface.

Example

Use the following command to configure the vendor-specific-attributes values on PMIP based S2b interface to pco.

```
vendor-specific-attr dns-server-req pco
```



CHAPTER 14

Ethernet Interface Configuration Mode Commands

Command Modes

The Ethernet Interface Configuration Mode is used to create and manage Ethernet IP interface parameters within a specified context.

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Important

Available commands or keywords/variables vary based on platform type, product version, and installed license(s).

bfd

Configures Bidirectional Forwarding Detection (BFD) interface parameters.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

```
[no] bfd { echo [echo-interval interval_num] | interval interval_num }
    min_rx milliseconds multiplier value
```

no

Disables the specified option on this interface.

echo

Enables BFD echo mode.

BFD echo mode works with asynchronous BFD. Echo packets are sent by the forwarding engine and forwarded back along the same path in order to perform detection—the BFD session at the other end does not participate in the actual forwarding of the echo packets. The echo function and the forwarding engine are responsible for the detection process, therefore the number of BFD control packets that are sent out between two BFD neighbors is reduced.

Since the forwarding engine is testing the forwarding path on the remote (neighbor) system without involving the remote system, there is an opportunity to improve the interpacket delay variance, thereby achieving quicker failure detection times than when using BFD Version 0 with BFD control packets for the BFD session.

echo-interval *interval_num*

Specifies the transmit interval between BFD echo packets. The default interval is 150 ms. The range is from 0 to 999 ms. (VPC only)

interval *interval_num*

Specifies the transmit interval (in milliseconds) between BFD packets.

- *For releases prior to 17.0*, *interval_num* is an integer from 50 through 999. (Default 50)
- *For release 17.0 onwards*, *interval_num* is an integer from 50 through 10000. (Default 50)

min_rx *milliseconds*

Specifies the receive interval in milliseconds for control packets.

- *For releases prior to 17.0*, *milliseconds* is an integer from 50 through 999. (Default 50)
- *For release 17.0 onwards*, *milliseconds* is an integer from 50 through 10000. (Default 50)

multiplier *value*

Specifies the value used to compute the hold-down time as a number from 3 to 50.

Usage Guidelines

Specify BFD parameters including echo mode and the transmit interval between BFD packets.

Example

To apply enable echo mode on this interface, use the following command:

```
bfd echo
```

The following command sets BFD interval parameters:

```
bfd interval 3000 min_rx 300 multiplier 3
```

crypto-map

Applies the specified IPSec crypto-map to this interface.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

```
crypto-map map_name [ secondary-address sec_ip_addr ]
no crypto-map map_name
```

no

Deletes the application of the crypto map on this interface.

map_name

Specifies the name of the crypto map being applied as an alphanumeric string of 1 through 127 characters that is case sensitive.

secondary-address *sec_ip_addr*

Applies the crypto map to the secondary address for this interface. *sec_ip_addr* must be specified using the IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines

In order for ISAKMP and/or manual crypto maps to work, they must be applied to a specific interface using this command. Dynamic crypto maps should **not** be applied to interfaces.

The crypto map must be configured in the same context as the interface.

Example

To apply the IPSec crypto map named cmap1 to this interface, use the following command:

```
crypto-map cmap1
```

description

Sets the descriptive text for the current interface.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

```
description  text
no description
```

no

Clears the description for the interface.

text

Specifies the descriptive text as an alphanumeric string of 0 through 79 characters.

Usage Guidelines

Set the description to provide useful information on the interface's primary function, services, end users, etc. Any information useful may be provided.

Example

```
description sampleInterfaceDescriptiveText
```

end

Exits the current configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
end
```

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
exit
```

Usage Guidelines Use this command to return to the parent configuration mode.

ip access-group

Specifies the name of the Access Control List (ACL) group to assign to the interface.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
[ no ] ip access-group group_name { in | out } priority
```

no

Removes the ACL group from this interface.

group_name

Specifies the name of an existing ACL group as an alphanumeric string of 1 through 47 characters.

Important Up to eight ACLs can be applied to a group provided that the number of rules configured within the ACL(s) does not exceed the 128-rule limit for the interface.

{ in | out }

Specifies whether the ACL group will apply to inbound or outbound traffic.

priority

If more than one ACL group is applied, *priority-value* specifies the priority in which they will be compared against the packet. If not specified, the priority is set to 0. *priority-value* must be an integer from 0 through 4294967295. If access groups in the list have the same priority, the last one entered is used first.

Usage Guidelines

Specify the name of the Access Control List (ACL) group to assign to the interface along with its directionality and priority.

Example

```
ip access-group acl-101 in 56
```

ip address

Specifies the primary and optional secondary IPv4 addresses and subnets for this interface.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

```
ip address ip_address { mask | /mask } [ secondary ip_address ] [ srp-activate ]
no ip address ip_address
```

no

Removes the IPv4 address from this interface.

***ip_address*{ mask | /*mask* }**

Configures the IPv4 address and mask for the interface. *ip_address* must be entered using IPv4 dotted-decimal notation. IPv4 dotted-decimal or CIDR notation is accepted for the mask.

Important For IPv4 addresses, 31-bit subnet masks are supported per RFC 3021.

secondary *ip_address*

Configures a secondary IPv4 address on the interface.

Important You must configure the primary IPv4 address before you will be allowed to configure a secondary address.

srp-activate

Activates the IP address for Interchassis Session Recovery (ICSR). Enable this IPv4 address when the Service Redundancy Protocol (SRP) determines that this chassis is ACTIVE. Requires an ICSR license on the chassis to activate.

Usage Guidelines The following command specifies the primary IP address and subnets for this interface.

Example

The following example configures an IPv4 address for this interface:

```
ip address 192.154.3.5/24
```

ip igmp profile

Associates an Internet Group Management Protocol (IGMP) profile with this interface.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
[ no ] ip igmp profile profile_name
```

no

Removes the IGMP profile from this interface.

profile_name

Specifies the name of an existing IGMP profile as an alphanumeric string of 1 through 63 characters.

If the name is not for an existing profile, you are prompted to create a new profile. You are then moved to the IGMP Profile Configuration mode.

Usage Guidelines Associates an Internet Group Management Protocol (IGMP) profile with this interface.

Example

```
ip igmp profile default
```

ip mtu

Configures the Maximum Transmission Unit (MTU) for this interface.

Product All

Privilege Security Administrator, Administrator

Syntax Description

ip mtu *mtu_size* **[mru** *mru_size* **]**

no

Removes the MTU value.

mtu_size

Specifies the MTU in bytes as an integer from 576 though 2048.

mru_size

Specifies the MRU in bytes as an integer from 576 though 2048.

Usage Guidelines

For MTU,

IP MTU is supported for a normal interface and point-to-point interface (OLC ports).

The maximum MTU size allowed with an OLC port is 1600.

The maximum MTU size allowed with an Ethernet port is 2048. The default MTU size is 1500.

The maximum sizes for ethernet MTUs are:

- **Untagged traffic** (non-VLAN) – **ip MPU** *mtu-size* + ethernet header (20 bytes)
- **VLAN traffic** – **ip MPU** *mtu-size* + ethernet header (20 bytes) + vlan header (4 bytes)

Example

The following command sets the MTU value to *2048*.

```
ip mtu 2048
```

Usage Guidelines for MRU:

1. MRU attribute is optional and when it is not configured, MRU is set to the same value as MTU.
2. MRU optional attribute is not visible to users on VPC-DI and VPC-SI platforms. This is only visible on ASR 5500.
3. On nonlegacy ASR 5500 variants such as CUPS or ICUPS, the following error is shown to you when you try to configure MRU on an interface.

   ```
   Failure: Configure MRU Feature is not supported when ICUPS/CUPS is
   enabled!
   ```

Example

The following command sets the MTU value to *2048*.

```
ip mtu 2048
```

The following command sets the MTU value to *1600* and MRU value to *1900*.

```
ip mtu 2048 mru 1900
```

ip ospf authentication-key

Configures the password for authentication with neighboring Open Shortest Path First (OSPF) routers.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf authentication-key [ encrypted ] password auth_key
no ip ospf authentication-key
```

no

Deletes the authentication key.

encrypted

Use this keyword if you are pasting a previously encrypted authentication key into the CLI command.

password *auth_key*

Specifies the password to use for authentication as an alphanumeric string of 1 through 16 characters entered in clear text format.

Usage Guidelines

Use this command to set the authentication key used when authenticating with neighboring routers.

Example

To set the authentication key to 123abc, use the following command;

```
ip ospf authentication-key password 123abc
```

Use the following command to delete the authentication key;

```
no ip ospf authentication-key
```

ip ospf authentication-type

Configures the OSPF authentication method to be used with OSPF neighbors over the logical interface.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf authentication-type { message-digest | null | text }
no ip ospf authentication-type { message-digest | null | text }
```

no

Disable this function.

message-digest

Uses the message digest (MD) authentication method.

null

Uses no authentication, thus disabling either MD or clear text methods.

text

Uses the clear text authentication method.

Usage Guidelines

Use this command to set the type of authentication to use when authenticating with neighboring routers.

Example

To set the authentication type to use clear text, enter the following command;

```
ip ospf authentication-type text
```

ip ospf bfd

Enables or disables OSPF Bidirectional Forwarding Detection (BFD) on this interface.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf bfd [ disable ]
no ip ospf cost
```

no

Disable this function.

disable

Disables OSPF BFD on this interface.

Usage Guidelines

Enable or disable OSPF Bidirectional Forwarding Detection (BFD) on this interface.

Example

Use the following command to enable OSPF BFD;

```
ip ospf bfd
```

ip ospf cost

Configures the cost associated with sending a packet over the OSPF logical interface.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf cost value
no ip ospf cost
```

no

Disable this function.

value

Specifies the cost to assign to OSPF packets as an integer from 1 through 65535. Default: 10

Usage Guidelines

Use this command to set the cost associated with routes from the interface.

Example

Use the following command to set the cost to *20*;

```
ip ospf cost 20
```

Use the following command to disable the cost setting;

```
no ip ospf cost
```

ip ospf dead-interval

Configures the interval that the router should wait, during which time no packets are received and after which the router considers a neighboring router to be off-line.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

`[ no ] ip ospf dead-interval` *`seconds`*

no

Returns the value to its default of 40 seconds.

seconds

Specifies the interval (in seconds) as an integer from 1 through 65535. This number is typical four times the hello-interval. Default: 40

Usage Guidelines

Use this command to set the dead intervals for OSPF communications.

Example

To set the dead-interval to *100*, use the following command;

```
ip ospf dead-interval 100
```

ip ospf hello-interval

Configures the interval (in seconds) between sending OSPF hello packets.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

`ip ospf hello-interval` *`seconds`*
`no ip ospf hello-interval`

no

Returns the value to its default of 10 seconds.

seconds

Specifies the number of seconds between sending hello packets as an integer from 1 through 65535. Default: 10

Usage Guidelines

Specify the interval (in seconds) between sending OSPF hello packets.

Example

To set the hello-interval to *25*, use the following command;

```
ip ospf hello-interval 25
```

ip ospf message-digest-key

Enables or disables the use of MD5-based OSPF authentication.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

ip ospf message-digest-key *key_id* **md5 [encrypted] password** *authentication_key*
no ip ospf message-digest-key *key_id*

no

Deletes the key.

message-digest-key *key_id*

Specifies the key identifier number as an integer from 1 through 255.

encrypted

Use this if you are pasting a previously encrypted authentication key into the CLI command.

password *authentication_key*

Specifies the password to use for authentication as an alphanumeric string of 1 through 16 characters entered in clear text format.

Usage Guidelines

Use this command to create an authentication key that uses MD5-based OSPF authentication.

Example

To create a key with the ID of *25* and a password of *123abc*, use the following command;

```
ip ospf message-digest-key 25 md5 password 123abc
```

To delete the same key, enter the following command;

```
no ip ospf message-digest-key 25
```

ip ospf network

Configures the Open Shortest path First (OSPF) network type.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf network { broadcast | non-broadcast | point-to-multipoint |
point-to-point }
no ip ospf network
```

no

Disable this function.

broadcast

Sets the network type to broadcast.

non-broadcast

Sets the network type to non-broadcast multi access (NBMA).

point-to-multipoint

Sets the network type to point-to-multipoint.

point-to-point

Sets the network type to point-to-point.

Usage Guidelines

Use this command to specify the OSPF network type.

Example

To set the OSPF network type to *broadcast*, enter the following command;

```
ip ospf network broadcast
```

To disable the OSPF network type, enter the following command;

```
no ip ospf network
```

ip ospf priority

Designates the OSPF router priority.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf priority value
no ip ospf priority value
```

no

Disable this function.

value

Sets the priority value as an integer from 0 through 255.

Usage Guidelines

Use this command to set the OSPF router priority.

Example

To set the priority to *25*, enter the following command:

```
ip ospf priority 25
```

To disable the priority, enter the following command:

```
no ip ospf priority
```

ip ospf retransmit-interval

Configures the interval in (seconds) between LSA (Link State Advertisement) retransmissions.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf retransmit-interval seconds
no ip ospf retransmit-interval
```

no

Returns the value to its default of 5 seconds.

seconds

Specifies the number of seconds between LSA (Link State Advertisement) retransmissions as an integer from 1 through 65535. Default: 5

Usage Guidelines

Configure the interval in (seconds) between LSA (Link State Advertisement) retransmissions.

Example

To set the retransmit-interval to *10*, use the following command;

```
ip ospf retransmit-interval 10
```

ip ospf transmit-delay

Configures the interval (in seconds) that the router should wait before transmitting an OSPF packet.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Syntax Description

```
ip ospf transmit-delay seconds
no ip ospf transmit-delay
```

no

Returns the value to its default of 1 second.

seconds

Specifies the number of seconds that the router should wait before transmitting a packet as an integer from 1 through 65535. Default: 1

Usage Guidelines

Configure the interval (in seconds) that the router should wait before transmitting an OSPF packet.

Example

To set the transmit-delay to 5, use the following command;

```
ip ospf transmit-delay 5
```

ipv6 access-group

Specifies the name of the access control list (ACL) group to assign to this interface. You can filter for either inbound or outbound traffic.

Product

PDSN

HA

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

`[ no ] ipv6 access-group` *group name* **`{ in | out } { priority-value`** *priority_value* **`}`**

no

Removes a previously configured access group association.

group_name

Specifies the name of the access group as an alphanumeric string of 1 to 79 characters.

in

Applies the filter to the inbound traffic.

out

Applies the filter to the outbound traffic.

priority-value

Specifies the priority of the access group as an integer from 0 to 4294967295. 0 is the highest priority. If priority-value is not specified, the priority is set to 0.

If access groups in the list have the same priority, the last one entered is used first.

Usage Guidelines

Use this command to specify the ACL group to assign the interface to. Specify an ACL group name with this command.

Important

Up to eight ACLs can be applied to a group provided that the number of rules configured within the ACL(s) does not exceed the 128-rule limit for the interface.

Example

Use the following command to associate the *group_1* access group with the current IPv6 profile for inbound access:

```
ipv6 access-group group_1 in 1
```

ipv6 address

Specifies an IPv6 address and subnet mask.

Product

PDSN

HA

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

[no] ipv6 address *ipv6_address/mask*

no

Removes the IPv6 address from this interface.

ipv6_address/mask

Specifies an individual host IP address to add to this host pool in IPv6 colon-separated hexadecimal CIDR notation.

Important On the ASR 5000, routes with IPv6 prefix lengths less than /12 and between the range of /64 and /128 are not supported.

Usage Guidelines

Configures the IPv6 address and subnet mask for a specific interface.

Example

The following example configures an IPv6 address for this interface:

```
ipv6 address 2002:0:0:0:0:0:c014:101/128
```

ipv6 ospf

Enables Open Shortest Path First Version 3 (OSPFv3) functionality on this IPv6 interface.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

[no] ipv6 ospf [area { *integer* | *ipv4-address* } | cost *cost-value* | dead-interval *dead-intrv* | hello-interval *hello-intrvl* | priority *p-value* | retransmit-interval *retx-interval* | transmit-delay *td-interval*]

no

Removes a previously configured access group association.

area { *integer* | *ipv4-address* }

Specifies an OSPFv3 area.

decimal_value: Specifies the identification number of the area as an integer from 0 through 4294967295.

ipv4-address: Specifies the IP address of the area in IPv4 dotted-decimal notation.

cost *cost-value*

Specifies a link cost as an integer from 1 through 65535. The link cost is carried in the LSA updates for each link. The cost is an arbitrary number.

dead-interval *dead-intrv*

Specifies the interval (in seconds) after which a neighbor is declared dead when no hello packets as an integer from 1 through 65535.

hello-interval *hello-intrvl*

Specifies the interval (in seconds) between hello packets that OSPFv3 sends on an interface as an integer from 1 through 65535.

priority *p-value*

Specifies the priority of the interface as an integer from 0 through 255.

retransmit-interval *retx-interval*

Specifies the time (in seconds) between link-state advertisement (LSA) retransmissions for adjacencies belonging to the OSPFv3 interface as an integer from 1 through 65535.

transmit-delay *td-interval*

Specifies the estimated time (in seconds) required to send a link-state update packet on the interface as an integer from 1 through 65535.

Usage Guidelines

Configure an OSPFv3 interface in this context.

Example

```
ipv6 ospf area 334 cost 555 dead-interval 40 hello-interval 10 priority
10 retransmit-interval 5 transmit-delay 10
```

ipv6 router advertisement

Enables or disables the system to send IPv6 router advertisements.

Product

PDSN

HA

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

[no] ipv6 router advertisement

Usage Guidelines

Enables sending of router advertisements on the interface. All of the pool prefixes in the context (belonging to the interface) will be advertised in the router advertisement.

The router-lifetime in the advertisement is sent as 0 to indicate to the receiver that the sender cannot be a default-router. For all the prefixes (pools), the valid and preferred lifetime are sent as default. The router-advertisement is sent every 600 seconds.

If the pool-prefix is deleted, then router-advertisement is sent for that particular prefix with the valid and preferred time set to 0.

logical-port-statistics

Enables or disables the collection of logical port (VLAN and NPU) bulk statistics for the first 32 configured Ethernet or PVC interface types.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

[no] logical-por t-statistics

no

Stops the collection of logical port statistics on this interface.

Usage Guidelines

Starts or stops the collection of logical port bulkstats. Default: This feature is not enabled.

Statistics are collected for up to 32 logical ports. The system collects statistics on a per minute basis and maintains samples for the last 5-minute and 15-minute intervals when this feature is enabled.

Example

To start collection of logical port statistics on this interface, enter the following command:

```
logical-port-statistics
```

mpls ip

Enables or disables dynamic Multiprotocol Label Switching (MPLS) distribution and forwarding of IP packets on this interface.

Product

GGSN

HA

P-GW

SAEGW

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

```
[ no ] mpls ip
```

no

Stops dynamic label distribution and forwarding on this interface.

Usage Guidelines

Starts label distribution and forwarding over an interface for a context that has MPLS enabled. For additional information, refer to the *Context Configuration Mode Commands* chapter. Default: This feature is not enabled.

Example

To start dynamic MPLS distribution and forwarding on this interface, enter the following command:

```
mpls ip
```

policy-forward

This command supports downlink IPv4 data packets received from the SGi that are forwarded/redirected to a configured next-hop address if the subscriber session does not exist in the P-GW.

Product

PDSN

P-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

policy-forward { icmp unreachable next-hop *ip_address* **| unconnected-address next-system** *ip_address* **}**
no policy-forward unconnected-address

no

Deletes the policy forwarding configuration for unconnected address for the current interface.

icmp unreachable next-hop *ip_address*

Specifies routing of Internet Control Message Protocol (ICMP) unreachable is required in overlapping pool configuration. *ip_address* must be expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

unconnected-address next-system *ip_address*

Specifies the IP address of the next system P-GW to handle processing during P-GW upgrade. *ip_address* must be an IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Important The **unconnected-address next-system** *ip_address* keyword enables IPv4 downlink data packet forwarding/redirection.

Usage Guidelines

Use this command to set the redirecting policy for IP packets from an existing P-GW to a new P-GW during upgrade. To configure this command both keywords will be in separate interface.

Important This is a customer specific command.

Example

To configure existing P-GW system for redirecting the P-GW packets to new P-GW during existing P-GW upgrade enter the following commands:

```
policy-forward unconnected-address next-system ip_address
policy-forward icmp unreachable next-hop ip_address
```

pool-share-protocol

Configures the primary or secondary system for the IP pool sharing protocol and enter IPSP configuration mode.

Product

PDSN

HA

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

```
pool-share-protocol { primary ip_address | secondary ip_address } [ mode {
active | inactive | check-config } ]
no pool-share-protocol
```

no

Deletes the IP pool sharing protocol information from the current interface.

primary *address*

On the secondary system, defines the IP address of an interface on the primary system that has identical IP pools configured for use with the IP pool sharing protocol. *ip_address* must be expressed in IP v4 dotted-decimal notation.

secondary *ip_address*

On the primary system, define the IP address of an interface on the secondary system that has identical IP pools configured for use with the IP pool sharing protocol. *ip_address* must be expressed in IP v4 dotted-decimal notation.

mode { active | inactive | check-config }

This is an optional command to manage the mode for IP pool sharing protocol for primary or secondary HA.

active: Activates the IP pool sharing protocol mode.

inactive: Inactivates the IP pool sharing protocol mode.

check-config: Verifies the IP pool sharing protocol configuration.

Usage Guidelines

Use this command to set the IP address of the primary or secondary system for use with the IP pool sharing protocol and enter ipsp configuration mode. This command must be configured for an interface in each context that has IP pools configured. Refer to the *System Administration Guide* for information on configuring and using the IP pool sharing protocol.

Important Both the primary and secondary systems must be in the same subnet.

Important For information on configuring and using IP Pool Sharing Protocol (IPSP), refer to the *PDSN Administration Guide*.

Important Reserve free addresses on the primary HA for this command via the **reserved-free-percentage** command as described in the *IPSP Configuration Mode Commands* chapter of this guide.

Example

To configure a secondary system with an IP address of *192.168.100.10* for use with the IP pool sharing protocol, enter the following command:

```
pool-share-protocol secondary 192.168.100.10
```

To inactivate a secondary system with an IP address of *192.168.100.10* for use with the IP pool sharing protocol, enter the following command:

```
pool-share-protocol secondary 192.168.100.10 mode inactive
```

port-switch-on-L3-fail

Causes the ASR 5500 MIO port to which the current interface is bound to switch over to the port on the redundant line card or MIO when connectivity to the specified IP address is lost.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

Syntax Description

```
port-switch-on-L3-fail address { ip_address | ipv6_address } [
minimum-switchover-period switch_time ] [ interval int_time ] [ timeout time_out
 ] [ num-retry number ]
no port-switch-on-L3-fail
```

no

Disable port switchover on failure.

ip_address

The IP address to monitor for connectivity, entered in IPv4 dotted-decimal or IPv6 colon-separated hexadecimal notation.

minimum-switchover-period *switch_time*

After a switchover occurs, another switchover cannot occur until the specified amount of time (in seconds) has elapsed. The *switch_time* must be an integer from 1 through 3600. Default: 120

interval *int_time*

Specifies how often (in seconds) monitoring packets are sent to the IP address being monitored. The *int_time* must be an integer from 1 through 3600. Default: 60

timeout *time_out*

Specifies how long to wait (in seconds) without a reply before resending monitoring packets to the IP address being monitored. The *time_out* must be an integer from 1 through 10. Default: 3

num-retry *number*

Specifies how many times to retry sending monitor packets to the IP address being monitored before performing the switchover. The *number* must be an integer from 1 through 100. Default: 5

Usage Guidelines

Use this command to monitor a destination in your network to test for L3 connectivity. The destination being monitored should be reachable from both the active and standby line cards.

Example

The following command enables port switchover on connectivity failure to the IP address *192.168.10.100* using default values:

```
port-switch-on-L3-fail address 192.168.10.100
```

The following command disables port switchover on connectivity failure:

```
no port-switch-on-L3-fail
```

vlan-map

Sets a single next-hop IP address so that multiple VLANs can use a single next-hop gateway. The vlan-map is associated with a specific interface (ASR 5000 only).

Product

PDSN

HA

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context *context_name* **> interface** *interface_name* **broadcast**

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-if-eth)#`

Syntax Description

`vlan-map next-hop` *`ip_address`*

next-hop *ip_address*

Specifies the IP address for the next-hop gateway in IPv4 dotted-decimal notation.

Usage Guidelines

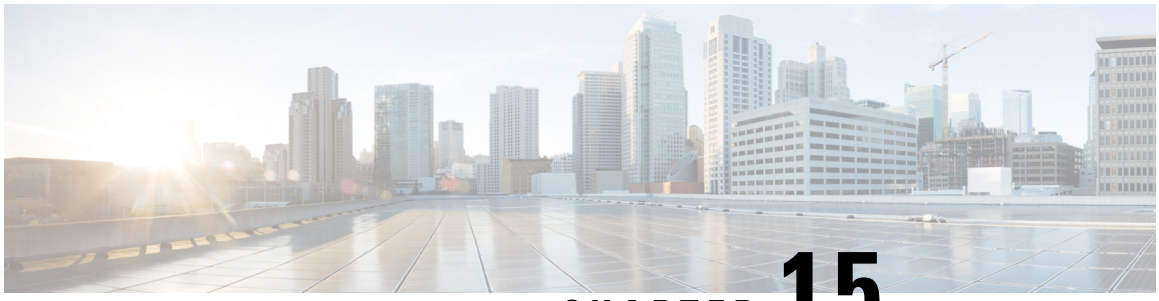
Use this command to combine multiple VLAN links to go through a single IP address. This feature is used in conjunction with nexthop forwarding and overlapping IP pools.

After configuring the vlan-map, move to the Ethernet Port Configuration mode to attach the vlan-map to a specific VLAN.

Example

The following command sets an IPv4 address for a next-hop gateway.

`vlan-map next-hop 123.123.123.1`



CHAPTER 15

Ethernet Port Configuration Mode Commands

Command Modes

The Ethernet Port Configuration Mode is used to create and manage Ethernet ports and their bindings between contexts.

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

• vlan, on page 161

bind interface

Configures an association (binds) between a virtual IP interface, an SS7 or Frame Relay link to a specific context.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-port-slot_number/port_number)#`

Syntax Description

`[ no ] bind interface` *`interface_name context_name`*

no

Indicates the virtual interface specified is to be unbound from the context.

interface_name

Specifies the name of an existing virtual interface to be bound to the context as an alphanumeric string of 1 through 79 characters. The interface must be previously defined using the Context Configuration mode **interface** command.

context_name

Specifies the name of the context to be bound to the virtual port. *context_name* must refer to a previously configured context.

Usage Guidelines

Bind an interface to a context to allow the context to provide service.

Example

The following command binds the *ethernet10* interface with the *allstar4* context:

```
bind interface ethernet10 allstar4
```

breakout-cable

Configures port breakout-cable usage for 100GBASE to 10x10GBASE SR or LR interfaces on MIO2 cards.

Important This command cannot be executed on ports equipped with CPAK 100GBASE-LR4 modules because they do not support use of breakout cables.

Product

All products running on an ASR 5500 equipped with MIO2 cards and CPAK modules

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

Syntax Description

[no] breakout-cable

no

Disables breakout cable support for the 100GBASE interface on an MIO2 card.

Usage Guidelines

Use this command to enable or disable the splitting of the 100GB interface on MIO2 cards into ten 10GBASE-SR or 10GBASE-LR ports using an MPO24-to-multiple LC breakout cable. This command can be executed for one or both CPAK modules (port 10 and/or 20) on the MIO2. The use of breakout cables is supported for CPAK-100G-SR10 and CPAK 10x10G-LR modules.

If you enable **breakout-cable** for CPAK ports 5/10 and/or 5/20, after synchronization the configuration will also be valid on CPAK ports 6/10 and/or 6/20.

After enabling or disabling the **breakout-cable** command, you must run the Exec mode **file synchronize** command to assure that the standby MIO2 has the same port configuration as the active MIO2. If a reboot causes the standby MIO2 to become active without synchronization, the breakout port configuration will not be valid on the newly active MIO2.

If you enable or disable cable splitting you must also reboot the system by issuing the Exec mode **reload** command.

Note After you configure this command, you must save the configuration and then reload the chassis for the command to take effect. For information on saving the configuration file and reloading the chassis, refer to the *System Administration Guide* for your deployment.

Caution Issuing the **reload** command causes the system to become unavailable for session processing until the reboot process is complete.

For additional information, refer to the *MIO2 Cabling* chapter of the *ASR 5500 Installation Guide*.

Example

The following command enables support for a 100Gb interface to ten 10Gb interfaces breakout cable:

breakout-cable

boxertap

Binds a a physical port to a named interface for debugging purposes.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Syntax Description

[no] boxertap *interface_name*

no

Unbinds the physical port to the interface.

interface_name

Specifies the name of the virtual interface to be bound to the physical port as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Bind a physical port to a named interface for debugging purposes.

Example

The following command binds the *ggsn01* interface to the boxertap port.

boxertap ggsn01

description

Allows you to enter descriptive text for this configuration.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

description *text*
no description

no

Clears the description for this configuration.

text

Enter descriptive text as an alphanumeric string of 1 to 100 characters.

If you include spaces between words in the description, you must enclose the text within double quotation marks (" "), for example, "AAA BBBB".

Usage Guidelines

The description should provide useful information about this configuration.

do show

Executes all **show** commands while in Configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

do show

Usage Guidelines

Use this command to run all Exec mode **show** commands while in Configuration mode. It is not necessary to exit the Config mode to run a **show** command.

The pipe character **|** is only available if the command is valid in the Exec mode.

Caution

There are some Exec mode **show** commands which are too resource intensive to run from Config mode. These include: **do show support collection**, **do show support details**, **do show support record** and **do show support summary**. If there is a restriction on a specific **show** command, the following error message is displayed:

```
Failure: Cannot execute 'do show support' command from Config mode.
```

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description **`exit`**

Usage Guidelines Use this command to return to the parent configuration mode.

fault-unidirect-mode

Configures the unidirectional mode that generates fault messages for the connection's peer when local faults are detected and remote faults are received.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Syntax Description **`[ no ] fault-unidirect-mode ( clause-46 | clause-66 }`**

no fault-unidirect-mode

Disables fault message generation.

(clause-46 | clause-66 }

clause-46: On local fault reception, continuous remote faults are sent. On remote fault reception, continuous idles are sent. [IEEE 802.3, Clause 46, Reconciliation Sublayer (RS) and 10 Gigabit Media Independent Interface (XGMII)]

clause-66: On local fault reception, frame transmit is continued, remote fault indication is sent during Inter-Frame Gap (IFG). On remote fault reception, frame transmit is continued. [IEEE 802.3, Clause 66, Extensions of the 10 Gb/s Reconciliation Sublayer (RS), 100BASE-X PHY, and 1000BASE-X PHY for unidirectional transport]

Usage Guidelines Configure the unidirectional mode that generates fault messages for the connection's peer when local faults are detected and remote faults are received.

Example

After flow control has been disabled, use the following command to enable flow control:

```
fault-unidirect-mode clause-46
```

flow-control

Enables and disables flow control on the ASR 5000 Quad Gig-E line card (QGLC) and 10-Gig-E line card (XGLC).

Product

PDSN

SGSN

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

Syntax Description

```
[ no ] flow-control
```

no

Disables flow control on the specified port.

Usage Guidelines

Flow control is enabled by default on the QGLC and can be disabled using the **no** command on a per-port basis. This command does not work on the Fast Ethernet Line Card (FELC) and Gigabit Ethernet Line Card (GELC/GLC2) which do not support flow control.

Important

Flow control must be enabled on all XGLCs in the chassis. To prevent XGLC shutdowns, you should also enable flow control at 6Gbps on the peer ports of all routers in your network that connect with the ASR 5000.

Example

After flow control has been disabled, use the following command to enable flow control:

```
flow-control
```

ingress-mode

Labels this port as an ingress port (incoming traffic).

Product

IPSG

SaMOG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Syntax Description

`[ no ] ingress-mode`

no

Disables ingress port tag.

Usage Guidelines

Use this command to label this port in order for the session manager to recognize the interface from which IP data packets are being received. This command should be used in single context configurations. In single context configurations, the ingress port can only be identified if labeled.

Important For IPSG context and service rules, regardless of number of contexts in the configuration, **ingress-mode** CLI command must be configured for ASR5500 and VPC-SI or VPC-DI platforms. This is done to give precedence to the two matching flows. For example, cases when IPv4SA or IPv4DA both are matched for the ingress packet, then if the incoming interface is designated as ingress, the lookup will be performed in the order of IPv4SA first and then IPv4DA. But if the **ingress-mode** is not set, priority is given to the IPv4DA flow. This is true only for ASR5500 and later platforms such as VPC-SI and VPC-DI.

Important It is recommended to enable the **ingress-mode** configuration for IPv6 traffic to avoid packet drops.

Important Do not enable this command for downlink interfaces. This command should only be applied to uplink interfaces.

link-aggregation

Aggregates ports on ASR 5500 Management Input/Output (MIO) cards, and sets related parameters in accordance with IEEE 802.3ad.

Product

WiMAX

PDSN

HA

FA

GGSN

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-port-slot_number/port_number)#`

Syntax Description

`link-aggregation { distribution { block | random | rotate | simple } | lacp { active | passive } [ rate { auto | fast | slow } ] [ timeout { long | short } ] | master { global group` *`group_number`* **`| group`** *`group_number`* **`| local group`** *`group_number`* **`} | member { global group`** *`group_number`* **`| group`** *`group_number`* **`| local group`** *`group_number`* **`[ min-link`** *`number_links`* **`mode { non-redundant | redundant } ] } | redundancy { standard | switched } [ hold-time`** *`sec`* **`] [ preferred slot {`** *`card_number`* **`| none } ] | toggle-link }`**

`no link-aggregation [ toggle-link ]`
`default link-aggregation { distribution | lacp | redundancy | toggle-link }`

distribution { block | random | rotate | simple }

Important The **distribution** keyword is not supported on the ASR 5500.

Configures link aggregation distribution and controls how a Link Aggregation Group (LAG) hash map is generated. This method is required for Equal Cost Multi-Path (ECMP) routing over LAG. Set this option on the master port for use with the whole group. The following list defines the distribution options (assuming port index 0,1,2,3 were selected):

block: Blocks of the same port index (Example: 0000111122223333)

random: Based on pseudo random number

rotate: Repetition of rotated port index (Example: 0123123023013012...)

simple: Repetition of all selected port indexes (Example: 0123012301230123...)

lacp { active | passive }

Configures the Link Aggregation Control Protocol (LACP). Set this option on the master port for use with the whole group.

active mode sends out LACP packets periodically. This is the default setting.

passive mode only responds to LACP packets received.

rate { auto | fast | slow }

Configures the rate at which the LACP sends packets.

auto: rate is controlled by the peer

fast: 1 second

slow: 30 seconds (Default) [ASR 5000 only]

timeout { long | short }

Configures LACP timeout events. Set this option on the master port for use with the whole group.

long: Set LACP to long timeout (30 seconds)

short: Set LACP to short timeout (3 seconds)

master { global group *group_number* | group *group_number* | local group *group_number* }

This command creates the Master port for the aggregated group.

global: Set group global across slots.

group *group_number*: Set link aggregation group number. The *group_number* must be an integer from 1 through 1023.

local: Set group local within same slot.

member { global group *group_number* | group *group_number* | local group *group_number* }

This command makes the port a member of the aggregated group.

global: Set group global across slots.

group *group_number*: Set link aggregation group number. The *group_number* must be an integer from 1 through 1023.

local: Set group local within same slot.

min-link *number_links*

Important This feature is only supported on the ASR 5500.

Specifies that a Link Aggregation Group (LAG) is up /usable only when a minimum number of links are available for aggregation. This guarantees that a minimum amount of bandwidth is available for use.

The *number_links* specifies the minimum number of links required to avoid a LAG switchover. It is an integer from 1 through 255.

When this feature is enabled, a LAG is not usable when the number of links in a LAG goes below the configured min-link value. Switchover to another LAG bundle (if available) automatically occurs when the number of links in the current active bundle goes below the configured min-link value.

mode { non-redundant | redundant }

Important This feature is only supported on the ASR 5500.

Specifies whether the LAG is configured in *non-redundant* (Active-Active mode) or *redundant* (Active-Standby) mode.

redundancy { standard | switched } [hold-time *sec*] [preferred slot { *card_number* | none }]

Connects ASR 5500 MIOs to different Ethernet switches. The master port must be set to make this effective for the group.

standard: Treats all cards in the group as one group. (Default)

switched: Assumes cards are connected to different switches. [ASR 5000 only]

hold-time *sec*: Sets the amount of time to hold (in seconds) before switching between cards. Applies to standard and switched modes.The *sec* must be an integer from 0 through 3600. Default: 10

preferred slot { *card_number* **| none }**: Specifies the preferred behavior for a LAG using two Ethernet switches. Applies to standard and switched modes. The *card_number* is an integer with value 5 or 6 on an ASR 5500.

When a card number is specified, system behavior varies based on the card type. For MIO (ASR 5500) card, the preferred slot is selected for the initial timeout period to make the selection of an Ethernet switch less random.

none: Specifies no preferred slot.

toggle-link

Important The **toggle-link** keyword is not supported on the ASR 5500.

Set to toggle link on port switch.

default

Restores the default values.

no

This command deletes the Ethernet port from any group it might be in. If the port was the Master of a group, the whole group would be deleted.

Usage Guidelines

Configure from one to four ports on a QGLC (vertical aggregation) or the single port on XGLCs (horizontal aggregation), or traffic ports on an MIO card to be in an aggregation group that links to an aggregation group on a remote Ethernet switch. Very large files can be downloaded across all ports in a group, which makes for a faster download when compared to serial downloads over a single link.

Related **link-aggregation** commands are described in the *Card Configuration Mode Commands* and *Global Configuration Mode Commands* chapters of this guide. For additional information, also refer to the *System Administration Guide*.

Example

The following example configures the port to be part of Master Group *2*:

```
link aggregation master group 2
```

media

This command configures the port interface type. (ASR 5000 only)

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Syntax Description

```
media { rj45 | sfp }
```

rj45

Sets the physical interface to a copper RJ-45 connector.

sfp

Sets the physical interface connection to optical Small Form Factor (SFP) gigabit via an SFP transceiver.

Usage Guidelines

Set the media option when the physical cabling interface is changed.

Example

The following command sets the physical interface to RJ-45:

```
media rj45
```

medium

Configures the port speed and communication mode. (ASR 5000 only)

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > **port ethernet** *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-port-slot_number/port_number)#`

Syntax Description

medium { auto | speed { 10 | 100 | 1000 | 10000 } duplex { full | half } }

{ auto | speed { 10 | 100 | 1000 | 10000 } duplex { full | half } }

Default: **auto**

Optionally sets the speed of the interface and the communication mode.

auto: Configures the interface to auto-negotiate the interface speed.

speed { 10 | 100 | 1000 | 10000 }: Specifies the speed to use at all times.

duplex { full | half }: Sets the communication mode of the interface to either **full** or **half** duplex.

Important Ethernet networking rules dictate that if a device whose interface is configured to auto-negotiate is communicating with a device that is manually configured to support full duplex, the first device will negotiate to the manually configured speed of the second device but will only communicate in half duplex mode.

Usage Guidelines

Set the medium options when the physical interface changes.

Important The **speed** keyword in the **medium** command is not supported on the ASR 5500.

Example

The following command configures the port's speed and communication mode to be auto-negotiated.

```
medium auto
```

The following command configures the port's interface speed to gigabit with full duplex communication.

```
medium speed 1000 duplex full
```

preferred slot

Assigns revertive or non-revertive control to port redundancy auto-recovery. (ASR 5x00 only)

Default: non-revertive operation

Product

PDSN

FA

HA

SGSN

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-port-slot_number/port_number)#`

Syntax Description

`[ no ] preferred slot` *`slot_number`*

no

Disables revertive or auto-recovery operation for the selected port.

preferred slot *slot_number*

Identifies the physical chassis slot where the ASR 5500 MIO card is installed.

Usage Guidelines

This command enables or disables revertive port redundancy, wherein after a port failover, when the original port is restored to service (such as link up) the system will return service to that port automatically.

Disabled, which is the default setting, causes non-revertive operation; requiring an administrative user to manually issue an Exec mode **link-aggregation port switch to** command to return service to the original port.

This command must be issued on a per port basis, allowing you to configure specific ports to be used on individual line card, SPIO, or an MIO card.

Important This command is not supported on all platforms.

Example

For ASR 5000:

The following command identifies the chassis slot 17 where the line card or SPIO card is installed.

preferred slot 17

For ASR 5500:

The following command identifies the chassis slot 5 where the MIO card is installed.

preferred slot 5

shutdown

Terminates all processes supporting the port or blocks the shutting down of the port. Conversely, the port is enabled with the use of the **no** keyword.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Syntax Description

`[ no ] shutdown`

no

Enables the port and places it in service.

Usage Guidelines

Shuts down a port prior to re-cabling and/or other maintenance activities.

This command powers down the ports on MIO/UMIO cards (ASR 5500).

To enable a port (bring it into service) use the **no** keyword.

Example

Use the following command to disable the port:

`shutdown`

Use the following command to enable the port for service:

`no shutdown`

snmp trap link-status

Enables or disables the generation of an SNMP trap for link status changes.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Syntax Description

```
[ no ] snmp trap link-status
```

no

Disables the sending of traps for link status changes.

Usage Guidelines

Enable link status change traps when a monitoring facility can use the information or if there are troubleshooting activities in progress.

Example

Use the following command to disable sending of traps:

```
no snmp trap link-status
```

srp virtual-mac-address

Configures the Standby Router Protocol (SRP) virtual MAC address for the port on an ICSR chassis.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

Syntax Description

```
srp virtual-mac-address mac_address
no srp virtual-mac-address
```

no

Disables the SRP virtual MAC addressing for Ethernet ports. The block of virtual MAC addresses is not saved.

mac_address

Enables SRP virtual addressing for the specified MAC address. The MAC address hsould be specified as six groups of two hexadecimal digits separated by hyphens. For example, 01-23-45-67-89-ab.

Usage Guidelines

The SRP virtual MAC address is applied to the port when the chassis is in SRP ACTIVE state. The default is **no srp virtual-mac-address**.

Important

This command is not supported on all platforms.

Example

Use the following command to enable the SRP's virtual MAC addressing:

```
srp virtual-mac-address 09-33-48-67-99-ae
```

threshold high-activity

Configures thresholds for high port activity for the port.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

Syntax Description

threshold high-activity *high_thresh* **[clear** *low_thresh* **]**

high_thresh

Specifies the high threshold high port activity percentage that must be met or exceeded within the polling interval to generate an alert or alarm. The percentage is expressed as an integer from 0 through 100. Default: 50

clear

Allows the configuration of the low threshold.

low_thresh

Specifies the low threshold high port activity percentage that maintains a previously generated alarm condition. If the activity percentage falls below the low threshold within the polling interval, a clear alarm will be generated. The percentage is expressed as an integer from 0 through 100. Default: 50

Important

This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Usage Guidelines

High port activity thresholds generate alerts or alarms based on the utilization percentage of each configured port during the specified polling interval. This threshold is configured on a per-port basis.

Alerts or alarms are triggered for high port activity based on the following rules:

- **Enter condition**: Actual percent utilization of a port is greater than High Threshold.
- **Clear condition**: Actual percent utilization of a port is less than Low Threshold.

If a trigger condition occurs within the polling interval, the alert or alarm will not be generated until the end of the polling interval.

Refer to the **threshold poll** command in the *Global Configuration Mode Commands* chapter to configure the polling interval and the **threshold monitoring** command in this chapter to enable thresholding for this value.

Example

The following command configures a high port utilization threshold percent of *70* and a low threshold percent of *50* for a system using the Alarm thresholding model:

```
threshold high-activity 70 clear 50
```

threshold monitoring

Enables or disables thresholding for port-level values.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

Syntax Description

```
[ no ] threshold monitoring
```

no

Disables threshold monitoring for port-level values. This is the default setting.

Usage Guidelines

Thresholding on the system is used to monitor the system for conditions that could potentially cause errors or outage. Typically, these conditions are temporary (such as high-activity) and are quickly resolved. However, continuous or large numbers of these error conditions within a specific time interval may be indicative of larger, more severe issues. Thresholding helps identify potentially severe conditions so that immediate action can be taken to minimize and/or avoid system downtime.

Thresholding reports conditions using one of the following mechanisms:

- **SNMP traps**: SNMP traps have been created that indicate the condition (high threshold crossing and/or clear) of each of the monitored values. Complete descriptions and other information pertaining to these traps is located in the starentMIB(8164).starentTraps(2) section of the *SNMP MIB Reference*. The generation of specific SNMP traps can be enabled or disabled on the system allowing you to view only those traps that are most important to you.
- **Logs**: The system provides a facility called threshold for which active and event logs can be generated. As with other system facilities, logs are generated Log messages pertaining to the condition of a monitored value are generated with a severity level of WARNING.

- **Alarm System**: High threshold alarms generated within the specified polling interval are considered "outstanding" until a the condition no longer exists and/or a condition clear alarm is generated.

"Outstanding" alarms are reported to through the system's alarm subsystem and are viewable through the system's CLI.

The following table indicates the reporting mechanisms supported by each of the above models.

Table 1: Thresholding Reporting Mechanisms by Model

Model	SNMP Traps	Logs	Alarm System
Alert	X	X	
Alarm	X	X	X

This command enables thresholding for port-level values. Refer to the **threshold high-activity, threshold rx-utilization,** and **threshold tx-utilization** commands in this chapter for information on configuring these values. In addition, refer to the **threshold poll** command in the *Global Configuration Mode Commands* chapter for information on configuring the polling interval over which these values are monitored.

threshold rx-utilization

Configures thresholds for receive port utilization.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-port-`*`slot_number/port_number`*`)#`

Syntax Description

`threshold rx-utilization` *`high_thresh`* **`[ clear`** *`low_thresh`* **`]`**

high_thresh

Specifies the high threshold receive port utilization percentage that must be met or exceeded within the polling interval to generate an alert or alarm. The percentage is expressed as an integer from 0 through 100. Default: 80

clear

Allows the configuration of the low threshold.

low_thresh

Specifies the low threshold receive port utilization percentage that maintains a previously generated alarm condition. If the utilization percentage falls below the low threshold within the polling interval, a Clear Alarm will be generated. The percentage is expressed as an integer from 0 through 100. Default: 80

Important This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Usage Guidelines Receive port utilization thresholds generate alerts or alarms based on the utilization percentage of each configured port in relation to data received during the specified polling interval. This threshold is configured on a per-port basis.

Important Ports configured for half-duplex do not differentiate between data received and data transmitted. Therefore, to avoid redundant alarms, it is recommended that only the receive **or** transmit utilization threshold be configured.

Alerts or alarms are triggered for receive port utilization based on the following rules:

- **Enter condition**: Actual percent utilization of a port for received data is greater than High Threshold
- **Clear condition**: Actual percent utilization of a port for received data is less than Low Threshold

If a trigger condition occurs within the polling interval, the alert or alarm will not be generated until the end of the polling interval.

Refer to the **threshold poll** command in the *Global Configuration Mode Commands* chapter to configure the polling interval and the **threshold monitoring** command in this chapter to enable thresholding for this value.

Example

The following command configures a receive port high utilization threshold percent of *70* and a low threshold percent of *50* for an system using the Alarm thresholding model:

```
threshold rx-utilization 70 clear 50
```

threshold tx-utilization

Configures thresholds for transmit port utilization.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

Syntax Description

```
threshold tx-utilization  high_thresh [ clear low_thresh ]
```

high_thresh

The high threshold transmit port utilization percentage that must be met or exceeded within the polling interval to generate an alert or alarm. The percentage is expressed as an integer from 0 through 100. Default: 80

clear

Allows the configuration of the low threshold.

low_thresh

The low threshold transmit port utilization percentage that maintains a previously generated alarm condition. If the utilization percentage falls below the low threshold within the polling interval, a clear alarm will be generated. The percentage is expressed as an integer from 0 through 100. Default: 80

Important This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Usage Guidelines

Transmit port utilization thresholds generate alerts or alarms based on the utilization percentage of each configured port in relation to data transmitted during the specified polling interval. This threshold is configured on a per-port basis.

Important Ports configured for half-duplex do not differentiate between data received and data transmitted. Therefore, to avoid redundant alarms, it is recommended that only the receive **or** transmit utilization threshold be configured.

Alerts or alarms are triggered for transmit port utilization based on the following rules:

- **Enter condition**: Actual percent utilization of a port for transmit data is greater than High Threshold
- **Clear condition**: Actual percent utilization of a port for transmit data is less than Low Threshold

If a trigger condition occurs within the polling interval, the alert or alarm will not be generated until the end of the polling interval.

Refer to the **threshold poll** command in the *Global Configuration Mode Commands* chapter to configure the polling interval and the **threshold monitoring** command in this chapter to enable thresholding for this value.

Example

The following command configures a transmit port high utilization threshold percent of *70* and a low threshold of *50* for an system using the Alarm thresholding model:

```
threshold tx-utilization 70 clear 50
```

vlan

Enters VLAN Configuration mode. Creates VLAN if necessary.

Product

HA

HSGW

PDSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet *slot_number/port_number*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

Syntax Description

vlan *vlan_id* **[inline-process | subscriber-vlan] [-noconfirm]**

vlan_id

Specifies a VLAN identifier as an integer from 1 through 4094. If this identifier does not already exist you are prompted to confirm the identifier an a new one is created.

inline-process

Specifies that this VLAN will be used for inline processing.

subscriber-vlan

Specifies that this VLAN will be used for subscriber-based processing.

-noconfirm

Specifies that the command must execute without any prompts and confirmation from the user.

Usage Guidelines

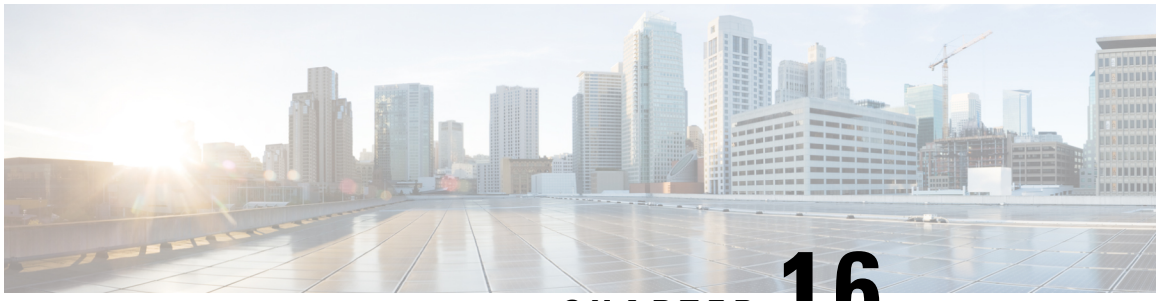
Use this command to specify an existing VLAN ID or create a new VLAN ID and enter the VLAN Configuration mode.

For additional information, refer to the *VLAN Configuration Mode Commands* chapter.

Example

The following command creates the VLAN ID *234*.

```
vlan 234
Are you sure? [Yes|No]: y
```



CHAPTER 16

Exec Mode Commands (A-C)

The Exec Mode is the initial entry point into the command line interface system. Exec mode commands are useful in troubleshooting and basic system monitoring.

Command Modes

This section includes the commands **aaa test** through **crypto-group**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

aaa test

Tests Authentication, Authorization and Accounting (AAA) functionality between this system and a remote server.

Product

ASN-GW

GGSN

HA

PDSN

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`aaa test { accounting username` *`user_name`* **`| authenticate`** *`user_name password`* **`| session`** *`user_name password`* **`}`**

accounting username *user_name*

Tests RADIUS or GTPP accounting functionality for the specified user.

user_name must be the name of a user configured on the RADIUS or CFG server.

Important GTPP is used only in conjunction with the GGSN or SGSN product.

authenticate *user_name password*

Tests RADIUS authentication functionality for the specified user.

user_name is the name of a user configured on the RADIUS server. *password* is the user's password.

session *user_name password*

Tests both RADIUS authentication and RADIUS or GTPP accounting functionality for the specified user.

user_name is the name of a user configured on the RADIUS server. *password* is the user's password.

Important GTPP is used only in conjunction with the GGSN or SGSN product.

Usage Guidelines

This command is used to test RADIUS-based authentication and RADIUS or GTPP accounting. This command may be useful for diagnosing problems with subscribers and access to the system and/or billing data.

Example

The following command verifies accounting for a user named *user1*:

```
aaa test accounting username user1
```

The following command tests authentication for a user named *user1* with the password *abc123*:

```
aaa test authentication user1 abc123
```

The following command tests both accounting and authentication for the user named *user1* with the password *abc123*:

```
aaa test session user1 abc123
```

abort

Stops software patch or upgrade process.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`abort { patch | upgrade } [ -noconfirm ]`

patch

Stops a running software patch process.

upgrade

Stops a running software upgrade process.

Important

The **abort upgrade** command can only be used during Stage 1 (busy-out) of an on-line software upgrade.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to stop a running StarOS patch or upgrade process. For additional information on software patches and upgrades, refer to the *System Administration Guide*.

Example

The following command stops an in-progress StarOS upgrade:

`abort upgrade`

active-charging service

Creates an active charging service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

active-charging service *ecs_service_name* **[-noconfirm]**

ecs_service_name

Specifies name of the active charging service.

ecs_service_name must be an alphanumeric string of 1 through 15 characters.

If the named service does not exist, it is created and the CLI mode changes to the ACS Configuration Mode wherein the service can be configured.

If the named service already exists, the CLI mode changes to the ACS Configuration mode wherein the specified active charging service can be configured.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to create an active charging service in the system. This command can be used directly in Exec Mode after issuing the **require active-charging** command in the Global Configuration Mode.

This command allows an operator (rather than security administrators and administrators) to configure the ACS functionality only.

On entering this command, the CLI prompt changes to:

[*context_name*]*hostname*(config-acs)#

Important Operators need special CLI privilege for ACS functionality to be able to use this CLI command.

Example

The following command creates an active charging service named *test*:

active-charging service test

alarm

Disables the internal audible alarm on the MIO card.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`alarm cutoff`

Usage Guidelines

Alarm cutoff disables the audible alarm. The alarm may be enabled following this command if an event within the system results in the audible alarm being enabled.

Example

`alarm cutoff`

aps

Allows the operator to perform SONET Automatic Protection Switching (APS) administrative operations.

Important Use of this command is limited to the OLC2 and the CLC2 line cards.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`aps { clear` *`slot#/port#`* **`| exercise`** *`slot#/port#`* **`| lockout`** *`slot#/port#`* **`| switch { force | manual }`** *`slot#/port#`* **`}`**

clear *slot#/port#*

Clears the last switch command on the specified channelized port.

slot#/port# is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1).

exercise *slot#/port#*

Tests the APS protocol on line connected to port.

slot#/port# is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1)

lockout *slot#/port#*

Prevents the working port from switching to the protection port.

slot#/port# is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1)

switch { force | manual } *slot#/port#*

Switch to either the working port or the protection port:

- **force**: Forces a switch of ports, even if there is an active alarm state.
- **manual**: Implements a switch of ports if there are no active alarms.

slot#/port# is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1)

Usage Guidelines

This command allows an operator to perform administrative/maintenance APS tasks such as testing the APS protocol, switching the working port to the protection port, and locking out the switching function.

Example

The following command starts an APS protocol test on port 2 of card 27:

```
aps exercise 27/2
```

autoconfirm

Enables or disables confirmation for certain commands. This command affects the current CLI session only.

Important

Use the **autoconfirm** command in the Global Configuration Mode to change the behavior for all future CLI sessions.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] autoconfirm
```

no

Disables autoconfirm if it has been enabled.

Usage Guidelines

When **autoconfirm** is enabled, certain commands ask you to answer yes or no to confirm that you want to execute the command. When **autoconfirm** is disabled, the confirmation prompts never appear. Disabling **autoconfirm** in the Exec mode is active for the current CLI session only.

By default **autoconfirm** is enabled.

Important If commandguard is enabled, autoconfirm will disable commandguard.

Example

The following command enables command confirmation:

```
autoconfirm
```

bulkstats force

Manages the collection and delivery of system statistics (bulkstats) to the configured server.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
bulkstats force { gather | transfer }
```

gather

Immediately collects the system statistics.

transfer

Immediately sends the currently collected statistics to the configured server.

Usage Guidelines When the current system statistics are desired immediately as opposed to the normal scheduled collection and delivery intervals issue this command.

Troubleshooting the system may require the review of statistics at times when the scheduled delivery is not timely.

Example

The following causes the chassis to immediately collect system statistics. This would be in anticipation of a transfer command.

```
bulkstats force gather
```

The following command causes the chassis to immediately send all collected statistics to the configured server.

```
bulkstats force transfer
```

call-home send

Manages how Cisco Smart Call Home messages are sent to alert groups.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

`call-home send alert-group { configuration profile` *`profile name`* **`| inventory profile`** *`profile name`* **`}`**

configuration profile *profile name*

Sends configuration messages to the previously defined profile, expressed as an alphanumeric string of 1 through 31 characters.

inventory profile *profile name*

Sends inventory messages to the previously defined profile, expressed as an alphanumeric string of 1 through 31 characters.

Usage Guidelines

Use this command to send specified alert-group call-home message from the CLI to all profiles subscribed to the specified alert group, or to a specified profile which does not need to be subscribed to the specified alert-group. For additional information, refer to the *Call-Home Configuration Mode Commands* and *Call-Home Profile Configuration Mode Commands* chapters.

Example

The following command sets the system to send configuration related call-home messages to the profile named *Profile1*.

```
call-home send alert-group configuration profile Profile1
```

call-home test

Sends a test Smart Call Home event message to a specified profile.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

call-home test message { *test_message_content* | profile *profile name* }

call-home test message message *test_message_content*

Defines the message to send to the defined profile as an alphanumeric string of 1 through 128 characters.

profile *profile_name*

Specifies the previously defined profile to which the message will be sent, expressed as an alphanumeric string of 1 through 31 characters.

Usage Guidelines

Use this command to send test call-home messages from the CLI to a specified profile. If a message is not specified, the system sends out a default message.

Example

The following command sets the system to send a test call-home message *Test_Message_1* to the profile named *Profile1*.

```
call-home test message Test_Message_1 profile Profile1
```

card busy-out

Moves processes from the source packet processing card to the destination packet processing card, or disables the packet processing card from accepting any new calls. When busy-out is enabled, the packet processing card stops receiving new calls but continues to process calls until they are completed. The command prompt is returned once the command is initiated. The busy-out procedure is completed in background. (ASR 5x00 only)

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

card busy-out { migrate from *src_slot* to *dst_slot* } [-noconfirm]
no card busy-out

no

Disables busy-out. The packet processing card is re-enabled to accept new calls.

migrate from *src_slot* to *dst_slot*

Moves processes from the specified source packet processing card to the specified destination packet processing card. The command prompt is returned once the command is initiated. The card migration is completed in background.

src_slot indicates the source slot number of the card from which processes will be migrated. *dst_slot* indicates the destination slot number of the card to which processes will be migrated.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Migrating a packet processing card changes the active/standby status of a packet processing card. This results in the active sessions/processes being moved to the newly active card. This is useful when there is a maintenance activity on the active card which requires removing the card from service.

The destination slot specified must contain a packet processing card which is in the standby state for the command to complete successfully.

Caution Be cautious when executing this command. Depending on the number of active sessions being migrated, some subscribers may experience service interruptions.

Using busy-out to refuse new calls on a packet processing card allows you to take a card out of service without any interruptions to the end user. An individual system can be taken completely out of service gracefully by enabling busy-out on all packet processing cards and waiting for current calls to complete. The **show card info** command shows if busy-out is enabled.

Important When a packet processing card fails, is migrated, or is restarted for any reason, busy-out is reset to disabled, the default behavior.

Important This command is not supported on all platforms.

Example

The following command migrates the active processes from the packet processing card in slot *12* to the card in slot *14*. This command executes after you provide confirmation of the request.

```
card migrate from 12 to 14
```

The following command migrates the active processes from the packet processing card in slot *1* to the card in slot *8*. This command executes after you provide confirmation of the request.

```
card migrate from 1 to 8
```

The following command sets the packet processing card in slot 1 to stop accepting new calls:

```
card busy-out 1
```

card halt

Halts all StarOS processes on a card. A **card reboot** command must be issued to bring the card back into service after it is halted. (ASR 5x00 only)

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`card halt` *`slot_num`* **`[ -force ] [ -noconfirm ]`**

slot_num

Indicates the slot number of the card of interest.

-force

Overrides any warnings to force the card to be halted.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Halt a card to stop it for maintenance or emergency situations.

Caution Caution should be taken in using this command. Halting a card which has no redundant card available may cause a service interruption and loss of active sessions.

Important On the ASR 5500, do not initiate a **card halt** for an active FSC if there are less than two active FSCs in the system. The system returns an error message if there are less than four active FSCs.

Caution The **-force** and **-noconfirm** options should only be used concurrently by experienced users as this will cause an immediate halt regardless of warnings and no confirmation from the user.

Important This command is not supported on all platforms.

Example

The following command temporarily stops the card in slot 1.

```
card halt 1
```

The following commands force the card to halt and indicate no confirmation is to take place, respectively.

```
card halt 1 -force -noconfirm
card halt 1 -noconfirm
```

card migrate

Migrates StarOS processes from an active packet processing card to a standby packet processing card. (ASR 5x00 only)

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

card migrate from *src_slot* **to** *dst_slot* **-force-smaller [-noconfirm] [stop-checkpoint]**

src_slot

Indicates the slot number of the packet processing card from which processes will be migrated.

Important The packet processing card in this slot must be in Active mode.

dst_slot

Indicates the slot number of the packet processing card to which processes will be migrated.

-force-smaller

Indicates the force migration to a smaller card even though tasks may not fit.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

stop-checkpoint

This command is used instead of the default “live migration” algorithm. The stop and checkpoint algorithm stops the migrating proclet, migrates proclet, then restarts the proclet on the destination card. This migration process is typically faster than the live migration algorithm. However, the migrating proclet does not process call requests when stopped.

Note Proclets are migrated sequentially and that only one proclet is stopped at any point in time. For more information about the usage of **stop-checkpoint** keyword, contact your Cisco Account representative.

Usage Guidelines This command allows an operator to move processes from an active to a standby packet processing card.

Example

The following will cause processes currently running on the card in slot 8 to migrate to the standby card in slot 9. The migration will not occur if any warnings are generated.

```
card migrate from 8 to 9
```

card reboot

Performs reset of the target card. For ASR 5500, rebooting a card will result in the card downloading the image from the active MIO card.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
card reboot target_slot [ -force ] [ -noconfirm ]
```

target_slot

Initiates a reboot of the card in the specified the slot number.

-force

Indicates that the reboot is to take place ignoring any state or usage warnings that might be generated.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines A reboot is used to reset the card and receive a new download. This may be useful when a card is not responding or when it is necessary to cause the card to reload its image and restart.

Caution Caution should be taken in using this command. Rebooting a card which has no redundant card available may cause a service interruption and loss of active sessions.

Important On the ASR 5500, do not initiate a **card reboot** for an active FSC if there are less than four active FSCs in the system. The system returns an error message if there are less than four active FSCs.

Caution The **-force** and **-noconfirm** options should only be used concurrently by experienced users as this will cause an immediate reboot regardless of warnings and no confirmation from the user.

Important This command is not supported on all platforms.

Example

The following will cause the card in slot 8 to reboot without any confirmation from the user. The card will not reboot if there are any warnings generated.

```
card reboot 8 -noconfirm
```

The following command will cause the card in slot 8 to reboot regardless of any warnings. The user must provide confirmation prior to this command executing.

```
card reboot 8 -force
```

The following command will cause the card in slot 8 to reboot regardless of any warnings with no additional user confirmation.

```
card reboot 8 -force -noconfirm
```

card restart

Performs a soft-reset of the target card causing all application processes to restart. (ASR 5x00 only)

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
card restart target_slot [ -force ] [ -noconfirm ]
```

target_slot

Initiates a restart of the card in the specified slot number.

-force

Indicates the restart is to take place ignoring any state or usage warnings that might be generated.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Restarting a card may be useful when a card is not performing as expected (performance drop, increased response delays, etc.). A restart may be preferred to a reboot as the card becomes available in less time than a reboot.

When this command is issued for an active card, the user is prompted for confirmation unless the **-force** and/or **-noconfirm** keywords are used. Because the reboot of standby or redundant cards is non-service impacting, the reboot proceeds immediately after the command execution without user confirmation.

Caution Caution should be taken in using this command. Restarting a card which has no redundant card available may cause a service interruption and loss of active sessions.

Important This command is not supported on all platforms.

Caution The **-force** and **-noconfirm** options should only be used concurrently by experienced users as this will cause an immediate restart regardless of warnings and no confirmation from the user.

Example

The following will cause the card in slot 8 to restart without any confirmation from the user. The card will not reboot if there are any warnings generated.

```
card restart 8 -noconfirm
```

The following command will cause the card in slot 8 to restart regardless of any warnings. The user must provide confirmation prior to this command executing.

```
card restart 8 -force
```

The following command will cause the card in slot 8 to restart regardless of any warnings with no additional user confirmation.

```
card restart 8 -force -noconfirm
```

card switch

Manages card pairs and their active/standby status (ASR 5x00 and VPC-DI only).

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

`card switch { from` *`target_slot`* **`| to`** *`target_slot`* **`} [ -noconfirm ]`**

from *target_slot*

Specifies the slot number of a currently active card that is to be switched. The slot number must be valid and contain a card in active mode.

to *target_slot*

Specifies the slot number of a standby card which is to become the active card. The slot number must be valid and contain a card in standby.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Card switch-overs change the active/standby status of a card. This is useful when there is a maintenance activity on the active card which requires removing the card from service.

On VPC-DI, a warning is presented during the switchover between Control Functions (CFs) if the HD RAID is degraded.

```
Warning: RAID is degraded. Switchover might lead to data loss.
```

Caution Caution should be taken in using this command. Depending on the amount of bandwidth/traffic being switched, some subscribers may experience service interruptions.

Example

The following command switches the active/standby status of the line cards in slots 17 and 18. This command only executes after you provide confirmation of the request.

`card switch from 17 to 18`

The following command switches the active/standby status of the cards in slots 1 and 2. This command executes immediately with no additional user confirmation.

`card switch from 1 to 2 -noconfirm`

card upgrade

Upgrades the programmable memory on a card. (ASR 5x00 only)

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`card upgrade` *`slot_number`* **`[ -noconfirm ]`**

slot_number

The slot number of the card to be upgraded from 1 through 10.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Caution Use this command only if instructed by or working with Technical Assistance Center personnel.

Important On the ASR 5500, do not initiate a **card upgrade** for an active FSC if there are less than four active FSCs in the system. The system returns an error message if there are less than four active FSCs.

Usage Guidelines

You can only initiate an upgrade if:

- there is no migration occurring,
- the card is active or standby,
- there is no online upgrade in progress.

Important The following operations are not allowed while a card is upgrading: change edc requirement (config), change card [no] shutdown (config), change card active (config), change card redundancy (config), card halt (exec), card reboot (exec), start an online upgrade.

Important Level unlock operations are ignored while a card is upgrading.

Important This command is not supported on all platforms.

Example

The following command initiates a packet processing card upgrade on slot number 10:

```
card upgrade 10
```

cdr-push

Initiates a manual push of CDR files to a configured URL.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
cdr-push { all | local-filename file_name }
```

all

Pushes all CDR files to the configured URL.

local-filename *file_name*

Pushes only the specified file to the configured URL.

The *file_name* must be the absolute path of the local file to push, and must be an alphanumeric string of 1 through 1023 characters.

Usage Guidelines

Use this command to manually push CDR files to the configured URL or external storage.

For information on configuring the external storage, see the **cdr** command in the *EDR Module Configuration Mode Commands* and the *UDR Module Configuration Mode Commands* chapters.

ASR 5000: Run this command only from the local context. If you are in any other context, you will see this failure message: "Failure: Manual PUSH of CDRs supported only in the local context"

ASR 5500: Run this command only from the local context. If you are in any other context, you will see this failure message: "Failure: Manual PUSH of CDRs supported only in the local context"

Example

The following command pushes all CDR files to the URL:

```
cdr-push all
```

chassis

Specifies the chassis key that will be used to encrypt and decrypt encrypted passwords in the configuration file. If two or more chassis are configured with the same chassis key value, the encrypted passwords can be decrypted by any of the chassis sharing the same chassis key value. As a corollary to this, a chassis key value will not be able to decrypt the passwords that were encrypted using a different chassis key value.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[ no ] chassis { key value` *`key_string`* **`| keycheck`** *`key_string`* **`}`**

no

Resets the chassis key to the factory default value. The factory default value is a local MAC address for the chassis. Once this command is executed, the **chassis key value** command can be used to change the default chassis key.

key value *key_string*

Specifies the chassis key value as an alphanumeric string of 1 through 16 characters.

The chassis key value is stored as a one-way encrypted value, much like a password. It is never displayed in its plain-text form.

keycheck *key_string*

Generates a one-way encrypted key value based on the entered alphanumeric string of 1 through 16 characters.

The generated encrypted key value is compared against the encrypted key value of the previously entered chassis key value. If the encrypted values match, the command succeeds and key check passes. If the comparison fails, a message is displayed indicating that the key check has failed. Note that if the default chassis key MAC address) is currently being used, this key check will always fail since there will be no chassis key value to compare against.

Important Fro detailed information regarding the impact of using these commands in various StarOS releases, refer to the *System Settings* chapter of the *System Administration Guide*.

Usage Guidelines

Establish multiple, unique chassis keys to encrypt and decrypt passwords in configuration files.

Example

The following command generates a one-way encrypted key based on the string *tewks367*.

```
chassis key value tewks367
```

clear aaa

Clears all Authentication, Authorization, and Accounting (AAA) statistics for the current context.

Product

ASN-GW

GGSN

PDSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

```
clear aaa local counters
```

Usage Guidelines

Clearing the AAA statistics may be useful when monitoring the statistics manually. Clearing resets the counters to zero.

The keyword **local** is not intended to imply the local context defined for all systems. Rather, it indicates the statistics within the current context are to be cleared.

Example

The following command zeroes out all the AAA statistics in the current context.

```
clear aaa local counters
```

clear active-charging analyzer statistics

Clears protocol analyzer statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear active-charging analyzer statistics [name *protocol_name* **] [| { grep** *grep_options* **| more }]**

name *protocol_name*

Clears statistics for the specified protocol analyzer.

If this keyword is not specified all statistics are cleared.

protocol_name must be one of the following:

- **cdp**
- **dns**
- **file-transfer**
- **ftp**
- **http**
- **icmp**
- **icmpv6**
- **imap**
- **ip**
- **ipv6**
- **mipv6**
- **mms**
- **p2p [application** *p2p_list* **| protocol-group** *group_list* **]**: Peer-to-peer analyzer.

  p2p application *p2p_list*: The supported applications are:

  - **8tracks**
  - **abcnetworks**
  - **actionvoip**
  - **actsync**
  - **adobeconnect**
  - **aimini**
  - **amazoncloud**
  - **amazonmusic**
  - **amazonvideo**
  - **antsp2p**
  - **apple-push**
  - **apple-store**

- **applejuice**
- **applemaps**
- **ares**
- **armagettron**
- **avi**
- **badoo**
- **baidumovie**
- **battlefld**
- **bbm**
- **beatport**
- **betternet**
- **bitcasa**
- **bittorrent**
- **bittorrent-sync**
- **blackberry-store**
- **blackberry**
- **blackdialer**
- **box**
- **callofduty**
- **chikka**
- **cisco-jabber**
- **citrix**
- **clubbox**
- **clubpenguin**
- **comodounite**
- **crackle**
- **crossfire**
- **crunchyroll**
- **cyberghost**
- **ddlink**
- **deezer**
- **didi**

- **directconnect**
- **dish-anywhere**
- **disneymovies**
- **dofus**
- **dramafever**
- **dropbox**
- **ebuddy**
- **edonkey**
- **espn**
- **expressvpn**
- **facebook**
- **facetime**
- **fandor**
- **fasttrack**
- **feidian**
- **ficall**
- **fiesta**
- **filetopia**
- **filmontv**
- **flash**
- **flickr**
- **florensia**
- **foursquare**
- **fox-sports**
- **freenet**
- **friendster**
- **fring**
- **funshion**
- **gadugadu**
- **gamekit**
- **gmail**
- **gnutella**

- **go90**
- **goober**
- **google-music**
- **google-push**
- **google**
- **googleplay**
- **googleplus**
- **gotomeeting**
- **gtalk**
- **guildwars**
- **halflife2**
- **hamachivpn**
- **hayu**
- **hbogo**
- **hbonow**
- **heytell**
- **hgtv**
- **hike-messenger**
- **hls**
- **hotspotvpn**
- **hulu**
- **hyves**
- **iax**
- **icall**
- **icecast**
- **icloud**
- **idrive**
- **igo**
- **iheartradio**
- **imesh**
- **imessage**
- **imgur**

- **imo**
- **implus**
- **instagram**
- **iplayer**
- **iptv**
- **irc**
- **isakmp**
- **iskoot**
- **itunes**
- **jabber**
- **jap**
- **jumblo**
- **kakaotalk**
- **kik-messenger**
- **kontiki**
- **kugoo**
- **kuro**
- **linkedin**
- **livestream**
- **lync**
- **magicjack**
- **manolito**
- **mapfactor**
- **mapi**
- **maplestory**
- **meebo**
- **mgcp**
- **mig33**
- **mlb**
- **mojo**
- **monkey3**
- **mozy**

- **msn**
- **msrp**
- **mute**
- **mypeople**
- **myspace**
- **nateontalk**
- **naverline**
- **navigon**
- **nbc-sports**
- **netflix**
- **netmotion**
- **newsy**
- **nick**
- **nimbuzz**
- **nokia-store**
- **octoshape**
- **off**
- **ogg**
- **oist**
- **oovoo**
- **opendrive**
- **openft**
- **openvpn**
- **operamini**
- **orb**
- **oscar**
- **outlook**
- **paltalk**
- **pando**
- **pandora**
- **path**
- **pbs**

- **pcanywhere**
- **periscope**
- **pinterest**
- **plingm**
- **poco**
- **popo**
- **pplive**
- **ppstream**
- **ps3**
- **qq**
- **qqgame**
- **qqlive**
- **quake**
- **quic**
- **quicktime**
- **radio-paradise**
- **rdp**
- **rdt**
- **regram**
- **rfactor**
- **rhapsody**
- **rmstream**
- **rodi**
- **rynga**
- **samsung-store**
- **scydo**
- **secondlife**
- **shoutcast**
- **showtime**
- **silverlight**
- **siri**
- **skinny**

- **skydrive**
- **skype**
- **slacker-radio**
- **slingbox**
- **slingtv**
- **smartvoip**
- **snapchat**
- **softether**
- **sopcast**
- **soribada**
- **soulseek**
- **soundcloud**
- **spark**
- **spdy**
- **speedtest**
- **spike**
- **splashfighter**
- **spotify**
- **ssdp**
- **ssl**
- **starz**
- **stealthnet**
- **steam**
- **stun**
- **sudaphone**
- **svtplay**
- **tagged**
- **talkatone**
- **tango**
- **teamspeak**
- **teamviewer**
- **telegram**

- **thunder**
- **tinder**
- **tmo-tv**
- **tor**
- **truecaller**
- **truphone**
- **tumblr**
- **tunnelvoice**
- **turbovpn**
- **tvants**
- **tvland**
- **tvuplayer**
- **twitter**
- **twitch**
- **ultrabac**
- **ultrasurf**
- **univision**
- **upc-phone**
- **usenet**
- **ustream**
- **uusee**
- **vchat**
- **veohtv**
- **vessel**
- **vevo**
- **viber**
- **vine**
- **voipdiscount**
- **vopium**
- **voxer**
- **vpnmaster**
- **vpnx**

- **vtok**
- **vtun**
- **vudu**
- **warcft3**
- **waze**
- **webex**
- **wechat**
- **weibo**
- **whatsapp**
- **wii**
- **windows-azure**
- **windows-store**
- **winmx**
- **winny**
- **wmstream**
- **wofkungfu**
- **wofwarcraft**
- **wuala**
- **xbox**
- **xdcc**
- **xing**
- **yahoo**
- **yahoomail**
- **yiptv**
- **youku**
- **yourfreetunnel**
- **youtube**
- **zattoo**

p2p protocol-group *group_list*: The supported P2P protocol groups are:

- generic
- anonymous-access
- business

- communicator
- cloud
- e-store
- e-mail
- e-news
- internet-privacy
- filesharing
- gaming
- p2p-filesharing
- p2p-anon-filesharing
- remote-control
- social-nw-gaming
- social-nw-generic
- social-nw-videoconf
- standard
- streaming

- **pop3**
- **pptp**
- **rtcp**
- **rtp**
- **rtsp**
- **sdp**
- **secure-http**
- **sip**
- **smtp**
- **tcp**
- **tftp**
- **udp**
- **wsp**
- **wtp**

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear ACS analyzer statistics.

Example

The following command clears active charging service analyzer information for TCP analyzer:

```
clear active-charging analyzer statistics name tcp
```

clear active-charging charging-action statistics

Clears ACS charging action statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging charging-action statistics [ name charging_acion_name
] [ | { grep grep_options | more } ]
```

name *charging_acion_name*

Clears statistics for the specified charging action.

charging_acion_name must be the name of a charging action, and must be an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear active charging action statistics.

Example

The following command clears active charging action statistics information for charging action named **pre-paid**:

```
clear active-charging charging-action statistics name pre-paid
```

clear active-charging content-filtering server-group statistics

Clears statistics for all/a specific CF server group.

Product CF

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear active-charging content-filtering server-group statistics [ name`** *`cf_server_group_name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

name *cf_server_group_name*

Clears statistics for the specified CF server group.

cf_server_group_name must be the name of a CF server group, and must be an alphanumeric string of 1 through 15 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to clear content filtering statistics for CF server groups.

Example

The following command clears category-based content filtering statistics information for Rulebase named *cf_rule1*:

```
clear active-charging content-filtering category statistics rulebase name
 cf_rule1
```

clear active-charging credit-control statistics

Clears credit control statistics.

Product ACS

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear active-charging credit-control statistics [group *cc_group_name* **| server { all | ip-address** *ip_address* **| name** *cc_group_name* **}]**

clear active-charging credit-control statistics

Clears statistics for all credit control groups.

group *cc_group_name*

Clears statistics for the specified credit control group.

cc_group_name must be an alphanumeric string of 1 through 63 characters.

server { all | ip-address *ip_address* | name *cc_group_name* }

Clears statistics for the credit control server specified as:

- **all**: for all the Diameter peers and hosts
- **ip-address**: an IP address for the credit control group entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation
- **cc_group_name**: name of the credit control group server entered as an alphanumeric string of 1 through 127 characters.

Usage Guidelines

Use this command to clear credit control statistics.

Example

The following command clears statistics information for credit control:

```
clear active-charging credit-control statistics
```

clear active-charging dns-learnt-ip-addresses

Clears DNS learnt IP address statistics for the DNS Snooping feature.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear active-charging dns-learnt-ip-addresses statistics sessmgr { all | instance *sessmgr_instance* **} [| { grep** *grep_options* **| more }]**

sessmgr { all | instance *sessmgr_instance* }

Clears statistics for all or the specified Session Manager (SessMgr) instance.

- **all**: Clears statistics for all SessMgr instances.
- **instance** *sessmgr_instance*: Clears statistics for the specified SessMgr instance.

  sessmgr_instance must be an integer from 1 through 65535.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear DNS learnt IP address statistics for the DNS Snooping feature.

On clearing the statistics using this command, only the entries-flushed, entries-replaced, and IP-Overflows statistics are cleared as these are cumulative statistics. Total-entries will not be cleared as it is an instantaneous statistic of the current total entries in that rule line.

Example

The following command clears all DNS learnt IP address statistics:

```
clear active-charging dns-learnt-ip-addresses statistics sessmgr all
```

clear active-charging edr-format statistics

Clears ACS statistics for all or a specific Event Data Record (EDR) format.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging edr-format statistics [ name edr_format_name ]
```

name *edr_format_name*

Clears statistics for the specified EDR format.

edr_format_name must be the name of an EDR format, and must be an alphanumeric string of 1 through 63 characters.

Important

If an EDR format name is not specified, statistics for all EDR formats are cleared.

Usage Guidelines Use this command to clear the accumulated statistics for the specified EDR format.

Example

The following command clears the statistics for all EDR formats:

```
clear active-charging edr-format statistics
```

clear active-charging edr-udr-file statistics

Clears Event Data Record (EDR) and Usage Data Record (UDR) file related statistics.

Product ACS

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging edr-udr-file statistics
```

Usage Guidelines Use this command to clear EDR and UDR file statistics.

Example

The following command clears statistical information for EDR and UDR files:

```
clear active-charging edr-udr-file statistics
```

clear active-charging firewall statistics

Clears Stateful Firewall statistics.

Product PSF

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging firewall statistics [ callid call_id | domain-name
domain_name | nat-realm nat_realm_name | protocol { icmp | icmpv6 | ip | ipv6
 | other | tcp | udp } | username user_name ] [ acsmgr instance instance_id
] [ | { grep grep_options | more } ]
```

acsmgr instance *instance_id*

Specifies an ACS Manager instance ID as an integer from 1 through 65535.

callid *call_id*

Specifies a call identification number as an eight-byte hexadecimal number.

domain-name *domain_name*

Specifies the domain name.

domain_name must be an alphanumeric string of 1 through 127 characters.

nat-realm *nat_realm_name*

Specifies the NAT realm.

nat_realm_name must be an alphanumeric string of 1 through 31 characters.

protocol { icmp | ip | other | tcp | udp }

Specifies a protocol for the statistics.

- **icmp**: ICMPv4
- **icmpv6**
- **ip**: IPv4
- **ipv6**
- **other**: Protocols other than TCP, UDP, and ICMPv4/ICMPv6
- **tcp**
- **udp**

username *user_name*

Specifies the user name.

user_name must be an alphanumeric string of 1 through 127 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear Stateful Firewall statistics.

Example

The following command clears all Stateful Firewall statistics:

clear active-charging firewall statistics

clear active-charging firewall track-list

Clears the list of servers being tracked for involvement in any Denial-of-Service (DOS) attacks.

Product

PSF

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear active-charging firewall track-list attacking-servers

Usage Guidelines

Use this command to clear the list of servers being tracked for involvement in any DOS attacks.

Example

The following command clears the list of servers being tracked for involvement in any DOS attacks:

clear active-charging firewall track-list attacking-servers

clear active-charging fw-and-nat policy statistics

Clears statistics for all or a specific Firewall-and-NAT policy.

Product

PSF

NAT

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear active-charging fw-and-nat policy statistics { all | name *policy_name* **} [| { grep** *grep_options* **| more }]**

all

Clears information for all Firewall-and-NAT policies.

name *policy_name*

Clears information for the specified Firewall-and-NAT policy.

policy_name must be the name of a Firewall-and-NAT policy, and must be an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear statistics for all or a specific firewall-and-NAT policy.

Example

The following command clears statistics for the firewall-and-NAT policy named *test123*:

```
clear active-charging fw-and-nat policy statistics name test123
```

clear active-charging group-of-ruledefs statistics

Clears ACS group of ruledefs statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging group-of-ruledefs statistics [ name group_of_ruledefs
 ] [ | { grep grep_options | more } ]
```

name *group_of_ruledefs*

Clears statistics for the specified group of ruledefs.

group_of_ruledefs must be the name of a group of ruledefs, and must be an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to clear statistical information related to all or specified Active Charging Service group of ruledefs.

Example

The following command clears statistical information related to the group of ruledefs named *ruledef_group12*:

```
clear active-charging group-of-ruledefs statistics name ruledef_group12
```

clear active-charging nat statistics

Clears NAT realm statistics.

Product NAT

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging nat statistics [ nat-realm nat_realm_name ] [ | { grep
 grep_options | more } ]
```

nat statistics

This command when issued in the local context clears statistics for all NAT realms in all contexts. When issued within a specific context, this command clears statistics for all NAT realms in that context.

nat-realm *nat_realm_name*

This command when issued in the local context clears statistics for the specified NAT realm in all contexts. When issued in a specific context, this command clears statistics for the specified NAT realm in that context.

nat_realm_name: Specifies name of the NAT realm as an alphanumeric string of 1 through 31 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to clear NAT realm statistics.

Example

The following command when issued in the local context, clears NAT realm statistics for NAT realms named *test135* in all contexts:

```
clear active-charging nat statistics nat-realm test135
```

clear active-charging regex statistics

Clears regular expression (regex) related statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear active-charging regex statistics ruledef { all | instance *instance_number* **}**

all

Clears all regex-related statistics.

instance *instance_number*

Clears regex-related statistics for specified Session Manager instance.

instance_number must be an integer from 1 through 65535.

Usage Guidelines

Use this command to clear regular expression (regex) related statistics.

Example

The following command clears all regex-related statistics:

```
clear active-charging regex statistics ruledef all
```

clear active-charging rulebase statistics

Clears ACS rulebase statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear active-charging rulebase statistics [ name` *`rulebase_name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

rulebase_name

Clears statistics for the specified ACS rulebase.

rulebase_name must be the name of a rulebase, and must be an alphanumeric string of 1 through 15 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear ACS rulebase statistics.

Example

The following command clears statistics for the ACS rulebase named *postpaid*:

`clear active-charging rulebase statistics name postpaid`

clear active-charging ruledef statistics

Clears statistics for rule definitions configured in the Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear active-charging ruledef statistics [ charging | firewall | name` *`ruledef_name`* **`| tpo ] [ | { grep`** *`grep_options`* **`| more } ]`**

charging

Clears statistics for all charging ruledefs.

firewall

Clears statistics for all Stateful Firewall ruledefs.

name *ruledef_name*

Clears statistics for the specified ruledef.

ruledef_name must be the name of a ruledef, and must be an alphanumeric string of 1 through 63 characters.

tpo

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to clear ACS ruledef statistics.

Example

The following command clears all ruledef statistics:

```
clear active-charging ruledef statistics
```

clear active-charging subsystem

Clears all ACS subsystem information.

Product ACS

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging subsystem
```

Usage Guidelines Use this command to clear all ACS subsystem information.

Example

The following command clears all ACS subsystem information:

```
clear active-charging subsystem
```

clear active-charging tcp-proxy statistics

Clears ACS TCP Proxy statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging tcp-proxy statistics [ all | ip-layer | proxy-fac
| rulebase rulebase_name | socket-migration | tcp-layer ]
```

all

Clears all TCP Proxy statistics.

ip-layer

Clears TCP Proxy statistics for IP layer.

proxy-fac

Clears TCP Proxy Flow Admission Control statistics.

rulebase *rulebase_name*

Clears TCP Proxy statistics for the specified rulebase.

rulebase_name must be the name of a rulebase, and must be an alphanumeric string of 1 through 63 characters.

socket-migration

Clears TCP Proxy Socket Migration related statistics.

tcp-layer

Clears TCP Proxy statistics for TCP layer.

Usage Guidelines

Use this command to clear TCP Proxy statistics.

Example

The following command clears TCP Proxy statistics for the rulebase named *test14*:

```
clear active-charging tcp-proxy statistics rulebase test14
```

clear active-charging tethering-detection statistics

Clears statistics pertaining to the Tethering Detection feature.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear active-charging tethering-detection statistics
```

Usage Guidelines

Use this command to clear statistics pertaining to the Tethering Detection feature.

clear active-charging tpo policy statistics

The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

clear active-charging tpo profile statistics

The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

clear active-charging url-blacklisting statistics

Clears URL Blacklisting feature related statistics.

Product

CF

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear active-charging url-blacklisting statistics [rulebase name *rulebase_name* **] [| { grep** *grep_options* **| more }]**

rulebase name *rulebase_name*

Clears URL Blacklisting information for the specified rulebase.

rulebase_name must be the name of a rulebase, and must be an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear URL Blacklisting feature related statistics, optionally for a specific rulebase.

Example

The following command clears URL Blacklisting feature related statistics for *rulebase12*:

clear active-charging url-blacklisting statistics rulebase name rulebase12

clear active-charging video detailed-statistics

Resets the detailed statistics for TCP video flows.

Important In release 20.0, MVG is not supported. This command must not be used in release 20.0. For more information, contact your Cisco account representative.

Product

MVG

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear active-charging video detailed-statistics

Usage Guidelines

Use this command to reset the detailed statistics for TCP video flows.

Example

The following command resets the detailed statistics for TCP video flows:

clear active-charging video detailed-statistics

clear administrator

Ends the session of an administrative user specified by either user name or session ID.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear administrator { name *user_name* **| session id** *id_num* **}**

name *user_name*

Identifies the user name of the administrative user.

session id *id_num*

Identifies the ID number of the administrative user session as displayed in the output of the **show administrators session id** command.

Usage Guidelines

This command is used to terminate command line interface sessions for other administrative users.

Example

The following command ends the session of the administrative user identified as *user1*:

clear administrator name user1

The following command ends the session of the administrative user with the session ID of *3*:

clear administrator session id 3

clear alarm

Clears outstanding alarm conditions

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear alarm { all | chassis | id *num* **| port** *slot/port* **| slot** *slot* **}**

all

Clear all outstanding alarms.

chassis

Clears chassis-wide and fan tray alarms.

id *num*

Clears a specific alarm by its internal alarm ID. *num* is the internal alarm identification number.

port *slot/port*

Clears alarms for the specified port. *slot/port* is the card slot and port on the card for which to clear alarms.

slot *slot*

Clears alarms for the specified slot. *slot* is the card slot for which to clear alarms.

Usage Guidelines

Use this command to clear outstanding alarm conditions.

Example

To clear all outstanding alarms, use the following command:

```
clear alarm all
```

To clear all alarms for slot *7*, enter the following command:

```
clear alarm slot 7
```

clear alcap

Clears the Access Link Control Application Part (ALCAP) session statistics of an ALCAP service associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

Product

HNB-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear alcap statistics [alcap-service *alcap_svc_name* **[aal2-node** *aal2_node_name* **[aal2-path** *aal2_path_id* **]]]**

alcap-service *alcap_svc_name*

Specifies the name of the ALCAP service for which statistics are to be cleared.

aal2-node *aal2-node*

Specifies the name of the ATM Adaptation Layer 2 (AAL2) node for which ALCAP service statistics will be cleared.

aal2-path *aal2_path_id*

Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node for which ALCAP service statistics will be cleared.

Usage Guidelines

This command is used to clear the sessions statistics and counters for ALCAP service.

Example

The following command clears the service session statistics of ALCAP service named as *alcap_hnb_svc1*:

```
clear alcap statistics alcap-service alcap_hnb_svc1
```

clear asngw-service

Clears the service session statistics for an Access Service Network Gateway (ASN-GW) service specified by either service name or trusted peer address.

Product

ASN-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear asngw-service statistics [ name svc_name | peer-address ip_address ]
```

name *svc_name*

Identifies the name of the ASN-GW service for which statistics will be cleared. *svc_name* must be an alphanumeric string of 1 through 63 characters.

peer-address *ip_address*

Identifies the IP address of the ASN-GW peer for which service statistics will be cleared. *ip_address* must be entered in IPv4 dotted-decimal notation.

Usage Guidelines

This command is used to terminate command line interface sessions for ASN GW services.

Example

The following command clears the service session statistics of the ASN-GW service named *aasn_svc1*:

```
clear asngw-service statistics name asn_svc1
```

clear asnpc-service

Clears the service session statistics of an ASN paging controller service specified by either ASN PC service name or trusted paging controller peer address.

Product

ASN-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear asnpc-service statistics [ name svc_name | peer-address ip_address ]
```

name *svc_name*

Identifies the name of the ASN PC service for which session statistics will be cleared. *svc_name* must be an alphanumeric string of 1 through 63 characters.

peer-address *ip_address*

Identifies the IP address of the ASN PC peer for which all service statistics will be cleared. *ip_address* must be entered in IPv4 dotted-decimal notation.

Usage Guidelines

This command is used to terminate command line interface sessions for ASN PC services.

Example

The following command clears the service session statistics of ASN PC service named as *asnpc_svc1*:

```
clear asnpc-service statistics name asnpc_svc1
```

clear apn statistics

Deletes all previously gathered statistics for either a specific Access Point Name (APN) or all APNs configured with the given context.

Product

GGSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear apn statistics [ name` *`apn_name`* **`| smgr-instance`** *`instance`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

name *apn_name*

Specifies the name of a specific APN configured in the context for which to clear statistics. *apn_name* is the name of the APN expressed as an alphanumeric string of 1 through 63 characters that is case sensitive.

smgr-instance *instance*

Specifies a particular Sessmgr instance in the context for which to clear APN statistics. *instance* must be an integer from 1 to 4294967295.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Statistics for a single APN can be cleared using the **name** keyword. Statistics for all APNs in the context can be deleted by entering the command with no keywords.

If this command is executed from within the local context with no keywords, statistics will be cleared for every APN configured on the system regardless of context. In addition, if the **name** keyword is used when executing from within the local context, statistics for all APNs configured with the specified name will be cleared regardless of context.

Example

The following command clears statistics for an APN called *isp1*:

```
clear apn statistics name isp1
```

clear bcmcs statistics

Clears Broadcast Multicast Service (BCMCS) statistics.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear bcmcs statistics [pdsn-service *service_name* **]**

pdsn-service *service_name*

Specifies a specific PDSN service for which to clear BCMCS-specific statistics. This value must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear accumulated BCMCS statistics. You may specify an individual PDSN or peer to selectively clear statistics.

Example

```
clear bcmcs statistics
clear bcmcs statistics pdsn-service service_name
```

clear blacklisted-gtpu-bind-address

Clears the GTP-U loopback address blacklisted by a specific radio network controller (RNC) as defined for a specific IuPS Service configuration.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear blacklisted-gtpu-bind-address *ip_address* **rnc-id** *rnc_id* **mcc** *mcc_num* **mnc** *mnc_num* **iups-service** *name*

ip_address

Specifies the IP loopback address that has been blacklisted in IPv4 dotted-decimal notation. This loopback address was originally defined with the **associate-gtpu-bind-addfress** command in the Radio-Network-Controller Configuration mode of the IuPS Service.

Usage Guidelines

This command enables this loopback address to be used for future RAB-assignment requests.

Example

clear blacklisted-gtpu-bind-address *1.1.1.1* **rnc-id** *2* **mcc** *123* **mnc** *321* **iups-service** *iups1*

clear bssap+ statistics

Clears the BSSAP+ protocol (base station subsystem GPRS protocol) statistics collected for the Gs interface between the SGSN and the MSC/VLR.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear bssap+ statistics [ gs-service` *`gs_svc_name`* **`] [ vlr { isdn-number`** *`ISDN_Num`* **`| name`** *`vlr_name`* **`} ] [ | { grep`** *`grep_options`* **`| more } ]`**

gs-service *gs_svc_name*

Specifies the name of a preconfigured Gs service handling BSSAP+ information as an alphanumeric string of 1 through 63 characters that is case sensitive.

vlr { isdn-number *ISDN_Num*| name *vlr_name* }

Specifies a VLR (by ISDN number or name) handling BSSAP+ information.

isdn-number *ISDN_num* is the configured E.164-type ISDN number for the VLR. Enter a numerical string of 1 to 15 digits.

name *vlr_name* is the configured name of the VLR entered as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to delete or clear collected BSSAP+ protocol statistics for the entire SGSN or for a specified Gs interface. Using the keywords of this command, the interface can be identified by defining a specific VLR connected to the SGSN or by identifying the Gs service to which the interface has been configured.

Example

The following command clears the BSSAP+ statistics collected for the Gs interface configured for the Gs service named *gssvc1*.

`clear bssap+ statistics gs-service gssvc1`

clear bssgp statistics

Clears collected BSSGP protocol (base station subsystem GPRS protocol) statistics for traffic between the base station subsystem (BSS) and the SGSN.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear bssgp statistics [gprs-service *gprs_svc_name* **| nse** *nse_id* **[bvc** *bvc_id* **] [| { grep** *grep_options* **| more }]**

gprs-service *gprs_svc_name*

Specifies the name of a preconfigured GPRS service for which the BSSGP statistics have been collected as an alphanumeric string of 1 through 63 characters that is case sensitive.

nse *nse_ID*

Clears the BSSGP statistics collected for the network service entity (NSE) specified as an integer from 0 through 65535.

bvc *bvc_ID*

Enter this keyword to clear the BSSGP statistics collected for the identified BSSGP virtual connection (BVC) specified as n integer from 0 through 65000.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear the BBSGP statistics for a particular GPRS service or NSEI.

Example

The following command deletes the collected BSSGP statistics for the GPRS service named *gprs1*.

clear bssgp statistics gprs-service gprs1

clear bulkstats

Clears counters and accumulated bulk statistics related information.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear bulkstats { counters | data }
```

counters

Clears the counters maintained by the system's "bulkstats" facility.

data

Clears any accumulated data that has not been transferred. This includes any "completed" files that have not been successfully transferred.

Usage Guidelines

Once bulk statistics collection is enabled, the system stores the information until the specified transfer criteria is met or until a manual transfer is initiated. The system maintains counters for the "bulkstats" software facility. (Refer to the **data** keyword for the **show bulkstats** command for information on viewing the counters.)

This command can be used to delete bulk statistics information that has been collected but not transferred and/or to clear the counters that have been maintained.

Example

The following command clears bulk statistics-related counters:

```
clear bulkstats counters
```

clear ca-certificate-list statistics

This command clears CA-Certificate-List with matched count.

Product

ePDG

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear ca-certificate-list statistics
```

Usage Guidelines

Use this command to clears CA-Certificate-List with matched count.

Example

The following command clears CA-Certificate-List with matched count:

```
clear ca-certificate-list statistics
```

clear cae-group statistics server

This command resets the discardable statistics, which are the Hit Count, Timeout Consecutive (Cumulative), and Last Failure statistics, for all CAEs or for a specific CAE. The CAE (Content Adaptation Engine) is an optional component of the Mobile Videoscape.

Important In release 20.0, MVG is not supported. This command must not be used in release 20.0. For more information, contact your Cisco account representative.

Product MVG

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear cae-group statistics server { all | name`** *`cae_name`* **`}`**

all

Resets the discardable statistics for all CAEs.

name*cae_name*

Specifies the name of a CAE.

Usage Guidelines Use this command to reset the discardable statistics for all CAEs or for a specific CAE. This command must be issued in the same context in which the associated CAE group is defined.

Example

The following command clears the discardable statistics for the CAE named *server_1*:

```
clear cae-group statistics server name server_1
```

clear call-home statistics

Clears Cisco Call Home feature statistics.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description `clear call-home statistics`

Usage Guidelines Use this command to reset the statistics for all Call Home events.

Example

The following command clears the discardable statistics for the Call Home feature:

`clear call-home statistics`

clear cdr statistics

Clears statistics related to charging data records (CDRMOD).

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description `clear cdr statistics`

Usage Guidelines Use this command to reset the statistics for charging data records.

Example

The following command clears the discardable statistics related to CDRs:

`clear cdr statistics`

clear cli history

Clears the tracking history of command line interface (CLI) command usage.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description `clear cli history`

Usage Guidelines Use this command to clear the tracking history of CLI command usage.

Example

The following command clears the CLI history:

```
clear cli history
```

clear cmp cert-name

Clears information stored for the specified IPSec Certificate Management Protocol v2 (CMPv2) certificate.

Product All products supporting IPSec CMPv2 features

Important This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description `clear cmp cert-name cert_name`

cert-name *cert_name*

Specifies the CMP certificate name as an alphanumeric string of 1 through 129 characters.

Usage Guidelines Use this command to clear the information for the specified CMP certificate.

Example

The following command clears information for the specified CMP certificate:

```
clear cmp cert-name certificate01
```

clear cmp statistics

Clears statistics for IPSec Certificate Management Protocol v2 (CMPv2) certificates.

Product All products supporting IPSec CMPv2 features

Important This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **clear cmp statistics**

Usage Guidelines Use this command to clear statistics for IPSec CMPv2 certificates.

Example

The following command clears CMPv2 certificates:

clear cmp statistics

clear confdmgr confd cdb

Erases the configuration in the ConfD Database (CDB) which is an XML database used by ConfD to store configuration objects. StarOS accesses the database via ConfD-supplied APIs.

Caution Clearing the CDB is a terminal operation. The CDB must be repopulated afterwards.

Note The CDB cannot be erased unless the Context Configuration mode **no server confd** command is run in the local context to disable ConfD and NETCONF protocol support.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **clear confdmgr confd cdb [-noconfirm]**

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

This command clears the CDB of all existing entries. Before the command executers you are prompted as follows:

```
About to delete the ConfD configuration database
The running configuration is NOT affected.
Are you sure? [Yes|No]:
```

Important

If you re-enable **server confd** after running **clear confd**, there will be no default CDB to support NETCONF protocol and associated API exchanges.

Example

The following command erases the entries in the CDB:

clear confdmgr confd cdb

clear confdmgr statistics

Clears everything listed in the "Statistics" section of the output of the **show confdmgr** command.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear confdmgr statistics

statistics

Clears everything listed in the "Statistics" section of the output of the **show confdmgr** command, including:

- Triggers
- Notifications
- Successful notifications
- Failed notifications
- Unexpected

Usage Guidelines

This command clears operational statistics associated with the ConfD engine and NETCONF protocol.

Example

The following command clears confdmgr statistics:

```
clear cnfdmgr statistics
```

clear config

Replaces the active configuration source file with an empty configuration where possible.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear config [ -noconfirm ]
```

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

This command clears the current configuration when a complete overwrite is desired or if it is necessary to start from an empty configuration.

Important Clearing the configuration will cause the active configuration source file to be empty and of no use in configuring the system to an active state providing service.

Important This command should only be performed on configurations that have been previously backed up for easy restoration.

Example

The following command clears the active configuration after the user provides confirmation of the request.

```
clear config
```

The following command clears the active configuration source file immediately with no user confirmation.

```
clear config -noconfirm
```

clear congestion-control statistics

Clears the congestion control statistics for all instances of the specified manager type.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear congestion-control statistics { a11mgr | asngwmgr | asnpcmgr | bindmux | gtpcmgr | hamgr | hnbmgr | imsimgr | ipsecmgr | ipsgmgr | imsimgr | l2tpmgr }`

a11mgr

Clears the statistics for all A11 Manager instances.

asngwmgr

Clears the statistics for all ASN GW Manager instances

asnpcmgr

Clears the statistics for all ASN PC-LR Manager instances

bindmux

Clears the statistics for all IPCF BindMux-Demux Manager instances.

gtpcmgr

Clears the statistics for all GTPC Manager instances.

hamgr

Clears the statistics for all HA Manager instances.

hnbmgr

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Clears the statistics for all HNB Manager instances.

imsimgr

Clears the statistics for all IMSI Manager instances.

ipsecmgr

Clears the statistics for all IPSEC Manager instances.

ipsgmgr

Clears the statistics for all IPSG Manager instances.

l2tpmgr

Clears the statistics for all L2TP Manager instances.

Usage Guidelines

Use this command to statistics for all instances of the specified manager.

Important

When this command is issued in any context other than the local context, only instances of the specified manager for the current context have the statistics cleared. When the current context is the local context, all instances of the specified manager type in all contexts have the statistics cleared.

Example

The following command clears the statistics for all instances of the A11 manger:

```
clear congestion-control statistics a11mgr
```

clear content-filtering category statistics

Clears the Category-based Content Filtering application statistics.

Product

CF

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear content-filtering category statistics [facility srdbmgr instance *instance_value* **]**

facility srdbmgr instance *instance_value*

Clears logged events for the specified SRDB Manager instance.

instance_value must be an integer from 1 through 8.

In release 9.0 and later, *instance_value* must be an integer from 1 through 10000.

Usage Guidelines Use this command to clear all Category-based Content Filtering application statistics, or statistics for a specific SRDB Manager instance.

Example

The following command clears all Category-based Content Filtering application statistics:

```
clear content-filtering category statistics
```

clear crash

Removes a specific crash file or all crash files.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **clear crash [list | number** *crash_num* **]**

list | number *crash_num*

list: removes all crash files.

number *crash_num*: removes only the crash file specified as an integer from 1 through 30.

Usage Guidelines Clear crashes for general maintenance activities in cleaning out old, unused, or files which are of no importance.

Example

The following will remove all crash files.

```
clear crash list
```

The following command will remove only crash file *27*.

```
clear crash numer 27
```

clear credit-control statistics

Clears credit control statistics.

Product All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear credit-control statistics cc-service *cc_service_name*

cc-service *cc_service_name*

Specifies an existing Credit Control service name as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear active credit control statistics.

Example

The following command clears the configured credit control statistics for a service named *service1*:

clear credit-control statistics cc-service service1

clear crypto

Clears crypto associations or crypto statistics.

Product

ePDG

PDSN

HA

GGSN

PDG/TTG

PDIF

SCM

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear crypto { isakmp [tag *map_name* **| peer** *peer_ip* **] | security-association { counters tag** *map_name* **[tx | rx] | tag** *map_name* **| peer** *peer_ip***[sa-index** *numbr* **] } | statistics { ikev2 } [service-ip-address** *ip-address* **| service-name** *name* **] }**

isakmp [tag *map_name* | peer *peer_ip*]

When no keywords are specified, this command clears all of the ISAKMP security associations for the current context.

tag *map_name*: Clears the ISAKMP SAs for the specified crypto map. *map_name* is the name of an existing crypto map.

peer *peer_ip*: Deletes the ISAKMP SAs for the specified peer. *peer_ip* must be entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

security-association { counters map *map_name* [tx | rx] | tag *map_name* | peer *peer_ip* [sa-index *numbr*] }

counters tag *map_name* **[tx | rx]**: Resets the counters for the specified crypto map. *map_name* is the name of an existing crypto map. **tx** specifies that only the transmit SA counters are reset. **rx** specifies that only the receive SA counters are reset. If neither **tx** or **rx** are specified, both transmit and receive SA counters are reset.

tag *map_name*: Tears down a Security Association (SA) for the specified crypto map. *map_name* is the name of an existing crypto map.

peer *peer_ip*: Clears the SAs for all tunnels who have the peer at the specified IP address. *peer_ip* must be entered in Pv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

[sa-index *numbr*: Clears a specified security association. *numbr* is an integer from 1 to 4 for releases prior to 15.0, or 1 to 5 for release 15.0 and higher.

Caution Modification(s) to an existing crypto map and/or ISAKMP policy configuration will not take effect until the related security association has been cleared.

statistics ikev2 [service-ip-address *ip-address* | service-name *name*]

ikev2: Clears global IKEv2 statistics for the current context.

service-ip-address *ip-address*: Clears statistics for the specified service-ip address. **service-name** *name*: Clears statistics for the specified service name.

Usage Guidelines

Clear SAs and apply changes to the crypto map or clear the crypto statistics for this context.

Example

The following clears all IKEv2 crypto statistics for the current context:

```
clear crypto statistics ikev2
```

clear cs-network statistics

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Clears the HNB-Circuit Switched (CS) network service associated for an HNB-GW service instance.

Product

HNB-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear cs-network statistics [ name` *`cs_svc_name`* **`| ranap-only | rtp-only | sccp-only ]`**

name *cs_svc_name*

Clears the session statistics for an HNB-CS Network service name configured and running on this system. *cs_svc_name* must be an alphanumeric string of 1 through 63 characters.

ranap-only

Clears the session statistics limited to Radio Access Network Application Protocol (RANAP) traffic only for the specified HNB-CS Network service.

rtp-only

Clears the session statistics limited to Real Time Protocol (RTP) traffic only for the specified HNB-CS Network service.

sccp-only

Clears the session statistics limited to Signaling Connection Control Part (SCCP) traffic only for the specified HNB-CS Network service.

Usage Guidelines

Use this command to clear the session statistics for overall session or in selected part of user session for HNB-CS Network services configured and running on a system.

Example

The following command clears the session statistics for RANAP part of session for the HNB-CS Network service *hnb_CS_1*:

`clear cs-network statistics name hnb_CS_1 ranap-only`

clear dhcp statistics

Deletes all previously gathered statistics for either a specific or all DHCP IPv4 servers configured within the given context.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear dhcp statistics [ dhcp-service` *`svc_name`* **`| server`** *`ip_address`* **`]`**

dhcp-service *svc_name*

Specifies the name of a specific DHCP service for which to clear statistics as an alphanumeric string of 1 through 63 characters that is case sensitive.

server *ip_address*

Specifies the IP address of a DHCP server in IPv4 dotted-decimal notation as configured in the context for which to clear statistics.

Usage Guidelines

Statistics for a single server can be cleared using the **server** keyword. Statistics for all DHCP servers in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, statistics will be cleared for every DHCP server configured on the system regardless of context. In addition, if the server keyword is used when executing from within the local context, statistics for all DHCP servers configured with the specified name will be cleared regardless of context.

Example

The following command clears statistics for all configured DHCP servers within the context:

`clear dhcp statistics`

clear dhcpv6 statistics

Deletes all previously gathered statistics for either a specific or all DHCP IPv6 (DHCPv6) servers configured within the given context.

Product

ASN-GW

GGSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear dhcpv6 statistics [ server` *`ipv6_address`* **`| service`** *`svc_name`* **`]`**

server *ipv6_address*

Specifies the IP address of a DHCP server in IPv6 colon-separated-hexadecimal notation as configured in the context for which to clear statistics.

service *svc_name*

Specifies the name of a specific DHCPv6 service for which to clear statistics as an alphanumeric string of 1 through 63 characters that is case sensitive.

Usage Guidelines

Statistics for a single server can be cleared using the **server** keyword. Statistics for all DHCPv6 servers in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, statistics will be cleared for every DHCPv6 server configured on the system regardless of context. In addition, if the server keyword is used when executing from within the local context, statistics for all DHCPv6 servers configured with the specified name will be cleared regardless of context.

Example

The following command clears statistics for all configured DHCPv6 servers within the context:

`clear dhcpv6 statistics`

clear diameter aaa-statistics

Clears Diameter AAA statistics.

Product

All

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear diameter aaa-statistics [ all | debug-info | group` *`aaa_group`* **`| server`** *`diameter_server`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

all

Clears all Diameter server statistics.

debug-info

Clears Diameter debug statistics.

group *aaa_group*

Clears Diameter server statistics for the specified AAA group.

aaa_group must be the name of a AAA server group, and must be an alphanumeric string of 1 through 64 characters.

server *diameter_server*

Clears Diameter server statistics for the specified Diameter server.

diameter_server must be an alphanumeric string of 1 through 64 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear Diameter AAA statistics.

Example

The following command clears Diameter server statistics for the specified AAA group:

```
clear diameter aaa-statistics group aaagroup3
```

clear diameter route

Clears the Diameter routes in the Diabase.

Product

ASN GW

ePDG

GGSN

HA

HSGW

IPSG

MME

PDG/TTG

PDSN

P-GW

SCM

SGSN

S-GW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear diameter route dynamic [ endpoint` *`endpoint_name`* **`| peer`** *`peer_name`* **`| facility { aaamgr | sessmgr } [ instance`** *`instance_number`* **`] ] [ | { grep`** *`grep_options`* **`| more } ]`**

dynamic

Clears all dynamic routes under all the Diameter endpoints.

endpoint *endpoint_name*

Clears the dynamic routes for the specified endpoint.

endpoint_name must be the name of a Diameter endpoint, and must be an alphanumeric string of 1 through 63 characters.

peer *peer_name*

Clears the dynamic routes for the specified peer.

peer_name must be an alphanumeric string of 1 through 63 characters.

facility { aaamgr | sessmgr } [instance *instance_number*]

Clears the dynamic routes for the specified facility – AAA Manager or Session Manager.

Specify the instance number to clear the dynamic routes for a particular facility's instance. The *instance_number* must be an integer from 1 through 99999.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear the Diameter routing tables that gets added in the system whenever messages are routed through the Diameter proxy/Diabase. These message remain in the system for a long period.

The user has the flexibility to clear the route based on any combination of these keyword options. Running the command **clear diameter route dynamic endpoint** *endpoint-name* **peer** *peer-name* will result in flushing of the routes that match both endpoint and peer value. Similarly, with this CLI command "**clear diameter route dynamic endpoint** *endpoint-name* **peer** *peer-name* **facility { aaamgr | sessmgr } instance** *instance_number*, the routes in a particular facility with the specified endpoint and peer name can be deleted.

Example

The following command clears all dynamic Diameter routes for the specified peer:

```
clear diameter route dynamic peer p1
```

clear diameter statistics

Clears the Diameter statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear diameter statistics [[proxy] endpoint *endpoint_name* **[peer-host** *host_id* **[peer-realm** *realm_id* **]]] [| { grep** *grep_options* **| more }]**

endpoint *endpoint_name*

Clears statistics for the specified endpoint.

endpoint_name must be the name of a diameter endpoint, and must be an alphanumeric string of 1 through 63 characters.

proxy

Clears proxy related statistics.

peer-host *host_id*

Clears statistics for the specified Diameter peer host ID.

host_id must be an alphanumeric string of 1 through 255 characters.

peer-realm *realm_id*

Clears statistics for the specified Diameter peer realm.

realm_id must be an alphanumeric string of 1 through 127 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear Diameter statistics.

Example

The following command clears all Diameter statistics for the specified endpoint:

```
clear diameter statistics endpoint endpt345
```

clear diameter-service

Clears information pertaining to configured Diameter services.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear diameter-service { eap { all | session-id *session_id* **} | lte-s6b { all | session-id** *session_id* **} | lte-sta { all | session-id** *session_id* **} | mbms { bearer-contexts { all | bmsc-bearer-service name** *service_name* **} | ue-context { all | bmsc-bearer-service name** *service_name* **} } | statistics name** *service_name* **[vpn-name** *vpn context_name* **] }**

eap { all | session-id *session_id* }

Clears subscribers from the EAP interface.

all: Clears all subscribers.

session-id *session_id*: Clears a call for the session ID specified as an alphanumeric string of 1 through 63 characters.

lte-s6b { all | session-id *session_id* }

Clears subscribers from the S6b interface.

all: Clears all subscribers.

session-id *session_id*: Clears a call for the session ID specified as an alphanumeric string of 1 through 63 characters.

lte-sta { all | session-id *session_id* }

Clears subscribers from STa interface.

all: Clears all subscribers.

session-id *session_id*: Clears a call for the session ID specified as an alphanumeric string of 1 through 63 characters.

mbms { bearer-contexts { all | bmsc-bearer-service name *service_name* } | ue-context { all | bmsc-bearer-service name *service_name* } }

Clears information from the SGSN-APP interface.

bearer-contexts { all | bmsc-bearer-service name *service_name* **}**: Clears information from the bearer-context gmb-interface.

all: Clears all subscribers.

bmsc-bearer-service name *service_name* **}**: Specifies the name of a bmsc-bearer-service as an alphanumeric string of 1 through 63 characters.

ue-context { all | bmsc-bearer-service name *service_name* **}**: Clear information UE context for gmb-interface.

all: Clears all subscribers.

bmsc-bearer-service name *service_name* **}**: Specifies the name of a bmsc-bearer-service as an alphanumeric string of 1 through 63 characters.

service_name

service_name must be a name of a Diameter service expressed as an alphanumeric string of 1 through 63 characters.

statistics name *service_name* [vpn-name *vpn context_name*]

Clears the Diameter service associated with the specified statistics.

name *service_name*: Specifies the name of a Diameter service as an alphanumeric string of 1 through 63 characters.

vpn-name *vpn context_name*: Clears statistics for the vpn-context name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear information pertaining to configured Diameter services.

Example

The following command clears Diameter service information for all subscribers associated with EAP interface:

```
clear diameter-service eap all
```

clear diameter tps-statistics

Clears Diameter Transactions Per Second (TPS) statistics information.

Product

ePDG

P-GW

SAEGW

S-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear diameter tps-statistics application { auth-eap | e2 | gmb | gx | gy | rf | s6a | s6b | sgmb | sta | swm } | endpoint` *`endpoint_name`* **`[ | { grep`** *`grep_options`* **`| more } ]`**

endpoint *endpoint_name*

Clears the TPS KPI information only for the endpoint specified as a string of size ranging from 1 through 255 characters.

Important The Diameter Endpoints configured on ASR 5500 platform are not shared between various Diameter applications. For example, Gx and Gy should have separate Diameter endpoints configured.

application { auth-eap | e2 | gmb | gx | gy | rf | s6a | s6b | sgmb | sta | swm }

Clears the TPS KPI information only for the specified Diameter application.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear both historical as well as cumulative KPIs for Session and Network Initiated Setup/Teardown events. For example, if this clear CLI command is invoked at time 2:31:20, then all KPI information pegged till time "2:31:20" is cleared.

Example

The following command clears Diameter TPS statistics for the endpoint named *edp1*:

`clear diameter tps-statistics endpoint edp1`

clear dns-client

Clears DNS cache and/or statistics for a specified DNS client.

Product

SCM

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear dns-client` *`name`* **`{ cache [ query-name`** *`name`* **`| query-type { A | AAAA | NAPTR | SRV } ] | statistics }`**

dns-client *name*

Specifies the name of an existing DNS client whose cache and/or statistics are being cleared as an alphanumeric string of 1 through 255 characters.

cache [query-name *name* | query-type { A | AAAA | NAPTR | SRV }]

Specifies that the cache for the defined DNS client is to be cleared.

query-name *name*: Filters DNS results based on the domain name. The name is an alphanumeric string of 1 through 255 characters. that is the domain name used to perform the DNS query. This name is different from the actual domain name which is resolved. For example, to resolve the SIP server for *service.com*, the query name is *_sip._udp.service.com* and the query type is **SRV**.

query-type:

- **A**: Filters DNS results based on domain IP address records (A records).
- **AAAA**: Filters DNS results based on AAAA records (AAAA resource records).
- **NAPTR**: Filters DNS results based on Name Authority Pointer records.
- **SRV**: Filters DNS results based on service host records (SRV records).

statistics

Specifies that statistics for the defined DNS client are to be cleared.

Usage Guidelines

Use this command to clear DNS cache and/or statistics for a specified DNS client.

Example

The following command clears statistics for a DNS client named *domain1.com*:

`clear dns-client domain1.com statistics`

clear dns-proxy statistics

Clears all DNS proxy statistics.

Product

SCM

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear dns-proxy statistics`

Usage Guidelines

Use this command to clear all DNS proxy statistics.

Example

The following command clears DNS proxy statistics:

`clear dns-proxy statistics`

clear dynamic-policy statistics

Clears policy control and charging (PCC) statistics from the interface communicating with the Policy and Charging Rules Function (PCRF) via Gx(x).

Product

HSGW

PDSN

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear dynamic-policy statistics { hsgw-service` *`name`* **| pdsn-service** *`name`* **| sgw-service** *`name`* **}**

hsgw-service *name*

Clears policy control and charging statistics from the Gxa interface communicating with the PCRF. *name* must be an existing HSGW service name and be from 1 to 63 alphanumeric characters.

pdsn-service *name*

Clears policy control and charging statistics from the Gx interface communicating with the PCRF. *name* must be an existing PDSN service name and be from 1 to 63 alphanumeric characters.

sgw-service *name*

Clears policy control and charging statistics from the Gxc interface communicating with the PCRF. *name* must be an existing S-GW service name and be from 1 to 63 alphanumeric characters.

Usage Guidelines

Use this command to clear PCC statistics for the specified service and its Gx interface communicating with the PCRF.

Example

The following command clears HSGW statistics for an HSGW service named *hsgw4*:

```
clear dynamic-policy statistics hsgw-service hsgw4
```

The following command clears PCC statistics for a PDSN service named *cdma4*:

```
clear dynamic-policy statistics pdsn-service cdma4
```

The following command clears S-GW statistics for an S-GW service named *sgw4*:

```
clear dynamic-policy statistics sgw-service sgw4
```

clear egtpc

Clears enhanced GPRS Tunneling Protocol control plane (eGTP-C) statistics and counters found in **show** command outputs and bulk statistics associated with all eGTP-C-related services or those defined by the parameters in this command.

Product

MME

P-GW

S-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear egtpc statistics [ egtp-service name [ interface { s2a | s2b | s5s8
 } ] | interface-type { interface-mme | interface-pgw-ingress [ interface
 { s2a | s2b | s5s8 } ] | interface-sgsn | interface-sgw-egress |
interface-sgw-ingress } | mme-address ip_address | pgw-address ip_address |
sgsn-address ip_address | sgw-address ip_address ]
```

egtp-service *name* [interface { s2a | s2b | s5s8 }]

Clears all statistics and counters associated with an existing eGTP service name specified as an alphanumeric string of 1 through 63 characters.

interface: Clears the eGTP-C sub-interface statistics only for the specified eGTP-C service. Possible interfaces are:

- **s2a**: Interface type Sa
- **s2b**: Interface type Sb
- **s5s8**: Interface type S5/S8

Important The keywords **s2a** and **s2b** are only visible if WiFi Integration functionality is enabled. WiFi Integration requires that a valid license key be installed. Contact your local Sales or Support representative for information on how to obtain a license.

interface-type { interface-mme | interface-pgw-ingress [interface { s2a | s2b | s5s8 }] | interface-sgsn | interface-sgw-egress | interface-sgw-ingress }

interface-mme: Clears statistics and counters derived from all MME interface types associated with this system.

interface-pgw-ingress: Clears statistics and counters derived from all P-GW ingress interface types associated with this system.

interface: Clears the eGTP-C interface statistics of a particular sub-interface of P-GW ingress. Possible interfaces are:

- **s2a**: Interface type Sa
- **s2b**: Interface type Sb
- **s5s8**: Interface type S5/S8

Important The keywords **s2a** and **s2b** are only visible if WiFi Integration functionality is enabled. WiFi Integration requires that a valid license key be installed. Contact your local Sales or Support representative for information on how to obtain a license.

interface-sgw-egress: Clears statistics and counters derived from all S-GW egress interface types associated with this system.

interface-sgsn: Clears statistics and counters derived from all SGSN S4 interface types associated with this system.

interface-sgw-ingress: Clears statistics and counters derived from all S-GW ingress interface types associated with this system.

mme-address *ip_address*

Clears all statistics and counters derived from an existing MME IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

pgw-address *ip_address*

Clears all statistics and counters derived from an existing P-GW IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgw-address *ip_address*

Clears all statistics and counters derived from an existing S-GW IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgsn-address *ip_address*

Clears all statistics and counters derived from an existing SGSN S4 IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines

Use this command to clear running statistics and counters found in show command and bulk statistics outputs for all eGTP-C-related services or for specific interfaces, services, or IP addresses as specified by parameters in this command.

Example

The following command clears eGTP-C statistics and counter associated with all P-GW ingress interfaces configured on this system:

```
clear egtpc statistics interface-type interface-pgw-ingress
```

The following command clears eGTP-C statistics and counter associated with all MME interfaces configured on this system:

```
clear egtpc statistics interface-type interface-mme
```

clear event-notif statistics

Clears the statistical information collected over a configured Event Notification (SNMP) interface based on specific criteria.

Product

All

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear event-notif statistics
```

Usage Guidelines

Use this command to clear the statistical information collected over configured Event Notification interface based on specific criteria.

Example

The following command clears the counter information for all Event Notification collection servers configured in a context:

```
clear event-notif server all
```

clear event-record

Clears event record statistics for a P-GW node.

Product

P-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear event-record statistics pgw [| { grep *grep_options* **| more }]**

grep *grep_options* | more

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear event record statistics for a P-GW node.

Example

The following command clears all P-GW event level statistics:

```
clear event-record statistics pgw
```

clear firewall

This command is obsolete.

clear fng-service statistics

Deletes all previously gathered statistics for a specific Femto Network Gateway (FNG) service or all FNG services configured within a context.

Product FNG

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear fng-service statistics { name`** *`service_name`* **`}`**

name *service_name*

Specifies the name of a specific FNG service configured in the context for which to clear statistics as an alphanumeric string of 1 through 63 characters that is case sensitive.

Usage Guidelines Statistics for a single FNG service can be cleared using the **name** keyword. Statistics for all FNG services in the context can be deleted by entering the command with no keywords.

If this command is executed from within the local context with no keywords, statistics will be cleared for every FNG service configured on the system regardless of context. In addition, if the **name** keyword is used when executing from within the local context, statistics for all FNG services configured with the specified name will be cleared regardless of context.

Example

The following command clears statistics for an FNG service named fng1:

`clear fng-service statistics name fng1`

clear gmb statistics

Deletes the collected statistics for the Gmb reference point. Gmb handles broadcast multicast service center (BM-SC) related signaling, which includes the user specific and bearer service messages for Multimedia Broadcast/Multicast Service (MBMS) service.

Product GGSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear gmb statistics [ apn`** *`name`* **`| bmsc-profile`** *`profile_name`*

apn *name*

Deletes only the Gmb information for the specified Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters.

bmsc-profile *profile_name*

Deletes only the Gmb information for the specified BM-SC profile specified as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Use this command to delete usage statistics for the Gmb reference point.

Example

The following command deletes all Gmb statistics:

```
clear gmb statistics
```

clear gmm-sm statistics

Deletes the collected statistics for the GPRS Mobility Management and Session Management (GMM/SM) configurations for various SGSN services.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear gmm-sm statistics [ gmm-only | gprs-service service_name |
iups-service service_name | plmn-id mcc mcc mnc mnc | recovered-values |
sgsn-service service_name | sm-only ]
```

gmm-only

Deletes only GPRS mobility management (GMM) information for the specified filter. Filter options include:

- **gprs-service** *service_name*
- **iups-service** *service_name*
- **plmn-id**
- **recovered values**
- **sgsn-service** *service_name*

gprs-service *srvc_name*

Deletes the statistics for a 2.5G GPRS service specified as an alphanumeric string of 1 through 63 characters that uniquely identifies a preconfigured GPRS service. The delete request can be narrowed by adding either the **nsei** or **routing-area** keywords.

iups-service *srvc_name*

Deletes the statistics for a IuPS service specified as an alphanumeric string of 1 through 63 characters that uniquely identifies a preconfigured IuPS service. The delete request can be narrowed by adding either the **rnc** or **routing-area** keywords.

plmn-id mcc *mcc* mnc*mnc* [access-type { gprs | umts }]

Deletes the statistics for services within a specified PLMN.

mcc Specifies the mobile country code (MCC) as part of the identification of the RNC or RA. *mcc_id* must be an integer from 100 to 999.

mnc Specifies the mobile network code (MNC) as part of the identification of the RNC or RA. *mnc_id* must be a 2- or 3-digit integer from 00 to 999.

access-type keyword fine-tunes the delete procedure and only deletes GMM/SM statistics for the IuPS (access-type UMTS) and/or the GPRS (access-type GPRS) services belonging to the PLMN.

recovered-values

Deletes only the recovered values for the backed-up key KPI counters. The delete request can be narrowed by adding one of three filters:

- **gprs-service** *service_name*
- **iups-service** *service_name*
- **sgsn-service** *service_name*

sgsn-service *srvc_name*

Deletes the statistics for a 3G SGSN service specified as an alphanumeric string of 1 to 63 characters that uniquely identifies the SGSN service. The delete request can be narrowed by adding either the **rnc** or **routing-area** keywords.

sm-only

Deletes only session management (SM) information for the specified keyword parameters.

mcc

mcc Specifies the mobile country code (MCC) as part of the identification of the RNC or RA. *mcc_id* must be an integer from 100 to 999.

mnc

mnc Specifies the mobile network code (MNC) as part of the identification of the RNC or RA. *mnc_id* must be a 2- or 3-digit integer from 00 to 999.

lac *lac_id*

Specifies the location area code (LAC) as part of the identification of the RNC or RA. *lac_id* must be an integer from 1 to 65535.

nsei*nse_id*

Deletes the GMM/SM session statistics for the identified network service entity (NSEI). *nse_id* must be an integer from 0 to 65535 that uniquely identifies a configured NSEI.

rnc*rnc_id*

Fine-tunes the deletion of GMM/SM session statistics just for the specified radio network controller (RNC). *rnc_id* must be an integer from 0 to 4095.

rac *rac_id*

Specifies the routing area code (RAC) as part of the identification of the RNC or RA. *rac_id* must be an integer from 1 to 255.

routing-area mcc *mcc_id* mnc *mnc_id* lac *lac_id* rac *rac_id*

Enter the **routing-area** keyword to fine-tune the clearing of the GMM/SM statistics for a specified routing area (RA) identified by the MCC, MNC, LAC and RAC.

Usage Guidelines

Use this command to delete usage statistics for the GMM/SM session configurations for SGSN services, including BSC attaches, activations, and throughput.

Example

The following command deletes GMM/SM statistics for a specific routing area defined for the SGSN's GPRS service:

```
clear gmm-sm statistics gprs-service gprs1 routing-area mcc 123 mcc 131
lac 24 rac 11
```

The following command displays all possible information for GMM/SM statistics:

```
show gmm-sm statistics verbose
```

Important Output descriptions for **show** commands are available in the *Statistics and Counters Reference*.

clear gprsns statistics

Deletes collected statistics for the 2.5G SGSN's General Packet Radio Service (GPRS) Network Service (NS) layer (link level).

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear gprsns statistics { msg-stats nse *nse_id* **| sns-msg-stats }[| { grep** *grep_options* **| more }]**

msg-stats

Deletes collected transmit (tx) and receive (rx) message statistics for the NS layer.

consolidated nse *nse_id*

nse_id: Enter an integer from 0 to 65535.

nse *nse_id*

Deletes statistics for an NSE specified as an integer from 0 to 65535.

sns-msg-stats

Deletes subnetwork service (SNS) sublayer message statistics.

grep *grep_options* | more

You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to display Frame Relay statistics configured for the NSE/NSVC with the commands documented in the *Network Service Entity - Peer NSEI Configuration Mode* chapter.

Collected statistics are cleared (deleted) with the **clear gprsns statistics** described in the *Exec Mode Commands (A-C)* chapter.

Example

The following command displays the collected message statistics for NSEI *1422*:

show gprsns statistics msg-stats nse 1422

Important Output descriptions for **show** commands are available in the *Statistics and Counters Reference*.

clear gprsssf statistics

Deletes all Customized Applications for Mobile networks Enhanced Logic (CAMEL) service gprsSSF (GPRS Service Switching Function) statistics collected since the last reset or **clear** command.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear gprsssf statistics [ camel-service` *`srvc_name`* **`| gprs [ 2g-sgsn-app | 3g-sgsn-app ] | gsmscf-address {`** *`address`* **`| all } | sms ] [ | { grep | more } ]`**

camel-service *srvc_name*

Clears only CAMEL service statistics for the configured CAMEL service specified as an alphanumeric string of 1 through 63 characters.

gprs [2g-sgsn-app | 3g-sgsn-app]

Clears only CAMEL service statistics for either a 2.5G or 3G SGSN.

gsmscf-address { *address* | all }

Filters the command to only clear CAMEL service statistics for specified GSM service control function (gsmSCF) addresses. *address* is a standard ISDN E.164 address of 1 to 15 digits.

sms

Filters the command to only clear CAMEL service statistics for SMS protocol information.

grep *grep_options* | more

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command instructs the SGSN to delete collected CAMEL service statistics for either specified CAMEL services, or for SMS or GPRS applications in all contexts.

Example

The following command will delete gprsSSF statistics collected for the CAMEL service residing at SCP identified by the gsmSCF address:

`clear gprsssf statistics gsmscf-address 412211411151`

clear gtpc statistics

Deletes all previously gathered GTPC (GTPv0, GTPv1-C, GTPv1-U) statistics within the given context based on the specified criteria.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear gtpc statistics [[custom1 | gtpcmgr-instance *gtpcmgr_instance_number* **| smgr-instance** *sessmgr_instance_number* **] [apn** *apn_name* **| ggsn-service** *ggsn_service_name* **| mseg-service** *mseg_service_name* **| sgsn-address** *sgsn_ipv4_address* **]]**

custom1

Clears the statistics of GTP-C messages for preservation mode and free of charge service.

This keyword is a customer-specific function used for Preservation-Mode and Free-of-Charge Service that is enabled under customer-specific license. For more information on this support, contact your Cisco account representative.

gtpcmgr-instance *gtpcmgr_instance_number*

Clears GTP-C statistics for a GTPC Manager instance specified as an integer from 1 through 4294967295.

smgr-instance *sessmgr_instance_number*

Clears GTP-C statistics for a Session Manager instance specified as an integer from 1 through 4294967295.

apn *apn_name*

Clears GTP-C statistics for an existing APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

ggsn-service *ggsn_service_name*

Clears GTP-C statistics for an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

mseg-service *mseg_service_name*

Important This keyword is not supported in this release.

sgsn-address *sgsn_ipv4_address*

Clears GTP-C statistics for an existing SGSN specified by IP address in IPv4 dotted-decimal notation.

Usage Guidelines

GTPC statistics can be cleared for a single APN, GGSN service, or SGSN. All GTPC statistics in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, all GTPC statistics will be cleared regardless of context.

GTPP statistics are not affected by this command.

Example

The following command clears all GTPC statistics context:

```
clear gtpc statistics
```

clear gtpp statistics

Deletes all previously gathered GTPP statistics within the given context for either single or all Charging Gateway Functions (CGFs).

Product

ePDG

GGSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear gtpp statistics [cgf-address *ipv4/ipv6_address* **[port** *port_num* **]]**

cgf-address *ipv4/ipv6_address* [port *port_num*]

Deletes statistics for a CGF identified by its IP address entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

port *port_num*: Specifies the port number of CGF server. The port number must be an integer ranging from 1 to 65535.

This optional keyword is introduced to ease the identification of product specific CDRs. This configuration provides the flexibility to send ePDG, SaMOG and P-GW LBO CDRs to the same CGF server on different ports.

When the port is specified, this command clears the GTPP statistics for specified CGF server IP address and port. If port is not provided then it will clear the statistics for all CGF servers with the specified IP address.

Usage Guidelines

Statistics for a single CGF can be cleared using the **cgf-address** keyword. Statistics for all CGFs in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, statistics will be cleared for every CGF configured on the system regardless of context. In addition, if the **cgf-address** keyword is used when executing from within the local context, statistics for all CGFs configured with the specified name will be cleared regardless of context.

Example

The following command deletes all GTPP statistics for a CGF server with an IP address of 192.168.1.42:

```
clear gtpp statistics cgf-address 192.168.1.42
```

clear gtpp storage-server local file statistics

Clears AAA proxy GTPP group level statistics for CDRs stored on the local hard disk.

Product

GGSN

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear gtpp storage-server local file statistics [ group name name ]
```

Usage Guidelines

If executed from the local context, this command clears statistics for all GTPP groups configured on the system. If executed from the context within which the storage servers (hard disk) is configured, statistics are deleted for only that context.

clear gtpp storage-server statistics

Clears statistics for configured GTPP storage servers (GSS).

Product

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear gtpp storage-server statistics
```

Usage Guidelines

If executed from the local context, this command clears statistics for all GTPP storage servers configured on the system. If executed from the context within which the servers are configured, statistics are deleted for only those servers.

clear gtpu statistics

Clears enhanced GPRS Tunneling Protocol user plane statistics and counters found in **show** command outputs and bulk statistics associated with all GTP-U-related services or those defined by the parameters in this command.

Product

P-GW

S-GW

MME

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear gtpu statistics [gtpu-service *gtpu_service_name* **| mseg-service** *mseg_service_name* **| peer-address {** *ipv4/ipv6_address* **| all] }**

gtpu-service *gtpu_service_name*

Clears GTP-U statistics for an existing GTP-U service specified as an alphanumeric string of 1 through 63 characters.

mseg-service *mseg_service_name*

Important

This keyword is not supported in this release.

peer-address { [*ipv4/ipv6_address* | all] }

Clears GTP-U statistics for an existing peer IP address entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

all

Clears GTP-U statistics for all existing peers.

Usage Guidelines

Use this command to clear running statistics and counters found in show command and bulk statistics outputs for all GTP-U-related services or for specific services or IP addresses as specified by parameters in this command.

Example

The following command clears GTP-U statistics and counter associated with a GTP-U service name *gtpu-12* configured on this system:

```
clear gtpu statistics gtpu-service gtpu-12
```

clear hd-storage-policy

Clears statistic information for HD storage policies configured on the system.

Product

HSGW

P-GW

S-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear hd-storage-policy statistics { all | name name }
```

statistics { all | name *name* }

all: Clears ACR statistical information for all HD storage policies configured on the system.

name *name*: Clears ACR statistical information for an existing HD storage policy specified as an alphanumeric string of 0 through 63 characters.

Usage Guidelines

Use this command to clear statistics for HD storage policies configured on the system.

Example

The following command clears statistics for an HD storage policy named *pgwsgw*:

```
clear hd-storage-policy statistics name pgwsgw
```

clear henbgw-access-service statistics

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Clears HENBGW ACCESS service statistics.

Product

HeNB-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear henbgw-access-service statistics [henbgw-access-service *henbgw_acc_svc_name* **| miscellaneous | peer-id** *peer_id_value* **| s1ap | sctp] [| { grep grep_options | more }]**

henbgw-access-service *henbgw_acc_svc_name*

Clear statistics per specified HENBGW ACCESS service.

henbgw_acc_svc_name is a string of size 1 to 63.

miscellaneous

Clears Miscellaneous statistics.

peer-id

Clears information about HENB associations for the specified peer.

peer_id_value is an integer value ranging from 0 to 4294967295.

s1ap

Clears S1AP statistics.

sctp

Clears SCTP statistics.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear HENBGW ACCESS service statistics

Example

The following command clears S1AP statistics :

clear henbgw-access-service statistics s1ap

clear henbgw-network-service statistics

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Clears HENBGW NETWORK service statistics.

Product

HeNB-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear henbgw-network-service statistics [ henbgw-network-service` *`henbgw_net_svc_name`* **`| peer-id`** *`peer_id_value`* **`| s1ap | sctp ] [ | { grep grep_options | more } ]`**

henbgw-network-service *henbgw_net_svc_name*

Clear statistics per specified HENBGW NETWORK service.

henbgw_net_svc_name is a string of size 1 to 63.

peer-id

Clears information about MME associations for the specified peer.

peer_id_value is an integer value ranging from 0 to 4294967295.

s1ap

Clears S1AP statistics.

sctp

Clears SCTP statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear HENBGW NETWORK service statistics

Example

The following command clears S1AP statistics :

```
clear henbgw-network-service statistics s1ap
```

clear hexdump-module statistics

Clears and resets all information related to hexdump-module statistics.

Product

ePDG

SaMOG

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear hexdump-module statistics [ | { grep grep_options | more } ]
```

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the Regulating the *Command Output* section in this reference for details on the usage of grep and more.

Usage Guidelines

Use this command to clears and reset all information related to hexdump-module statistics.

Example

The following command resets hexdump-module statistics.

```
clear hexdump-module statistics
```

clear hnbgw sessions

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Clears the active/dormant session information about registered Nabs) on Home-NodeB Gateway (HNB-GW) service instances configured and running on this system based on different filter criteria.

Product

HNB-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear hnbgw sessions { all | cell-id *cell_id* **| hnb-address** *hnb_ip_address* **| hnb-local-id** *hnb_id* **| hnbgw-service** *hnbgw_svc_name* **| hnbid** *hnb_glbl_id* **| mcc** *mcc* **mnc** *mnc* **[-noconfirm] [lac** *lac* **| rac** *rac* **] }**

all

Clears the summarized or full information for all registered HNB sessions on an HNB-GW service instance running on system. Clearing the statistics can be filtered based on given filtering.

cell-id *cell_id*

Clears HNB session statistics for a registered cell ID on an HNB-GW service instance. *cell_id* is the identification number of the Femto cell where the user/subscriber is geographically located expressed as an integer from 0 through 268435455.

hnb-address *hnb_ip_address*

Clears the session statistics for HNB session(s) based on a registered HNB IP address entered in IPv4 dotted-decimal notation.

hnb-local-id *hnb_id*

Clears the session statistics of HNB session(s) for a registered local id of HNB specified as as an integer from 1 through 255.

hnbgw-service *hnbgw_svc_name*

Clears the session statistics for registered HNB session(s) on an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

hnbid *hnb_glbl_id*

Clears the statistics for HNB session(s) based on the registered HNB global id specified as an integer from 1 through 255

mcc *mcc*

Clears statistics for HNB session(s) based on the registered Mobile Country Code (MCC) identification number of the UE. *mcc* must be an integer from 101 through 999.

mnc *mnc*

Clears the statistics for HNB session(s) based on the registered Mobile Network Code (MNC) identification number of the UE. *mnc* must be a 2- or 3-digit integer from 00 through 999

lac *lac*

Clears the statistics for HNB session(s) based on the registered Location Area Code (LAC) identification number of the UE. *lac* must be an integer from 1 through 65535.

rac *rac*

Clears the statistics for HNB session(s) based on the registered Radio Access Code (RAC) identification number of the UE. *rac* must be an integer from 1 through 255.

rnc *rnc*

Clears the statistics for HNB session(s) based on the registered Radio Network Code (RAC) identification number of the HNB. *rnc* must be an integer from 1 through 65535.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Important The Operator privilege does not have access to this keyword.

Usage Guidelines Use this command to clear the session statistics of all or specific registered HNB session(s) or in selected part of user session for HNB-GW services configured and running on this system.

Example

The following command clears the session statistics for all registered HNBs on the HNB-GW service named *hnbgw1*:

```
clear hnbgw sessions hnbgw-service hnbgw1
```

clear hnbgw statistics

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Clears the HNB-GW service and HNB related statistics from an HNB-GW node.

Product HNB-GW

Privilege Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear hnbgw statistics [gtpu-only] [hnb-access-mode { closed | hybrid | open }] [hnbap-only] [hnbgw-service *hnbgw_svc_name* **[gtpu-only | hnb-access-mode { closed | hybrid | open } | hnbap-only | ipne-only | ranap-only | rtp-only | rua-only | sabp-only | sctp-only]] [hnbid** *hnb_identifier*] **[hnbap-only | ranap-only | rtp-only | rua-only]] [hnbid | ipne-only | ranap-only | rtp-only | rua -only | sabp-only | sctp-only]**

gtpu-only

Clears the statistics for GTP-U traffic only for the selected HNB/HNB-GW service.

hnb-access-mode { closed | hybrid | open }

Clears the session statistics of an existing HNB-GW service based on access mode filters.

- **closed**: clears the statistics of only those UEs which are connected through Closed HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.
- **hybrid**: clears the statistics of only those UEs which are connected through Hybrid HNBs to the HNB-GW services on a chassis. This command applies to all Hybrid HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.
- **open**: clears the statistics of only those UEs which are connected through Open HNBs to the HNB-GW services on a chassis. This command applies to all Open HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

hnbap-only

Clears the statistics for Home NodeB Application Part (HNBAP) traffic only for the selected HNB/HNB-GW service.

hnbgw-service *hnbgw_svc_name*

Clears the session statistics for an existing \HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

hnbid *hnb_identifier*

Clears the session statistics for an existing Home-NodeB identifier specified as an alphanumeric string of 1 through 255 characters.

ipne-only

Clears IPNE statistics for selected HNBGW Service.

ranap-only

Clears the session statistics for Radio Access Network Application Protocol (RANAP) traffic only for the selected HNB/HNB-GW service.

rtp-only

Clears the session statistics for Real Time Protocol (RTP) traffic only for the selected HNB/HNB-GW service.

rua-only

Clears the session statistics for RANAP User Adaptation (RUA) traffic only for the selected HNB/HNB-GW service.

sabp-only

Clears the session statistics for Signaling Connection Control Part (SCCP) traffic only for the selected HNB-GW service.

sctp-only

Filters the session statistics to display only Stream Control Transmission Protocol (SCTP) traffic for the selected HNB-GW service.

Usage Guidelines

Use this command to clear the session statistics for an overall session or in a selected part of a user session for HNB-GW services and/or HNBs configured and running on this system.

Example

The following command clear the session statistics for the HNBAP portion of session details for the HNB-GW service named *hnbgw1*:

```
clear hnbgw statistics hnbgw-service hnbgw1 hnbap-only
```

The following command clears the session statistics for the RANAP portion of session details for the HNB identified as *102*:

```
clear hnbgw statistics hnbid 102 ranap-only
```

clear hsgw-service

Clears HRPD Serving Gateway (HSGW) statistics and counters found in **show** command outputs and bulk statistics associated with all HSGW services or a specific service defined by the parameter in this command.

Product

HSGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear hsgw-service statistics [dns-stats | name *service_name* **[dns-stats]] [| { grep** *grep_options* **| more }]**

dns-stats

Clears DNS-related statistics.

name *name*

Clears statistics and counters for a an existing HSGW service name specified as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear statistics for HSGW services configured on the system.

Example

The following command clears statistics for an HSGW service named *hsgw3*:

```
clear hsgw-service statistics name hsgw3
```

clear hss-peer-service

Clears statistic information for Home Subscriber Service (HSS) peer services configured on the system.

Product

MME

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear hss-peer-service statistics [ service name ]
```

statistics [service *name*]

statistics: Clears HSS peer service statistical information for all HSS peer services configured on the system.

service *name*: Clears HSS peer service statistic information for an existing HSS peer service specified as an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Use this command to clear statistics for HSS peer services configured on the system.

Example

The following command clears statistics for an HSS peer service named *hss4*:

```
clear hss-peer-service statistics service name hss4
```

clear ims-authorization

Clears statistics for a specified or all IP Multimedia System (IMS) Authorization Service(s).

Product

GGSN

SCM

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear ims-authorization { policy-control statistics [ims-auth-service *service_name* **] | service statistics [name** *service_name* **] } [| { grep** *grep_options* **| more }]**

ims-auth-service *service_name*

Clears statistics for the specified IMSA service.

service_name must be an alphanumeric string of 1 through 64 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear IMSA Service statistics.

Example

The following command clears IMSA policy-control statistics for an IMSA service named *test_service*:

clear ims-authorization policy-control statistics ims-auth-service test_service

clear ims-sh-service statistics

Clears all IP Multimedia System (IMS) Sh interface (Diameter) statistics for a specific or all services using the Sh interface.

Product

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear ims-sh-service statistics [ service` *`service_name`* **`]`**

service *service_name*

Clears statistics for the specified existing IMS service.

service_name must be an alphanumeric string of 1 through 64 characters.

Usage Guidelines

Use this command to clear interface Sh interface statistics for a specified or all IMS services.

Example

The following command clears all Sh interface statistics:

`clear ims-sh-service statistics`

clear ip access-group statistics

Clears all interface access control list (ACL) statistics and the context level ACL statistics that have been configured in the current context. Be aware that updating an access list also causes all ip access-groups utilizing the list to be cleared.

Product

ASN-GW

GGSN

PDSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear ip access-group statistics`

Usage Guidelines

Use this command to clear all interface ACL statistics and the context level ACL statistics that have been configured in the current context.

Example

The following command clears the ACL statistics:

`clear ip access-group statistics`

clear ip arp

Clears the address resolution protocol (ARP) cache for a given IP address.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear ip arp *ip_address*

ip_address

Specifies the IP address for which to clear the ARP cache in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines

Clear the ARP cache when network changes have occurred for the case where the cached data may cause undue overhead in routing packets.

Example

The following command clears the ARP cache for the IP address *10.2.3.4*:

clear ip arp 10.2.3.4

clear ip bgp peer

Resets Border Gateway Protocol (BGP) connections for all peers or for specified peers in the current context.

Product

HA

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear ip bgp peer { *ip_address* | all | as *as_num* } [in | out | soft | vpnv4 | vpn6 | vrf *vrf_name* [in | out | soft]]

ip_address

Specifies the IP address of the neighbor for which BGP connections should be reset in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

all

Resets BGP connections for all peers.

as *as_num*

Resets BGP connections for all peers in the specified autonomous system (AS). *as_num* must be an integer from 1 through 65535.

in

Softly reconfigures inbound updates.

out

Softly reconfigures outbound updates.

soft

Softly reconfigures inbound and outbound updates.

vpnv4

Clears BGP sessions within the VPNv4 address family.

vpnv6

Clears BGP sessions within the VPNv6 address family.

vrf *vrf_name*

Clears BGP sessions within the specified VRF. *vrf_name* is an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to BGP information for the current context.

Example

The following command resets BGP connections for all neighbors:

```
clear ip bgp peer all
```

clear ip localhosts

Removes the host specified from the current context's local host list for IP address mappings.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear ip localhosts [ host_name ]`

host_name

Specifies the name of the host to be removed as an alphanumeric string of 1 through 127 characters. When omitted, all local host name mappings will be removed.

Usage Guidelines

Clears a host name when it is no longer valid for the current context to access. The host name specified will be unrecognized by the current context once the command is performed.

Example

`clear ip localhosts`

`clear ip localhosts 10.2.3.4`

`clear ip localhosts remoteABC`

clear ip ospf process

Clears Open Shortest Path FIrst (OSPF) database information for the current context and re-establishes neighbor adjacency.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear ip ospf process`

Usage Guidelines

Use this command to clear the OSPF database information for the current context and re-establishes neighbor adjacency.

Example

The following command clears the OSPF database information for the current context and re-establishes neighbor adjacency:

`clear ip ospf process`

clear ipne statistics

Clears IP Network Enabler (IPNE) statistics for a specified or all IPNE services.

Product MINE

Privilege Administrator, Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear ipne statistics [ service`** *`service_name`* **`]`**

service *service_name*

Specifies the name of an existing IPNE service for which statistics will be cleared as an alphanumeric string of 1 through 64 characters.

Usage Guidelines Clears IPNE statistics for a specified or all IPNE services.

Example

The following example clears all IPNE statistics:

```
clear ipne statistics
```

clear ipsg statistics

Clears IP Services Gateway (IPSG) statistics for a specified or all IPSG services.

Product eWAG

IPSG

Privilege Administrator, Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear ipsg statistics [ service`** *`service_name`* **`]`**

service *service_name*

Specifies the name of an IPSG service for which statistics will be cleared.

service_name must be an alphanumeric string of 1 through 64 characters.

Usage Guidelines Clears IPSG service statistics for a specified or all IPSG services.

Example

The following command clears statistics for all IPSG services:

```
clear ipsg statistics
```

clear ipv6 neighbors

Clears an IPv6 address from the neighbor cache.

Product

PDIF

Privilege

Administrator, Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear ipv6 neighbors *ip_address*

ip_address

Specifies the IP address in IPv6 colon-separated-hexadecimal notation.

Usage Guidelines

Clears a specific address from the neighbor cache.

Example

Use the following example to clear *3ffe:ffff:101::230:6eff:fe04:d9aa/48*:

```
clear ipv6 neighbors 3ffe:ffff:101::230:6eff:fe04:d9aa/48
```

clear ipv6 ospf process

Restarts Open Shortest Path First Version 3 (OSPFv3) with available configuration.

Product

GGSN

HA

PDSN

Privilege

Administrator, Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description `clear ipv6 ospf process`

Usage Guidelines Force a restart of OSPFv3 process using the available configuration.

Example

`clear ipv6 ospf process`

clear l2tp

Clears all or specific Layer 2 Tunnelling Protocol (L2TP) statistics or clears and disconnects all or specified sessions or tunnels.

Product PDSN

GGSN

LNS

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

```
clear l2tp { statistics [ lac-service service_name | lns-service service_name
  | pdsnclosedrp-service service_name | peer-address ip_address ] | tunnels {
 all [ clear-sa ] | callid call_id | lac-service service_name [ clear-sa ]
 | lns-service service_name | pdsnclosedrp-service service_name | peer-address
 ip_address [ clear-sa ] } }
```

statistics [lac-service *service_name* | lns-service *service_name* | peer-address *ip_address*]

With no optional keywords specified, this command clears all L2TP statistics for the current context.

lac-service *service_name*: Clears all L2TP statistics for the specified LAC service in the current context.

lns-service *service_name*: Clears all L2TP statistics for the specified LNS service in the current context.

pdsnclosedrp-service *service_name*: Clears all L2TP statistics for the specified PDSN closed R-P service in the current context.

peer-address *ip_address*: Clears all L2TP statistics for the destination (peer LNS) at the specified IP address. The IP address is entered using IPv4 dotted-decimal notation.

tunnels { all [clear-sa] | callid *call_id* | lac-service *service_name* [clear-sa] | peer-address *ip_address* [clear-sa] }

all: Clears all tunnels in the current context.

lac-service service_name: Clears all tunnels in the current context that belong to the specified LAC service and closes the tunnels.

lns-service service_name: Clears all tunnels in the current context that belong to the specified LNS service and closes the tunnels.

pdsnclosedrp-service service_name: Clears all tunnels in the current context that belong to the specified PDSN Closed R-P service and closes the tunnels.

peer-address ip_address: Clears all tunnels in the current context whose destination (peer LNS) is the system at the specified IP address. The IP address is specified using IPv4 dotted-decimal notation.

callid call_id: Uses the unique identifier that specifies a particular tunnel in the system to clear that tunnel and disconnect it. The output of the command **show l2tp tunnels** contains a field labeled Callid Hint which lists the call id information to use with this command. This is an 8-byte hexadecimal number.

clear-sa: If any security associations have been established they are cleared.

Usage Guidelines

Clear L2TP all or specific L2TP statistics or clear sessions in a tunnel and disconnect the tunnel.

Example

To clear all L2TP statistics for the current context, use the following command:

```
clear l2tp statistics
```

To clear all L2TP statistics for the LAC service named *lac1*, use the following command:

```
clear l2tp statistics lac-service lac1
```

Use the following command to clear L2TP statistics for the LNS peer at the IP address *10.10.10.100*:

```
clear l2tp statistics peer-address 10.10.10.100
```

The following command clears and closes all tunnels in the current context:

```
clear l2tp tunnels all
```

The following command clears and closes all tunnels for the LAC service named *lac2*:

```
clear l2tp tunnels lac-service lac2
```

The following command clears and closes all tunnels the peer at the IP address *10.10.10.110*:

```
clear l2tp tunnels peer-address 10.10.10.110
```

clear lawful-intercept

Refer to the *Lawful Intercept Configuration Guide* for a description of this command.

clear llc statistics

Deletes collected traffic statistics for the GPRS logical link-control (LLC) layer.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear llc statistics [ gprs-service` *`srvc_name`* **`] [ | { grep grep_options | more } ]`**

gprs-service *srvc_name*

Clears the collected statistics for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference*.

Usage Guidelines

This command deletes statistics collected for the traffic that has gone through the LLC layer for either all GPRS services or for a specified GPRS service.

Example

The following command deletes all LLC statistics for GPRS service *gprs1*:

`clear llc statistics gprs-service gprs1`

clear lma-service statistics

Clears Local Mobility Anchor (LMA) statistics and counters found in **show** command outputs and bulk statistics associated with all LMA services or a specific service defined by the parameter in this command.

Product

P-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear lma-service statistics [ name` *`service_name`* **`]`**

name *service_name*

Clears statistics and counters for an existing LMA service name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines Use this command to clear statistics and counters in show command outputs and bulk statistics for all LMA services or for a specific LMA service.

Example

The following command clears statistics and counters for an LMA service named *lma3*:

```
clear lma-service statistics name lma3
```

clear local-policy

Clears local Quality of Service (QoS) policy service statistics and counters found in **show** command outputs and bulk statistics associated with all local QoS policy services or a specific service defined by the parameter in this command.

Product P-GW

SAEGW

Privilege Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **clear local-policy statistics [service** *service_name* **]**

service *service_name*

Clears statistics and counters for an existing local policy service name specified as an alphanumeric string of 1 through 64 characters.

Usage Guidelines Use this command to clear statistics and counters in **show** command outputs and bulk statistics for all local QoS policy services or a specific service.

Example

The following command clears statistics and counters for a local QoS policy service named *lp3*:

```
clear local-policy statistics service lp3
```

clear local-user

Clears information pertaining to local-user administrative accounts.

Product All

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear local-user { database [ -noconfirm ] | statistics | username` *`name`* **`lockout }`**

clear local-user database

Clears the local-user database by deleting all information for all local-user accounts.

Caution Use this command only in the event of security concerns or to address concerns of the local-user account database integrity.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

clear local-user statistics

Clears statistics pertaining to local-user accounts.

clear local-user userame *name* lockout

Removes lockouts associated with the local-user account expressed as an alphanumeric string of 3 through 16 characters that is case sensitive.

Usage Guidelines

This command can be used to remove local-user account lockouts, reset local-user-related statistics to 0, or to delete the local-user database.

Example

The following command removes the lockout placed on a local-user account named *SecureAdmin*:

```
clear local-user username SecureAdmin lockout
```

clear location-service

Clears collected statistics and information pertaining to Location Services.

Product

MME

SGSN

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear location-services statistics [ service` *`location_svc_name`* **`]`**

statistics

Clears all location service statistics.

service *location_svc_name*

Clears statistics only for the specified location service.

Usage Guidelines

Use this command to clear location service statistics.

Example

The following command clears the Location service statistics only for the location service named *location_service1*:

`clear location-service statistics service location_service1`

clear mag-service statistics

Clears Mobile Access Gateway (MAG) statistics and counters found in **show** command outputs and bulk statistics associated with all MAG services or a specific service defined by the parameter in this command.

Product

HSGW

S-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear mag-service statistics [ name` *`service_name`* **`]`**

name *service_name*

Clears statistics and counters for an existing MAG service name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clears statistics and counters in show command outputs and bulk statistics for all MAG services or for a specific MAG service.

Example

The following command clears statistics and counters for a MAG service named *mag1*

```
clear mag-service statistics name mag1
```

clear map statistics

Clears Mobile Application Part (MAP) statistics (SS7) for a specified service or all services.

Product

GGSN

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear map statistics [ name service_name ]  [ recovered-values ]
```

name *service_name*

Clears statistics and counters for an existing MAP service name specified as an alphanumeric string of 1 through 63 characters.

recovered-values

Clears only recovered values for key MAP KPI counters that were backed-up.

Usage Guidelines

Delete MAP statistics for a single or all GGSN/SGSN services.

Example

The following command deletes all MAP statistics.

```
clear map statistics
```

clear maximum-temperatures

Clears information pertaining to component maximum temperatures. (ASR 5x00 only)

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear maximum-temperatures`

Usage Guidelines

Reset the timestamp to the current time and clear previous maximum temperatures for all temperature monitored components. This may be useful when preparing to study system performance, monitor usage, or troubleshoot the administrative interfaces.

Example

The following command resets the maximum temperature statistics for all monitored chassis components.

`clear maximum-temperatures`

clear mipfa statistics

Clears the statistics for the mobile IP foreign agent (MIPFA). The statistics for a specific foreign agent service may be cleared by an explicit command.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear mipfa statistics [ fa-service` *`name`* **`|  peer-address`** *`ip_address`* **`]`**

fa-service *name* | peer-address *ip_address*

fa-service *name*: Clears the statistics for an existing FA service specified as an alphanumeric string of 1 through 63 characters. "Total sessions" counters for all peers associated with the service are also reset.

peer-address *ip_address*: Clears the statistics for the peer IP address specified in IPv4 dotted-decimal notation. "Total sessions" counter for the specified peer is also reset.

Usage Guidelines

Clear all statistics for the MIP foreign agent or for a specific service. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

Example

The following clears all statistics for the mobile IP foreign agent.

```
clear mipfa statistics
```

The following commands clear the statistics for the example service only.

```
clear mipfa statistics fa-service sampleService
clear mipfa statistics peer-address 10.2.3.4
```

clear mipha statistics

Clears the statistics for the mobile IP home agent (MIPHA). The statistics for a home agent service may be cleared by explicit command.

Product

PDSN

HA

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear mipha statistics [ ha-service name | peer-address ip_address ]
```

ha-service *name* | peer-address *ip_address*

ha-service *name*: Clears the statistics for an existing HA service name specified as an alphanumeric string of 1 through 63 characters. "Total sessions" counters for all peers associated with the service are also reset.

peer-address *ip_address*: Clears the statistics for an IP address specified using IPv4 dotted-decimal notation. "Total sessions" counter for the specified peer is also reset.

Usage Guidelines

Clear all statistics for the MIP home agent or for a specific service. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

Example

The following clears all statistics for the mobile IP foreign agent.

```
clear mipha statistics
```

The following command clears the statistics for the example service only.

```
clear mipha statistics ha-service sampleService
clear mipha statistics peer-address 10.2.3.4
```

clear mipmn statistics

Clears the statistics for mobile IP mobile node (MIPMN).

Product

PDSN

HA

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear mipmn statistics`

Usage Guidelines

Clear all statistics for MIP mobile node. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

Example

The following clears all statistics for MIP mobile node:

`clear mipmn statistics`

clear mipv6ha statistics

Clears the statistics for mobile IP IPv6 home agent (MIPv6HA).

Product

PDSN

HA

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear mipv6ha statistics`

Usage Guidelines

Clear all statistics for a MIP IPv6 home agent. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

Example

The following clears all statistics for MIPv6 home agent:

```
clear mipv6ha statistics
```

clear mme-service db record

Clears the MME database records all instances of session manager running for an MME service filtered with IMSI or GUTI as criteria.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear mme-service db record { all | guti plmn *plmn_id* **group-id** *mme_grp_id* **code** *mme_code* **m-tmsi** *mtmsi_value* **| imsi** *imsi_identifier* **| instance** *instance_id* **}**

all

Clears all detached database records.

guti plmn *plmn_id* group-id *mme_grp_id* code *mme_code* m-tmsi *mtmsi_value*

This set of keywords specifies the filter criteria as a Globally Unique Temporary Identifier (GUTI) to clear the database records for MME service.

The GUTI is constructed from the GUMMEI and the M-TMSI where GUMMEI is constructed from PLMN (MMC and MNC) *plmn_id* and MME Identifier is constructed from an MME Group ID (MMEGI) *mme_grp_id* and an MME Code (MMEC) *mme_code*.

Within the MME, the mobile is identified by the M-TMSI *mtmsi_value*

imsi *imsi_identifier*

Specifies the filter criteria as International Mobile Subscriber Identity (IMSI) to clear the database records of a session instance. *imsi_identifier* is a 15-character IMSI field that identifies the subscriber's home country and carrier.

instance *instance_id*

Clears all detached database records in an existing session manager instance specified as an integer from 1 through 4294967295.

Usage Guidelines

Use this command to clear/remove database records for all or a particular instance of session manager for MME services on this system.

Example

The following command clears the summary database records of a session instance for subscriber having IMSI as *123455432112345* in the MME service:

```
clear mme-service db record imsi 123455432112345
```

clear mme-service db statistics

Clears the MME database statistics for MME sessions for all or specific session instances on this system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear mme-service db statistics [ instance smgr_instance ]
```

instance *smgr_instance*

Specifies that MME database statistics for a specific instance of session manager running for MME service are to be remove. The instance ID expressed is an integer from 0 through 4294967295. If an instance is not specified, database statistics of all instances will be removed.

Usage Guidelines

Use this command to clear/remove database statistics for all or a particular instance of session manager for MME services on this system.

Example

The following command removes/clears the database statistics of all instances of the MME service on a system:

```
clear mme-service db statistics
```

clear mme-service statistics

Clears MME service statistics based on various criteria.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear mme-service statistics [dcnr | decor [decor-profile *profile_name* **] | emm-only | esm-only | handover | mme-service** *mme_svc_name* **| offload | paging-profile [profile-name** *paging_profile_name* **] | peer-id** *peer_identifier* **| recovered-values | s1ap | sctp | tai all | taidb** *db_name* **] + [| { grep** *grep_options* **| more }]**

dcnr

Clears the dual connectivity NR statistics.

decor [decor-profile *profile_name*]

Clears the Decor statistics for all the configured Decor profile(s).

decor-profile *profile_name*: Clears the Decor statistics for the specified Decor profile. *profile_name* must be an alphanumeric string of 1 through 63 characters.

emm-only

Clears EPS mobility management (EMM) related statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

esm-only

Clears EPS session management (ESM) related statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

handover

Clears handover related statistics (such as Intra-MME, EUTRAN<->EUTRAN via S10, EUTRAN<->UTRAN via GnGp, EUTRAN<->GERAN via GnGp, and EUTRAN<->UTRAN via S3) for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

mme-service *mme_svc_name*

Clears all statistics for the specified MME service name.

offload

Clears all load rebalancing (UE offload) statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

paging-profile [profile-name *paging_profile_name*]

Clears the paging profile statistics for all the configured paging-profile(s) one after another.

profile-name *paging_profile_name*: Clears the paging profile statistics for the given profile name. *paging_profile_name* must be an alphanumeric string of 1 through 63 characters.

peer-id *peer_identifier*

Clears all statistics for the specified eNodeB association peer identifier.

recovered-values

Clears all recovered statistics if the *Backup and Recovery of Key KPI Statistics* feature has been enabled. For details, refer to the **statistics-backup** command in the Global Configuration mode and the feature chapter in the *MME Administration Guide*.

s1ap

Clears all all S1-AP statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

sctp

Clears all all SCTP statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

tai all

Clears statistics stored for all TAIs in all TAI management databases.

taidb *db_name*

Clears statistics stored for all TAIs in the specified TAI management database.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to clear the statistical information of an MME service based on various filter criteria.

Example

The following command clears the service statistics of all MME service on a system:

```
clear mme-service statistics
```

clear multicast-sessions

Disconnects broadcast-multicast sessions based on specified criteria.

Product

PDSN

SGSN

Privilege

Security Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear multicast-sessions [ -noconfirm ] [ keywords ] [ verbose ]`

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

all

Disconnects all multicast sessions.

callid *call_id*

Clears the call specified by *call_id*. The call ID is as an 8-byte hexadecimal number.

card-num *slot_num*

Specifies the slot number of the packet processing card by which the multicast session is processed as a number from 1 through 7 or 10 through 16 (for the ASR 5000) or from 1 through 3 or 6 through 10 (for the ASR 5500).

flowid *id*

Clears calls for a specific Broadcast/Multicast Service (BCMCS) flow id, specified as a hexadecimal numbe.r

flowid-type [flow | program]

Clears multicast sessions according to the type of flow.

flow: Clears all multicast sessions for the flow ID type "flow".

program: Clears all multicast sessions for the flow ID type "program".

mcast-address *ipv4_address*

Clears multicast sessions for a specific multicast address. Must be followed by the IP address of an interface in IPv4 dotted-decimal notation.

pcf *ipv4_address*

Clears multicast sessions connected via the packet control function defined by an IP address in IPv4 dotted-decimal notation.

pdsn_service *name*

Clears multicast sessions connected to an existing packet data service name.

sgsn-service *svc_name*

Displays information for multicast sessions connected to an existing SGSN service name.

verbose

Displays as much information as possible. If this option is not specified, the output is the standard level which is the concise mode.

Usage Guidelines

Clear multicast sessions to aid in troubleshooting the system when no additional subscribers may connect or when a specific service or remote address may be having connection problems. This command may also be useful when preparing for maintenance activities such that connects may be cleared to perform any necessary procedures.

The keywords are filters that modify or filter the criteria for deciding which sessions to clear and are described below. Multiple keywords can be entered on a command line.

When multiple keywords are specified, the multicast sessions deleted must meet the specifications of all of the keywords.

Example

The following command clears the broadcast-multicast sessions having multicast address *10.2.3.4*:

```
clear multicast-sessions mcast-address 10.2.3.4
```

The following command clears the broadcast-multicast session(s) having call id *00004e22*:

```
clear multicast-sessions callid 00004e22
```

clear nat-ip

Clears the NAT IP addresses forcibly from NAT pools.

Product

NAT

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear nat-ip { *ip_address* | pool *pool_name* } context *context_name* [-noconfirm]

ip_address

Specifies the NAT IP address to be released from subscribers, in IPv4 dotted-decimal notation.

pool *pool_name*

Specifies the NAT pool name, that is an existing IP pool or IP pool group, specified as an alphanumeric string of 1 through 31 characters.

context *context_name*

Clears statistics for the VPN context name where the NAT pool belongs to, specified as an alphanumeric string of 1 through 79 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to clear the NAT IP addresses from Session Manager to VPN for NAT pools, by forcibly releasing the IP addresses from the subscriber calls.

Example

The following command clears the NAT IP statistics for the configured IP address *1.1.1.1* in the **test123** VPN context:

```
clear nat-ip 1.1.1.1 context test123
```

The following command clears the NAT IP statistics for the **pool1** NAT pool in the **test123** VPN context without user confirmation:

```
clear nat-ip pool pool1 context test123 -noconfirm
```

clear pcc-policy service statistics

Clears statistical information of all or a specific policy control and charging (PCC) service configured in a context.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear pcc-policy statistics [name *pcc_plcy_svc_name* **]**

name *pcc_plcy_svc_name*

Clears information only for an existing PCC-Policy service in the current context, expressed as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Use this command to clears the statistical information of all or an specific PCC-Policy services configured in a context.

Clearing of statistics can further be filtered for specific PCC-Policy service name as well.

Example

The following command clears the statistical information for the PCC-Policy service named *pcc_policy1* in summarized output:

```
clear pcc-policy service statistics name pcc_policy1
```

clear pcc-policy session

Clears the active/dormant session information about PCC-Policy service instances configured and running on this system based on different filter criteria.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear pcc-policy sessions [all] [apn | call-id *call_id* **| imsi** *imsi_id* **| ip-address** *pcc_pcef_ip_address* **| service** *pcc_plcy_svc_name* **] [local-purge]**

all

Clears the session information of all registered IP-CAN session(s) on a PCC-Policy service instance running on the system. The display can be filtered based on given filtering criteria.

apn *apn_name*

Clears the session information for PCC-Policy service sessions connected via an existing APN,

imsi *imsi_id*

Clears the session information of IP-CAN session(s) based on the IMSI identifier of a subscriber on a PCC-Policy service instance. *imsi_id* is the International Mobile Subscriber Identity (IMSI) and must be a 15-character field which identifies the subscriber's home country and carrier.

ip-address *pcc_pcef_ip_address*

Clears the session statistics of IP-CAN session(s) based on the registered PCEF (Policy and Charging Enforcement Function) node IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

call-id *call_id*

Clears the session statistics of IP-CAN session(s) based on the existing registered call id of an IP-CAN session subscriber specified in eight-bye hexadecimal format.

pcc-policy-service *pcc_plcy_svc_name*

Clears the session statistics of registered IP-CAN session(s) based on an existing PCC-Policy service name, expressed as an alphanumeric string of 1 through 63 characters.

local-purge

Clears the session information for PCC-Policy service sessions locally only.

Usage Guidelines

Use this command to clear the session statistics of all or specific registered IP-CAN session(s) or in selected part of user session for PCC-Policy services configured and running on this system.

Example

The following command clears the session statistics for all registered PCC-Policy service instances on a system/context locally only:

```
clear pcc-policy sessions all local-purge
```

clear pcc-sp-endpoint statistics

Clears the statistical information of all or specific PCC-Sp-Endpoint instance configured in a context.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear pcc-sp-endpoint statistics [ name sp_endpt_name ]
```

name *sp_endpt_name*

Clears information only for an existing PCC-Sp-Endpoint instance specified as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Use this command to clear the statistical information of all or an specific PCC-Sp-Endpoint interface configured in a context.

Clearing of statistics can further be filtered for specific PCC-Sp-Endpoint instance name as well.

Example

The following command clears the statistical information for the PCC-Sp-Endpoint instance named *sp1* in summarized output:

```
clear pcc-sp-endpoint statistics name sp1
```

clear pdg-service statistics

Deletes all previously gathered statistics for a specific Packet Data Gateway (PDG) service or all PDG services configured within a context.

Product

PDG/TTG

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear pdg-service statistics [name *service_name* **]**

name *service_name*

Clears the statistics for the PDG service name configured in the context, expressed as an alphanumeric string of 1 through 63 characters that is case sensitive.

Usage Guidelines

Usage Statistics for a single PDG service can be cleared using the name keyword. Statistics for all PDG services in the context can be deleted by entering the command with no keywords.

If this command is executed from within the local context with no keywords, statistics will be cleared for every PDG service configured on the system regardless of context. In addition, if the name keyword is used when executing from within the local context, statistics for all PDG services configured with the specified name will be cleared regardless of context.

Example

The following command clears statistics for a PDG service named *pdg1*:

```
clear pdg-service statistics pdg1
```

clear pgw-service

Clears PDN Gateway (P-GW) statistics and counters found in **show** command outputs and bulk statistics associated with all P-GW services or a specific service defined by the parameter in this command.

Product

P-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear pgw-service statistics [name *service_name* **] [| { grep** *grep_options* **| more }]**

name *service_name*

Clears statistics and counters for an existing P-GW service name, expressed as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear statistics and counters in show command outputs and bulk statistics for all P-GW services or for a specific P-GW service.

Example

The following command clears statistics and counters for an P-GW service named *pgw5*:

clear pgw-service statistics name pgw5

clear port

Clears port related statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear port { datalink counters { all | *slot/port* **} | npu counters { all |** *slot/port* **[untagged | vlan** *tag_id* **] }**

datalink counters

Clears data link port statistics.

npu counters

Clears statistics for the network processing unit(s).

all

Clears counters for all datalink or NPU ports.

slot/port

Clears the statistics for the specified slot and port number.

untagged

Clears NPU statistics for all ports that do not have a VLAN tag.

vlan *tag_id*

Clears NPU statistics for the port that has a previously configured VLAN tag ID.

Usage Guidelines

Manually clear the statistics for a specified port. This is useful when preparing to troubleshoot or monitor the system.

Example

The following command clears the data link related statistics for port 1 in slot 17.

```
clear port datalink counters 17/1
```

The following command clears the network processing unit related statistics for port 1 in slot 17.

```
clear port npu counters 17/1
```

The following command clears the network processing unit related statistics for port 10 in slot 5.

```
clear port npu counters 5/10
```

clear ppp statistics

Clears point-to-point protocol (PPP) related statistics. All PPP statistics may be cleared or just those for a specific packet data service may be cleared.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear ppp statistics [ggsn-service *ggsn_name* **| lns-service** *lns_name* **| pcf-address [** *pcf_ip_addr* **| all] | pdsn-service** *pdsn_name* **| pdsnclosedrp-service** *pdsnclosedrp_name* **]**

ggsn-service *ggsn_name*

Clears statistics only for the time the session is connected to the named GGSN service.

lns-service *lns_name*

Clears statistics only for the time the session is connected to the named LNS service.

pcf-address [*pcf_ip_addr* | all]

Clears statistics only for the time the session is connected to the specified PCF (Packet Control Function) or for all PCFs. *pcf_ip_addr* must be entered using IPv4 dotted-decimal notation.

pdsn-service *pdsn_name*

Clears statistics only for the named PDSN service.

pdsnclosedrp-service *pdsnclosedrp_name*

Clears statistics only for the time the session is connected to the named PDSN Closed RP service.

Usage Guidelines

Allows you to manually reset PPP statistics when it is desired to have counts begin again from a specific point in time.

Example

The following clears the statistics for all PPP counters and services.

```
clear ppp statistics
```

The following clears only the point-to-point protocol statistics for the service named *sampleService*.

```
clear ppp statistics pdsn-service sampleService
```

clear prepaid 3gpp2 statistics

Clears all of the statistics counters for 3GPP2 Pre-paid accounting. Statistics may be cleared for all services or for an individual service.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear prepaid 3gpp2 statistics { all | { ggsn-service | ha-service |
lns-service | pdsn-service | pdsnclosedrp-service } { all | name service_name
 } }
```

all

Clears prepaid statistics for all services.

ggsn-service

Clears statistics for GGSN service(s).

ha-service

Clears statistics for HA service(s).

lns-service

Clears statistics for LNS service(s).

pdsn-service

Clears statistics for PDSN service(s).

pdsnclosedrp-service

Clears statistics for PDSN Closed-RP service(s).

{ all | name *service_name* }

all: Clears statistics for all services of the specified type.

name *service_name*: Clears statistics for the named service of the specified service type.

Usage Guidelines

Use this command to clear Pre-paid statistics for a particular named service or for all services.

Example

To clear statistics for a PDSN service name *PDSN1*, enter the following command:

```
clear prepaid 3gpp2 statistics pdsn-service name PDSN1
```

clear prepaid wimax

Clears all of the statistical counters for WiMAX prepaid accounting. Statistics may be cleared for all services or for an individual service.

Product

ASN-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear prepaid wimax statistics { all | asngw-service { all | name *service_name* **} | ha-service { all | name** *service_name* **} }**

all

Clears prepaid statistics for all services.

asngw-service

Clears prepaid statistics for ASN-GW service(s).

ha-service

Clears prepaid accounting statistics for HA service(s).

{ all | name *service_name* }

all: Clears statistics for all services of the specified type.

name *service_name*: Clears statistics for the named service of the specified service type.

Usage Guidelines

Use this command to clear prepaid WiMAX accounting statistics for named service or for all services.

Example

The following command clears prepaid WiMAX accounting statistics for an ASN-GW service name *asn1*:

clear prepaid wimax statistics asngw-service name asn1

clear ps-network statistics

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Clears the HNB-Packet Switched (PS) network service associated with an HNB-GW service instance.

Product

HNB-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

clear ps-network statistics [name *cs_svc_name* **| gtpu-only | ranap-only | rtp-only | sccp-only]**

name *ps_svc_name*

Clears the session statistics based on an existing HNB-PS network service name, expressed as an alphanumeric string of from 1 through 63 characters.

gtpu-only

Clears the session statistics for GTP-U traffic only for the specified HNB-PS Network service.

ranap-only

Clears the session statistics for Radio Access Network Application Protocol (RANAP) traffic only for the specified HNB-PS Network service.

sccp-only

Clears the session statistics for Signaling Connection Control Part (SCCP) traffic only for the specified HNB-PS Network service.

Usage Guidelines

Use this command to clear the session statistics for overall session or in selected part of user session for HNB-CS Network services configured and running on a system.

Example

The following command clears the session statistics for RANAP part of session for the HNB-PS Network service *hnb_PS_1*:

```
clear ps-network statistics name hnb_PS_1 ranap-only
```

clear qos npu stats

Clears information pertaining to NPU QoS priority queue bandwidth allocation and sharing.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear qos npu stats inter-subscriber traffic slot *slot_num*

inter-subscriber traffic slot *slot_num*

Clears inter-subscriber traffic statistics for the ASR 5000 application or line card or the ASR 5500 DPC or MIO card installed in the specified slot.

slot_num indicates the number of the chassis slot in which the card is installed and can be configured to an integer value from 1 through 48 (for the ASR 5000 or 1 through 10 (for the ASR 5500).

Usage Guidelines Allows you to manually reset statistics pertaining to NPU QoS priority queue bandwidth allocation.

Example

The following command clears statistics for a card installed in chassis slot *3*:

```
clear qos npu stats inter-subscriber traffic slot 3
```

clear radius accounting archive

Clears archived RADIUS accounting messages associated with an AAA group, or all the archived RADIUS accounting messages in the context in which the command is executed depending on the option chosen. The scope of the command is limited to the context in which it is executed (including the local context).

Important This command is only available in StarOS 8.3 and later. For more information, please contact your local service representative.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear radius accounting archive { all | radius group group_name } [
-noconfirm ]
```

all

Clears all archived RADIUS accounting messages in the context.

radius group *group_name*

Clears all archived RADIUS accounting messages for the specified RADIUS group.

group_name must be the name of a RADIUS server group, and must be an alphanumeric string of 0 through 64 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines Use this command to clear the archived RADIUS accounting messages associated with an AAA group, or all the archived RADIUS accounting messages in the context in which the command is executed.

Example

Use the following command to clear all archived RADIUS accounting messages for the group named *test12*.

```
clear radius accounting archive radius group test12
```

clear radius counters

Clears the statistics for all RADIUS servers or a server group.

Product

ASN-GW

GGSN

PDSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear radius counters { all | radius group *group_name* **| server** *ip_address* **[port** *number* **] }**

all | radius group *group_name* | server *ip_address* [port *number*]

all: Clears statistics for all servers.

radius group *group_name*: Clears all configured authentication/accounting servers in the specified RADIUS group. *group_name* must be the name of server group configured in a specific context for authentication/accounting, expressed as an alphanumeric string of 1 through 63 characters.

server *ip_address* **[port** *number* **]**: Clears statistics only for the server specified using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation. Optionally, you can specify the port which is to have its RADIUS statistics cleared as an integer from 0 through 65535.

Usage Guidelines

Clears all the configured RADIUS servers' statistics to reset them to zero prior to logging or monitoring the system for troubleshooting, performance measurements, etc.

Note that this CLI command will clear all the statistics associated with the configured RADIUS accounting and authentication servers except these two counters –

- Access Request current consecutive failures in a mgr
- Accounting-Request Current Consecutive Failures in a mgr

Example

The following command clears the statistics for all RADIUS servers.

clear radius counters all

The following command resets the statistics only for the server *10.2.3.4*.

clear radius counters server *10.2.3.4*

The following command resets the statistics only for the server group named *star1*.

clear radius counters radius group star1

clear rlf-context-statistics

Clears the statistics for all active Rate Limiting Function (RLF) contexts.

Product

GGSN

P-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

clear rlf-context-statistics { diamproxy [endpoint *endpoint_name* **[peer-realm** *realm_name* **[peer-host** *host_name* **]]] | sessmgr [gtpc-context-name** *context_name grep_options* **] ingress] } [| { grep | more }]**

endpoint *endpoint_name*

Clears the context information only for the endpoint specified as a string of size ranging from 1 through 63 characters.

realm *realm_name*

Clears the context information only for the realm specified as a string of size ranging from 1 through 127 characters.

peer-host *host_name*

Clears the context information only for the host specified as a string of size ranging from 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to clear the statistics for all active RLF contexts.

Example

The following command clears the statistics for all active RLF contexts:

```
clear rlf-context-statistics diamproxy
```

clear rohc statistics

Clears statistics and counters collected since the last reload or **clear** command was issued for RObust Header Compression (ROHC) [RFC 3095].

Product PDSN

ASN-GW

HSGW

Privilege Administrator, Config-administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **clear rohc statistics [pdsn-service** *pdsnsvc_name* **| asngw-service** *asngwsvc_name*

pdsn-service *pdsnsvc_name*

Clears ROHC statistics and counters for the specified PDSN service.

asngw-service asngwsvc_name

Clears ROHC statistics and counters for the specified ASN-GW service.

Usage Guidelines Use this command to clear ROHC statistics for all services or for a specific PDSN or ASNGW service.

Example

The following command clears ROHC statistics and counters for the PDSN service named *pdsn1*:

```
clear rohc statistics pdsn-service pdsn1
```

clear rp service-option

Clears the radio-packet (R-P) interface service option statistics.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear rp service-option statistics [number *option_num* **| pdsn-service** *pdsn_name* **]**

number *option_num* | pdsn-service *pdsn_name*

Default: clears the statistics for all service options and all packet data services.

number *option_num*: Specifies the R-P service option number for which the statistics are to be cleared as an integer from 0 through 1000.

pdsn-service *pdsn_name*: Specifies the PDSN service name for which statistics will be cleared.

Usage Guidelines

Clear the R-P service option statistics prior to monitoring the system for bench marking or for detecting areas of further research.

Example

The following resets the service option statistics for service option *23* and packet data service *sampleService*, respectively.

```
clear rp service-option statistics number 23
clear rp service-option statistics pdsn-service sampleService
```

clear rp statistics

Clears the radio-packet (R-P) interface statistics. The statistics for a specific packet data server or peer node may be cleared if specified.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear rp statistics [pdsn-service *name* **| peer-address [** *peer_address* **| all]]**

pdsn-service *name* | peer-address [*peer_address* | all]

Default: clears all R-P associated statistics.

pdsn-service *name*: Specifies the packet data service name that is to have its statistics reset.

peer-address [*ip_address* **| all]**: Specifies that statistics for the specified peer, or all peers, are to be cleared. The *ip_address* must be specified using IPv4 dotted-decimal notation.

Usage Guidelines

Clear the statistics to prepare for monitoring the system.

Example

The following command resets all the associated statistics for the R-P interfaces.

```
clear rp statistics
```

The following command clears the statistics for the packet data service *sampleService*.

```
clear rp statistics pdsn-service sampleService
```

The following command resets the statistics associated with peer node with IP address *10.2.3.4*.

```
clear rp statistics peer-address 10.2.3.4
```

clear rsvp statistics

Clears the Resource Reservation Protocol (RSVP) statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear rsvp statistics

Usage Guidelines

Clear RSVP statistics.

Example

The following command resets all RSVP statistics.

```
clear rsvp statistics
```

clear saegw-service

Clears System Architecture Evolution Gateway (SAEGW) statistics and counters found in **show** command outputs and bulk statistics associated with all SAEGW services or a specific service defined by the parameter in this command.

Product

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear saegw-service statistics { all | name` *`service_name`* **`} [ | { grep`** *`grep_options`* **`| more } ]`**

all

Clears all SAEGW node-level statistics.

name *service_name*

Clears statistics and counters for an existing SAEGW service name, expressed as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear statistics and counters in show command outputs and bulk statistics for all SAEGW services or for a specific SAEGW service.

Example

The following command clears statistics and counters for an SAEGW service named *saegw5*:

`clear saegw-service statistics name saegw5`

clear samog-service statistics

Clear statistics associated with S2a Mobility Over GTP (SaMOG) services.

Product

SAMOG

Privilege

Inspector

Syntax Description

clear samog-service statistics *samog_service_name*

clear samog-service statistics *samog_service_name*

Clears SaMOG service-related statistical information. Service name should be between *1* and *63*.

Usage Guidelines

Use this command to clear statistics and counters in show command outputs and bulk statistics for all SaMOG services or for a specific SaMOG service.

Example

The following command clears SaMOG Statistics *21* :

clear samog-service statistics 21

clear sbc statistics

Clears SBc service statistics based on various criteria.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear sbc statistics { all | peer-id *peer_id* **| sbc-service-name** *sbc_svc_name* **} | { | grep** *grep_options* **| more }]**

all

Clears statistics for all SBs services.

peer-id *peer_id*

Clears statistics for a Cell Broadcast Center (CBC) peer association specified as an integer value from 0 through 4294967295.

Use the **show sbc-service cbc-associations all** command to display the available CBC association peer IDs.

sbc-service-name *sbc_svc_name*

Clears all statistics for an existing SBc service specified as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to clear the statistical information of an SBc service based on various filter criteria.

Example

The following command clears all statistics for the SBc service named *sbc1*

```
clear sbc statistics sbc-service-name sbc1
```

clear sccp statistics

Clears SS7 Signaling Connection Control Part (SCCP) statistics collected for services that use the SCCP protocol.

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear sccp statistics [ iups-service iups_srvc_name | map-service map_srvc_name
 | sccp-network ntwk_index [ dpc dpc [ ssn ssn ] | global-title-translation
 { address-map instance add_map_inst | association instance assoc_inst } [
sessmgr instance sessmgr_inst ] ] [ | { grep grep_options | more } ]
```

iups-service *iups_srvc_name*

Deletes collected SCCP protocol statistics for an existing Iu-PS service in the current context specified as an alphanumeric string of 1 through 63 characters.

map-service *map_srvc_name*

Deletes collected SCCP protocol statistics for an existing MAP service specified as an alphanumeric string of 1 through 63 characters.

sccp-network *ntwk_index*

Deletes collected SCCP protocol statistics for the SSCP network configuration with the a network index specified as an integer from 1 through 12.

The following filters can be added to limit the clearing of SCCP network statistics:

- **dpc** *dpc*: Specifies a differentiated pointcode address to limit the deletion of collected SCCP network statistics to those for the identified destination.
- **ssn** *ssn*: Specifies a subsystem number as an integer from 1 to 255 to limit the deletion of collected SCCP network statistics.
- **global-title-translation address-map instance** *add_map_inst*: Specifies an identified GTT address-map as an integer from 1 to 4096 to limit the deletion of collected SCCP network statistics.
- **global-title-translation association instance** *assoc_inst*: Specifies an identified GTT association as an integer from 1 to 16 to limit the deletion of collected SCCP network statistics.
- **sessmgr instance** *sessmgr_inst*: Specifies an identified session manager instance as an integer from 1 to 384 to limit the deletion of collected SCCP network statistics.

Usage Guidelines

Use this command to delete all collected SCCP statistics or to delete SCCP statistics for a specified service, SCCP network, or session manager.

Example

The following command deletes all collected SCCP statistics:

```
clear sccp statistics
```

The following command clears all collected SCCP statistics for the IuPS service named *iups-serv1*:

```
clear sccp statistics iups-service iups-serv1
```

clear security

Clears the database statistics maintained by the system for the specified Talos Intelligence server.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear security server talos-intelligence server_name
```

server_name

Specifies the name of the Talos Intelligence server for which database statistics will be cleared. *server_name* must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to reset the database statistics maintained by the system for the specified Talos Intelligence server.

clear session disconnect-reasons

Clears the session disconnect reason statistics for all sessions on the system.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear session disconnect-reasons [ buckets ]`

[buckets]

This keyword option clears session disconnect reason statistics only from the three indexed buckets that may be associated with all session managers. The buckets are created when the Exec mode **session disconnect-reasons bucket-interval** command is enabled.

Usage Guidelines

Sets the counters for session disconnect reasons to zero (0) in preparation for a monitoring or troubleshooting session.

Example

`clear session disconnect-reasons`

clear session-event-record statistics

Clears statistics collected during session event module transfers.

Product

S-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear session-event-record statistics`

Usage Guidelines

Use this command to delete all collected session event record statistics.

clear session setuptime

Clears the session setup time statistics for Packet Control Functions (PCFs) or SGSNs. If no keyword is specified the summary statistics displayed by the **show session setuptime** command are cleared.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear session setuptime [pcf [*pcf_addr* **| all] | sgsn-address [** *sgsn_addr* **| all]**

pcf [*pcf_addr* | all]

pcf_addr: Clears the setup time counters for the PCF at the IP address specified in IPv4 dotted-decimal notation.

all: Clears the setup time counters for all PCFs.

sgsn-address [*sgsn_addr* | all]

sgsn_addr: Clears the setup time counters for the SGSN at the IP address specified in IPv4 dotted-decimal notation.

all: Clears the setup time counters for all SGSNs.

Usage Guidelines

Sets the counters for session disconnect reasons to zero (0) in preparation for a monitoring or troubleshooting session.

Example

To clear the statistics for the PCF at IP address *192.168.100.10*, enter the following command:

```
clear session setuptime pcf 192.168.100.10
```

clear session subsystem

Clears all session subsystem statistics for the current context.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear session subsystem`**

Usage Guidelines Clears the statistics in preparation for a troubleshooting or monitoring session so that the counters are at a well known values.

Example

`clear session subsystem`

clear sgsn-fast-path statistics

Clears information related to SGSN fast-path.

Note This command is not supported by SGSN from software release 16.2 onwards as the NPU FastPath feature is not supported by SGSN from the 16.2 release.

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show sgsn-fast-path statistics [ all | smgr-instance`** *`smgr_inst`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

all

Deletes collected fast-path statistics for all session managers.

smgr-instance *smgr_inst*

Clears collected fast-path statistics for a session manager instance specified as an integer from 1 to 65535.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating the Command Output* section in this reference for details on the usage of **grep** and **more**.

Usage Guidelines Use this command to clear all statistics for SGSN fast-path configurations.

Example

The following command deletes all collected fast-path statistics for all SGSN session managers:

```
clear sgsn-fast-path statistics
```

clear sgsn-map-app

Deletes collected statistics for the SGSN Mobile Application Part (MAP).

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear sgsn-map-app statistics [ | { grep grep_options | more } ]
```

clear sgsn-map-app statistics

Clears all collected statistics for the SGSN MAP application.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating the Command Output* section in this reference for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to delete collected statistics for the SGSN MAP application.

Example

The following command clears all collected SGSN MAP statistics:

```
clear sgsn-map-app statistics
```

clear sgsn rlf-context-statistics

Clears the Paging throttle RLF context statistics.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear sgsn rlf-context-stats sessmgr { all | instance *<instance_value>* **} [peer-nsei-id** *<NSE_identifier>* **| peer-rnc-id** *<RNC_identifier>* **] [| { grep** *grep_options* **| more }]**

sessmgr

Clears the RLF statistics specific to Session Managers.

all

Clears the RLF context statistics for all the Session Managers.

instance

Clears the RLF context statistics for the specified Session Manager.

instance_value

The Session Manager instance specified as an integer from 1 to 384.

peer-nsei-id

Specifies the Peer NSEI ID for which RLF context statistics need to be cleared.

NSE_identifier

The Peer NSEI identifier specified as an integer from 0 to 65535.

peer-rnc-id

Specifies the Peer RNC ID for which RLF context statistics need to be cleared.

RNC_identifier

The Peer RNC identifier specified as an integer from 0 to 65535.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating the Command Output* section in this reference for details on the usage of **grep** and **more**.

Usage Guidelines

This command can be configured to clear the Paging throttle RLF context statistics for:

- All the Session Managers.
- The specified Session Manager.
- The specified Peer NSEI.

- The specified Peer RNC.

The keyword **sessmgr** is a mandatory keyword. Specifying the **peer-nsei-id** or **peer-rnc-id** is optional. When the **peer-nsei-id** or **peer-rnc-id** is not specified the global statistics are cleared. If the Session Manager instance is specified, the RLF context statistics for that Session Manager are cleared. If the keyword **all** is configured the RLF statistics for all the Session Managers are cleared.

Example

The following command clears the Paging throttle RLF context statistics for all the Session Managers:

```
clear sgsn rlf-context-statistics sessmgr all
```

clear sgs-service

Clears SGs interface statistics associated with a Visitor Location Register (VLR).

Product

MME

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear sgs-service { statistics [name *name* **] | vlr-status [service-name** *name* **] [vlr-name** *name* **] }**

statistics [name *name*]

Clears statistics for all SGs services or a specific SGs service.

name *name*: Clears the statistics for an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

vlr-status [service-name *name*] [vlr-name *name*] }

Clears statistics for all VLRs, a VLR related to a SGs service, or a specific VLR.

service-name *name*: Clears the SGs statistics for an existing VLR specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear statistics for all SGs services, Visitor Location Registers (VLRS), or a specific SGs service or VLR name.

Example

The following command clears statistics for an SGs service named *sgs2*:

```
clear sgs-service statistics name sgs2
```

clear sgtpc statistics

Clears all SGSN GTP-C (SGTPC) interface statistics for the current context.

Product

MME

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear sgtpc statistics [ gsn-address` *`ipv4_address`* **`| sgtp-service`** *`sgtp_srvc_name`* **`]`**

gsn-address *ipv4_address*

Clears GTPC packet statistics for the interface specified as an IP address in IPv4 dotted-decimal notation.

sgtp-service *sgtp_srvc_name*

Clears GTPC packet statistics for an existing SGTP service specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear the statistics in preparation for a troubleshooting or monitoring session.

Important

Statistics are vital for troubleshooting. We recommend that you check with your Cisco support personnel prior to clearing these statistics.

Example

`clear sgtpc statistics sgtp-service SGSN1sgtp12`

clear sgtpu statistics

Clears all SGSN GTP-U (SGTPU) statistics for the current context.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear sgtpu statistics [ggsn-address *ipv4_address* **| gprs-service** *gprs_srvc_name* **nsei** *nse_id* **| iups-bind-address** *ipv4_address* **| iups-service** *iups_srvc_name* **| recovered-values | rnc-address** *ipv4_address* **| sgtp-service** *sgtp_srvc_name* **]**

ggsn-address *ipv4_address*

Clears GTPU packet statistics for a specific GGSN specified as an IP address in IPv4 dotted-decimal notation.

gprs-service *gprs_srvc_name* nsei *nse_id*

gprs-service *gprs_srvc_name*: Clears GTPU packet statistics for the interface for a specific GPRS service specified as an alphanumeric string of 1 through 63 characters.

nsei *nse_id*: Specifies a network service entity (NSEI) as an integer from 0 through 65535.

iups-bind-address *ipv4_address*

Clears GTPU packet statistics for the bind address of an IuPS interface specified as an IP address in IPv4 dotted-decimal notation.

iups-service *iups_srvc_name*

Clears GTPU packet statistics for an active IuPS service interface specified as an alphanumeric string of 1 through 63 characters.

recovered-values

Clears only recovered values for key SGTP KPI counters that were backed-up.

To narrow the results, this keyword can be combined with either the **iups-service** or the **sgtp-service** keywords.

rnc-address *ipv4_address*

Clears GTPU packet statistics for an RNC specified as an IP address in IPv4 dotted-decimal notation.

sgtp-service *sgtp_srvc_name*

Clears GTPU packet statistics for an active SGTP service interface specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear the statistics in preparation for a troubleshooting or monitoring session.

Important Statistics are vital for troubleshooting. We recommend that you check with your Cisco support personnel prior to clearing these statistics.

Example

Use this command to clear collected SGTPU statistics for a specific NSEI of a configured GPRS service:

```
clear sgtpu statistics gprs-service SGSN1Gprs1 nsei 2445
```

clear sgw-service statistics

Clears Serving Gateway (S-GW) statistics and counters found in **show** command outputs and bulk statistics associated with all S-GW services or a specific service defined by the parameter in this command.

Product

S-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear sgw-service statistics { all | name` *`service_name`* **`}`**

all

Clears statistics and counters for all S-GW services configured on the system.

name *service_name*

Clears statistics and counters for an existing S-GW service name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clears statistics and counters in show command outputs and bulk statistics for all S-GW services or for a specific S-GW service.

Example

The following command clears statistics and counters for an S-GW service named *sgw3*:

```
clear sgw-service statistics name sgw3
```

clear sls-service statistics

Clears SLs service statistics based on various criteria.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear sls-service statistics [name *svc_name* **] [sls | sctp] [esmlc-id** *esmlc-id* **] [| { grep** *grep_options* **| more }]**

name *svc_name*

Clears all statistics for an existing SLs service specified as an alphanumeric string of 1 through 63 characters

sls

Clears only SLs interface related statistics.

sctp

Clears only SCTP related statistics.

esmlc-id *esmlc-id*

Clears all statistics for an existing E-SMLC peer specified as an integer value from 0 through 255.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to clear the statistical information of an SLs service based on various filter criteria.

Example

The following command clears only the SCTP statistics for the SLs service named *sls1*:

```
clear sls-service statistics name sls1 sctp
```

clear sms statistics

Deletes collected traffic statistics for the Short Message Service (SMS).

Product

SGSN

Privilege

Administrator, Security Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear sms statistics [name *map_srvc* **] [recovered-values] [| { grep** *grep_options* **| more }]**

name *map_srvc*

Specifies a MAP Service as an alphanumeric string of 1 to 63 characters.

[recovered-values]

Clears only recovered values for key SMS KPI counters that were backed-up.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to delete collected traffic statistics for SMS. It is possible to clear the statistics of a specific MAP service associated with the SMS by including the **name** filter.

Example

Use the following command to clear SMS statistics for MAP service *MAP-LONDON1*:

```
clear sms statistics name MAP-LONDON1
```

clear sndcp statistics

Deletes all collected statistics for the packet traffic going through the Subnetwork Dependent Convergence Protocol (SNDCP) layer.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear sndcp statistics [gprs-service *srvc_name* **] [| { grep** *grep_options* **| more }]**

gprs-service *srvc_name*

Specifies a GPRS service as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to delete all collected SNDCP traffic statistics. Include the **gprs-service** keyword to filter the clearing action to only deleted statistics for one GPRS service.

Example

Use the following command to clear all collected SNDCP layer traffic statistics:

```
clear sndcp statistics
```

Use the following command to delete SNDCP layer traffic statistics for the *test1* GPRS service:

```
clear sndcp statistics gprs-service test1
```

clear snmp trap

Clears all SNMP event trap notifications from the buffer.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clear snmp trap { history | statistics }
```

history

Clears all SNMP historical trap information from the system buffer.

statistics

Clears all SNMP event trap information from the system buffer.

Usage Guidelines

Use this command to empty the buffer of all SNMP trap notifications.

Example

The following command clears the all historical SNMP traps from the system buffer:

```
clear snmp trap history
```

clear srp

Clears system Service Redundancy Protocol (SRP) statistics.

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear srp { audit-statistics | call-loss statistics | checkpoint statistics | statistics }`

audit-statistics

Clears SRP audit statistics.

call-loss statistics

Clears SRP call loss history.

checkpoint statistics

Clears SRP checkpoint interface statistics.

statistics

Clears SRP statistics.

Usage Guidelines

Clears the SRP statistics to prepare the system for SRP monitoring.

Example

The following command resets all the associated statistics for SRP checkpoints.

`clear srp checkpoint statistics`

The following command resets all the associated statistics for SRP.

`clear srp statistics`

clear ss7-routing-domain

Deletes specified statistics for an SS7 routing domain.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear ss7-routing-domain` *`domain_index`* **`{ asp | mtp2 | mtp3 | qsaa1 | sscf }`**

domain_index

Specifies the index number of the SS7 routing domain as an integer from 1 through 12.

asp

Clears statistics and status information for the SS7 Application Service Part (ASP) in the specified SS7 routing domain.

m3ua

Clears statistics and status information for the SS7 MTP3 User Adaptation Layer (M3UA) in the specified SS7 routing domain.

mtp2

Clears statistics and status information for the SS7 Message Transfer Part-2 (MTP2) in the specified SS7 routing domain.

mtp3

Clears statistics and status information for the SS7 Message Transfer Part-3 (MTP3) in the specified SS7 routing domain.

qsaal

Clears statistics and status information for the Service Specific Connection-Oriented Protocol (SSCOP) sub-layer of the Quasi Signaling Application Adaptation Layer (QSAAL) in the specified SS7 routing domain.

sscf

Clears statistics and status information for the Service Specific Coordination Function (SSCF [q.2140]) in the specified SS7 routing domain.

Usage Guidelines

Deletes statistics for the specified SS7 routing domain.

Example

The following command clears SS7 ASP routing statistics for domain index *4*:

`clear ss7-routing-domain 4 asp`

clear subscribers

Disconnects subscribers based on specified criteria.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear subscribers [ keywords ] [ verbose ] [ -noconfirm ]`

The keywords are filters that modify or filter the criteria for deciding which subscriber sessions to clear and are described below. Multiple keywords can be entered on a command line.

When multiple keywords are specified, the subscriber sessions deleted must meet the specifications of all of the keywords.

For example; if you enter the following command:

`clear subscribers ip-pool pool1 card-num 1`

Only subscriber sessions that were assigned an IP address from the IP pool named *pool1* and are also being processed by the processing card in slot *1* are cleared. All other subscriber sessions that do not meet these criteria remain and are not cleared.

Important Calls already marked as disconnecting will not be designated for clearing. For example, if 100 calls are temporarily in the disconnecting state, the **show subscribers all** command output displays all 100 calls. However, the **clear subscribers all** command output will indicate that there are no calls available for clearing, since they are already in the disconnecting state.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Important The Operator privilege does not have access to this keyword.

active

Only disconnects subscribers who currently have active sessions.

active-charging-service *ecs_service_name*

Clears information for subscribers using the Active charging Service.

ecs_service_name must be the name of the Active Charging Service, expressed as an alphanumeric string of 1 through 15 characters.

all

Disconnects all subscribers.

Important The Operator privilege does not have access to this keyword.

apn *apn_name* [rulename *rule_name* | without-dynamic-rule | without-override-control]

Clears all PDP contexts accessing a specific access point name (APN).

apn_name is the name of the APN expressed as an alphanumeric string of 1 through 63 characters that is case sensitive.

[rulename *rule_name* **| without-dynamic-rule | without-override-control]**

rulename *rule_name* is the charging rule name.

without-dynamic-rule refers to subscribers without any dynamic rule associated with them.

without-override-control refers to subscribers without any override control rule associated with them.

asn-peer-address *ip_address*

Clears information for subscribers on an ASN-GW trusted peer.

ip_address is the address of the ASN-GW peer server entered using IPv4 dotted-decimal notation.

asngw-service *service_name*

Clears counters for subscribers accessing the ASN-GW service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

asnpc-service *service_name*

Clears counters for subscribers accessing the ASN PC service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

bandwidth-policy *bandwidth_policy_name*

Clears information for subscribers using the specified bandwidth policy.

bandwidth_policy_name must be the name for an existing bandwidth policy, expressed as an alphanumeric string of 1 through 63 characters.

bearer-establishment { direct-tunnel | normal | pending }

Clears all subscribers from the specified bearer establishment type.

direct-tunnel: Select subscribers having direct tunnel establshed with the RNC.

normal: Select subscribers having bearer established with SGSN.

pending: Select subscribers for whom bearer is not fully established.

bng-only

Clears information related to BNG calls only.

bng-service *service_name*

Clears all subscribers from the specified BNG service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

callid *id*

Clears the call specified by *call_id*. The call ID must be specified as a 4-byte hexadecimal number.

card-num *card_num*

The slot number of the processing card by which the subscriber session is processed. *card_num* is a slot number from 1 through 7 or 10 through 16 (for the ASR 5000) or from 1 through 4 or 7 through 10 (for the ASR 5500).

cbb-policy *cbb_policy_name*

Clears information for subscribers using the specified CBB policy.

cbb_policy_name must be the name for an existing CBB policy expressed as an alphanumeric string of 1 through 63 characters.

ccoa-only

This option clears the subscribers that registered a MIP co-located COA directly with the HA.

This option is only valid when MIPHA session license is enabled.

cgw-only

Clears information related to CGW calls only.

configured-idle-timeout [< | > | greater-than | less-than] *value*

Disconnects subscribers whose idle timeout matches the specified criteria. A value of 0 (zero) indicates that the subscribers idle timeout is disabled.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. *value* must be an integer from 0 through 4294967295.

connected-time [< | > | greater-than | less-than] *value*

Disconnects subscribers who have been connected for the specified length of time.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. *value* must be an integer from 0 through 4294967295.

css-delivery-sequence *name*

Important This is a restricted keyword. In StarOS 9.0 and later, this keyword is obsoleted.

css-service *name*

Important This is a restricted keyword. In StarOS 9.0 and later, this keyword is obsoleted.

del-cause { none | reactiv-req }

When subscribers are deleted, the GGSN/P-GW/SAEGW may include "Cause-IE" in the resulting Delete Bearer/Delete PDP Context Requests generated for default bearer.

none: Omit GTP "Cause-IE" in DBR/DPC generated for default bearer.

reactiv-req: The DBR/DPC will include "Cause-IE" with GTP cause code "Reactivation Requested".

The behavior for "Cause-IE" will be effective only if the **clear subscribers** command results in the sending of a Delete Bearer Request for default bearer, or Delete PDP Context is sent to delete the PDN connection or its last PDP context.

The behavior for "Cause-IE" specified in this CLI shall override the cause-code set by existing features.

Important This option is only valid when Cause IE Enhancement for Delete Bearer Request license is enabled. Contact your Cisco account representative for more information.

dhcp-server *address*

Clears all PDP contexts that currently possess an IP address assigned from a specific DHCP server. *dhcp_address* is the IP address of the DHCP server expressed in IPv4 dotted-decimal notation.

dormant

Only disconnects subscriber sessions that are dormant (not transmitting or receiving data).

ebi *number*

Clears subscribers based on an EPS bearer identity (EBI). *number* must be a valid EBI and an integer value from 5 to 15.

enodeb-address *ip_address*

Clears subscribers based on the eNodeB to which they are attached. *ip_address* must be a valid IP address of an existing eNodeB entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

epdg-address *ip_address*

Clears subscribers based on the ePDG to which they are attached. *ip_address* must be a valid IP address of an existing ePDG entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service,
```

epdg-service *service_name*

Clears subscribers of a configured ePDG service. *service_name* must be a valid string of size 1 to 63.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service
```

fa *ip_address*

Disconnects all subscribers connected to the foreign agent specified by the IP address in IPv4 dotted-decimal notation.

fa-service *fa_name*

Disconnects all subscribers connected to an existing foreign agent name.

firewall { not-required | required }

Clears all subscriber information for the specified subscribers:

not-required: Subscribers for whom firewall processing is not-required.

required: Subscribers for whom firewall processing is required.

firewall-policy *fw_policy_name*

This keyword is obsolete.

fw-and-nat policy *fwnat__policy_name*

Clears information for subscribers using the specified Firewall-and-NAT policy.

fwnat_policy_name must be the name of an existing Firewall-and-NAT policy expressed as an alphanumeric string of 1 through 63 characters.

fng-service *service_name*

Clears subscriber sessions connected to the FNG service. *service_name* must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

ggsn-service *name*

Clears all PDP contexts accessing an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

gprs-only lai mcc *mobile_country_code* mnc *mobile_network_code* lac *location_area_code*

Notes:

- **gprs-only**: Specifies the clearing of SGSN 2G subscribers only.
- **lai**: Specifies location area identity.
- **mcc** *mobile_country_code*: Specifies mobile country code. *mobile_country_code* must be a string of size 3 to 3 ranging from 100 through 999.
- **mnc** *mobile_network_code*: Specifies mobile network code.*mobile_network_code* must be a string of size 2 to 3 ranging from 00 through 999.
- **lac** *location_area_code*: Specifies location area code. *location_area_code* must be an integer from 1 to 65535.

gprs-service *name*

Clears all PDP contexts associated with the 2G SGSN. This keyword can be used with filtering keywords that are part of the **clear subscriber** command set.

Using this keyword can trigger a network-initiated service request (paging) procedure.

name identifies a specific GPRS service configuration expressed as an alphanumeric string of 1 through 63 characters.

gsm-traffic-class { background | conversational | interactive { *priority* } | streaming }

Subscribers whose traffic matches the specified 3GPP traffic class.

- **background**: 3GPP QoS background class.
- **conversational**: 3GPP QoS conversational class.
- **interactive**: 3GPP QoS interactive class. Must be followed by a traffic priority. priority can be configured to any integer value from 1 to 3.
- **streaming**: 3GPP QoS streaming class.

gtpu-bind-address *ip_address*

Disconnects all subscribers connected to the GTP-U service bind address.

ip_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

gtpu-service *service_name*

Disconnects all subscribers and erase subscriber information based on the GTP-U service name.

service_name must be an existing GTP-U service expressed as an alphanumeric string of 1 through 63 characters.

gtp-version

Displays the specific GTP version number. Must be followed by one of the supported GTP versions (0 or 1).

The following filter keywords are valid with this command:

active-charging-service, apn, asngw-service, asnpc-service, asn-peer-address, bearer-establishment, callid, card-num, coaa-only, configured-idle-timeout, connected-time, dhcp-server, fa, fa-service, firewall, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, ha, ha-ipsec-service, ha-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service, pdsnclosedrp-service, plmn-type, rulebase, rx-data, session-time-left, sgsn-address, sgsn-service, tx-data, username, grep, more

ha *address*

Disconnects all subscribers connected to the home agent.

ha_address must be specified using IPv4 dotted-decimal notation.

ha-ipsec-only

Disconnects all MIP HA sessions with IPSec tunnels.

ha-service *name*

Disconnects all subscribers connected to the home agent specified by *ha_name* must have been previously defined.

henbgw-access-service *svc_name*

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Disconnects all subscribers and erase subscriber information based on the HeNB-GW access service name.

henbgw-only

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

Disconnects subscribers emerging from a HeNBGW service configured on this system.

hnbgw-service *svc_name*

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Disconnects all subscribers and erase subscriber information based on the HNB-GW service name.

svc_name must be an existing HNB-GW service expressed as an alphanumeric string of 1 through 63 characters.

hsgw-only

Disconnects subscribers emerging from a HRPD Serving Gateway (HSGW) service configured on this system.

hsgw-service *name*

Disconnects subscribers using this HRPD Serving Gateway (HSGW) service configured on this system. *name* must be an existing HSGW service expressed as an alphanumeric string of 1 through 63 characters.

idle-time [< | > | greater-than | less-than] *value*

Disconnects subscribers whose idle time matches the specified length of time.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. *value* must be an integer from 0 through 4294967295.

imei *imei*

SGSN only.

Disconnects one or more subscribers based on the international mobile equipment identity (IMEI or IMEI-SV) of the subscriber's mobile equipment.

imei - enter 14 to 16 digits to match the first 14 digits of a retrieved IMEI/IMEISV for a single subscriber. to match a range of subscribers, the string may be shorter and include '$' as a wildcard for a single digit or '*' as a wildcard for multiple digits.

ims-auth-service *imsa_service_name*

Disconnects subscribers using this IMS Authorization Service configured on this system.

imsa_service_name must be an existing IMS Authorization Service expressed as an alphanumeric string of 1 through 63 characters.

imsi *id*

Disconnects the subscriber with the specified id. The IMSI (International Mobile Subscriber Identity) ID is a 50-bit field which identifies the subscriber's home country and carrier. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do

not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

interface-type { S2bGTP | S5S8GTP }

Disconnects subscribers based on their interface type.

S2bGTP: Indicates that the GTP protocol is used on the S2b interface for the subscribers being disconnected.

S5S8GTP: Indicates that the GTP protocol is used on the S5/S8 interface for the subscribers being disconnected.

ip-address *ip_address*

Disconnects all subscribers connected to the specified *ip_address*. The address must be specified using IPv4 dotted-decimal notation.

Note: This keyword is not supported for use with the MME or SGSN.

ip-alloc-method { aaa-assigned | dhcp [relay-agent | proxy-client] | dynamic-pool | l2tp-lns-assigned | mip-ha-assigned | ms-provided-static | not-ms-provided-static | static pool }

Displays the specific IP Allocation Method. Must be followed by one of the IP Allocation Methods:

- **aaa-assigned**: Selects subscribers whose IP Addresses were assigned by AAA.
- **dhcp**: Selects subscribers whose IP Addresses were assigned by DHCP.
- **dynamic-pool**: Selects subscribers whose IP Addresses were assigned from a dynamic IP address pool.
- **l2tp-lns-assigned**: Selects subscribers whose IP Addresses were assigned by the Layer 2 Tunnelling Protocol Network Server.
- **mip-ha-assigned**: Selects subscribers whose IP Addresses were assigned by the Mobile IP Home Agent.
- **ms-provided-static**: Selects subscribers whose IP Addresses were provided by the Mobile Station.
- **not-ms-provided-static**: Selects subscribers whose IP Addresses were not provided by the Mobile Station.
- **proxy-client**: Selects subscribers whose IP Addresses were assigned by the DHCP Proxy Client
- **relay-agent**: Selects subscribers whose IP Addresses were assigned by the DHCP Relay Agent
- **static-pool**: Selects subscribers whose IP Addresses were assigned from a static IP address pool.

ip-pool *name*

Disconnects all subscribers assigned addresses from the IP address pool *pool_name*. *pool_name* must be the name of an existing IP pool or IP pool group.

ipv4

Clears all subscribers with IPv4 Firewall enabled/disabled.

ipv6

Clears all subscribers with IPv6 Firewall enabled/disabled.

ipv6-address *ipv6_address*

Clears all subscribers connected to the specified IPv6 *ipv6_address* must be specified in IPv6 colon-separated-hexadecimal notation.

Note: This keyword is not supported for use with the MME or SGSN.

ipv6-prefix *prefix*

Clears subscribers from a specific IPv6 address prefix.

l3-tunnel-local-addr *ip_address*

Disconnects all calls for this Layer 3 tunneling interface.

ip_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

l3-tunnel-remote-addr *ip_address*

Disconnects all calls for this Layer 3 tunneling peer.

ip_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

lac *ip_address*

Disconnects all calls to the peer LAC (L2TP access concentrator).

ip_address must be specified using IPv4 dotted-decimal notation.

lac-service *service_name*

Disconnects all calls for this LAC service.

service_name is an alphanumeric string of 1 through 63 characters.

lma-service *lma_name*

Disconnects subscribers using this LMA service configured on this system. *lma_name* must be an existing LMA service expressed as an alphanumeric string of 1 through 63 characters.

lns *ip_address*

Disconnects calls to the peer LNS (L2TP network server) specified by *ip_address* must be specified using IPv4 dotted-decimal notation.

lns-service *name*

Disconnects calls associated with the LNS service named *name*. *name* is an alphanumeric string of 1 through 63 characters.

long-duration-time-left [< | > | greater-than | less-than] *value*

Disconnects subscriber sessions whose time left for the maximum duration of their session matches the length of time specified.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. *value* must be an integer from 0 through 4294967295.

mag-service *name*

Disconnects subscribers using this Mobile Access Gateway (MAG) service configured on this system.

name must be an existing MAG service and be from 1 to 63 alphanumeric characters.

max-subscribers *max_count* [uniform]

The maximum number of subscribers to be cleared.

max_count must be an integer from 0 through 20000000.

uniform: Subscribers will be cleared uniformly.

mip-udp-tunnel-only

This option clears the subscribers that negotiated MIP-UDP tunneling with the HA.

This option is only valid when MIP NAT Traversal license is enabled.

mipv6ha-service *service_name*

Disconnects subscribers using this MIPV6 Home Agent service configured on this system.

service_name must be an existing MIPV6 HA service and be from 1 to 63 alphanumeric characters.

mme-address *ipv4_addr*

Disconnects subscribers using this peer Mobility Management Entity (MME). *ipv4_addr* must be an existing peer MME IP address entered using IPv4 dotted-decimal notation.

mme-onlytai mcc *mobile_country_code* mnc *mobile_network_code* tac *tracking_area_code*

Disconnects all MME subscriber sessions on the system.

- **tai** : Specifies specific tai interface. Must be followed by mcc, mnc and tac.
- **mcc** *mobile_country_code*: Specifies mobile country code. *mobile_country_code* must be a string of size 3 to 3 ranging from 100 through 999.
- **mnc** *mobile_network_code*: Specifies mobile network code. *mobile_network_code* must be a string of size 2 to 3 ranging from 00 through 999.
- **tac** *tracking_area_code*: Specifies tracking area code. *tracking_area_code* must be an integer value between 1 and 65535.

mme-service *name*

Disconnects subscribers using this MME service configured on this system. *name* must be an existing MME service expressed as an alphanumeric string1 through 63 characters.

mseg-only

Important This keyword is not supported in this release.

mseg-service *mseg_service_name*

Important This keyword is not supported in this release.

msid *id*

Disconnects the mobile user identified by *ms_id*. *ms_id* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

In case of **enforce imsi-min equivalence** is enabled on the chassis and MIN or IMSI numbers supplied, this filter will clear subscribers with a corresponding MSID (MIN or IMSI) whose lower 10 digits matches to lower 10 digits of the supplied MSID.

clear subscribers msid *111110123456789* or

clear subscribers msid *0123456789*

will clear any subscriber with a MSID that match the lower 10 digits of MSID supplied, i.e. 0123456789.

msisdn *msisdn*

Clears information for the mobile user identified by Mobile Subscriber ISDN Number (MSISDN). *msisdn* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI.

nat { not-required | required [nat-ip *nat_ip_address* | nat-realm *nat_realm_name*] }

Clears all subscriber information for the specified subscribers:

not-required: Subscribers for whom NAT processing is not required.

required: Subscribers for whom NAT processing is required.

Important The **nat-ip** keyword is only available in StarOS 8.3 and later.

nat-ip *nat_ip_address*: Subscribers for whom NAT processing is enabled and are using the specified NAT IP address. *nat_ip_address* specifies the NAT IP address using IPv4 dotted-decimal notation.

nat-realm *nat_realm_name*: Subscribers for whom NAT processing is enabled and are using the specified NAT realm. *nat_realm_name* specifies the NAT realm name expressed as an alphanumeric string of 1 through 63 characters.

network-requested

Disconnect subscriber sessions that were initiated by the GGSN network requested create PDP context procedure.

network-type { gre | ipv4 | ipv6 | ipip | l2tp | mobile-ip | proxy-mobile-ip }

Disconnects subscriber sessions based on the network type. The following network types can be selected:

- **gre**: Generic Routing Encapsulation (GRE) per RFC 2784
- **ipv4**: Internet Protocol version 4 (IPv4)
- **ipv6**: Internet Protocol version 6 (IPv6)
- **ipip**: IP-in-IP encapsulation per RFC 2003
- **l2tp**: Layer 2 Tunneling Protocol encryption per RFC 2661
- **mobile-ip**: Mobile IP
- **proxy-mobile-ip**: Proxy Mobile IP

non-volte-call [auto-delete][del-cause { none | reactiv-req }] [max-subscribers *max_count* [uniform]] [pace-out-interval *interval_in_seconds*]

Disconnects PDN connections that do not have an active voice call.

This keyword is available for APN and chassis maintenance for P-GW, S-GW, SAEGW, GGSN, and ePDG.

auto-delete: Clears the PDN/call when the last VoLTE dedicated bearer goes down for P-GW, S-GW, SAEGW, GGSN, and ePDG.

Calls will not be cleared when one of the calls in a multiple PDN scenario is a VoLTE PDN. When the VoLTE PDN goes down, all of the other PDNs found for the same IMSI are brought down, which will bring down the call automatically.

pace-out-interval *interval_in_seconds*

The **clear subscribers non-VoLTE auto-delete** command was implemented in StarOS release 17.0. This command can generate a burst of Delete Bearer Requests (DBR) and Delete Session Requests (DSR) in customer setups. To prevent the flooding of peer nodes with session removal control procedures, it is important to distribute these messages in a periodic manner.

The **pace-out-interval** keyword allows operators to specify the time duration for removing the sessions so that control messages sent across to peer nodes are evenly distributed.

Sessions that are "paced-out" over a period of time move into a disconnecting state; however, data and control path activity continue as usual until the system sends out session deletion message(s). In the case of session recovery, "paced-out" sessions are recovered in the connected state and the **clear subscriber** command must be initiated again to clear the recovered sessions.

pace-out-interval is the time, in seconds, that session deletion messages are distributed.

interval_in_seconds must be an integer from 0 to 86400.

pcf [< | > | less-than | greater-than] *ipv4_address* [[< | > | less-than | greater-than] *ipv4_address*]

Displays information for subscribers connected via the packet control function with a specific or range of IP address *ipv4_ddress*. The address must be specified using IPv4 dotted-decimal notation.

- <: Filters output so that only information less than the specified IPv4 address value is displayed.
- >: Filters output so that only information greater than the specified IPv4 address value is displayed.
- **less-than**: Filters output so that only information less than the specified IPv4 address value is displayed.
- **greater-than**:Filters output so that only information greater than the specified IPv4 address value is displayed.

Note: It is possible to define a limited range of IP addresses by using the less-than and greater-than options to define minimum and maximum values.

pcp { not-required | required }

Clears all subscriber information for the specified subscribers:

not-required: Subscribers for whom PCP processing is not required.

required: Subscribers for whom PCP processing is required.

pdsn-service *name*

Disconnect all subscribers connected to the packet data service *pdsn_name*. The packet data service must have been previously configured.

pdsnclosedrp-service *service_name*

Disconnect all subscribers connected to the Closed R-P service *service_name*. The Closed R-P service must have been previously configured.

pdg-service *service_name*

Disconnects subscriber sessions that are using the PDG service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

pdif-service *service_name*

Clears counters for subscribers accessing the Packet Data Interworking Function (PDIF) service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

pgw-address *ip_address*

Clears specific P-GW interface.

ip_address must be followed by IP address of interface, using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service,
```

pgw-only { all [del-cause { none | reactiv-req }] [max-subscribers *max_count*] [pace-out-interval *interval_in_seconds*] | imsi *id* ebi *id* | mag-address *ip_addr* | pgw-service *name* | sgw-address *ip_addr* }

all: Disconnects all subscribers for all P-GW services on this system.

imsi *id*: Disconnects subscribers based on their International Mobile Subscriber Identification (IMSI). *id* must be the 3-digit MCC (Mobile Country Code), follow by the 2 or 3 digits of the MNC (Mobile Network Code) and the MSIN (Mobile Subscriber Identification Number).

id should not exceed 15 digits.

Example: 123-45-678910234 must be entered as 12345678910234

ebi *id*: The EBI (EPS Bearer Identity)

id must be a valid EBI and be an integer value from 5 to 15.

mag-service *ip_addr*: Disconnects all subscribers using this MAG address.

pgw-service *name*: Disconnects all subscribers using this P-GW service.

name must be an existing P-GW service expressed as an alphanumeric string of 1 through 63 characters.

sgw-address *ip_addr*: Disconnects all subscribers using this S-GW IP address.

ip_addr must be an existing IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

plmn-type { home | roaming | visiting }

For GGSN, disconnects subscribers whose subscriber type matches the specified type.

profile-id *id*

Clears information for subscribers using thegranted profile-id for the flow.

*id*must be an integer from 0 to 4294967295.

profile-name *name*

Clears information for subscribers using the specified policy profile name.

name must be name of an existing profile expressed as an alphanumeric string of 1 through 63 characters.

qci *number*

Disconnects subscribers based on their QCI identity.

number must be an integer from 0 to 9.

rulebase *rulebase_name*

Clears information for subscribers using the specified rulebase.

rulebase_name must be name of an existing rulebase expressed as an alphanumeric string of 1 through 63 characters.

rulename *rule_name*

Displays subscribers associated with the specific rule name. The rule_name options are: predefined, static, and dynamic rules..

rx-data [< | > | greater-than | less-than] *value*

Disconnects subscribers who have received the specified number of bytes of data.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. *value* must be an integer from 0 through 18446744073709551615.

s1u-state { active | idle | idle-active }

Disconnects subscribers based on their S1-User Plane Protocol State.

active: Selects subscribers having S1-U state set to active.

idle: Selects subscribers having S1-U state set to idle.

idle-active: Selects subscribers having S1-U state set to idle-active.

s5-proto { gtp | pmip }

Disconnects subscribers based on their S5 interface protocol type.

gtp: Indicates that the GTP protocol is used on the S5 interface for the subscribers being disconnected.

pmip: Indicates that the PMIP protocol is used on the S5 interface for the subscribers being disconnected.

saegw-only { all [max-subscribers *max_count*] [pace-out-interval *interval_in_seconds*] | co-located | imsi *id* ebi *id* | pgw-anchored | saegw-service *name* | sgw-address *ip_addr* | sgw-anchored }

all: Disconnects all subscribers for all SAEGW services on this system.

co-located: Disconnects only co-located subscribers which have both S-GW and P-GW functions.

imsi *id*: Disconnects subscribers based on their International Mobile Subscriber Identification (IMSI). *id* must be the 3-digit MCC (Mobile Country Code), follow by the 2 or 3 digits of the MNC (Mobile Network Code) and the MSIN (Mobile Subscriber Identification Number).

id should not exceed 15 digits.

Example: 123-45-678910234 must be entered as 12345678910234

ebi *id*: The EBI (EPS Bearer Identity)

id must be a valid EBI and be an integer value from 5 to 15.

pgw-anchored: Disconnects only PGW-anchored subscribers.

saegw-service *name*: Disconnects all subscribers using this SAEGW service.

name must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

sgw-address *ip_addr*: Disconnects all subscribers using this S-GW IP address.

ip_addr must be an existing IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

sgw-anchored: Disconnects only SGW-anchored subscribers.

saegw-service *name*

Disconnects all subscribers using this SAEGW service. *name* must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

session-time-left [< | > | greater-than | less-than] *value*

The amount of time left for the subscriber session.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. *value* must be an integer from 0 through 4294967295.

sgsn-address *ip_address*

Clears all PDP contexts currently being facilitated by a specific SGSN.

ip_address is the IP address of the SGSN entered using IPv4 dotted-decimal notation.

sgsn-only lai mcc *mobile_country_code* mnc *mobile_network_code* lac *location_area_code*

Notes:

- **sgsn-only**: Specifies the clearing of SGSN 3G subscribers only.
- **lai**: Specifies location area identity.
- **mcc** *mobile_country_code*: Specifies mobile country code. *mobile_country_code* must be a string of size 3 to 3 ranging from 100 through 999.
- **mnc** *mobile_network_code*: Specifies mobile network code.*mobile_network_code* must be a string of size 2 to 3 ranging from 00 through 999.
- **lac** *location_area_code*: Specifies location area code. *location_area_code* must be an integer from 1 to 65535.

sgsn-service *name*

Clears all PDP contexts associated with SGSN. This keyword can be used with filtering keywords that are part of the **clear subscriber** command set.

Using this keyword can trigger a network-initiated service request (paging) procedure.

name identifies a specific SGSN-service configuration expressed as an alphanumeric string of 1 through 63 characters.

sgw-address *ip_address*

Disconnects subscribers using the Serving Gateway (S-GW) IP address.

ip_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgw-only all [max-subscribers *max_count* [uniform]] [pace-out-interval *interval_in_seconds*] [verbose]

Disconnects all S-GW subscriber sessions on the system.

sgw-service *name*

Disconnects subscribers using this Serving Gateway (S-GW) service configured on this system. *name* must be an existing S-GW service expressed as an alphanumeric string of 1 through 63 characters.

smgr-instance *sessmgr_instance_number*

Disconnects subscribers on the specified sessmgr instance.

sessmgr_instance_number must be an integer from 1 to 4294967295.

tpo { not-required | required }

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

tx-data [< | > | greater-than | less-than] *value*

Disconnects subscribers who have transmitted the specified number of bytes of data.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. value must be an integer from 0 through 18446744073709551615.

username *name*

Disconnect the subscriber with the specified username

name is the username of the subscriber to be cleared. *name* must be a sequence of characters and/or wildcard characters ('$' and '*') from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes ('). For example; '$'.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output is the standard level which is the concise mode.

without-dynamic-rule

Displays subscribers without any dynamic rule associated with them.

without-override-control

Displays subscribers without any override control rule associated with them.

wsg-service *name*

Disconnects subscribers using this WSG service configured on this ASR 9000 VSM. *name* must be an existing WSG (SecGW) service expressed as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Clear subscribers sessions to aid in troubleshooting the system when no additional subscribers may connect or when a specific service or remote address may be having connection problems. This command may also be used to clear connections when preparing for maintenance activities.

Related commands to clear subscription data - *for SGSN use only*

- For a 2G SGSN, the **admin-disconnect-behavior clear-subscription** command in the GPRS Service Configuration mode enables the SGSN to clear subscription data after the administrative disconnect - **clear subscribers all** has been issued.
- For a 3G SGSN, the **admin-disconnect-behavior clear-subscription** command in the SGSN Service Configuration mode enables the SGSN to clear subscription data after the administrative disconnect - **clear subscribers all** has been issued.

Example

The following examples illustrate the basic command usage as well as the redirection of the command output. Not all options are exemplified as all options follow the same basic constructs.

The following are basic subscriber clearing examples.

```
clear subscribers username ser1
clear subscribers ha sampleService
clear subscribers ip-pool pool2 verbose
```

The following command disconnects users connected to the foreign agent with IP address *10.2.3.4*.

```
clear subscribers fa 10.2.3.4
```

clear super-charger

Deletes the subscriber's backed-up subscription data with an SGSN supercharger subscription configuration (3GPP TS.23.116).

Product SGSN

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear super-charger { imsi | all }`**

imsi

Specifies a subscriber's international mobile subscriber identity (IMSI) number. This 15-digit number includes the MCC (mobile country code), the MNC (mobile network code) and the MSIN (mobile station identification number).

all

Instructs the SGSN to delete subscription data for all super charger subscribers.

Usage Guidelines Use this command to clear (delete) the subscription data records for one or all subscribers within a supercharger subscription configuration.

Example

The following command deletes the backed up records for the subscriber identified by the IMSI *90121882144672*.

`clear super-charger imsi 90121882144672`

clear supplementary-service statistics

Clears the statistics for Supplementary Service Information.

Product SGSN

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`clear supplementary-service statistics`**

Usage Guidelines Use this command to clear the Supplementary Service Information.

Example

The following command clears the Supplementary Service Information:

clear supplementary-service statistics

clear tacacs session

Clears TACACS+ sessions.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear tacacs session { all | session id *session_id* **[force] }**

all

Clears all TACACS+ sessions in idle state.

session id *session_id*

Will clear a specified TACACS+ session. *session_ id* must be an integer from 1 to 127.

The command will only be successfully executed if the session is in idle state; otherwise, it will fail.

force

Will clear a specified TACACS+ session whether or not the session is in idle state.

Important This keyword should be used with caution.

If a TACACS+ session ends up in not completed login state, you may have to use this option to clear the session.

Usage Guidelines

Use this command to clear TACACS+ sessions.

Example

The following command clears all TACACS+ sessions in idle state.

clear tacacs session all

clear task resources

Deletes the collected resource statistics for system tasks.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`clear task resources { card` *`card_num`* **`{ facility`** *`facility`* **`{ all | instance`** *`id`* **`max } | facility`** *`facility`* **`{ all | instance`** *`id`* **`max } | max }`**

th e

card *card_num*

Default: all powered on cards.

Specifies a single card for which task information is to be cleared where *card_num* must be from 1 to 48 for the ASR 5000 and 1 through 20 for the ASR 5500.

facility *facility* { all | instance *id* max }

Default: all facilities.

Specifies the list of facilities for which task information will be cleared. A specific instance of the facility may be cleared as specified by ID or all instances may be cleared. The value of *id* must be an integer from 0 through 10000000. *facility* must be one of:

- **a11mgr**: A11 Interface Manager facility
- **aaamgr**: AAA Manager Facility
- **aaaproxy**: AAA Proxy manager Facility
- **acsctrl**: Active Charging Service (ACS) Controller Facility [Release 11.0 and earlier versions only]
- **acsmgr**: Active Charging Service (ACS) Manager Facility
- **afctrl**: Fabric Manager [ASR 5500 only]
- **afmgr**: Fabric Manager [ASR 5500 only]
- **alcapmgr**: Access Link Control Application Part (ALCAP) Manager
- **asngwmgr**: ASN Gateway Manager
- **asnpcrmgr**: ASN Paging/Location-Registry (ASN-PC) Manager
- **bfd**: Bidirectional Forwarding Detection
- **bgp**: Border Gateway Protocol (BGP) Facility

- **bngmgr**: Broadband Network Gateway (BNG) Manager
- **bulkstat**: Bulk Statistics Manager Facility
- **callhome**: Call Home Controller
- **cbsmgr**: Cell Broadcasting Service (CBS) Manager
- **cdfctrl**: Charging Data Function (CDF) Controller
- **cdfmgr**: CDF Manager
- **cdrmod**: Charging Detail Record (CDR) Module
- **cli**: Command Line Interface (CLI) Facility
- **connproxy**: Proxy for connections from same card/chassis
- **cspctrl**: Card Slot Port controller Facility
- **cssctrl**: Content Service Steering Controller
- **dcardctrl**: IPSec Daughter-card Controller Logging Facility
- **dcardmgr**: IPSec Daughter-card Manager Logging Facility
- **dgmbmgr**: Diameter Gmb Application Manager
- **dhmgr**: Distributed Host Manager
- **diamproxy**: Diameter Proxy
- **drvctrl**: Driver Controller Facility
- **egtpegmgr**: EGTP Egress Demux Manager
- **egtpinmgr**: EGTP Ingress Demux Manager
- **evlogd**: Event Log Daemon Facility
- **famgr**: Foreign Agent Manager Facility
- **gtpcmgr**: GTP-C Protocol Logging facility (GGSN product only)
- **gtpumgr**: GTP-U Demux Manager
- **h248prt**: H.248 Protocol Task [Release 11.0 and earlier versions only]
- **hamgr**: Home Agent Manager Facility
- **hatcpu**: High Availability Task CPU Facility
- **hatsystem**: High Availability Task Facility
- **hdctrl**: Hard Disk Controller
- **henbgwdemux**: Home eNodeB Gateway demux manager

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgwmgr**: Home eNodeB Gateway Manager

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **hnbmgr**: HNBGW HNB Manager

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **hwctrl**: Hardware Monitor Controller
- **hwmgr**: Hardware Monitor Manager
- **imsimgr**: SGSN IMSI Manager
- **ipsecctrl**: IP Security Controller Facility
- **ipsecmgr**: IP Security Manager Facility
- **ipsgmgr**: IP Services Gateway Facility
- **kvctrl**: KV Controller
- **kvmgr**: KV Manager
- **l2tpdemux**: L2TP Demultiplexor (LNS) Facility
- **l2tpmgr**: L2TP Manager Facility
- **lagmgr**: Link Aggregation Group (LAG) Manager
- **linkmgr**: SGSN/SS7 Link Manager
- **m3ap**: M3 Application Part Facility
- **m3ua**: M3UA Protocol Facility
- **magmgr**: Mobile Access Gateway (MAG) Manager
- **megadiammgr**: MegaDiameter Manager
- **mme-app**: Mobility Management Entity (MME) Application Facility
- **mme-embms**: MME evolved Multimedia Broadcast Multicast Service Facility

- **mme-misc**: MME miscellaneous logging facility
- **mmedemux**: MME Demux Manager logging facility
- **mmemgr**: MME Manager logging facility
- **mmgr**: SGSN/SS7 Master Manager
- **mpls_sig**: Multiprotocol Label Switching
- **mptest**: Migration Performance Test on Packet Accelerator Card
- **netwstrg**: Network Storage Manager [Release 11.0 and earlier versions only]
- **npuctrl**: Network Processor Unit Control Facility
- **npudrv**: Network Processor Unit Driver Facility [ASR 5500 only]
- **npumgr**: Network Processor Unit Manager Facility
- **npusim**: Network Processor Unit Simulator [ASR 5500 only]
- **nputst**: Network Processor Unit Tester
- **nsctrl**: Charging Service Controller [Release 11.0 and earlier versions only]
- **nsmgr**: Charging Service Process Manager [Release 11.0 and earlier versions only]
- **orbns**: Object Request Broker Notification Server Facility
- **orbs**: Object Request Broker System Facility
- **ospf**: Open Shortest Path First Facility
- **ospfv3**: Open Shortest Path First (OSPFv3)
- **pdgmgr**: Packet Data Gateway (PDG) Manager
- **phsgwmgr**: PHS Gateway manager
- **phspcmgr**: PHS Paging Controller manager
- **rct**: Recovery Control Task Facility
- **rdt**: Redirect Task Facility
- **rip**: Routing Information Protocol Facility
- **rmctrl**: Resource Manager Controller Facility
- **rmmgr**: Resource Manager Facility
- **sct**: Shared Configuration Task Facility
- **sessctrl**: Session Controller Facility
- **sessmgr**: Session Manager Facility
- **sesstrc**: Session Trace Collection task
- **sft**: Switch Fabric Monitoring Task
- **sgtpcmgr**: SGSN GTP-C Manager

- **sipcdprt**: SIP Call Distributor Task [Release 11.0 and earlier versions only]
- **sitmain**: System Initialization Task Main Facility
- **sitparent**: Card based system initialization facility that applies to MIO card.
- **snmp**: SNMP Protocol Facility
- **srdb**: Static Rating Database
- **testctrl**: Test Controller
- **testmgr**: Test Manager
- **threshold**: Threshold Server Facility
- **vpnctrl**: Virtual Private Network Controller Facility
- **vpnmgr**: VPN Manager Facility
- **zebos**: ZEBOS™ OSPF Message Facility

all: Clears information for all instances of the specified facility.

instance *id*: Clears information for the facility instance specified as an integer from 0 through 10000000.

max

Default: current usage levels are cleared.

Clears just the maximum usage levels for tasks as opposed to all current usage levels.

Usage Guidelines

Use this command to clear (delete) the collected resource statistics for system tasks.

Example

The following command deletes the Switch Fabric Monitoring Task statistics for instance 100 running on card 2.

```
clear task resources card 2 facility sft instance 100 max
```

clear tcap statistics

Deletes the collected statistics for traffic that has passed through the SS7 TCAP (Transaction Capabilities Application Part) layer.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

clear tcap statistics [camel-service [all | name *camel_srvc* **] | map-service [all | name** *map_srvc* **]] [| { grep** *grep_options* **| more }]**

camel-service [all | name *camel_srvc*]

Deletes TCAP statistics for either all CAMEL (Customized Applications for Mobile Network Enhanced Logic, GSM 09.78) services or only for the named CAMEL service.

map-service [all | name *mapl_srvc*]

Deletes TCAP statistics for either all MAP services or only for the named MAP service.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to clear (delete) the collected TCAP statistics for MAP or CAMEL services.

Example

The following command deletes the collected statistics for a MAP service named *MAP-Tewk*.

clear tcap statistics map-service name MAP-Tewk

clear wsg-service statistics

Deletes statistics collected for a Wireless Security Gateway (WSG) service.

Privilege

Security Administrator, Administrator, Operator

Product

SecGW (WSG)

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

clear wsg-service statistics [name *srvc_name* **]**

name *srvc_name*

Specifies the name of a WSG service for which statistics will be deleted.

Usage Guidelines

Deletes statistics for all WSG services or for a specified WSG service.

Example

The following command deletes statistics for all WSG services:

```
clear wsg-service
```

cli

Specifies command line interface (CLI) session behavior.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] cli { history | stop-on-first-error | test-commands [ encrypted ]
 password password_string }
```

no

Disables the specified keyword functionality.

history

Enables command line history for the current command line session. Default: Enabled

stop-on-first-error

When enabled and a configuration file is loaded, the system stops loading the configuration file on the first syntax error. Default: Disabled

test-commands [encrypted] password *password_string*

If you are logged in as a Security Administrator or Administrator enabling this command displays diagnostic commands and supplemental keywords to existing commands. The **cli hidden** command in Global Configuration mode must be enabled to grant access to this keyword. Default: Disabled

⚠

Caution CLI test-commands are intended for diagnostic use only. Access to these commands is not required during normal system operation. These command are intended for use only by Cisco TAC personnel. Some of these commands can slow system performance, drop subscribers, and/or render the system inoperable

[encrypted] password *password_string*: Password must be entered to access the CLI test-commands. This password must have been previously configured by a Security Administrator via the Global Configuration mode **tech-suport test-commands password** command. The password is an alphanumeric string of 1 through 64 characters (plain text password) or 1 through 524 characters (encrypted password).

If the **password** keyword is not entered, the user is prompted (no-echo) to enter the password. If **tech-support test-commands password** has not been enabled, you will be unable to execute **cli test-commands**.

Important An SNMP trap is generated whenever a user enables **cli test-commands** (**starTestModeEntered**). Refer to the *SNMP MIB Reference* for additional information.

Usage Guidelines

This command controls CLI settings pertaining to the maintenance of a per-session command history and syntax error monitoring during configuration file loading.

By default, the system maintains a list of commands executed during each CLI session. This list is referred to as a history.

In addition, the system can be configured to stop loading a configuration if a syntax error is detected. By default, the system identifies the error but continues to process the configuration file.

Example

The following command disables the keeping of a CLI history for the current session:

```
no cli history
```

clock set

Sets the system time.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
clock set date_time
```

date_time

Specifies the date and time to set the system clock in the format YYYY:MM:DD:HH:mm or YYYY:MM:DD:HH:mm:ss. Where:

- YYYY = 4-digit year
- MM = 2-digit month in the range 01 through 12
- DD = 2-digit day in the range 01 through 31
- HH = 2-digit hour in the range 00 through 23
- mm = 2-digit minute in the range 00 through 59

- ss = 2-digit second in the range 00 through 59

Usage Guidelines

Set the clock to adjust the system clock for such things as timing drift, day-light savings adjustment, etc. New settings are immediately applied to all CPUs in the system.

Important

This command should only be used if there is no NTP server enabled for any context. If NTP is running on the system, this command returns a failure.

Example

The following commands set the system clock where one sets the exact second as well.

```
clock set 2011:08:05:02:30
clock set 2011:08:05:02:31:30
```

cmp enroll current-cert

Triggers a Certification Request (CR) after generating a public and private key pair, as well as an X.509 certificate to be included in the CR for a second certificate from the same Certificate Authority (CA). This is a Certificate Management Protocol v2 command.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

cmp enroll current-cert *old-cert-name* **modulus** *mod_type* **subject-name** *"subject_string"* **cert-name** *name* **ca-root** *ca_name* **ca-url** *url*

current-cert *old-cert-name*

Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

modulus *mod_type*

Specifies the modulus of the generated certificate. *mod_type* is one of the following integers: 1024, 2048, 4096 or 512.

subject-name *"subject_string"*

Specifies the subject string of the certificate in double quotation marks. *"subject_string"* is an alphanumeric string of 1 through 256 characters.

cert-name *name*

Specifies the name of the newly obtained certificate which also serves as the fileame to be stored on /flash disk. *name* is an alphanumeric string of 1 through 129 characters.

ca-root *ca_name*

Specifies the root certificate of the CA server.. *ca_name* is an alphanumeric string of 1 through 129 characters.

ca-url *url*

Specifies the URL to which the CA server listens. *url* is in the format: http://<host>[:<port>][/<directory>]/<filename>.

Usage Guidelines

Use this command to trigger a certification request for a second certificate from the same CA.

Example

The following command requests a second certificate from the same CA:

```
cmp enroll current-cert aqaw12345 modulus 1024 subject-name
"test_certificate" cert-name cert01 ca-root ca001 ca-url
http://excel:2033/certficates/aqaw12345
```

cmp fetch cert-name

This command is only applicable for the ASR 9000 running VPC-SI on a Virtualized Services Module (VSM). CMPv2 operations are performed only on one VSM in the chassis. The certificates along with the private key file and the root certificate are stored on the supervisor card. When invoked on other VSMs in the chassis, this command reads the certificate, private key and the root certificate from the supervisor card.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

cmp fetch current-cert *old-cert-name* **ca-root** *ca_name*

current-cert *old-cert-name*

Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

ca-root *ca_name*

Specifies the root certificate of the CA server. *ca_name* is an alphanumeric string of 1 through 129 characters.

Usage Guidelines

Use this command to read the certificate, private key and the root certificate from the supervisor card in an ASR 9000.

Example

The following command fetches a certificate from a specified CA:

```
cmp fetch current-cert aqaw12345 ca-root ca001
```

cmp initialize

Triggers an Initial Certification Request (CR) after generating a public and private key pair, as well as an X.509 certificate to be included in the CR. This is a Certificate Management Protocol v2 command.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

cmp intialize modulus *mod_type* **cert-name** *name* **subject-name** *"subject_string"* **ca-psk** *key* **ca-root** *ca_name* **ca-url** *url*

modulus *mod_type*

Specifies the modulus of the generated certificate. *mod_type* is one of the following integers: 1024, 2048, 4096 or 512.

cert-name *name*

Specifies the name of the newly obtained certificate which also serves as the filename to be stored on /flash disk. *name* is an alphanumeric string of 1 through 129 characters.

subject-name *"subject_string"*

Specifies the subject string of the certificate in double quotation marks. *"subject_string"* is an alphanumeric string of 1 through 256 characters.

ca-psk *key*

Specifies the Pre-Shard Key provided by the CA server for CMPv2 operation. *key* is an alphanumeric string of 1 through 129 characters.

ca-root *ca_name*

Specifies the root certificate of the CA server. *ca_name* is an alphanumeric string of 1 through 129 characters.

ca-url *url*

Specifies the URL to which the CA server listens. *url* is in the format: http://<host>[:<port>][/<directory>]/<filename>.

Usage Guidelines

Use this command to trigger an initial certification request from the CA.

Example

The following command sends an Initial Certification Request to a specified CA:

```
cmp initialize modulus 1024 cert-name cert001 subject-name "test" ca-psk
 AB33569 ca-root cert1 ca-url http://excel:2033/certficates/aqaw12345
```

cmp poll

Triggers a pollReq for the specified certificate. This is a Certificate Management Protocol v2 command.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

cmp poll current-cert *old-cert-name*

current-cert *old-cert-name*

Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

Usage Guidelines Use this command to poll the current certificate.

Example

The following command polls the current certificate:

```
cmp poll current-cert aqaw12345
```

cmp update

Triggers a Key Update Request after generating a public and private key pair, as well an X.509 certificate to be included in the Key Update Request for a certificate that is about to expire. This is a Certificate Management Protocol v2 command.

Product All products supporting IPSec CMPv2 features

Important This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **cmp update current-cert** *old-cert-name* **modulus** *mod_type* **ca-root** *ca_name* **ca-url** *url*

modulus *mod_type*

Specifies the modulus of the generated certificate. *mod_type* is one of the following integers: 1024, 2048, 4096 or 512.

current-cert *old-cert-name*

Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

ca-root *ca_name*

Specifies the root certificate of the CA server. *ca_name* is an alphanumeric string of 1 through 129 characters.

ca-root *ca_name*

Specifies the root certificate of the CA server. *ca_name* is an alphanumeric string of 1 through 129 characters.

ca-url *url*

Specifies the URL to which the CA server listens. *url* is in the format: http://<host>[:<port>][/<directory>]/<filename>.

Usage Guidelines

Use this command to initiate a manual update of the current certificate.

Example

The following command requests a second certificate from the same CA:

```
cmp update modulus 1024 current-cert aqaw12345   ca-root ca001 ca-url
http://excel:2033/certficates/aqaw12345
```

commandguard

Enable / disable Commandguard feature to prevent operators from accidentally entering configuration modes by presenting yes/no confirmation prompts.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
commandguard
[ default | no ] commandguard
```

[default | no]

Restores the default behavior for confirmation prompting and disables the Commandguard feature.

Usage Guidelines

When **commandguard** is enabled it affects the **configure** and **autoconfirm** CLI commands by causing them to prompt (Y/N) for confirmation. This feature protects operators from accidentally entering configuration mode via CLI or file replay.

Important

When **autoconfirm** is enabled, **commandguard** has no affect.

Example

The following command enables the Commandguard feature:

```
commandguard
```

The following command restores system default confirmation prompts:

default commandguard

The following command instructs the SGSN to ignore Commandguard when enabled:

autoconfirm

configure

Moves to the Global Configuration mode to modify the running configuration. May also be used to pre-load a configuration file specified by its URL for modification in the Global Configuration mode.

You can also use this command to update the ConfD Configuration Database (CDB) that supports the NETCONF protocol. Another option locks access to the configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

configure [confd] [encrypted] [*url*] [lock [force | warn]] [-noconfirm]

configure

Moves from Exec mode to the Global Configuration mode for modifying the configuration.

confd

This keyword is always used in conjunction with a URL and is not supported on the ASR 5000. The **configure confd** *url* command applies the configuration at the URL to the ConfD configuration database (CDB) if no errors exist in the file as specified by the URL. The operator remains in the Exec mode. The CDB supports NETCONF protocol.

encrypted

Allows a Lawful Intercept (LI) administrator to execute only encrypted LI contexts from a saved configuration file. This keyword is only visible to an LI Administrator.

Note For additional information o the use of this command, refer to the *Lawful Intercept Configuration Guide.*

url

Specifies the location of a configuration file to pre-load for modification. If no URL is specified, modifications are made to the running configuration.

url may refer to a local or a remote file. *url* must be entered using one of the following formats:

For the ASR 5000 (not supported with the **confd** keyword):

- **[file:]{ /flash | /pcmcia1 | /hd-raid | /sftp } [** */directory* **]**/*file_name*
- **tftp://{** *host***[** *:port#* **] } [** */directory* **]**/*file_name*
- **[http: | ftp: | sftp:]//[** *username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **]**/*file_name*

For the ASR 5500:

- **[file:]{ /flash | /usb1 | /hd-raid / sftp } [** */directory* **]**/*file_name*
- **tftp://{** *host***[** *:port#* **] } [** */directory* **]**/*file_name*
- **[http: | ftp: | sftp:]//[** *username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **]**/*file_name*

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

lock [force | warn]

Locks the configuration mode for exclusive access by this administrator. This option prevents multiple administrators from simultaneously modifying the configuration.

The **force** option forces all other administrators to exit to Exec mode, including anyone currently holding the exclusive lock.

The **warn** option warns all other administrators to exit to Exec mode. This administrator will be taking the exclusive lock soon. You may want to use this option before actually forcing administrators out of configuration mode.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

If no URL is specified, executing this command causes the CLI to enter the Global Configuration Mode and modify the running configuration.

If a URL is specified, executing this command loads the specified configuration file for modification in Global Configuration mode.

Use the **confd** *url* option to apply the contents of a configuration script specified by the URL to the CDB. This option does not send you to Global Configuration mode.

The **encrypted** option can only be executed by an administrator with **li-administration** privilege enabled. For additional information see the *Lawful Intercept Configuration Guide*.

By default, configuration (config) mode is shared among all administrative users. You have the option of requesting an exclusive lock of the config mode to assure that no other user is modifying the configuration at the same time. When an administrator holds the exclusive lock, no other administrators are allowed to enter into config mode or load a config file. Any other administrators attempting to enter into config mode or load a config file will see the following message:

```
Failure: User <username> has the exclusive lock
 - please enter 'show administrators' for more information
```

If another administrator attempts to enter config mode with the exclusive lock when it is already enabled, the following message appears:

```
Failure: Another administrator is still in configuration mode
 - please enter 'show administrators' for more information
```

Administrators who have been forced to exit from config mode will see the following message:

```
Warning: Administrator <username> has forced you to exit from configuration mode
```

Important For additional information about config mode locking mechanisms, refer to the *System Administration Guide*.

Examples

The following command sends you to the Global Configuration mode and allows you to modify the currently running configuration:

configure

The following command loads a configuration file via FTP from the specified pathname:

configure ftp://sampleNode/pub/glob.cfg

For the ASR 5000 the following command loads a configuration file from a PCMCIA card:

configure /pcmcia1/pub/glob.cfg verbose

For the ASR 5500 the following command loads a configuration file from a USB flash drive:

configure /usb1/pub/glob.cfg verbose

For NETCONF-ConfD, the following command copies the script from the flash drive pathname to the CDB:

configure confd /flash/confd/cdb.cfg

The following command warns other administrators that you are seeking an exclusive lock on the config mode:

configure lock warn

context

Sets the current context to the context specified.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **context** *name*

name

Specifies the context of interest as an alphanumeric string of 1 through 79 characters. Must be a previously defined context.

Usage Guidelines Change the current context when it is desired to configure and/or manage a specific context.

Example

The following sets the current context to the *sampleContext* context.

context sampleContext

copy

Copies files from one location to another. Allows files to be copied to/from locally, as well as from one remote location to another.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **copy** *from_url to_url* **[passive] [-noconfirm]**

from_url

Specifies the source of the copy. *url* may refer to a local or a remote file. *url* must be entered using the following format:

For the ASR 5000:

- **[file:]{ /flash | /pcmcia1 | /hd-raid }[** */directory* **]**/*file_name*
- **tftp://{** *host*[*:port#* **] }[** */directory* **]**/*file_name*
- **[http: | ftp: | sftp:]//[** *username* **[** *:password* **]@] {** *host* **}[** *:port#* **][** */directory* **]**/*file_name*

For the ASR 5500:

- **[file:]{ /flash | /usb1 | /hd-raid }[** */directory* **]**/*file_name*
- **tftp://{** *host*[*:port#* **] }[** */directory* **]**/*file_name*
- **[http: | ftp: | sftp:]//[** *username* **[** *:password* **]@] {** *host* **}[** *:port#* **][** */directory* **]**/*file_name*

For VPC:

- **[file:]{ /flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }[** */directory* **]**/*file_name*

Important The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

- **tftp://{** *host*[*:port#* **] }[** */directory* **]**/*file_name*
- **[http: | ftp: | sftp:]//[** *username* **[** *:password* **]@] {** *host* **}[** *:port#* **][** */directory* **]**/*file_name*

Important Use of the ASR 5000 SMC hard drive is not supported in this release.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

to_url

Specifies the destination of the copy. *url* may refer to a local or a remote file. *url* must be entered using the following format:

For the ASR 5000:

- **[file:]{ /flash | /pcmcia1 | /hd-raid }[** */directory* **]** */file_name*
- **tftp://{** *host***[** *:port#* **] } [** */directory* **]** */file_name*
- **[ftp: | sftp:]** / / **[** *username* **[** *:password* **]** **@] {** *host* **} [** *:port#* **] [** */directory* **]** */file_name*

For the ASR 5500:

- **[file:]{ /flash | /usb1 | /hd-raid }[** */directory* **]** */file_name*

- **tftp://{** *host***[** *:port#* **] } [** */directory* **]** */file_name*
- **[ftp: | sftp:] / / [** *username* **[** *:password* **] @] { }** *host* **{ [** *:port#* **] [** */directory* **]** */file_name*

For VPC:

- **[file:]{ /flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }[** */directory* **]**/*file_name*

Important The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

- **tftp://{** *host*[*:port#* **] }[** */directory* **]**/*file_name*
- **[http: | ftp: | sftp:]//[** *username* **[** *:password* **]@] { }** *host* **}[** *:port#* **][** */directory* **]**/*file_name*

Important Use of the SMC hard drive is not supported in this release.

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

passive

Indicates the file copy is to use the passive mode FTP.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Important Use of the **-noconfirm** option allows the overwriting of an existing file if the destination file already exists.

Usage Guidelines

Copy configuration files, log files, etc., to provide backups of data through the network.

Example

For the ASR 5000, the following copies files from the local */flash/pub* directory to remote node *remoteABC*'s */pcmcia2/pub* directory with and without confirmation respectively.

```
copy http://remoteABC/pub/june.cfg /flash/pub/june.cfg
copy tftp://remoteABC/pub/june.cfg /pcmcia2/pub/june.cfg -noconfirm
```

For the ASR 5500, the following copies files from the local */flash/pub* directory to remote node *remoteABC*'s */flash/pub* directory with and without confirmation respectively.

```
copy http://remoteABC/pub/june.cfg /flash/pub/june.cfg
copy tftp://remoteABC/pub/june.cfg /flash/pub/june.cfg -noconfirm
```

The following copies files from remote node *remoteABC* to remote node *remote123*.

```
copy ftp://remoteABC/pub/may.cfg ftp://remote123/pub/may.cfg
```

crash copy

Copies individual crash files (one-at-a-time) and optionally the core dump file from the stored crash records on the chassis to a user-specified location.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

crash copy number *number* **url** *to_url* **[core]**

number *number*

Specifies the identification number of the crash record as an integer representing a valid record number from 1 through 120. To determine the numeric identity of a specific crash file, use the **show crash list** command in Exec mode.

url *to_url*

Specifies the destination of the copy. *url* may refer to a local or a remote file and must be entered using the following format:

For the ST16:

- **[file:] { /flash | /pcmcia1 | /pcmcia2 } [** */directory* **] /**
- **tftp:// {** *host* **[** *:port#* **] } [** */directory* **] /**
- **[ftp: | sftp:]//[** *username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **] /**

For the ASR 5000:

- **[file:] { /flash | /pcmcia1 | /hd } [** */directory* **] /**
- **tftp://{** *host***[** *:port#* **] } [** */directory* **] /**
- **[ftp: | sftp:]//[** *username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **] /**

For the ASR 5500:

- **[file:] { /flash | /usb1 | /hd } [** */directory* **] /**
- **tftp://{** *host***[** *:port#* **] } [** */directory* **] /**
- **[ftp: | sftp:]//[** *username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **] /**

For VPC:

- **[file:]{ /flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }[** */directory* **]/***file_name*

Important The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

- **tftp://{** *host*[*:port#* **] }[** */directory* **]/***file_name*
- **[http: | ftp: | sftp:]//[** *username* **[** *:password* **]@] {** *host* **}[** *:port#* **][** */directory* **]/***file_name*

Important Use of the SMC hard drive is not supported in this release.

directory: the name of the target directory.

username: the username to be authenticated to provide access to targeted server.

password: the username's password to be authenticated.

host: the IP address or host name of the targeted server.

port#: the number of the target server's logical port used for the selected communication protocol.

Important Do **not** specify a target filename as this will prevent the file from writing to the target server. The system generates and provides a timestamp-based filename that appears at the destination when the **copy** command completes.

core

Copies the core dump to the targeted storage server. The core cannot be copied alone; it must be part of a **crash copy** action included when copying a crash file.

Usage Guidelines

Copy crash files of core dump to another location for backup or analysis.

Example

The following uses FTP to copy stored record number *5* and the core dump from the crash record list to a targeted remote node directory called *crasharchive* through port *22* of the targeted server *remoteABC* with access through user *homeboy* whose password is *secret.7.word*.

```
crash copy number 5 url ftp://homeboy:secret.7.word@
remoteABC:22/crasharchive/ core
```

crypto blacklist file update

Updates the blacklist (access denied) file using the path specified when the blacklist was enabled.

Product

All products supporting IPSec crypto blacklisting

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`crypto blacklist file update`

Usage Guidelines

Update the blacklist file. For additional information on blacklisting, refer to the *System Administration Guide*.

Example

The following command updates the blacklist file:

`crypto blacklist file update`

crypto rsa-keygen modulus

Generates an RSA key pair and Certificate Signing Request (CSR) using information to authenticate the site.

Product

All products that support IPSec

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`crypto rsa-keygen modulus { 1024 | 2048 | 4096 | 512 }`

Usage Guidelines

Generate an RSA key pair and Certificate Signing Request (CSR) using information to authenticate the site. You can specify the modulus (key size of the generated certificate) as 512. 1024, 2048 or 4096 bits.

A CSR is a message sent to a Certification Authority (CA) to request a public key certificate for an entity, where the entity is the subject of the certificate. The software creating the CSR must first generate an RSA key pair; the key pair comprises a public and private key. The public key is bundled with the subject's name, and other information to form the CSR.

Example

The following command generates a CSR for a certificate with a modulus of 2048 bits:

```
crypto rsa-keygen modulus 2048
```

crypto whitelist file update

Updates the whitelist (access granted) file using the path specified when the whitelist was enabled.

Product

All products supporting IPSec crypto whitelisting

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
crypto whitelist file update
```

Usage Guidelines

Update the whitelist file. For additional information on whitelisting, refer to the *System Administration Guide*.

Example

The following command updates the whitelist file:

```
crypto whitelist file update
```

crypto-group

Allows the manual switchover of redundant IPSec tunnels belonging to a specific crypto group.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

crypto-group name *group_name* **activate { primary | secondary }**

name *group_name*

Specifies the name of an existing crypto group with which the tunnels to be switched are associated.

activate { primary | secondary }

Allows you to specify which tunnel to activate:

- **primary**: Switches traffic to the primary tunnel in the group.
- **secondary**: Switches traffic to the secondary tunnel in the group.

Usage Guidelines

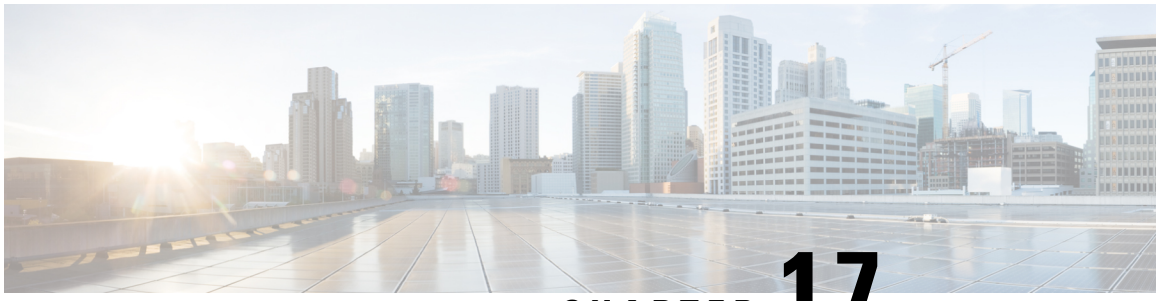
This command is used in conjunction with the Redundant IPSec Tunnel Fail-over feature.

Use this command to manually switch traffic to a specific tunnel in a crypto group if the automatic switchover options have been disabled. Refer to the **switchover** command in the Crypto Group configuration mode for more information.

Example

The following command manually switches user traffic to the secondary tunnel in the crypto group called *group1*:

```
crypto-group group1 activate secondary
```



CHAPTER 17

Exec Mode Commands (D-S)

The Exec Mode is the initial entry point into the command line interface system. Exec mode commands are useful in troubleshooting and basic system monitoring.

Command Modes

This chapter contains the commands in the Exec Mode from **debug** to **system**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

debug bfd

Enables or disables the debug options for Bidirectional Forwarding Detection BFD) debugging. If logging is enabled, results are sent to the logging system.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[ no ] debug bfd { all | events ipc-error | ipc-events | nsm | packet | session }`

no

Indicates the IP debugging is to be disabled for the IP interfaces/function specified.

bfd | interface *name* | route

Specifies which IP interfaces/function to debug.

all: enables debug for all BFD items.

events: enables debug for BFD events.

ipc-error: enables debug for BFD Inter-process communication (IPC) errors.

ipc-events: enables debug for BFD Inter-process communication (IPC) events.

nsm: enables debug for BFD Network Service Manager messages.

packet: enables debug for BFD packets.

session: enables debug for BFD sessions.

Usage Guidelines The debug bfd command is valuable when troubleshooting network problems with BFD-enabled BGP routers. The debugging is stopped by using the **no** keyword.

Caution Issuing this command could negatively impact system performance depending on system configuration and/or loading.

Example

The following commands enable/disable debugging for BFD.

```
debug bfd
```

```
no debug bfd
```

debug ip

Enables or disables the debug options for IP debugging. If logging is enabled, results are sent to the logging system.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip { arp | interface | route }
```

no

Indicates the IP debugging is to be disabled for the IP interfaces/function specified.

arp | interface *name* | route

Specifies which IP interfaces/function to debug.

arp: indicates debug is to be enabled for the address resolution protocol.

interface: indicates debug is to be enabled for the IP interfaces.

route: indicates debug is to be enabled for the route selection and updates.

Usage Guidelines The debug IP command is valuable when troubleshooting network problems between nodes. The debugging is stopped by using the **no** keyword.

Caution Issuing this command could negatively impact system performance depending on system configuration and/or loading.

Example

The following commands enable/disable debugging for ARP.

```
debug ip arp
no debug ip arp
```

The following enables/disables debugging for IP interfaces.

```
debug ip interface
no debug ip interface
```

The following enables/disables debugging for routing.

```
debug ip route
```

```
no debug ip route
```

debug ip bgp

Enables or disables BGP (Border Gateway Protocol) debug flags. If logging is enabled, results are sent to the logging system.

Product

HA

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip bgp { all | event | filters | fsm | keepalives | updates
 { inbound | outbound } }
```

no

Disables the specified BGP debug flags.

all

Enables all BGP debug flags.

event

Enables debugging of all BGP protocol events.

filters

Enables debugging of all BGP filters.

fsm

Enables debugging of BGP Finite State Machine

keepalives

Enables debugging of all BGP keepalives.

updates {inbound | outbound}

Enables debugging of BGP updates.

inbound: Debug all BGP inbound updates.

outbound: Debug all BGP outbound updates.

Usage Guidelines

Use this command to enable or disable BGP debug flags.

Example

The following command disables all BGP debug flags enabled by any of the **debug ip bgp** commands:

```
no debug ip bgp all
```

The following command enables all BGP debug flags:

```
debug ip bgp all
```

debug ip ospf all

Enables or disables all OSPF (Open Shortest Path First) debug flags. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip ospf all
```

no

Disable all OSPF debug flags.

Usage Guidelines

Use this command to enable or disable all OSPF debug flags.

Example

The following command disables all OPSF debug flags enabled by any of the **debug ip ospf** commands:

```
no debug ip ospf all
```

The following command enables all OSPF debug flags:

```
debug ip ospf all
```

debug ip ospf event

Enables or disables debugging of OSPF protocol events. If logging is enabled, results are sent to the logging system. If no keywords are specified, all events are enabled for debugging.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip ospf event [ abr | asbr | vl | lsa | os | router ]
```

no

Disables debugging the specified OSPF event. If no keywords are specified, all events are disabled.

abr

Enables debugging of Area Border Router (ABR) events.

asbr

Enables debugging of Autonomous System Boundary Router (ASBR) events.

vl

Enables debugging of Virtual Link (VL) events.

lsa

Enables debugging of link state advertisement (LSA) events.

os

Enables debugging of operating system (OS) events.

router

Enables debugging of router events.

Usage Guidelines

Use this command to output debug information for OSPF events.

Example

To enable all event debug information, enter the following command;

```
debug ip ospf event
```

To disable all event debug information, enter the following command;

```
no debug ip ospf event
```

debug ip ospf ism

Enables or disables OSPF Interface State Machine (ISM) troubleshooting, based on ISM information type. If no keywords are specified all ISM information types are enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip ospf ism [ events | status | timers ]
```

no

Disables debugging the specified ISM information. If no keywords are specified, all information is disabled.

events

Enables debugging ISM event information.

status

Enables debugging ISM status information.

timers

Enables debugging ISM timer information.

Usage Guidelines

Use this command to output ISM debug information.

Example

To enable all ISM debug information, enter the following command;

```
debug ip ospf ism
```

To disable all ISM debug information, enter the following command;

```
no debug ip ospf ism
```

debug ip ospf lsa

Enables or disables troubleshooting on OSPF Link State Advertisements (LSAs), based on the specific LSA option. If no keywords are specified, all options are enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip ospf lsa [ flooding | generate | install | refresh |
maxage | refresh ]
```

no

Disables the specified LSA debug information. If no keyword is specified, all LSA debug information is disabled.

flooding

Enables LSA flooding information.

generate

Enables LSA generation information.

install

Enables LSA install information.

maxage

Enables LSA maximum age information in seconds. The maximum age is 3600 seconds.

refresh

Enables LSA refresh information.

Usage Guidelines

Use this command to output debug information for LSAs.

Example

To enable all LSA debug information, enter the following command;

```
debug ip ospf lsa
```

To disable all LSA debug information, enter the following command;

```
no debug ip ospf lsa
```

debug ip ospf nsm

Enables or disables troubleshooting OSPF Neighbor State Machines (NSMs), based on the specific NSM information type. If no keyword is specified, all NSM information types are enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

```
[ no ] debug ip ospf nsm [ status | events | timers ]
```

no

Disables the debugging the specified NSM information type. If no keyword is specified, all information types are disabled.

events

Enables debugging NSM event information.

status

Enables debugging NSM status information.

timers

Enables debugging NSM timer information.

Usage Guidelines

Use this command to output debug information for OSPF NSMs

Example

To enable all NSM debug information, enter the following command;

```
debug ip ospf nsm
```

To disable all NSM debug information, enter the following command;

```
no debug ip ospf nsm
```

debug ip ospf packet

Enables or disables troubleshooting of specific OSPF packet information. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip ospf packet { all | dd | hello | ls-ack | ls-request |
ls-update } [ send | recv ] [ detail ]
```

no

Disable debugging of the specified packet information.

all

Enables debugging all OSPF packet information.

dd

Enables debugging database descriptions.

hello

Enables debugging hello packets.

ls-ack

Enables debugging link state acknowledgements.

ls-request

Enables debugging link state requests.

ls-update

Enables debugging link state updates.

send

Enables debugging only on sent packets.

recv

Enables debugging only on received packets.

detail

Enables detailed information in the debug output.

Usage Guidelines

Use this command to output specific OSPF packet information.

Example

To enable all packet debug information, enter the following command;

```
debug ip ospf packet all
```

To disable all route debug information, enter the following command;

```
no debug ip ospf packet all
```

debug ip ospf route

Sets the route calculation method to use in debugging OSPF routes. If no route calculation method is specified, all methods are enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[ no ] debug ip ospf route [ ase | ia | install | spf ]`

no

Disables debugging of route information. If no keyword is specified all information types are disabled.

ase

Enables debugging information on autonomous system external (ASE) route calculations.

ia

Enables debugging information on Inter-Area route calculations.

install

Enables debugging information on route installation.

spf

Enables debugging information on Shortest Path First (SPF) route calculations.

Usage Guidelines

Use this command to output debug information for OSPF routes.

Example

To enable all route debug information, enter the following command;

`debug ip ospf route`

To disable all route debug information, enter the following command;

`no debug ip ospf route`

debug ip ospf router

Sets the debug option for OSPF router information. If no keyword is specified, all router information is enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[ no ] debug ip ospf router [ interface | redistribute ]`

no

Disables the specified router debug information. If no keyword is specified, all router information is disabled.

interface

Enables router interface information.

redistribute

Enables router redistribute information.

Usage Guidelines

Use this command to output debug information for the OSPF router.

Example

To enable all router debug information, enter the following command;

`debug ip ospf router`

To disable all router debug information, enter the following command;

`no debug ip ospf router`

debug ipv6 ospf all

Enables or disables all OSPFv3 (Open Shortest Path First Version 3) debug flags. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[ no ] debug ipv6 ospf all`

no

Disable all OSPFv3 debug flags.

Usage Guidelines Use this command to enable or disable all OSPFv3 debug flags.

Example

The following command disables all OPSFv3 debug flags enabled by any of the **debug ip ospf** commands:

```
no debug ipv6 ospf all
```

The following command enables all OSPFv3 debug flags:

```
debug ipv6 ospf all
```

debug ipv6 ospf event

Enables or disables debugging of OSPFv3 protocol events. If logging is enabled, results are sent to the logging system. If no keywords are specified, all events are enabled for debugging.

Product PDSN

HA

GGSN

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ipv6 ospf event [ abr | asbr | os | router ]
```

no

Disables debugging the specified OSPFv3 event. If no keywords are specified, all events are disabled.

abr

Enables debugging of Area Border Router (ABR) events.

asbr

Enables debugging of Autonomous System BOundary Router (ASBR) events.

os

Enables debugging of operating system (OS) events.

router

Enables debugging of router events.

Usage Guidelines Use this command to output debug information for OSPFv3 events.

Example

To enable all event debug information, enter the following command;

```
debug ipv6 ospf event
```

To disable all event debug information, enter the following command;

```
no debug ipv6 ospf event
```

debug ipv6 ospf ifsm

Enables or disables OSPFv3 Interface State Machine (ISM) troubleshooting, based on ISM information type. If no keywords are specified all ISM information types are enabled. If logging is enabled, results are sent to the logging system.

Product PDSN

HA

GGSN

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ipv6 ospf ism [ events | status | timers ]
```

no

Disables debugging the specified ISM information. If no keywords are specified, all information is disabled.

events

Enables debugging ISM event information.

status

Enables debugging ISM status information.

timers

Enables debugging ISM timer information.

Usage Guidelines Use this command to output ISM debug information.

Example

To enable all ISM debug information, enter the following command;

```
debug ipv6 ospf ism
```

To disable all ISM debug information, enter the following command;

```
no debug ipv6 ospf ism
```

debug ipv6 ospf lsa

Enables or disables troubleshooting on OSPFv3 Link State Advertisements (LSAs), based on the specific LSA option. If no keywords are specified, all options are enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ip ospf lsa [ flooding | generate | install | maxage | refresh ]
```

no

Disables the specified LSA debug information. If no keyword is specified, all LSA debug information is disabled.

flooding

Enables LSA flooding information.

generate

Enables LSA generation information.

install

Enables LSA install information.

maxage

Enables LSA maximum age information in seconds. The maximum age is 3600 seconds.

refresh

Enables LSA refresh information.

Usage Guidelines

Use this command to output debug information for LSAs.

Example

To enable all LSA debug information, enter the following command;

```
debug ipv6 ospf lsa
```

To disable all LSA debug information, enter the following command;

```
no debug ipv6 ospf lsa
```

debug ipv6 ospf nsm

Enables or disables troubleshooting OSPFv3 Neighbor State Machines (NSMs), based on the specific NSM information type. If no keyword is specified, all NSM information types are enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ipv6 ospf nsm [ interface | redistribute ]
```

no

Disables the debugging the specified NSM information type. If no keyword is specified, all information types are disabled.

interface

Enables debugging NSM on this interface.

redistribute

Enables debugging NSM redistribution information.

Usage Guidelines

Use this command to output debug information for OSPFv3 NSMs

Example

To enable all NSM debug information, enter the following command;

```
debug ipv6 ospf nsm
```

To disable all NSM debug information, enter the following command;

```
no debug ipv6 ospf nsm
```

debug ipv6 ospf packet

Enables or disables troubleshooting of specific OSPFv3 packet information. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ipv6 ospf packet { dd | hello | ls-ack | ls-request |
ls-update } [ recv | send ] [ detail ]
```

no

Disable debugging of the specified packet information.

dd

Enables debugging database descriptions.

hello

Enables debugging hello packets.

ls-ack

Enables debugging link state acknowledgements.

ls-request

Enables debugging link state requests.

ls-update

Enables debugging link state updates.

recv

Enables debugging only on received packets.

send

Enables debugging only on sent packets.

detail

Enables detailed information in the debug output.

Usage Guidelines

Use this command to output specific OSPFv3 packet information.

Example

To enable all packet debug information, enter the following command;

```
debug ipv6 ospf packet all
```

To disable all route debug information, enter the following command;

```
no debug ipv6 ospf packet all
```

debug ipv6 ospf route

Sets the route calculation method to use in debugging OSPFv3 routes. If no route calculation method is specified, all methods are enabled. If logging is enabled, results are sent to the logging system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] debug ipv6 ospf route [ ase | ia | install | spf ]
```

no

Disables debugging of route information. If no keyword is specified all information types are disabled.

ase

Enables debugging information on autonomous system external (ASE) route calculations.

ia

Enables debugging information on Inter-Area route calculations.

install

Enables debugging information on route installation.

spf

Enables debugging information on Shortest Path First (SPF) route calculations.

Usage Guidelines

Use this command to output debug information for OSPF routes.

Example

To enable all route debug information, enter the following command;

```
debug ipv6 ospf route
```

To disable all route debug information, enter the following command;

```
no debug ipv6 ospf route
```

default terminal

Restores the system default value for the terminal options.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
default terminal { length | width }
```

length | width

length: Resets the terminal length to the system default.

width: Resets the system default terminal width.

Usage Guidelines

Restore the default terminal settings when the current paging and display wraps inappropriately or pages to soon.

Example

The following sets the default length then width in two commands.

```
default terminal length
default terminal width
```

delete

Removes the specified file(s) permanently from the local.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

delete *filepath* **[-noconfirm]**

filepath

Specifies the location of the file to rename. The path must be formatted as follows:

For the ASR 5000:

[file:]{ /flash | /pcmcia1 | /hd-raid }[/*directory* **]/***file_name*

Important Use of the ASR 5000 SMC hard drive is not supported in this release.

For the ASR 5500:

[file:]{ /flash | /usb1 | /hd-raid }[/*directory* **]/***file_name*

For VPC:

[file:]{ /flash | /hd-raid / usb1 | usb2 | /cdrom1 }[/*directory* **]/***file_name*

Important The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name

filename is the actual file of interest

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Important Use of the **-noconfirm** option should be done with extra care to ensure the file is specified accurately as there is no method of recovering a file that has been deleted.

Usage Guidelines Deleting files is a maintenance activity which may be part of periodic routine procedures to reduce system space utilization.

Example

The following removes files from the local */flash/pub* directory.

```
delete /flash/pub/june03.cfg
```

delete support record

Removes a Support Data Record (SDR) with s specified record-id or all SDRs in the specified range of record-ids.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
delete support record <record-id> [ to <record-id> ]
```

record-id

Specifies a single SDR as an integer from 0 to 65536.

Each SDR is identified by a time index called the record-id. For example, the most recent record is always record-id 0 (filename = sdr.0.gz). The next older record is record-id 1 (filename = sdr.1.gz), and so on.

to *record-id*

Specifies the endpoint record-id when deleting a range of SDRs.

Usage Guidelines Use this command to delete one or more SDRs stored on the system. For additional information on the Support Data Collector feature, refer to the *System Administration Guide*.

Example

The following command deletes the SDR with a record-id of 5 (filename = sdr.5.gz):

```
delete support record 5
```

dhcp force

Tests the lease-renewal for DHCP-assigned IP addresses for a particular subscriber.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

dhcp force lease-renewal { callid *id* **| imsi** *imsi* **[nsapi** *nsapi* **] | msid** *msid* **}**

callid *id*

Clears the call ID specified as a 4-byte hexadecimal number.

imsi *msid*

Disconnects the subscriber with the specified msid. The IMSI (International Mobile Subscriber Identity) ID is a 50-bit field which identifies the subscriber's home country and carrier. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

nsapi *nsapi*

Specifies a Network Service Access Point Identifier (NSAPI) an integer from 5 to 15.

msid *id*

Disconnects the mobile user identified by *ms_id*. *ms_id* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

Usage Guidelines

Use this command tests a forced IP address lease renewal for a specific subscriber.

Example

The following command tests DHCP lease renewal for a subscriber with an MSID of *1234567*:

```
dhcp force lease-renewal msid 1234567
```

dhcp test

Tests DHCP (Dynamic Host Configuration Protocol) functions for a particular DHCP service.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
dhcp test dhcp-service svc_name [ all | server ip_address ]
```

dhcp-service *svc_name*

Specifies the name of the DHCP service as an alphanumeric string of 1 through 63 characters that is case sensitive.

all

Tests DHCP functionality for all servers.

server *ip_address*

Tests DHCP functionality for the server specified by an IP address entered using IPv4 dotted-decimal notation.

Usage Guidelines

Once DHCP functionality is configured on the system, this command can be used to verify that it is configured properly and that it can successfully communicate with the DHCP server.

Executing this command causes the system to request and allocate an IP address and then release it.

If a specific DHCP server is not specified, then each server configured in the service is tested.

Example

The following command tests the systems ability to get an IP address from all servers a DHCP service called *DHCP-Gi* is configured to communicate with:

```
dhcp test dhcp-service DHCP-Gi all
```

diameter disable endpoint

Disables a Diameter endpoint without removing the peer's configuration.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

diameter disable endpoint *endpoint_name* **peer** *peer_id*

endpoint_name

Specifies the endpoint in which the peer is configured as an alphanumeric string of 1 through 63 characters.

peer *peer_id*

Specifies the Diameter peer host name to be disabled as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to administratively disable a Diameter peer without removing the peer configuration. This command will tear down all connections on the specified peer (by sending a DPR if the configuration demands the same at peer level configuration). The peer will remain in disabled state until it is enabled again. Also see the **diameter enable endpoint** command.

Example

This command disables the Diameter peer *peer12*:

```
diameter disable endpoint endpoint1 peer peer12
```

diameter enable endpoint

Enables a Diameter endpoint that is disabled.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

diameter enable endpoint *endpoint_name* **peer** *peer_id*

endpoint_name

Specifies the endpoint in which the peer is configured as an alphanumeric string of 1 through 63 characters.

peer *peer_id*

Specifies the Diameter peer host name to be enabled as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to administratively enable a Diameter peer. Also see the **diameter disable endpoint** command.

Example

This command enables the Diameter peer *peer12*:

```
diameter enable endpoint endpoint1 peer peer12
```

diameter-proxy conn-audit

This command enables the Diameter proxy Peer Connection Status Audit with Diabase clients.

Product

P-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
diameter-proxy conn-audit interval 1-10
default diameter-proxy conn-audit
```

default

Configures the default setting.

By default, Diameter proxy Peer Connection Status Audit with Diabase clients is disabled.

diameter-proxy

Specifies the Diameter proxy related configurations.

conn-audit

Specifies the periodic connection status audit processes. Disabled by default.

interval *1-10*

Specifies the connection status audit interval in minutes, in the range of 1 through 10. Recommended value is 2 minutes.

Usage Guidelines

Enabling Diamproxy Peer Connection Status Audit with Diabase clients might affect performance of the services using Diameter interface. Service is impacted only when auto-correction happens (due to mismatch) and the cases are:

1. When Diabase state is IDLE and Diameter proxy is OPEN.
2. When Diabase state is OPEN and Diameter proxy is IDLE.

In both these cases, Diabase corrects the connection status based on information received in audit message. Diameter messaging failures is avoided once Diabase corrects the connection status.

Example

The following command specifies that the connection status audit interval is *2*minutes:

```
diameter-proxy conn-audit interval 2
```

diameter reset connection

Resets individual TCP/SCTP connections for a specified Diameter endpoint.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

diameter reset connection { endpoint *endpoint_name* **peer** *peer_id* **}**

endpoint *endpoint_name*

Resets connection to the endpoint specified as an alphanumeric string of 1 through 63 characters.

peer *peer_id*

Resets connection to the Diameter peer host name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to reset the TCP/SCTP connections for the specified endpoint/peer. With this command, the connection will be closed temporarily after DPR/DPA. If there is any traffic to be sent to the particular peer, then the connection will be re-established.

This command overrides the endpoint configured in any other configuration mode.

This command is applicable only when the specified peer is enabled.

Example

This command resets connection to the endpoint named *test123*:

```
diameter reset connection endpoint test123
```

diameter reset route failure

Resets the failed route status of a Diameter destination-host combination via peer to AVAILABLE status.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`diameter reset route failure [ endpoint` *`endpoint_name`* **`] [ host`** *`host_name`* **`] [ peer`** *`peer_id`* **`]`**

endpoint *endpoint_name*

Resets paths to the endpoint specified as an alphanumeric string of 1 through 63 characters.

host *host_name*

Resets the FAILED status of all Diameter destination-host combination routes via peer for every Diameter client within the chassis having a specific host name to AVAILABLE.

Specifies the Diameter host name as an alphanumeric string of 1 through 63 characters.

peer *peer_id*

Resets the FAILED status of all Diameter destination-host combination routes via a peer having specific peer-Id for every Diameter client within the chassis to AVAILABLE.

Specifies the Diameter peer host name as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to reset the FAILED status of all Diameter destination-host combination routes via peer for every Diameter client within the chassis to AVAILABLE status.

This command also resets the failure counts used to determine the AVAILABLE/FAILED status of a destination-host combination.

When executed from local context, this command matches all contexts. If an optional keyword is not supplied, a wildcard is used for the value.

The status of every matching combination of destination-host via peer for every matching Diameter client within the chassis will be reset to AVAILABLE. The failure counts that are used to determine AVAILABLE/FAILED status will also be reset.

Also see the **route-entry** and **route-failure** commands in the *Diameter Endpoint Configuration Mode Commands* chapter.

Default value: N/A

Example

The following command resets the FAILED status of all Diameter destination-host combination routes via peer for every Diameter client within the chassis for specified endpoint name to AVAILABLE.

diameter reset route failure endpoint endpoint123

directory

Lists the files in a specified location.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

directory *filepath* **[-size] [-reverse] [-time]**

filepath

Specifies the directory path to list the contained files using the following format:

For the ASR 5000:

[file:]{ /flash | /pcmcia1 | /hd }[/*directory* **]/***file_name*

Important Use of the ASR 5000 SMC hard drive is not supported in this release.

For the ASR 5500:

[file:]{ /flash | /usb1 | /hd }[/*directory* **]/***file_name*

For VPC:

[file:]{ /flash | /hd-raid | /usb1 | /usb2 | cdrom1 }[/*directory* **]/***file_name*

Important The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name

filename is the actual file of interest

-size

Indicates the size of each file should be displayed in the output.

-reverse

Indicates the order of files listed should be in descending order (z-aZ-A9-0). Default is to sort in ascending order (0-9A-Za-z).

-time

Indicates the last modification timestamp of each file should be displayed in the output.

Usage Guidelines

Lists such things as log and crash files from multiple nodes within the network.

The optional arguments may be specified individually or in any combination.

Example

The following command will list the files in the local */flash/pub* directory sorted in reverse order.

```
directory /flash/pub -reverse
```

disable radius

Prevents the system from making requests of a selected RADIUS server.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

disable radius { [charging] [accounting] server *ipv4/ipv6_address* **[group** *group_name* **| port** *port_number* **+] }**

[charging] [accounting]

Specifies the type of RADIUS server to disable.

- **accounting**: Specifies accounting servers
- **charging**: Specifies charging servers
- **charging accounting**: Specifies charging accounting servers

server *ipv4/ipv6_address*

Specifies the RADIUS server by IP address entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

port *port_number*

Specifies the port number of the RADIUS server being disabled an integer from 0 through 65535. Default: 1812 (authentication) 1813 (accounting)

group *group_name*

Specifies the RADIUS group to which the server belongs as an alphanumeric string of 1 through 63 characters. Use this option in the event that the RADIUS server belongs to multiple groups and you only want to disable the server within the specific group. Default: **default**

Usage Guidelines

Use this command to gracefully stop the system from making requests of a specific RADIUS server.

Example

The following command disables a RADIUS accounting server with an IP address of *10.2.3.4*, the default accounting server port number, and that resides in the *Group5* server group:

```
disable radius accounting server 10.2.3.4 group Group5
```

dns-client

Performs DNS (Domain Name System) query on the basis of specified DNS client name, DNS query domain name, and type of query criteria.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

`dns-client` *`dns_client_name`* `[ query-type { A | AAAA | NAPTR | SRV } ]` `query-name` *`query_domain_name`*

dns-client *dns_client_name*

Specifies the name of the DNS client whose cache and/or statistics are to be queried. It must be an existing DNS client expressed as an alphanumeric string of 1 through 64 characters.

query-type { A | NAPTR | SRV }]

Specifies that the type of query to perform for the defined DNS client is to be displayed.

- **A**: Filters DNS results based on domain IPv4 address records (A records). This is the default query type.

- **AAAA**: Filters DNS results based on domain IPv6 address records (AAAA records).
- **NAPTR**: Filters DNS results based on Naming Authority Pointer records (NAPTR).
- **SRV**: Filters DNS results based on service host records (SRV records).

query-name *query_domain_name*

Filters the DNS results based on the query domain name expressed as an alphanumeric string of 1 trough 255 characters.

query_domain_name is the domain name used to perform the DNS query and is different from the actual domain name which is resolved. For example, to resolve the SIP server for *service.com*, the query name is *_sip._udp.service.com* and the query type is **SRV**.

Usage Guidelines

Use this command to perform DNS query on the basis of DNS Client name and filters the query results based on query type and query name. This command also populates the result into DNS Cache. This command used the current context to DNS request.

Example

The following command displays statistics for a DNS client named *test_dns* with query type for IP address as *A* and query name as *domain1.com*:

```
dns-client test_dns query-type A query-name domain1.com
```

egtpc test echo

Tests the ability of a GGSN/P-GW service to exchange GTP-C echo request messages with specified peer(s).

Product

GGSN

P-GW

SAEGW

Privilege

Operator, Config-Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

egtpc test echo gtp-version *version* **src-address** *ip_address* **{ all | peer-address** *ip_address* **}**

gtp-version *version*

Specifies version number for sending Echo request message.

version must be an integer from 0 through 2.

Important If peer is not a new peer for service bind to **src-address**, then echo request is sent with the last known highest version of the peer.

src-address *ip_address*

Specifies the IP address of a Gn interface configured on the system.

ip_address must be entered using IPv4 dotted-decimal notation or IPV6 colon-separated-hexadecimal notation.

Important The IP address of the system's Gn interface must be bound to a configured GGSN/P-GW service prior to executing this command.

all

Sends GTP-C echo requests to first 100 peers that currently have sessions with the GGSN/P-GW service.

Important If this keyword is selected, additional confirmation is required after the following message, "Warning: Due to possibility of huge number of connected peers, considering system performance impacts, issue echo request to only 100 peers".

peer-address *ip_address*

Specifies that GTP-C echo requests will be sent to a specific peer.

ip_address must be entered using IPv4 dotted-decimal notation or IPV6 colon-separated-hexadecimal notation.

Usage Guidelines

This command tests the GGSN's or P-GW's ability to exchange GPRS Tunneling Protocol control plane (GTP-C) packets with the specified peer. This command is useful for troubleshooting and/or monitoring.

This command must be executed from within the context in which the GGSN/P-GW service is configured.

Important In StarOS v14.0 and later, this command replaces the **gtpv0 test echo** and **gtpc test echo** commands.

Example

The following command issues GTP-C echo packets from a GGSN service bound to address *192.168.157.43* to an SGSN with an address of *192.168.1.52*:

```
egtpc test echo gtp-version 1 src-address 192.168.157.43 peer-address
192.168.1.52
```

enable radius

Enables the system to start making requests of a specific RADIUS server.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

enable radius { [charging] [accounting] server *ipv4/ipv6_address* **[group** *group_name* **| port** *port_number* **+] }**

[charging] [accounting]

Specifies the type of RADIUS server to enable.

- **accounting**: Specifies accounting servers
- **charging**: Specifies charging servers
- **charging accounting**: Specifies charging accounting servers

server *ipv4/ipv6_address*

Specifies the RADIUS server by an IP address entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

port *port_number*

Specifies the port number of the RADIUS server being enabled as an integer from 0 through 65535. Default: 1812 (authentication) 1813 (accounting)

group *group_name*

Specifies the RADIUS group to which the server belongs as an alphanumeric string of 1 through 63 characters. Use this option in the event that the RADIUS server belongs to multiple groups and you only want to disable the server within the specific group. Default: **default**

Usage Guidelines

Use this command to allow the system to start making requests of a specific RADIUS server.

Example

The following command enables a RADIUS accounting server with the IP address *10.2.3.4*, the default accounting server port number, and in the *Group5* server group:

```
enable radius accounting server 10.2.3.4 group Group5
```

exit

Terminates the current CLI session.

Product

All

Privilege

Any

Syntax Description

exit

Usage Guidelines

Use this command to terminate the current CLI session.

filesystem

Use this command to check, format or repair the filesystem on internal and external storage devices.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

For the ASR 5000:

filesystem { check | format | repair | synchronize } { /flash | /pcmcia1 | /hd-raid } [card *slot_num* **]**

For the ASR 5500:

filesystem { check | format | repair | synchronize } { /flash | /usb1 | /hd-raid } [card *slot_num* **]**

For VPC:

filesystem { check | format | repair | synchronize | update } { /flash | /hd-raid | /usb1 | /usb2 | cdrom1 }

The following devices are supported based on platform type:

- **/flash** – ASR 5x00, VPC
- **/hd-raid** – ASR 5x00, VPC
- **/pcmcia1** – ASR 5000 only
- **/usb1** – ASR 5500, VPC (if configured via hypervisor)
- **/usb2** – VPC (if configured via hypervisor)
- **/cdrom1** – VPC (if configured via hypervisor)

Important For VPC, the USB ports and CD-ROM must be configured via the hypervisor to be accessible by the Control Function (CF) virtual machine.

check

Checks for filesystem corruption.

format

Reformats file system.

Caution This keyword erases all data on the device.

Formatting /flash will remove all boot configurations and the ASR 5x00 chassis-ID. Before running format, be sure to review or save the output of the **show boot** command. After running **format**, be sure to restore boot entries as needed, generate a new chassis-ID, and execute **save configuration** to save the running configuration.

repair

Repairs file system corruption.

synchronize

See the description of the **filesystem synchronize** command for detailed information. **Not supported on VPC-SI.**

update

Updates the boot code on the file system. **Supported on VPC-SI only.**

Usage Guidelines Check, format, or repair all directories and files from on an internal or external storage device and re-establish the file system.

Example

The following command formats the PCMCIA card located in slot 1 on the SMC (ASR 5000):

```
filesystem format /pcmcia1
```

filesystem synchronize

Use this command to synchronize the file systems of active and standby storage devices on MIO card or VPC-DI Control Function (CF) virtual machines.

Product All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

For the ASR 5500:

filesystem synchronize [/flash | /usb1 | all] [checkonly] [from *card_num* **| to** *card_num* **] [-noconfirm]**

For VPC:

filesystem synchronize [/flash | /usb1 | /usb2 | cdrom1 | all] [checkonly] [from *card_num* **| to** *card_num* **] [-noconfirm]**

The following devices are supported based on platform type:

- **/flash** – ASR 5x00, VPC
- **/hd-raid** – ASR 5x00, VPC
- **/usb1** – ASR 5500, VPC (if configured via hypervisor)
- **/usb2** – VPC (if configured via hypervisor)
- **/cdrom1** – VPC (if configured via hypervisor)
- **all** – Selects all file systems

checkonly

Checks for file system corruption; does not modify file systems.

[from *card_num* | to *card_num*]

Copies files from a source card to a destination card specified by slot numbers.

-noconfirm

Executes the command without displaying "are you sure" prompts.

Usage Guidelines

Synchronize the file systems between active and standby storage devices.

Example

The following command all file systems on the management card:

```
filesystem synchronize all
```

The following command sequence appears when **filesystem synchronize /flash** is run after **save configuration /flash/***filename* **-redundant** is executed and a change has been made to the configuration:

```
filesystem synchronize /flash
2 to be updated on card 2
   /flash/oam.cfg
   /flash/service.cfg
0 to be updated (but are newer) on card 2
```

```
0 to be deleted on card 2
Are you sure? [Yes|No]:
```

You must confirm the synchronization before it will be initiated.

If "No files to update" appears, you are returned to the CLI prompt.

gtpc test echo

Tests the ability of a GGSN service to exchange GTP-C echo request messages with the specified SGSN(s).

Product

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`gtpc test echo src-address` *`gn_address`* **`{ all | sgsn-address`** *`ip_address`* **`}`**

src-address *gn_address*

Specifies the IP address of a Gn interface configured on the system in IPv4 dotted-decimal notation.

Important The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.

all

Specifies that GTP-C echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.

sgsn-address *ip_address*

Specifies that GTP-C echo requests will be sent to a SGSN specified by an IP address in IPv4 dotted-decimal notation.

Usage Guidelines

This command tests the GGSN's ability to exchange GPRS Tunneling Protocol control plane (GTP-C) packets with the specified SGSNs. This command is useful for troubleshooting and/or monitoring.

This command must be executed from within the context in which the GGSN service is configured.

Refer also to the **gtpu test** command.

Important In StarOS v14.0 and later, this command has been replaced by the **egtpc test echo** command.

Example

The following command issues GTP-C echo packets from a GGSN service bound to address *192.168.157.32* to an SGSN with an address of *192.168.157.2*:

```
gtpc test echo src-address 192.168.157.32 sgsn-address 192.168.157.2
```

gtpp interim now

Check points current GTPP accounting messages and identifies which types of interim CDRs are to be generated and sent to the external charging/storage servers (for example, a CFG or a GSS). The impact of this command is immediate.

Product

GGSN

SGSN

SGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

gtpp interim now [active-charging egcdr | apn *apn_name* **| callid** *call_id* **| cdr-types { gcdr | mcdr | scdr } | dhcp-server** *ip_address* **| gprs-service** *svc_name* **| ggsn-address** *ggsn_ip_addr* **| ggsn-service** *svc_name* **| imsi** *imsi* **[ip-address** *sub_address* **[username** *name* **]] | ip-address***sub-address* **| nsapi** *nsapi* **[ip-address** *sub-address* **[username** *name* **]] | ip-pool** *pool_name* **| mcc** *mcc_number* **mnc** *mnc_number* **| msisdn** *msisdn_num* **| sgsn-address** *ip_address* **| sgsn-service** *svc_name* **| username** *name* **] +**

active-charging

This feature is specific to the GGSN and is documented separately. .

apn *apn_name*

Initiates GTPP interim accounting for all PDP contexts accessing the APN specified as an alphanumeric string of 1 through 62 characters that is case sensitive.

callid *call_id*

Identifies a specific call id as an 8-digit hexadecimal number.

cdr-types { mcdr | scdr }

Specifies the CDR types to be generated by the SGSN:

gcdr - Instructs the GGSN to only generate G-CDRs.

mcdr - Instructs the SGSN to only generate M-CDRs

scdr - Instructs the SGSN to only generate S-CDRs.

This keyword is specific to the SGSN.

dhcp-server *ip_address*

Identifies the DHCP server where the IP address (defined with the **ip address** keyword) was allocated by the IP address of the DHCP server entered using IPv4 dotted-decimal notation.

ggsn-address *ggsn_ip_addr*

Specifies the IP address of the interface to the GGSN using IPv4 dotted-decimal notation. This keyword is specific to the GGSN.

ggsn-service *svc_name*

Initiates GTPP interim accounting for all PDP contexts currently being facilitated by the GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive. This keyword is specific to the GGSN.

gprs-service *svc_name*

Initiates GTPP interim accounting for all PDP contexts currently being facilitated by an existing GPRS service specified as an alphanumeric string of 1 through 63 characters that is case sensitive. This keyword is specific to the SGSN.

imsi *imsi* [ip-address *sub_address* [username *name*] | nsapi *nsapi* [ip-address *sub-address* [username *name*] | username *name*]]

Initiates GTPP interim accounting for a specific International Mobile Subscriber Identity (IMSI) number. The request could be further filtered using any of the following keywords:

- **ip-address**: Interim accounting will be performed for the IP address specified by *sub_address*. The command can be further filtered by specifying a specific username with that address.
- **nsapi**: Interim accounting will be performed for a Network Service Access Point Identifier (NSAPI) specified as an integer from 5 to 15. The command can be further filtered by specifying a specific ip address and/or a username with that address, or just a specific username.

ip-address *sub_address* [username *name*]

Initiates GTPP interim accounting for the IP address of the subscriber specified in IPv4 dotted-decimal notation.

The command can be further filtered by specifying a username with that address. The name is the subscriber's name and can be a sequence of characters and/or wildcard characters ('$' and '*') from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes ('). For example; '$'.

ip-pool *pool_name*

Initiates GTPP interim accounting for all PDP contexts that were allocated IP addresses from an existing pool specified as an alphanumeric string of 1 through 31 characters that is case sensitive. This keyword is applicable to the GGSN only.

mcc *mcc_number* mnc *mnc_number*

mcc_number: Specifies the mobile country code (MCC) portion of the PLMN identifier and can be configured to any 3-digit integer value between 100 and 999.

mnc_number: Specifies the mobile network code (MNC) portion of the PLMN identifier and can be configured to any 2- or 3-digit integer between 00 and 999.

msisdn *msisdn_num*

Configures the SGSN to include the Mobile Subscribers Integrated Services Digital Network identifier in generated CDRs (M-CDRs and/or the S-CDRs). This keyword is applicable for SGSN only.

msisdn_number must be followed by a valid MSISDN number, consisting of 1 to 15 digits.

sgsn-address *ip_address*

Initiates GTPP interim accounting for all PDP contexts currently being facilitated by the SGSN specified by an IP address in IPv4 dotted-decimal notation. This keyword is specific to the GGSN.

sgsn-service *svc_name*

Initiates GTPP interim accounting for all PDP contexts currently being facilitated by an existing SGSN service specified an alphanumeric string of 1 through 63 characters that is case sensitive. This keyword is specific to the SGSN.

username *name*

Initiates GTPP interim accounting for all PDP contexts for the subscriber name specified as an alphanumeric string of 1 through 127 characters that is case sensitive.

+

More than one of the above keywords can be entered within a single command.

Usage Guidelines

This command causes GTPP accounting CDRs to immediately be generated for all active sessions that are in the current context. If executed within the local context, CDRs will be generated for all active sessions regardless of context. This command generates only certain types of CDRs including GCDRs, SGWCDRs, and SCDRs.

The sending of the CDRs is paced so as not to overload the accounting server.

Example

The following command causes CDRs to immediately be generated:

```
gtpp interim now
```

gtpp interim now active-charging egcdr

Check points current GTPP accounting messages for active charging immediately.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

gtpp interim now active-charging egcdr [callid *call_id* **| imsi** *imsi* **| msid** *msid* **| rulebase** *rbase_name* **| session-id** *sess_id* **| username** *name* **]**

callid *call_id*

Initiates GTPP interim accounting for a session for the call ID specified as an 8-digit hexadecimal number.

imsi *imsi*

Initiates GTPP interim accounting for a International Mobile Subscriber Identity (IMSI) number. specified as a sequence of hexadecimal digits and wildcard characters - $ matches a single character and * matches multiple characters

msid *msid*

Initiates GTPP interim accounting for a Mobile Station Identifier (MSID) number specified as a sequence of up to 24 digits and wildcard characters - $ matches a single character and * matches multiple characters

rulebase *rbase_name*

Initiates GTPP interim accounting for sessions that use the named active charging rulebase specified as an alphanumeric string of 1 through 24 characters.

session-id *sess_id*

Initiates GTPP interim accounting for a current active charging session.

Usage Guidelines

This command causes GTPP accounting eG-CDRs to immediately be generated for active charging sessions that meet the specified criteria.

The sending of the CDRs is paced so as not to overload the accounting server.

username *name*

Initiates GTPP interim accounting for all PDP contexts for the subscriber name specified as an alphanumeric string of 1 through 127 characters that is case sensitive.

Example

The following command causes eG-CDRs to immediately be generated for active charging sessions using the rulebase named rulbase1:

```
gtpp interim now active-charging egcdr rulebase rulebase1
```

gtpp storage-server commit

Causes the GTPP storage server to archive all buffered packets.

Product

GGSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`gtpp storage-server commit now [ group name` *`group_name`* **`]`**

group name *group_name*

Commits Storage Server for an existing group name expressed as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

This command sends a request to the GTPP Storage Server to archive all buffered packets. It also deletes all CDRs that have been acknowledged by the charging gateway function (CGF). The deleted CDRs are saved in a separate file.

Note that this command must be executed from within the context in which the GTPP Storage Server is configured.

Refer to the **gtpp storage-server** command in the *Context Configuration Mode Commands* chapter for more information.

gtpp storage-server streaming start

This command enables to start streaming of the copied CDR files from active chassis when the ICSR switchover occurs.

Product

Important This command is obsolete in release 16.0. In 16.0 and later releases, use the "**gtpp push-to-active url**" CLI command in global configuration mode to enable the automatic transfer of stranded CDRs to active chassis.

GGSN

P-GW

S-GW

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

gtpp storage-server streaming start [group name *group_name* **]**

group name *group_name*

Specifies the name of a GTPP group configured in the current context as an alphanumeric string of 1 through 63 characters.

Note that, if the group name is not specified, then all the GTPP groups in the current context will be considered. If the group name is specified, then only the group provided in this CLI command will be considered.

Usage Guidelines

This command is used to resynchronize the CDRs left on local HDD with the active GTPP' streaming feed to transfer the CDRs from active chassis to IT mediation device during ICSR switchover.

Note that this CLI command must be executed from within the context in which the GTPP Storage Server is configured.

In the event of ICSR switchover, to transfer the copied CDRs from active chassis to IT mediation device, follows these steps:

1. Manually copy files from old active chassis to new active chassis.
2. Issue this CLI command "**gtpp storage-server streaming start**" to start streaming of the copied files from active chassis.
3. If the streaming is in progress, then wait till the current file is fully streamed out. After the current file is fully streamed out, then rebuild the file list (to get the copied CDR files) and start streaming based on the timestamp.
4. If the streaming is not in progress then rebuild the file list (to get the copied CDR files) and start streaming.

gtpp test

Tests communication with configured Charging Gateway Function (CGF) servers or a GTPP Storage-Server.

Product

ePDG

GGSN

P-GW

SAEGW

SGSN

Privilege

Operator, Config-Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

gtpp test { accounting { all | cgf-server *ipv4/ipv6_address* **[port** *port_num* **] | group name** *group_name* **} | storage-server [address** *ipv4/ipv6_address* **port** *udp-port* **| group name** *group_name* **] }**

all

Tests all CGFs configured within the given context.

cgf-server *ipv4/ipv6_address* [port *port_num*]

Tests a CGF configured within the given context and specified by the IP address of the CGF entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

port *port_num*: Specifies the port number of CGF server. The port number must be an integer ranging from 1 to 65535.

This optional keyword is introduced to ease the identification of product specific CDRs. This configuration provides the flexibility to send ePDG, SaMOG and P-GW LBO CDRs to the same CGF server on different ports.

When the port is specified, this command displays the status of CGF server with the specified IP address and port. If port is not provided then it will show the status of all CGF servers with the specified IP address.

group name *group_name*

Tests the storage server for an existing group name specified as an alphanumeric string of 1 through 63 characters.

storage-server [address *ipv4/ipv6_address* port *udp-port*]

Tests the connectivity and provides round trip time for the echo request sent to the GTPP Storage-Server configured in the requested context. The IP address of the GSS is entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation and the UDP port is the one defined for the GTPP Storage Server.

Usage Guidelines

This command is used to verify the configuration of and test the system's ability to communicate with one or all configured GSS/CGFs for monitoring or troubleshooting purposes.

When executed, this command causes the system to send GTPP echo packets to the specified GSS/CGF(s). The command's response will display whether the GSS/CGF is active or unreachable.

Example

The following command tests communication with a CGF server having an IP address of *192.168.1.5*:

```
gtpp test accounting cgf-server 192.168.1.5
```

The following command tests communication with a GSS configured in requested context:

```
gtpp test storage-server
```

The following command verifies the communication with a GSS having an IP address of *192.156.12.10* and port *50000*, without configuring it in a context:

```
gtpp test storage-server address 192.156.12.10 port 50000
```

gtpu test echo

Tests the ability of a GGSN/P-GW/SAEGW/SGSN/S-GW service to exchange GTP-U echo request messages with specified peer(s).

Product

GGSN

P-GW

SAEGW

SGSN

S-GW

Privilege

Operator, Config-Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

StarOS v12.x and earlier:

gtpu test echo src-address *gn_address* **{ all | sgsn-address** *ip_address* **}**

StarOS v14.0 and later:

gtpu test echo gtpu-service *service_name* **{ all | peer-address** *ip_address* **} [gtpu-version { 0 | 1 }]**

src-address *gn_address*

Specifies the IP address of a Gn interface configured on the system using IPv4 dotted-decimal notation.

Important The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.

all

Sends GTP-U echo requests to all SGSNs that currently have sessions with the GGSN service.

sgsn-address *ip_address*

Sends GTP-U echo requests to an SGSN specified by its IP address in IPv4 dotted-decimal notation.

gtpu-service *service_name*

Specifies an existing GTP-U service.

service_name is an alphanumeric string of 1 through 63 characters.

all

Sends GTP-U echo requests to first 100 peers that currently have sessions with the GTP-U service.

Important If this keyword is selected, additional confirmation is required after the following message, "Warning: Due to possibility of huge number of connected peers, considering system performance impacts, issue echo request to only 100 peers".

peer-address *ip_address*

Specifies that GTP-U echo requests will be sent to a specific peer.

ip_address must be entered using IPv4 dotted-decimal notation or IPV6 colon-separated-hexadecimal notation.

gtpu-version { 0 | 1 }

Optional. Specifies the GTP-U version in which the test echo will be sent. **0** Specifies GTP-U version 0, and **1** specifies GTP-U version 1.

- If the GTP-U version of the peer is unknown, the GGSN/P-GW/SAEGW/SGSN/S-GW will use the user-configured GTP-U version.
- If the GTPU version of peer node is already known, the test echo is sent in the known GTP-U version.
- If the GTP-U version is not configured, and the peer version is unknown, the test echo is sent in GTP-U version 0.

Usage Guidelines

This command tests the GGSN/P-GW/SAEGW/SGSN/S-GW's ability to exchange GPRS Tunneling Protocol user plane (GTP-U) packets with the specified SGSNs/peer(s). This command is useful for troubleshooting and/or monitoring.

Important This command returns statistics on the number of packets transmitted and received; however, statistics are displayed right after transmitting the "echo" packet, but before receiving the response. Therefore, received statistics are always off by one. For more information, the same command should be run twice.

For example:

```
[ingress]asr5000# gtpu test echo gtpu-service sgw_ingress_gtpu peer-address 192.45.1.6
gtpu-version 1
GTPU test echo
--------------
PEER: 192.45.1.6 Tx/Rx: 1/0 RTT(ms): 0 Recovery

[ingress]asr5000#
[ingress]asr5000# gtpu test echo gtpu-service sgw_ingress_gtpu peer-address 192.45.1.6
gtpu-version 1
GTPU test echo
--------------
PEER: 192.45.1.6 Tx/Rx: 2/1 RTT(ms): 4285432 (COMPLETE)
```

Refer also to the **gtpc test** command.

Example

The following command issues GTP-U echo packets from a GGSN service bound to address *192.168.157.43* to an SGSN with an address of *192.168.1.52*:

gtpu test echo src-address 192.168.157.43 sgsn-address 192.168.1.52

The following command issues GTP-U echo packets from a GTP-U service named *gtpu_1* to the first 100 connected peers:

gtpu test echo gtpu-service gtpu_1 all

gtpv0 test echo

Tests the ability of a GGSN service to exchange GTPv0 echo request messages with the specified SGSN(s).

Product

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

gtpv0 test echo src-address *gn_address* **{ all | sgsn-address** *ip_address* **}**

src-address *gn_address*

Specifies the IP address of a Gn interface configured on the system using IPv4 dotted-decimal notation.

Important The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.

all

Sends GTPv0 echo requests to all SGSNs that currently have sessions with the GGSN service.

sgsn-address *ip_address*

Sends GTPv0 echo requests to an SGSN specified by its IP address in IPv4 dotted-decimal notation.

Usage Guidelines

This command tests the GGSN's ability to exchange GPRS Tunneling Protocol version 0 (GTPv0) packets with the specified SGSNs which can be useful troubleshooting and/or monitoring.

This command must be executed from within the context in which the GGSN service is configured.

Refer also to the **gtpc test** and **gtpu test** commands.

Important In StarOS v14.0 and later, this command has been replaced by the **egtpc test echo** command.

Example

The following command issues GTPv0 echo packets from a GGSN service bound to address *192.168.1.33* to an SGSN with an address of *192.168.1.42*:

```
gtpv0 test echo src-address 192.168.1.33 sgsn-address 192.168.1.42
```

hd raid

Performs RAID management operations on the platform's hard disk drives.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description For the ASR 5000:

```
hd raid { check | create { local1 | remote1 } | insert { local1 | remote1
 } | overwrite { local1 | remote1 } | directory pathname | limit number_files
 | mtime minutes } | remove { local1 | remote1 } | select { local1 | remote1
 } }  [ -force ] [ -noconfirm ]
```

For the ASR 5500:

```
hd raid { check | create { hd13 | hd14 | hd15 | hd16 | hd17 | hd18 } |
insert { hd13 | hd14 | hd15 | hd16 | hd17 | hd18} | overwrite { hd13 |
hd14 | hd15 | hd16 | hd17 | hd18 } | quarantine { directory pathname | limit
 number_file | mtime minutes } | remove { hd13 | hd14 | hd15 | hd16 | hd17 |
 hd18 } }  [ -force ] [ -noconfirm ]
```

For VPC:

```
hd raid { check | create | insert | overwrite | quarantine { directory
pathname | limit number_files | mtime minutes } | remove | select } { local1 |
local2 } [ -force ] [ -noconfirm ]
```

check

Starts a background check on RAID disks unless the RAID is running in degraded mode.

create { local1 | remote1 }

On the ASR 5000, creates a new RAID that could run in degraded mode on the specified drive:

- **local1** specifies the RAID is to be established on the primary SMC.
- **remote1** specifies the RAID is to be established on the backup SMC.

create *hd_num*

On the ASR 5500, creates a new RAID that could run in degraded mode on the hard drive array of a specific FSC.

hd_num specifies the RAID is to be established. *hd_num* corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
- hd15 = disk in slot 15
- hd16 = disk in slot 16
- hd17 = disk in slot 17
- hd18 = disk in slot 18

create { local1 | local2 }

On VPC, creates a new virtual RAID as vHD Local1 or vHD Local2.

insert { local1 | remote1 }

On the ASR 5000, inserts the specified disk to the running RAID causing it to recover from degraded mode.

- **local1** specifies the primary SMC is to be inserted into the RAID.
- **remote1** specifies the backup SMC is to be inserted into the RAID.

insert *hd_num*

On the ASR 5500, inserts the specified FSC disk array into the running RAID causing it to recover from degraded mode.

hd_num specifies the RAID is to be established. *hd_num* corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
- hd15 = disk in slot 15
- hd16 = disk in slot 16
- hd17 = disk in slot 17
- hd18 = disk in slot 18

insert { local1 | local2 }

On VPC, inserts the specified vHD into the running RAID causing it to recover from degraded mode.

overwrite { local1 | remote1 }

On the ASR 5000, overwrites the specified disk and adds it to the current running RAID to construct a fully mirrored array.

- **local1** specifies the primary SMC is to be inserted into the RAID.
- **remote1** specifies the backup SMC is to be inserted into the RAID.

overwrite *hd_num*

On the ASR 5500, overwrites the specified FSC disk array and adds it to the current running RAID to reconstruct the RAID 5 array.

hd_num specifies the RAID is to be established. *hd_num* corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
- hd15 = disk in slot 15
- hd16 = disk in slot 16
- hd17 = disk in slot 17
- hd18 = disk in slot 18

overwrite { local1 | local2 }

On VPC, overwrites the specified vHD and adds it to the current running RAID to construct a fully mirrored array.

quarantine [directory *pathname* | limit *number_files* | mtime *minutes*

Recovers and quarantines dirty-degraded RAID files.

- **directory** specifies the directory to which files are to be moved. *pathname* is expressed as an alphanumeric string of 1 through 29 characters. Default = "lost+found"
- **limit** sets the maximum number of files to quarantine. *number_files* is an integer from 0 to 1000000; 0 is unlimited. Default = 3000 (10 files per second within 5 minutes).
- **mtime** specifies within how many minutes the file is modified to be considered suspects for quarantine. *minutes* is an integer from 0 through 1440; 0 means no files would be quarantined. Default = 5

remove { local1 | remote1 }

On the ASR 5000, removes the specified disk from the running RAID causing it to run in degraded mode or to fail.

- **local1** specifies the primary SMC is to be inserted into the RAID.

- **remote1** specifies the backup SMC is to be inserted into the RAID.

remove *hd_num*

On the ASR 5500, removes the specified FSC disk array from the running RAID causing it to run in degraded mode or to fail.

hd_num specifies the RAID is to be established. *hd_num* corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
- hd15 = disk in slot 15
- hd16 = disk in slot 16
- hd17 = disk in slot 17
- hd18 = disk in slot 18

remove { local1 | local2 }

On the VPC-SI, removes the specified vHD from the running RAID causing it to run in degraded mode or to fail.

- **local1** specifies the primary vHD to be removed from the RAID.
- **local2** specifies the backup vHD to be removed from the RAID.

remove { local1 | remote1 }

On the VPC-DI, removes the specified vHD from the running RAID causing it to run in degraded mode or to fail.

- **local1** specifies the disk on the active Control Function (CF) to be removed from the RAID.
- **remote1** specifies the disk on the backup CF to be removed from the RAID.

select { local1 | remote1 }

On the ASR 5000, selects the specified disk to assemble a RAID when two unrelated RAID disks are present in the system. The resulting RAID runs in degraded mode.

- **local1** specifies the primary SMC is to be inserted into the RAID.
- **remote1** specifies the backup SMC is to be inserted into the RAID.

select { | local1 | local2 }

On VPC-SI, selects the specified vHD to assemble a RAID when two or more unrelated RAID disks are present in the system. The resulting RAID runs in degraded mode.

- **local1** specifies the primary vHD to be inserted into the RAID.

- **local2** specifies the backup vHD to be inserted into the RAID.

select { | local1 | remote1 }

On VPC-DI, selects the specified vHD to assemble a RAID when two or more unrelated RAID disks are present in the system. The resulting RAID runs in degraded mode.

- **local1** specifies the disk on the active Control Function (CF) to be inserted into the RAID.
- **remote1** specifies the disk on the backup CF to be inserted into the RAID.

-noconfirm

Executes the command without displaying "Are you sure" prompt.

-force

Executes the command and overrides warnings.

Usage Guidelines

All commands need confirmation unless the **-noconfirm** is included in the command. If the result will bring down a running RAID, you have to force the command using **-force**.

RAID commands are needed to intervene in the following situations:

- The hard disk controller task can not determine the correct operation.
- Administrative action is required by policy.
- The administrator wants to wipe out an unused disk.

In an automated system, the policies created with this CLI address the possibility of a manually partitioned disk, a disk resulting from a different version of software, a partially constructed disk, or the case of two unrelated disks in the system.

To reduce administrator intervention, a set of policies can be configured to set the default action using the commands in the HD RAID configuration mode. These commands are described in the *HD Storage Policy Configuration Mode Commands* chapter of this guide.

Caution Use of the **hd raid** commands and keywords has the potential for deleting the contents of hard disk drives without the possibility of recovery. You should only use these commands under guidance from the Cisco Technical Assistance Center (TAC).

Important For release 19.2 and higher on the ASR 5500, only those hd<slot> arrays having an FSC in the slot number with available disks can be specified.

Example

The following instructs the system to setup a RAID on the primary ASR 5000 SMC hard drive.

```
hd raid create local1 -force
```

host

Used to resolve the IP address or logical host name information via a DNS query.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

host { *host_name* | *host_ip_address* }

host_name* | *host_ip_address

Specifies the host for which IP information is to be displayed.

host_name: Specifies the logical host name for which the IP address is to be displayed (via DNS lookup). This is an alphanumeric string of 1 through 127 characters.

host_ip_address: Specifies the IP address for which the associated logical host name(s) are to be displayed (via reverse DNS lookup) using IPv4 dotted-decimal notation.

Usage Guidelines

Verify DNS information which affects connections and packet routing.

Example

The following commands will resolve the host information for *remoteABC* and *10.2.3.4* respectively.

```
host remoteABC
host 10.2.3.4
```

install plugin

Unpacks the contents of a patch kit for a specific plugin module. This function is associated with the patch process for accommodating dynamic software upgrades.

Product

ADC

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

install plugin *plugin_name patch_file_name*

plugin_name

Specifies the name of a plugin that has been already copied onto the system as an alphanumeric string of 1 through 16 characters.

patch_file_name

Specifies the file name of the patch (.tgz extension) that was copied onto the system. Ensure that the full file path is copied.

Usage Guidelines

Unpacks the contents of a patch kit intended for a specific plugin module. After unpacking the patch you must configure the plugin using the **plugin** command in the Global Configuration mode.

For additional information, refer to the *Plugin Configuration Mode Commands* chapter.

Example

To unpack the plugin module named *p2p* with the patch file name *libp2p-1.2.0.tgz* onto the system enter the following command:

```
install plugin p2p libp2p-1.2.0.tgz
```

interface

Configures the system to generate gratuitous ARP (G-ARP) requests in case of a failure during an inter-node online upgrade. If the chassis is not active, an error message displays.

Product

All

Privilege

Security Administrator, Administrator, Operator, or Inspector with li-administrator permissions

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

interface *name* **send gratuitous-arp** *ip-address*

Usage Guidelines

This command generates a G-ARP for the IP address specified and sends it over the interface.

Example

The following generate a G-ARP for IP address *192.168.100.10*.

```
interface interface_1 send gratuitous-arp 192.168.100.10
```

lawful-intercept

Refer to the *Lawful Intercept Configuration Guide* for a description of this command.

lawful-intercept packet-cable

Refer to the *Lawful Intercept Configuration Guide* for a description of this command.

lawful-intercept ssdf

Refer to the *Lawful Intercept Guide* for a description of this command.

license

Registers and deregisters the system with Cisco as part of the Cisco Smart Licensing functionality. This command also can be used to manually refresh the Smart Licensing registration information and license information.

Privilege

Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`license smart { deregister | register idtoken` *`id`* **`| renew { auth | id } }`**

deregister

This command contacts the Cisco Smart Software Manager (CSSM) to revoke any previous registration. All Smart Licensing entitlements and certificates on the platform will be removed. All certificates and registration information will be removed from the trusted store. This is true even if the agent is unable to communicate with Cisco to deregister.

If the customer wishes to use Smart Licensing again they will need to run the **license smart register idtoken** command again.

register idtoken *id*

Using the specified ID token the customer received from Cisco Smart Software Manager (CSSM), this command registers this product with Cisco and receives back an identity certificate. This certificate is saved and automatically used for all future communications with Cisco. After registration it will send the current license usage information to Cisco. Every 180 days the agent will automatically renew the registration information with Cisco. The ID token is not saved on the device. By default, the system/product is not registered with the the Cisco Smart Software Manager (CSSM).

id is a string from 1 to 512 characters.

renew { auth | id }

- **auth:** Manually renews authorization of Smart Licenses in use. Since the license authorization is renewed automatically by the system every 6 months, you do not typically need to issue this command.

- **id:** Manually renews the id certificate and registration with CSSM. Since the registration renewal is automatically performed by the system every 6 months, you do not typically need to issue this command.

Usage Guidelines

Before issuing these commands, you must enable Smart Licensing using the **license smart enable** Global Config Mode command.

For additional information, refer to the *Licensing* chapter in the *System Administration Guide*.

Example

To register the system with Cisco Smart Software Manager (CSSM) for Smart Licensing, enter the following command:

```
license smart register
```

link-aggregation port switch to

When a link aggregation group (LAG) contains two sets of ports with each connecting to a different Ethernet switch, this command allows you to change the status of the active distributing ports. (ASR 5x00 only)

Default: none.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

`link-aggregation port switch to` *`slot#`* **`/`** *`port#`*

slot#

Identifies the physical chassis slot where the line card or MIO card is installed.

port#

Identifies the physical port on the line card or MIO card to automatically switch to.

Usage Guidelines

This command is subject to the following restrictions:

- *slot#/port#* must support LAG.
- *slot#/port#* must be configured with LAG.
- *slot#/port#* must not be actively distributing.
- *slot#/port#* must have negotiated a partner while in standard mode.
- *slot#/port#*'s partner must have a priority equal to or greater than itself.

- *slot#/port#*'s partner bundle must have bandwidth in standard mode equal to or greater than itself.
- Switching to *slot#/port#* must not violate preference within hold-time in standard mode.

Example

```
link-aggregation port switch to 17/2
link-aggregation port switch to 5/12
```

logging active

Enables or disables logging for active internal log files.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
logging active [ copy runtime filters ] [ event-verbosity event_level ] [
pdu-data format ] [ pdu-verbosity pdu_level ]
no logging active
```

no

Indicates the internal logging is to be disabled.

copy runtime filters

Copies the runtime filters and uses that copy to filter the current logging session.

event-verbosity *event_level*

Specifies the level of verboseness to use in logging of events as one of:

- *min*: Displays minimal information about the event. Information includes event name, facility, event ID, severity level, date, and time.
- *concise*: Displays detailed information about the event, but does not provide the event source within the system.
- *full*: Displays detailed information about event, including source information, identifying where within the system the event was generated.

pdu-data *format*

Specifies output format for packet data units when logged as one of:

- *none*: raw format (unformatted).
- *hex*: hexadecimal format.
- *hex-ascii*: hexadecimal and ASCII similar to a main-frame dump.

pdu-verbosity *pdu_level*

Specifies the level of verboseness to use in logging of packet data units as an integer from 1 through 5, where 5 is the most detailed.

Usage Guidelines

Adjust the active logging levels when excessive log file sizes are being generated or, conversely, not enough information is being sent to the active log files for adequate troubleshooting support. The **no** keyword is used to disable internal logging.

Important

A maximum of 50,000 events may be stored in each log. Enabling more events for logging may cause the log to be filled in a much shorter time period. This may reduce the effectiveness of the log data as a shorter time period of event data may make troubleshooting more difficult.

Important

Once a log has reached the 50,000 event limit the oldest events will be discarded as new log entries are created.

Example

The following sets the active logging for events to the maximum.

```
logging active event-verbosity full
```

The following command sets the active logging for packet data units to level *3* and sets the output format to the main-frame style *hex-ascii*.

```
logging active pdu-data hex-ascii pdu-verbosity 3
```

The following disables internal logging.

```
no logging active
```

logging filter

Sets the logging filtering options for all or individual facilities.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

logging filter active facility *facility* **level** *severity_level* **[critical-info | no-critical-info]**

logging filter { disable | enable } facility *facility* **{ all | instance** *instance_number* **}**

active

Indicates only active processes are to have logging options set.

disable

Disables logging for a specific instance or all instances. This keyword is only supported for aaamgr, hamgr and sessmgr facilities.

enable

Enables logging for a specific instance or all instances. This keyword is only supported for aaamgr, hamgr and sessmgr facilities.

Important By default logging is enabled for all instances of aaamgr, hamgr and sessmgr.

facility *facility*

Specifies the facility to modify the filtering of logged information. Valid facilities for this command are:

- **a10**: A10 interface facility
- **a11**: A11 interface facility
- **a11mgr**: A11 Manager facility
- **aaa-client**: Authentication, Authorization and Accounting (AAA) client facility
- **aaamgr**: AAA manager logging facility
- **aaaproxy**: AAA Proxy facility
- **aal2**: ATM Adaptation Layer 2 (AAL2) protocol logging facility
- **acl-log**: Access Control List (ACL) logging facility
- **acsctrl**: Active Charging Service (ACS) Controller facility
- **acsmgr**: ACS Manager facility
- **afctrl**: Fabric Controller facility [ASR 5500 only]
- **afmgr**: Fabric Manager logging facility [ASR 5500 only]
- **alarmctrl**: Alarm Controller facility
- **alcap**: Access Link Control Application Part (ALCAP) protocol logging facility
- **alcapmgr**: ALCAP manager logging facility
- **all**: All facilities

- **bfd**: Bidirectional Forwarding Detection (BFD) protocol logging facility
- **bgp**: Border Gateway Protocol (BGP) facility
- **bindmux**: IPCF BindMux-Demux Manager logging facility
- **bngmgr**: Broadband Network Gateway (BNG) Demux Manager logging facility
- **bssap+**: Base Station Sub-system Application Part+ protocol facility for the login interface between the SGSN and the MSC/VLR (2.5G and 3G)
- **bssgp**: Base Station Sub-system GPRS Protocol logging facility handles exchange information between the SGSN and the BSS (2.5G only)
- **bulkstat**: Statistics logging facility
- **callhome**: Call Home application logging facility
- **cap**: CAMEL Application Part (CAP) logging facility for protocol used in prepaid applications (2.5G and 3G)
- **cbsmgr**: Cell Broadcasting Service (CBS) logging facility [HNBGW]
- **cdf**: Charging Data Function (CDF) logging facility
- **cgw**: Converged Access Gateway (CGW) logging facility
- **cli**: Command Line Interface (CLI) logging facility
- **cmp**: Certificate Management Protocol (IPSec) logging facility
- **confdmgr**: ConfD Manager proclet (NETCONF) logging facility
- **connectedapps**: SecGW ASR 9000 oneP communication procotol
- **connproxy**: Controller Proxy logging facility
- **credit-control**: Credit Control (CC) facility
- **csp**: Card/Slot/Port controller facility
- **css**: Content Service Selection (CSS) facility
- **css-sig**: CSS RADIUS Signaling facility
- **cx-diameter**: Cx Diameter Messages facility [CSCF <--> HSS]
- **data-mgr**: Data Manager Framework logging facility
- **dcardctrl**: IPSec Daughter Card Controller logging facility
- **dcardmgr**: IPSec Daughter Card Manager logging facility
- **demuxmgr**: Demux Manager API facility
- **dgmbmgr**: Diameter Gmb Application Manager logging facility
- **dhcp**: Dynamic Host Configuration Protocol (DHCP) logging facility
- **dhcpv6**: DHCPv6
- **dhost**: Distributed Host logging facility

- **diabase**: Diabase messages facility
- **diactrl**: Diameter Controller proclet logging facility
- **diameter**: Diameter endpoint logging facility
- **diameter-acct**: Diameter Accounting
- **diameter-auth**: Diameter Authentication
- **diameter-dns**: Diameter DNS subsystem
- **diameter-ecs**: ACS Diameter signaling facility
- **diameter-engine**: Diameter version2 engine logging facility
- **diameter-hdd**: Diameter Horizontal Directional Drilling (HDD) Interface facility
- **diameter-svc**: Diameter Service
- **diamproxy**: DiamProxy logging facility
- **dpath**: IPSec Data Path facility
- **drvctrl**: Driver Controller facility
- **dpath**: IPSec Data Path logging facility
- **drvctrl**: Driver Controller logging facility
- **doulosuemgr**: Doulos (IMS-IPSec-Tool) user equipment manager
- **eap-diameter**: Extensible Authentication Protocol (EAP) IP Sec urity facility
- **eap-ipsec**: Extensible Authentication Protocol (EAP) IPSec facility
- **eap-sta-s6a-s13-s6b-diameter**: EAP/STA/S6A/S13/S6B Diameter messages facility
- **ecs-css**: ACSMGR <-> Session Manager Signalling Interface facility
- **egtpc**: eGTP-C logging facility
- **egtpmgr**: enhanced GPRS Tunneling Protocol (eGTP) manager logging facility
- **egtpu**: eGTP-U logging facility
- **embms**: evolved Multimedia Broadcast Multicast Services Gateway facility
- **embms**: eMBMS Gateway Demux facility
- **epdg**: evolved Packet Data (ePDG) gateway logging facility
- **event-notif**: Event Notification Interface logging facility
- **evlog**: Event log facility
- **famgr**: Foreign Agent manager logging facility
- **firewall**: Firewall logging facility
- **fng**: Femto Network Gateway (FNG) logging facility
- **gbmgr**: SGSN Gb Interface Manager facility

- **gmm**:
  - For 2.5G: Logs the GPRS Mobility Management (GMM) layer (above LLC layer)
  - For 3G: Logs the access application layer (above the RANAP layer)
- **gprs-app**: GPRS Application logging facility
- **gprs-ns**: GPRS Network Service Protocol (layer between SGSN and the BSS) logging facility
- **gq-rx-tx-diameter**: Gq/Rx/Tx Diameter messages facility
- **gss-gcdr**: GTPP Storage Server GCDR facility
- **gtpc**: GTP-C protocol logging facility
- **gtpcmgr**: GTP-C protocol manager logging facility
- **gtpp**: GTP-prime protocol logging facility
- **gtpu**: GTP-U protocol logging facility
- **gtpumgr**: GTP-U Demux manager
- **gx-ty-diameter**: Gx/Ty Diameter messages facility
- **gy-diameter**: Gy Diameter messages facility
- **h248prt**: H.248 port manager facility
- **hamgr**: Home Agent manager logging facility
- **hat**: High Availability Task (HAT) process facility
- **hdctrl**: HD Controller logging facility
- **henbapp**: Home Evolved NodeB (HENB) App facility (Do not use this keyword for HeNB-GW in Release 20, 21.0 and 21.1.)
- **henbgw**: HENB-GW facility (Do not use this keyword for HeNB-GW in Release 20, 21.0 and 21.1.)
- **henbgw-pws**: HENB-GW Public Warning System logging facility (Do not use this keyword for HeNB-GW in Release 20, 21.0 and 21.1.)
- **henbgw-sctp-acs**: HENB-GW access Stream Control Transmission Protocol (SCTP) facility(Do not use this keyword for HeNB-GW in Release 20, 21.0 and 21.1.)
- **henbgw-sctp-nw**: HENBGW network SCTP facility (Do not use this keyword for HNB-GW in Release 20 and later.)
- **henbgwdemux**: HENB-GW Demux facility (Do not use this keyword for HeNB-GW in Release 20, 21.0 and 21.1.)
- **henbgwmgr**: HENB-GW Manager facility (Do not use this keyword for HeNB-GW in Release 20, 21.0 and 21.1.)
- **hnb-gw**: HNB-GW (3G Femto GW) logging facility (Do not use this keyword for HNB-GW in Release 20 and later)
- **hnbmgr**: HNB-GW Demux Manager logging facility (Do not use this keyword for HNB-GW in Release 20 and later)

- **hss-peer-service**: Home Subscriber Server (HSS) Peer Service facility
- **igmp**: Internet Group Management Protocol (IGMP)
- **ikev2**: Internet Key Exchange version 2 (IKEv2)
- **ims-authorizatn**: IP Multimedia Subsystem (IMS) Authorization Service facility
- **ims-sh**: HSS Diameter Sh Interface Service facility
- **imsimgr**: SGSN IMSI Manager facility
- **imsue**: IMS User Equipment (IMSUE) facility
- **ip-arp**: IP Address Resolution Protocol facility
- **ip-interface**: IP interface facility
- **ip-route**: IP route facility
- **ipms**: Intelligent Packet Monitoring System (IPMS) logging facility
- **ipne**: IP Network Enabler (IPNE) facility
- **ipsec**: IP Security logging facility
- **ipsecdemux**: IPSec demux logging facility
- **ipsg**: IP Service Gateway interface logging facility
- **ipsgmgr**: IP Services Gateway facility
- **ipsp**: IP Pool Sharing Protocol logging facility
- **kvstore**: Key/Value Store (KVSTORE) Store facility
- **l2tp-control**: Layer 2 Tunneling Protocol (L2TP) control logging facility
- **l2tp-data**: L2TP data logging facility
- **l2tpdemux**: L2TP Demux Manager logging facility
- **l2tpmgr**: L2TP Manager logging facility
- **lagmgr**: Link Aggregation Group (LAG) manager logging facility
- **lcs**: Location Services (LCS) logging facility
- **ldap**: Lightweight Directory Access Protocol (LDAP) messages logging facility
- **li**: Refer to the *Lawful Intercept Configuration Guide* for a description of this command.
- **linkmgr**: SGSN/BSS SS7 Link Manager logging facility (2.5G only)
- **llc**: Logical Link Control (LLC) Protocol logging facility; for SGSN: logs the LLC layer between the GMM and the BSSGP layers for logical links between the MS and the SGSN
- **local-policy**: Local Policy Service facility
- **location-service**: Location Services facility
- **m3ap**: M3 Application Protocol facility

- **m3ua**: M3UA Protocol logging facility
- **magmgr**: Mobile Access Gateway manager logging facility
- **map**: Mobile Application Part (MAP) protocol logging facility
- **megadiammgr**: MegaDiameter Manager (SLF Service) logging facility
- **mme-app**: Mobility Management Entity (MME) Application logging facility
- **mme-embms**: MME evolved Multimedia Broadcast Multicast Service facility
- **mme-misc**: MME miscellaneous logging facility
- **mmedemux**: MME Demux Manager logging facility
- **mmemgr**: MME Manager facility
- **mmgr**: Master Manager logging facility
- **mobile-ip**: Mobile IP processes
- **mobile-ip-data**: Mobile IP data facility
- **mobile-ipv6**: Mobile IPv6 logging facility
- **mpls**: Multiprotocol Label Switching (MPLS) protocol logging facility
- **mrme**: Multi Radio Mobility Entity (MRME) logging facility
- **mseg-app**: Mobile Services Edge Gateway (MSEG) application logging facility (This option is not supported in this release.)
- **mseg-gtpc**: MSEG GTP-C application logging facility (This option is not supported in this release.)
- **mseg-gtpu**: MSEG GTP-U application logging facility (This option is not supported in this release.)
- **msegmgr**: MSEG Demux Manager logging facility (This option is not supported in this release.)
- **mtp2**: Message Transfer Part 2 (MTP2) Service logging facility
- **mtp3**: Message Transfer Part 3 (MTP3) Protocol logging facility
- **multicast-proxy**: Multicast Proxy logging facility
- **nas**: Non-Access Stratum (NAS) protocol logging facility [MME 4G]
- **netwstrg**: Network Storage facility
- **npuctrl**: Network Processor Unit Control facility
- **npudrv**: Network Processor Unit Driver facility [ASR 5500 only]
- **npumgr**: Network Processor Unit Manager facility
- **npumgr-acl**: NPUMGR ACL logging facility
- **npumgr-drv**: NPUMGR DRV logging facility
- **npumgr-flow**: NPUMGR FLOW logging facility
- **npumgr-fwd**: NPUMGR FWD logging facility

- **npumgr-init**: NPUMGR INIT logging facility
- **npumgr-lc**: NPUMGR LC logging facility
- **npumgr-port**: NPUMGR PORT logging facility
- **npumgr-recovery**: NPUMGR RECOVERY logging facility
- **npumgr-rri**: NPUMGR RRI (Reverse Route Injection) logging facility
- **npumgr-vpn**: NPUMGR VPN logging facility
- **npusim**: NPUSIM logging facility [ASR 5500 only]
- **ntfy-intf**: Notification Interface logging facility [Release 12.0 and earlier versions only]
- **ocsp**: Online Certificate Status Protocol logging facility.
- **orbs**: Object Request Broker System logging facility
- **ospf**: OSPF protocol logging facility
- **ospfv3**: OSPFv3 protocol logging facility
- **p2p**: Peer-to-Peer Detection logging facility
- **pagingmgr**: PAGINGMGR logging facility
- **pccmgr**: Intelligent Policy Control Function (IPCF) Policy Charging and Control (PCC) Manager library
- **pdg**: Packet Data Gateway (PDG) logging facility
- **pdgdmgr**: PDG Demux Manager logging facility
- **pdif**: Packet Data Interworking Function (PDIF) logging facility
- **pgw**: Packet Data Network Gateway (PGW) logging facility
- **pmm-app**: Packet Mobility Management (PMM) application logging facility
- **ppp**: Point-To-Point Protocol (PPP) link and packet facilities
- **pppoe**: PPP over Ethernet logging facility
- **proclet-map-frwk**: Proclet mapping framework logging facility
- **push**: VPNMGR CDR push logging facility
- **radius-acct**: RADIUS accounting logging facility
- **radius-auth**: RADIUS authentication logging facility
- **radius-coa**: RADIUS change of authorization and radius disconnect
- **ranap**: Radio Access Network Application Part (RANAP) Protocol facility logging info flow between SGSN and RNS (3G)
- **rct**: Recovery Control Task logging facility
- **rdt**: Redirect Task logging facility
- **resmgr**: Resource Manager logging facility
- **rf-diameter**: Diameter Rf interface messages facility

- **rip**: Routing Information Protocol (RIP) logging facility [RIP is not supported at this time.]
- **rlf**: Rate Limiting Function (RLF) logging facility
- **rohc**: Robust Header Compression (RoHC) facility
- **rsvp**: Reservation Protocol logging facility
- **rua**: RANAP User Adaptation (RUA) [3G Femto GW - RUA messages] logging facility
- **s102**: S102 protocol logging facility
- **s102mgr**: S102Mgr logging facility
- **s1ap**: S1 Application Protocol (S1AP) Protocol logging facility
- **sabp**: Service Area Broadcast Protocol (SABP) logging facility
- **saegw**: System Architecture Evolution (SAE) Gateway facility
- **sbc**: SBc protocol logging facility
- **sccp:** Signalling Connection Control Part (SCCP) Protocol logging (connection-oriented messages between RANAP and TCAP layers).
- **sct**: Shared Configuration Task logging facility
- **sctp**: Stream Control Transmission Protocol (SCTP) Protocol logging facility
- **sef_ecs**: Severely Errored Frames (SEF) APIs printing facility
- **sess-gr**: SM GR facility
- **sessctrl**: Session Controller logging facility
- **sessmgr**: Session Manager logging facility
- **sesstrc**: session trace logging facility
- **sft**: Switch Fabric Task logging facility
- **sgs**: SGs interface protocol logging facility
- **sgsn-app**: SGSN-APP logging various SGSN "glue" interfaces (for example, between PMM, MAP, GPRS-FSM, SMS).
- **sgsn-failures**: SGSN call failures (attach/activate rejects) logging facility (2.5G)
- **sgsn-gtpc**: SGSN GTP-C Protocol logging control messages between the SGSN and the GGSN
- **sgsn-gtpu**: SGSN GTP-U Protocol logging user data messages between the SGSN and GGSN
- **sgsn-mbms-bearer**: SGSN Multimedia Broadcast/Multicast Service (MBMS) Bearer app (SMGR) logging facility
- **sgsn-misc**: Used by stack manager to log binding and removing between layers
- **sgsn-system**: SGSN System Components logging facility (used infrequently)
- **sgsn-test**: SGSN Tests logging facility; used infrequently
- **sgtpcmgr**: SGSN GTP-C Manager logging information exchange through SGTPC and the GGSN

- **sgw**: Serving Gateway facility
- **sh-diameter**: Sh Diameter messages facility
- **sitmain**: System Initialization Task main logging facility
- **sls**: Service Level Specification (SLS) protocol logging facility
- **sm-app**: SM Protocol logging facility
- **sms**: Short Message Service (SMS) logging messages between the MS and the SMSC
- **sndcp**: Sub Network Dependent Convergence Protocol (SNDCP) logging facility
- **snmp**: SNMP logging facility
- **sprmgr**: IPCF Subscriber Policy Register (SPR) manager logging facility
- **srdb**: Static Rating Database
- **srp**: Service Redundancy Protocol (SRP) logging facility
- **sscfnni**: Service-Specific Coordination Function for Signaling at the Network Node Interface (SSCF-NNI) logging facility
- **sscop**: Service-Specific Connection-Oriented Protocol (SSCOP) logging facility
- **ssh-ipsec**: Secure Shell (SSH) IP Security logging facility
- **ssl**: Secure Socket Layer (SSL) message logging facility
- **stat**: Statistics logging facility

Important The keyword **bulkstat** was added in StarOS release 21.1 to provide consistency with other CLI commands. Both keywords are supported for statistics logging facility.

- **supserv**: Supplementary Services logging facility [H.323]
- **system**: System logging facility
- **tacacsplus**: TACACS+ Protocol logging facility
- **tcap**: TCAP Protocol logging facility
- **testctrl**: Test Controller logging facility
- **testmgr**: Test Manager logging facility
- **threshold**: threshold logging facility
- **ttg**: Tunnel Termination Gateway (TTG) logging facility
- **tucl**: TCP/UDP Convergence Layer (TUCL) logging facility
- **udr**: User Data Record (UDR) facility (used with the Charging Service)
- **user-data**: User data logging facility

- **user-l3tunnel**: User Layer 3 tunnel logging facility
- **usertcp-stack**: User TCP Stack
- **vim**: Voice Instant Messaging (VIM) logging facility
- **vinfo**: VINFO logging facility
- **vmgctrl**: Virtual Media Gateway (VMG) controller facility
- **vmgctrl**: VMG Content Manager facility
- **vpn**: Virtual Private Network logging facility
- **wimax-data**: WiMAX DATA
- **wimax-r6**: WiMAX R6
- **wsg**: Wireless Security Gateway (ASR 9000 Security Gateway)
- **x2gw-app**: X2GW (X2 proxy Gateway, eNodeB) application logging facility
- **x2gw-demux**: X2GW demux task logging facility

all | instance *instance_number*

Specifies whether logging will be disabled or enabled for all instances or a specific instance of aaamgr, hamgr or sessmgr. See additional information in the Usage Guidelines section.

These keywords are only supported for the **disable** and **enable** keywords.

level *severity_level*

This keyword is only supported in conjunction with the **active** keyword.

Specifies the level of information to be logged from the following list which is ordered from highest to lowest:

- critical - display critical events
- error - display error events and all events with a higher severity level
- warning - display warning events and all events with a higher severity level
- unusual - display unusual events and all events with a higher severity level
- info - display info events and all events with a higher severity level
- trace - display trace events and all events with a higher severity level
- debug - display all events

critical-info | no-critical-info

These keywords are only supported in conjunction with the **active** keyword.

critical-info: Specifies that events with a category attribute of critical information are to be displayed. Examples of these types of events can be seen at bootup when system processes and tasks are being initiated. This is the default setting.

no-critical-info: Specifies that events with a category attribute of critical information are not to be displayed.

Usage Guidelines

Apply filters for logged data to collect only that data which is of interest.

To enable logging of a single instance of a facility, you must first disable all instances of the facility (**logging filter disable facility** *facility* **all**) and then enable logging of the specific instance (**logging filter enable facility** *facility* **instance** *instance_number*. To restore default behavior you must re-enable logging of all instances (**logging filter enable facility** *facility* **all**).

Important A maximum of 50,000 events may be stored in each log. Enabling more events for logging may cause the log to be filled in a much shorter time period. This may reduce the effectiveness of the log data as a shorter time period of event data may make troubleshooting more difficult.

Important Once a log has reached the 50,000 event limit the oldest events will be discarded as new log entries are created.

Caution Issuing this command could negatively impact system performance depending on the amount of system activity at the time of execution and/or the type of facility(ies) being logged.

Example

The following are selected examples used to illustrate the various options. Not all facilities will be explicitly shown as each follows the same syntax for options.

The following sets the level to log only *warning* information for *all* facilities.

```
logging filter active facility all level warning
```

The following enables the logging of critical information for the SNMP facility while setting the level to *error*.

```
logging filter active facility snmp level error critical-info
```

The following command disables logging of all aaamgr instances.

```
logging filter disable facility aaamgr all
```

logging trace

Enables or disables the logging of trace information for specific calls, mobiles, or network addresses.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

[no] logging trace { callid *call_id* **| ipaddr** *ip_address* **| msid** *ms_id* **| username** *user_name* **}**

no

Indicates the logging of trace information is to be disabled.

callid *call_id* | ipaddr *ip_address* | msid *ms_id* | username *user_name*

callid *call_id*: Specifies the exact call instance ID which is to have trace data logged.as a 4-byte hexadecimal number.

ipaddr *ip_address*: Specifies the IP address in IPv4 dotted-decimal notation for which trace information is to be logged.

msid *ms_id*: Specifies the mobile subscriber ID for which trace information is to be logged as 7 to 16 digits of an IMSI, MIN, or RMI.

username *user_name*: Specifies a previously configured user who is to have trace information logged.

Usage Guidelines

A trace log is useful in troubleshooting subscriber problems as well as for system verification by using a test subscriber. The **no** keyword is used to stop the logging of trace information.

Important A maximum of 50,000 events may be stored in each log. Enabling more events for logging may cause the log to be filled in a much shorter time period. This may reduce the effectiveness of the log data as a shorter time period of event data may make troubleshooting more difficult.

Important Once a log has reached the 50,000 event limit the oldest events will be discarded as new log entries are created.

Caution Issuing this command could negatively impact system performance depending on the number of subscribers connected and the amount of data being passed.

Example

The following commands enables/disables trace information for user *user1*.

```
logging trace username user1
```

```
no logging trace username user1
```

The following commands will enable/disable trace information logging for the user assigned IP address *10.2.3.4*.

```
logging trace ipaddr 10.2.3.4
```

```
no logging trace ipaddr 10.2.3.4
```

The following enables/disables logging of trace information for call ID *fe80AA12*.

```
logging trace callid fe80AA12
```

```
no logging trace callid fe80AA12
```

logs checkpoint

Performs checkpointing operations on log data. Checkpointing identifies logged data as previously viewed or marked. Checkpointing results in only the log information since the last checkpoint being displayed; checkpointed log data is not available for viewing.

Individual logs may have up to 50,000 events in the active log. Checkpointing the logs results in at most 50,000 events being in the inactive log files. This gives a maximum of 100,000 events in total which are available for each facility logged.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`logs checkpoint`

Usage Guidelines

Check point log data to set the log contents to a well-known point prior to special activities taking place. This command may also be a part of periodic regular maintenance to manage log data.

Checkpointing logs moves the current log data to the inactive logs. Only the most recently check pointed data is retained in the inactive logs. A subsequent check pointing of the logs results in the prior check pointed inactive log data being cleared and replaced with the newly check pointed data.

Checkpointing log data marks the active log data to be retained as the inactive log data. This results in the active log data, if displayed, having no data earlier than the point in time when the checkpointing occurred.

Important Checkpointing logs should be done periodically to prevent the log files becoming full. Logs which have 50,000 events logged will discard the oldest events first as new events are logged.

Important An Inspector-level administrative user cannot execute this command.

Example

The following command immediately sets a checkpoint for event logs and moves the current log data to inactive logs:

```
logs checkpoint
```

lsp-ping

Checks Multi Protocol Label Switching (MPLS) label switch path (LSP) connectivity for the specified IPv4 forwarding equivalence class (FEC). It must be followed by an IPv4 FEC prefix.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`lsp-ping` *`ip_prefix_FEC`* **`[ count`** *`ping_packets`* **`] [ | verbose ] [ | grep`** *`grep_options`* **`]`**

ip_prefix_FEC

Specifies an IP prefix FEC with or without subnet mask entered using IPv4 dotted-decimal CIDR notation.

count *ping_packets*

Sets the number of ping packets to be sent as an integer from 1 through 16. Default: 4.

Important

The timeout interval for the packets is 5 seconds by default.

verbose

Sets the verbose (detailed) output mode.

grep*grep_options*

Pipes (sends) the output of this command to the **grep** command.

Usage Guidelines

This command is used to verify the MPLS LSP connectivity for the specified FEC.

Example

Following are the examples for using this command with all possible options for IPv4 address *13.13.13.1* and mask *32* (CIDR notation):

```
lsp-ping 13.13.13.1/32
lsp-ping 13.13.13.1/32 count 15
lsp-ping 13.13.13.1/32 verbose
```

lsp-traceroute

Discovers MPLS LSP routes that packets actually take when traveling to their destinations. It must be followed by an IPv4 or IPv6 FEC prefix.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

lsp-traceroute *ip_prefix_FEC* **[maxttl** *time_to_live* **] [| verbose] [| grep** *grep_options* **]**

ip_prefix_FEC

Specifies the destination IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal with or without mask (CIDR notation).

maxttl ***time_to_live***

Sets the maximum time to live in hops. TTL is an integer from 1 through 255. Default: 30.

verbose

Sets the verbose (detailed) output mode.

grep*grep_options*

Pipes (sends) the output of this command to the **grep** command.

Usage Guidelines

This command is used or the router to discover the MPLS LSP routes through which the packets will travel to their IPv4 or IPv6 destinations.

Example

The following command specifies the destination IP address *13.13.13.13* for which the MPLS routes will be discovered for packets to traverse:

```
lsp-traceroute 13.13.13.13/32
```

mkdir

Creates a new directory in the local file system or in remote locations as specified.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

mkdir *filepath*

filepath

Specifies the directory path to create. The path must be formatted as follows:

For the ASR 5000:

[file:]{ /flash | /pcmcia1 | /hd-raid }[/*directory* **]/***file_name*

Important Use of the ASR 5000 SMC hard drive is not supported in this release.

For the ASR 5500:

[file:]{ /flash | /usb1 | /hd-raid }[/*directory* **]/***file_name*

For VPC:

[file:]{ /flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }[/*directory* **]/***file_name*

Important The USB ports and CDROM must be configured via the hypervisor to be accessible.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name

filename is the actual file of interest

Usage Guidelines

Create new directories as part of periodic maintenance activities to better organize stored files.

Example

The following creates the directory */flash/pub* in the local flash storage.

mkdir /flash/pub

mme-mmedemux

Configures the MME Manager related commands.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`mme mmedemux { audit-with  | s1ap-sync } mmemgr { all | instance` *`value`* **`}`**

mme

Configures the MME exec commands.

mmedemux

Configures the MME Manager related commands.

audit-with

Performs audit with MME Manager.

s1ap-sync

Synchronizes with s1ap association count with MME Manager-Archive with all instances of MME Manager.

mmemgr

Synchronizes up with MME Manager on eNodeB list.

all

Synchronizes up with MME Manager on eNodeB list with all instances.

instance *value*

Synchronizes with MME Manager on eNodeB list with specific instance. *value* Must be an integer from 1 to 48.

mme disconnect

Performs a graceful/ungraceful disconnection of an SCTP peer.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`mme disconnect { s1-peer` *`peer_ID`* **`[ graceful ] [ -noconfirm ] | sgs-peer`** *`peer_ID`* **`[ -noconfirm | perform-imsi-detach [ -noconfirm | detach-rate`** *`detach_rate`* **`[ -noconfirm ] ] ] }`**

s1-peer *peer-ID*

Specifies the eNodeB peer ID which has to be disconnected. *peer-ID* is an integer from 1 through 4294967295.

graceful

Specifies that the SCTP connection to the S1 peer will be terminated with a complete handshake. By default (without this keyword), SCTP connections are aborted.

sgs-peer *peer-ID*

Specifies the SGs peer ID which has to be disconnected. *peer-ID* must be an integer from 1 through 4294967295.

perform-imsi-detach

Performs IMSI detach.

detach-rate *detach-rate*

Detaches per cycle. . *detach-rate* must be an integer from 1 to 100.

-noconfirm

Executes the command without any additional prompts or confirmation from the user.

Usage Guidelines

Use this command to disconnect the SCTP connection to the specified peer eNodeB. This command can be used to remove stale eNodeB connections from the MME, even when no active SCTP connection exists.

Example

The following gracefully disconnects the SCTP connection with the eNodeB with a peer ID of 22315734:

`mme disconnect s1-peer 22315734 graceful -noconfirm`

mme imsimgr

Triggers an MME IMSIMgr audit for IMSI, IMEI, MSISDN information for a specific SessMgr instance associated with a specific IMSIMgr instance.

Product MME

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **mme imsimgr instance** *instance_id* **audit-with sessmgr { all | instance** *instance_id* **}**

imsimgr instance *instance_id*

Specifies the IMSI manager instance for which the audit is initiated. The audit is initiated for only one specified instance of IMSI manager at a time.

instance_id : Enter an integer from 1 through 4.

audit-with sessmgr { all | instance *instance_id* }

Initiates an IMSIMgr for either all associated session managers or for a specific session manager (SessMgr) instance.

all | instance *instance_id*: Select **all** to initiate the audit for all SessMgr instances or select **instance** and for *instance_id* enter an integer from 1 to 1152 to identify a specific SessMgr for the audit.

Usage Guidelines Use this command to manage the IMSIMgr's IMSI table, and to initiate an audit of one or more SessMgrs associated with the specific IMSIMgr. This is useful when the MME has been configured to support more than one MME IMSIMgr. The audit assists you to ensure that the IMSI table has the correct IMSI-SessMgr association.triggers as the audit checks for IMSI, IMEI, MSISDN information for a specific SessMgr instance.

Example

Use a command similar to the following to trigger an audit of SessMgr 243 associated with IMSIMgr 2:

```
mme imsimgr instance 2 audit-with sessmgr instance 243
```

mme offload

Initiates or stops the offload of UEs associated with a specified MME service.

Product MME

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

The following command syntax is available in Release 12.2 and earlier.

mme offload mme-service *mme_svc_name* **{ start mme-init-release-timeout** *seconds* **paging-init-timeout** *seconds* **| stop }**

The following command syntax is available in Release 14.0 and higher.

mme offload mme-service *mme_svc_name* **{ time-duration** *minutes* **offload-percentage** *percent* **[disable-implicit-detach | preserve-volte-subscribers]] | stop } [- noconfirm]**

mme-service *name*

Specifies the name of an existing MME service from which UEs will be offloaded as an alphanumeric string of 1 trough 63 characters.

start mme-init-release-timeout *seconds* paging-init-timeout *seconds*

These keywords are available in Release 12.2 and earlier.

Sets the timeout for the initial release procedure and the paging procedure.

start mme-init-release-timeout *seconds*: Configures the timeout (in seconds) for triggering the IDLE MODE ENTRY procedure for UEs that are in the ECM_CONNECTED state as an integer from 1 to 120. The cause of the IDLE MODE ENTRY will be "Load balancing TAU required".

paging-init-timeout *seconds*: Configures the timeout (in seconds) for triggering the PAGING procedure for UEs in the ECM_IDLE state as an integer from 1 to 120. After returning the UEs to the ECM_CONNECTED state, the IDLE MODE ENTRY procedure is triggered with the "Load balancing TAU required" cause.

time-duration *minutes* offload-percentage *percent*

time-duration specifies the maximum allowed time for the UE offload procedure to complete.

minutes can be any value 1 through 1000 minutes.

offload-percentage specifies the percentage of total subscribers on this mme-service to offload.

percent can be any value 0 through 100.

disable-implicit-detach

By default, if the UE context is not transferred to another MME within 5 minutes, the UE will be implicitly detached. This option disables this implicit detach timer.

stop

Ends the offload process.

-noconfirm

Executes the command without any additional prompts or confirmation from the user.

preserve-volte-subscribers

This keyword is used to configure preservation of VoLTE subscribers from offloading during active calls (QCI=1). By default, the subscribers with voice bearer with QCI = 1 will not be preserved during MME

offloading. Configuring the keyword **preserve-volte-subscribers** enables preservation of subscribers with voice bearer.

Usage Guidelines

Use this command to initiate or stop the offloading of UEs associated with a specified MME service.

Prior to initiating this command, you can set the **relative-capacity** command in the MME Service Configuration Mode to zero (0). This prevents this MME from accepting any new calls, and redirects them to other MMEs in the pool while existing UEs on this MME are removed.

Important Emergency attached UEs in Connected or Idle mode are not considered for offloading.

Example

This example applies to Release 12.2 and earlier.

The following command sets the trigger to start off-loading UEs from a service named *mme3* at *60* seconds and the paging trigger at *90* seconds:

```
mme offload mme-service mme3 start mme-init-release-timeout 60
paging-init-timeout 90
```

Example

This example applies to Release 14.0 and higher.

The following example command rebalances (offloads) 30 percent of all UEs from the specified mme-service (to other mme-services in the MME pool) over the course of 10 minutes.

```
mme offload mme-service mme_svc time-duration 10 offload-percentage 30
-noconfirm
```

Example

The following example command re-balances(offloads) 30 percent of Non-VoLTE subscribers from the specified mme-service (to other mme-services in the MME pool) over the course of 30 minutes with VoLTE preservation.

```
mme offload mme-service mmesvc  time-duration 30 offload-percentage 30
preserve-volte-subscribers
```

mme paging cache clear

Enables the operator to clear the paging cache for either a specific SessMgr instance or for all SessMgrs.

Product

MME.

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`mme paging cache clear { all | instance` *`sessmgr_instance`* **`}`**

all

Instructs the MME to clear the paging cache for all Session Managers.

instance *sessmgr_instance*

Enter an integer from 0 to 4294967295 to specify a single Session Manager.

Usage Guidelines

This command clears the cache. It is important to clear the cache after the **mme paging cache size** is set to zero (0) to stop caching. This clear command needs to be used to reset the cache after caching is stopped.

Example

Use the following command to clear the paging cache for all SessMgrs:

`mme paging cache clear all`

mme relocate-ue imsi

This command enables the operator to detach a UE from the current MME and cause it to reattach to another MME in the pool.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`mme relocate-ue imsi` *`imsi`* **`new-guti mme-group-id`** *`grp_id`* **`mme-code`** *`mme_code`* **`m-tmsi`** *`mtmsi`*

imsi *imsi*

Specifies the Mobile Station Identifier of the UE to be relocated. This UE must be registered or connected to this MME.

new-guti mme-group-id *group_id*

The group to which the target MME belongs.

grp_id :

- Beginning with Releases 16.5, 17.4, and 18.2 and forward, the valid range for mme group id is an integer from 0 through 65536.
- Previous releases, the valid range for mme group id is an integer from 32768 through 65536.

mme-code *mme_code*

The target MME to which this UE should be attached.

mme_code : The unique identifier for the target MME; must be an integer from 0 through 255.

m-tmsi *mtmsi*

The new GUTI MME-TMSI for this UE.

mtmsi : An integer from 0 through 4294967295.

Usage Guidelines MME uses this configuration to relocate UEs to a different MME using IMSI, mme-group-id, mme-code and m-tmsi.

mme reset

Sends an S1 RESET message to a designated eNodeB to reset all UE-associated S1 connections.

Product MME

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **mme reset s1-peer** *peer_ID*

s1-peer *peer-ID*

Specifies an existing eNodeB peer ID to which the REST message is to be sent as an integer from 1 through 4294967295.

Usage Guidelines Use this command to send an S1 RESET message to a designated eNodeB to reset all UE-associated S1 connections.

The S1 peer ID for an eNodeB can be identified by executing the **show mme-service enodeb-association** command available in this mode. The peer ID is presented in the "Peerid" field.

Example

The following command initiates the sending of an S1-peer reset message to an eNodeB with a peer ID of *22315734*:

```
mme reset s1-peer 22315734
```

monitor interface

Enables monitoring of traffic on a particular interface.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

monitor interface *if_name*

if_name

Specifies the name of the interface to be monitored as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Use this command to monitor the traffic on a specified interface.

Example

This command monitors the traffic on the interface named *if1001*:

monitor interface if1001

monitor protocol

Enters the system's protocol monitoring utility.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

monitor protocol

Usage Guidelines

Useful for troubleshooting, this command provides a tool for monitoring protocol transactions between the system and other network nodes including the mobile station(s).

The following protocols can be monitored:

- SNMP
- RADIUS Authentication

- RADIUS Accounting
- A11 (R-P Interface) (PDSN only)
- Mobile IPv4
- A11MGR
- PPP
- A10
- User L3 (User Layer 3 protocols)
- USERTCP STACK
- L2TP
- L2TPMGR
- L2TP Data
- GTPC
- GTPCMGR
- GTPU
- GTPP

Important If the hard disk drive (HDD) is used for CDR storage, the CDR option must be used and not the GTPP option (27).

- DHCP (GGSN only)
- CDR
- DHCPV6
- RADIUS COA
- MIP Tunnel
- L3 Tunnel (Layer 3 Tunnel Protocols)
- CSS Data
- CSS Signaling

Important In StarOS 9.0 and later releases the CSS Data Signaling option is not supported.

- EC Diameter (Diameter Enhanced Charging)
- SIP (IMS)
- IPSec IKE Inter-Node

- IPSec IKE Subscriber
- IPSG RADIUS Signal
- ROHC (Robust Header Compression)
- WiMAX R6
- WiMAX Data
- SRP
- BCMCS SERV AUTH
- RSVP
- Mobile IPv6
- ASNGWMGR
- STUN
- SCTP: Enabling this option will display the SCTP protocol message packets on HNB-GW node.

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- M3UA
- SCCP
- TCAP
- MAP
- RANAP
- GMM
- GPRS-NS
- BSSGP
- CAP
- SSCOP
- SSCFNNI
- MTP3
- LLC
- SNDCP
- BSSAP+
- SMS
- PHS-Control (Payload Header Compression)

- PHS-Data
- DNS Client
- MTP2
- HNBAP: Enabling this option will display the HNB Application Part (HNBAP) protocol packets.

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- RUA: Enabling this option will display the RANAP User Adaptation (RUA) protocol packets.
- EGTPC
- App Specific Diameter: Enabling this option will display the following sub-options —
  - 1 - DIABASE (OFF)
  - 2 - DIAMETER Gy (OFF)
  - 3 - DIAMETER Gx/Ty/Gxx (OFF)
  - 4 - DIAMETER Gq/Rx/Tx (OFF)
  - 5 - DIAMETER Cx (OFF)
  - 6 - DIAMETER Sh (OFF)
  - 7 - DIAMETER Rf (OFF)
  - 8 - DIAMETER EAP/STa/S6a/S6d/S6b/S13/SWm (OFF)
  - 9 - DIAMETER HDD (OFF)
- PHS-EAPOL
- ICAP
- Micro-Tunnel
- ALCAP: Enabling this option will display the Access Link Control Application Part (ALCAP) protocol message packets on HNB-GW node.

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- SSL
- S1-AP
- NAS
- LDAP
- SGS

- AAL2: Enabling this option will display the ATM Adaptation Layer 2 (AAL2) protocol message packets on HNB-GW node.

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- PHS (Payload Header Suppression)
- PPPOE
- RTP (IMS)
- RTCP (IMS)
- LMI
- NPDB (IMS)
- SABP (Femto-UMTS)
- OCSP (X.509)

Once the protocol has been selected by entering its associated number, the utility monitors and displays every relative protocol message transaction.

Protocol monitoring is performed on a context-by-context-basis. Therefore, the messages displayed are only those that are transmitted/received within the system context from which the utility was executed.

For additional information on using the monitor utility, refer to the *System Administration Guide*.

Caution Protocol monitoring can be intrusive to subscriber sessions and could impact system performance. Therefore, it should only be used as a troubleshooting tool.

Example

The following command opens the protocol monitoring utility for SIP (IMS) = *37*:

```
monitor protocol 37
```

monitor subscriber

Enables the system's subscriber monitoring utility. Available keywords vary based on the licenses installed on the system.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

monitor subscriber [asn-peer-address *bs_peer_address* **| callid** *call_id* **fng-peer-address** *ipv4_address* **| global-enb-id** *global-enb-id* **| imei** *imei_value* **| imsi** *imsi_value* **| ipaddr** *ip_address* **| ipv6addr** *ipv6_address* **| ipsg-peer-address** *ipsg_peer_address* **| msid** *ms_id* **| msisdn** *msisdn* **| next-call | pcf** *pcf_address* **| pdif-peer-address** *pdif_peer_address* **| peer-fa** *peer_fa_address* **| peer-lac** *lac_peer_address* **| sgsn-address** *sgsn_address* **| type { 1xrtt | asngw | asnpc | closedrp | evdorev0 | evdoreva | interrogating-cscf | ggsn [Next-Call By APN] | ha | ipsg | lns | mme | pdif | proxy-cscf | rfc3261-proxy | serving-cscf } next-call | type bcmcs { next-call | next-service-request } | username** *user_name* **| Next-Call By APN]**

asn-peer-address *bs_peer_address*

Specifies the peer ASN Base Station IP address in IPv4 address in dotted-decimal notation.

callid *call_id*

Specifies the call identification number assigned to the subscriber session by the system to be monitored as a 4-byte hexadecimal number.

fng-peer-address *ipv4_address*

Specifies the specific FNG WLAN IP address in IPv4 dotted-decimal notation.

global-enb-id *global-enb-id*

Specifies the Global eNodeB ID. This must be followed by MCC-MNC-eNBType-eNBID.

MCC consists of 3 digits.

MNC consists of 2 or 3 digits.

eNBType is 0 for Macro and 1 for Home.

eNBID has max 1048575 for MACRO eNB and max 268435456 for Home eNB.

imei *imei_value*

International Mobile Equipment Identification (IMEI). Must be followed by 8 digits of TAC (Type Allocation Code) and 6 digits of SNR (Serial Number). Only the first 14 digit of IMEI/IMEISV is used to find the equipment ID.

imsi *imsi_value*

Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session to be monitored an integer from 1 though 15 characters.

ipaddr *ip_address*

Specifies the IP address of the subscriber session to be monitored in IPv4 dotted-decimal notation.

ipv6addr *ipv6_address*

Specifies the IPv6 address of the subscriber session to be monitored in IPv6 colon-separated-hexadecimal notation.

ipsg-peer-address *ipsg_peer_address*

Specifies the peer IPSG IP address. Must be followed by an IPv4 address in dotted -decimal notation.

msid *ms_id*

Specifies the mobile subscriber identification number to be monitored as 7 to 16 digits of an IMSI, MIN, or RMI.

msisdn *msisdn*

Specifies the Mobile Subscriber ISDN number to be monitored as 7 to 16 digits of an IMSI, MIN, or RMI.

next-call

Specifies that the system will monitor the next incoming subscriber session.

Entering this keyword will display the available options of protocols to select. For a list of supported protocols with this keyword, refer to the **monitor protocol** command.

pcf *pcf_address*

Specifies the PCF IP address in IPv4 dotted-decimal notation.

pdif-peer-address *pdif_peer_address*

Specifies the peer PDIF IP address in IPV4 dotted-decimal notation.

peer-fa *peer_fa_address*

Specifies the peer FA IP address in IPv4 dotted-decimal notation.

peer-lac *lac_peer_address*

Specifies the peer LAC IP address in IPv4 dotted-decimal notation.

sgsn-address *sgsn_address*

Specifies the SGSN IP address in IPv4 dotted-decimal notation.

type { 1xrtt | asngw | asnpc | bcmcs { next-call | next-service-request } closedrp | evdorev0 | evdoreva | | fng | interrogating-cscf | ggsn [Next-Call By APN] | ha | ipsg | lns | mme | openrp | pdif | pgw | proxy-cscf | rfc3261-proxy | saegw | serving-cscf } next-call [apn *apn*]

Allows monitoring for specific subscriber types established in the system when next call occurs.

- **1xrtt**: Displays logs for cdma2000 1xRTT call session subscriber
- **asngw**: Displays logs for ASN-GW call session subscriber
- **asnpc**: Displays logs for ASN PC/LR call session subscriber

- **bcmcs**: Displays logs for Broadcast and Multicast Service
- **closedrp**: Displays logs for cdma2000 Closed-RP call session subscriber
- **evdorev0**: Displays logs for cdma2000 EVDO Rev0 call session subscriber
- **evdoreva**: Displays logs for cdma2000 EVDO RevA call session subscriber
- **fng**: Displays logs for the FNG session subscriber
- **interrogating-cscf**: Displays logs for Interrogating CSCF subscriber
- **ggsn**: Displays logs for UMTS GGSN call session subscriber
- **Next-Call By APN**: Display logs for next call on APN basis, where APN name can be any Gi or Gn APN.
- **ha**: Displays logs for Home Agent call session subscriber
- **ipsg**: Displays logs for IPSG call session subscriber
- **lns**: Displays logs for LNS call session subscriber
- **mme**: Displays logs for MME session subscribers.
- **openrp**: Displays logs for OpenRP subscriber
- **pgw**: Displays logs for P-GW call session subscriber
- **pdif**: Displays logs for PDIF call session subscriber
- **proxy-cscf**: Displays logs for Proxy CSCF subscriber
- **rfc3261-proxy-cscf**: Displays logs for non-ims-proxy (RFC-3261 proxy) subscriber
- **saegw**: Displays logs for SAEGW call session subscriber
- **serving-cscf**: Displays logs for Serving CSCF subscriber

username *user_name*

Specifies the username of an existing subscriber to be monitored.

Usage Guidelines

The monitor subscriber utility provides a useful tool for monitoring information about and the activity of either a single subscriber or all subscribers with active sessions within a given context.

Caution The **monitor subscriber** command is intended for *system debugging only.* This command is complementary to external tracing systems and not meant as a replacement for ongoing external system monitoring.

The following items can be monitored:

- Control events
- Data events
- Event ID information
- Inbound events

- Outbound events
- Protocols (identical to those monitored by command)

Once the criteria has been selected, the utility will monitor and display every relative piece of information on the subscriber(s).

For additional information on using the monitor utility, refer to the *System Administration Guide*.

Important Option Y for performing multi-call traces is only supported for use with the GGSN. This option is available when monitoring is performed using the "Next-Call" option. It allows you monitor up to 11 primary PDP contexts for a single subscriber.

Subscriber monitoring is performed on a context-by-context-basis. Therefore, the information displayed will be only that which is collected within the system context from which the utility was executed.

Caution Subscriber monitoring can be intrusive to subscriber sessions and could impact system performance; therefore, it should only be used as a troubleshooting tool.

Example

The following command enables monitoring for user *user1*.

```
monitor subscriber username user1
```

The following command will enable monitoring for the user assigned IP address *10.2.3.4*.

```
monitor subscriber ip-address 10.2.3.4
```

The following enables monitoring for call ID *FE80AA12*.

```
monitor subscriber callid fe80aa12
```

newcall policy

Configures new call policies for busy-out conditions.

Product

ASN-GW

ASN PC/LR

ePDG

GGSN

HA

HNB-GW

IPCF

LNS

MME

PDSN

P-GW

S-GW

SAEGW

SaMOG

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

newcall policy { asngw-service | asnpc-service | ePDG-service | sgsn-service } { all | name *service_name* **} reject**

newcall policy { fa-service | lma-service | lns-service | mipv6ha-service } { all | name *service_name* **} reject**
newcall policy ggsn-service { apn name *apn_name* **| all | name** *service_name* **} reject [release-existing-session]**
newcall policy { ha-service | pdsn-service | pdsnclosedrp-service } { all | name *service_name* **} { redirect** *target_ip_address* **[weight** *weight_num* **] [** *target_ipaddress2* **[weight** *weight_num* **] ... *target_ip_address16* [weight** *weight_num* **] | reject }**
newcall policy hnbgw-service { all | name *service_name* **} reject**
newcall policy mme-service { all | name *service_name* **} reject**
newcall policy { pcc-af-service | pcc-policy-service } { all | name *service_name* **} reject**
newcall policy pgw-service { all | apn name *apn_name* **| name** *service_name* **} reject [release-existing-session]**
newcall policy saegw-service { all | name *service_name* **} reject [release-existing-session]**
newcall policy sgw-service { all | name *service_name* **} reject [release-existing-session]**
newcall policy samog-service { all | name *service_name* **} drop**

no newcall policy { asngw-service | asnpc-service | epDG-Service } { all | name *service_name* **}**
no newcall policy { fa-service | ggsn-service | ha-service | lma-service | lns-service | mipv6ha-service | pdsn-service| pdsnclosedrp-service } { all | name *service_name* **}**
no newcall policy ggsn-service { apn *apn_name* **| all | name** *service_name* **}**
no newcall policy { ha-service | pdsn-service } { all | name *service_name* **} redirect** *target_ip_address* **[weight***weight_num* **] [** *target_ip_address2* **[weight** *weight_num* **] ... *target_ip_address16* [weight***weight_num* **]**
no newcall policy hnbgw-service { all | name *service_name* **}**
no newcall policy mme-service { all | name *service_name* **}**

```
no newcall policy { pcc-af-service | pcc-policy-service } { all | name
service_name }
no newcall policy pgw-service { all | apn name apn_name | name service_name
}
no newcall policy saegw-service { all | name service_name }
no newcall policy sgw-service { all | name service_name }
no newcall policy samog-service { all | name service_name }
```

no

Disables the new call policy for all or specified service of a service type.

no newcall policy { ha-service | pdsn-service } { all | name *service_name* } redirect *target_ip_address* [weight *weight_num*] [*target_ip_address2* [weight *weight_num*] ... *target_ip_address16* [weight *weight_num*]

Deletes up to 16 IP addresses from the redirect policy. The IP addresses must be expressed in IPv4 dotted-decimal notation

newcall policy { asngw-service | asnpc-service | epDG-service } { all | name *service_name* } reject

Creates a new call policy to reject the calls based on the specified ASN-GW or ASN PC/LR service name or all services of this type.

asngw-service: Specifies the type of service as ASN GW for which new call policy is configured.

asnpc-service: Specifies the type of service as ASN PC/LR for which new call policy is configured.

epDG-service: Specifies the type of service as ePDG for which new call policy is configured.

name *service_name*: Specifies the name of the service for which new call policy is configured. service_name is name of a configured ASN GW or ASN PC/LR service.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For ASN-GW and ASN PC/LR service rejection code is 81H (Registration Denied - administratively prohibited).

newcall policy { fa-service | lma-service | lns-service | mipv6ha-service } { all | name *service_name* } reject

Creates a new call policy that rejects calls based on the specified access point name.

fa-service | ha-service | lma-service | lns-service | mipv6ha-service | mme-service | pdsn-service | pdsnclosedrp-service

Specifies the type of service for which to configure a new call policy. The following services are supported:

- **fa-service**: A Foreign Agent service
- **ha-service**: A Home Agent service
- **lma-service**: A Local Mobility Anchor (LMA) service
- **lns-service**: An L2TP Network Server service
- **mipv6ha-service**: A Mobile IPv6 Home Agent service
- **pdsn-service**: A Packet Data Serving Node service
- **pdsnclosedrp-service**: A Closed R-P service

{ all | name *service_name* }

Specifies a filter for the new call policy. Whether the new call policy will be applied to all configured services or a specific one.

- **all**: Specifies that the new call policy will be applied to all instances of the selected service type.
- **name**: *service_name*: Specifies the name of a specific instance of the selected service type as an alphanumeric string of 1 through 63 characters that is case sensitive.

redirect *target_ip_address* [weight *weight_num*] [*target_ip_address2* [weight *weight_num*] ... *target_ip_address16* [weight *weight_num*]

Configures the busy-out action. When a redirect policy is invoked, the service rejects new sessions and provides the IP address of an alternate destination. This command can be issued multiple times.

target_ip_address# is the IP address of an alternate destination expressed in IPv4 dotted-decimal notation. Up to 16 IP addresses can be specified either in one command or by issuing the redirect command multiple times. If you try to add more than 16 IP addresses to the redirect policy the CLI issues an error message. If you specify an IP address and weight that already exists in the redirect policy the new values override the existing values.

weight *weight_num*: When multiple addresses are specified, they are selected in a weighted round-robin scheme. Entries with higher weights are more likely to be chosen. If a weight is not specified the entry is automatically assigned a weight of 1. *weight_num* must be an integer from 1 through 10.

Depending on the type of service that the policy is applied to, the following reason codes are reported as part of the reply:

- **ha service:** 88H (Registration Denied - unknown home agent address)
- **pdsn service:** 88H (Registration Denied - unknown PDSN address)

Important The redirect option is not supported for use with FA and GGSN services.

reject

Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the following reason codes are reported as part of the reply to indicate the rejection:

- **asngw service**: 81H (Registration Denied - administratively prohibited)
- **fa service:** 41H (administratively prohibited)

Important When **newcall policy** is set to reject for the FA service, the Busy Bit is set in the Agent Advertisement. Any further RRQs will be rejected with this code value.

- **ggsn service:** C7H (Rejected - no resources available)
- **ha service:** 81H (Registration Denied - administratively prohibited)
- **mipv6ha-service**: 81H (Registration Denied - administratively prohibited)

- **mme service:** 81H (Registration Denied - administratively prohibited)
- **pdsn service:** 81H (Registration Denied - administratively prohibited)
- **pdsnclosedrp-service**: 81H (Registration Denied - administratively prohibited)

newcall policy hnbgw-service { all | name *service_name* } reject

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Creates a new call policy to reject the calls in a specified HNB-GW service name instance or all HNB-GW services on the system.

name *service_name*: Specifies the name of the HNB-GW service for which new call policy is configured.

reject: Specifies that the policy rejects all new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For HNB-GW service rejection code is 81H (Registration Denied - administratively prohibited).

newcall policy mme-service { all | name *service_name* } reject

Creates a new call policy to reject the calls based on the specified MME service name or all MME services on the system.

name *service_name*: Specifies the name of the MME service for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For MME service rejection code is 0x16 (Registration Denied - administratively prohibited).

newcall policy { pcc-af-service | pcc-policy-service | pcc-quota-service} { all | name *service_name* } reject

Creates a new call policy to reject the calls for PCC services on the system for any of the following PCC services:

- **pcc-af-service name** *service_name*: Specifies the Policy and Charging Control-Application Function (PCC-AF) service for which new call policy is to be configured on the system.

  name *service_name*: Specifies the name of an existing PCC-AF service for which new call policy is configured.

- **pcc-policy-service name** *service_name*: Specifies the Policy and Charging Control-Policy (PCC-Policy) service for which new call policy is to be configure on the system.

  name *service_name*: Specifies the name of an existing PCC-Policy service for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For PCC services rejection code is 81H (Registration Denied - administratively prohibited).

newcall policy pgw-service { all | apn name *apn_name* | name *service_name* } reject [release-existing-session]

Creates a new call policy to reject the calls based on the specified P-GW service name, APN name, or all P-GW services (and any SAEGW service associated with the P-GW service) in this context .

all: Rejects all P-GW services on the system. Specifies that the new call policy will be applied to all instances of the P-GW service, and any associated SAEGW service, in this context.

apn *apn_name*: Specifies the name of the APN, and any associated P-GW/SAEGW service, for which new call policy is configured.

name *service_name*: Specifies the name of the P-GW service, and any SAEGW service associated with this P-GW service, for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection.

release-existing-session: All the pre-existing sessions across all eGTP/GTP services for that IMSI/IMEI will be released gracefully. Without this keyword, the receiving node rejects the CSReq without considering the existing sessions for that IMSI/IMEI, which may lead to junk sessions. Disabled by default.

newcall policy saegw-service { all | name *service_name* } reject [release-existing-session]

Creates a new call policy to reject the calls based on the specified SAEGW service name or all SAEGW services on the system.

name *service_name*: Specifies the name of the SAEGW service for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection.

Important When **newcall policy saegw-service all reject** CLI command is enabled, the handovers incoming to the S-GW part of an SAEGW, and any other applicable handovers, are not rejected.

release-existing-session: All the pre-existing sessions across all eGTP/GTP services for that IMSI/IMEI will be released gracefully. Without this keyword, the receiving node rejects the CSReq without considering the existing sessions for that IMSI/IMEI, which may lead to junk sessions. Disabled by default.

newcall policy sgw-service { all | name *service_name* } reject [release-existing-session]

Creates a new call policy to reject the calls based on the specified S-GW service name or all S-GW services on the system.

name *service_name*: Specifies the name of the S-GW service for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection.

release-existing-session: All the pre-existing sessions across all eGTP/GTP services for that IMSI/IMEI will be released gracefully. Without this keyword, the receiving node rejects the CSReq without considering the existing sessions for that IMSI/IMEI, which may lead to junk sessions. Disabled by default.

newcall policy samog-service { all | name *service_name* } drop

Creates a new call policy to drop calls based on the specified SaMOG service name or all SaMOG services on the system. By default, this configuration is disabled.

name *service_name*: Specifies the name of the SaMOG service for which new call policy is configured. *service_name* must be an alphanumeric string of 1 through 63 characters.

drop: Specifies the policy to drop new incoming calls. When the retries are exhausted, the AP/WLC attempt session creation on alternate SaMOG services connected to the AP/WLC.

Usage Guidelines

This command is used to busy-out specific system services prior to planned maintenance or for troubleshooting. This is required when operator find out that the system is somehow overloaded, or needs some kind of maintenances or so.

Example

The following command creates a new call policy to re-direct all new calls for all PDSN services to a device having an IP address of *192.168.1.23*:

```
newcall policy pdsn-service all redirect 192.168.1.23
```

The following command creates a new call policy to reject all new calls for a GGSN service called *ggsn1*:

```
newcall policy ggsn-service name ggsn1 reject
```

The following command creates a new call policy to reject all new calls for an MME service called *MME1*:

```
newcall policy mme-service name MME1 reject
```

The following command creates a new call policy to reject all new calls for an HNB-GW service called *hnbgw1*:

```
newcall policy hnbgw-service name hnbgw1 reject
```

The following command creates a new call policy to reject all new calls for a PCC Policy service called *pcrf1*:

```
newcall policy pcc-policy-service name pcrf1 reject
```

The following command creates a new call policy to drop all new calls for the SaMOG service:

```
newcall policy samog-service all drop
```

password change

Provides a mechanism for local-user administrative users to change their passwords.

Product

All

Privilege

All local-user administrative levels except as noted below

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

password change [local-user *name* **]**

local-user *name*

Specifies the name of an existing local-user administrative user for which to change the password as an alphanumeric string of 3 through 144 characters that is case sensitive.

Important This keyword is only available to local-users with an authorization level of security-administrator.

Usage Guidelines

This command provides a mechanism for local-user administrative users to change their passwords. In addition, it also provides a mechanism for security-administrator local-users to change the password for other local-user accounts.

If the **local-user** keyword is not entered, the system prompts the user for their current password and for the new password. New passwords take effect at the next login. Users that have had their password changed by a security-administrator are prompted to change their passwords at their next login.

New passwords must meet the criteria dictated by the **local-user password** command options in the Global Configuration Mode.

Important The system does not allow the changing of passwords unless the time limit specified by the **local-user password min-change-interval** has been reached.

Example

The following command, executed by a security-administrator, resets the password for a local-user name *operator12*:

```
password change local-user operator12
```

patch plugin

Copies a patch intended for a specific plugin module onto the system. This function is associated with the patch process for accommodating dynamic software upgrades.

Product

ADC

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

patch plugin *plugin_name filepath* **certificate** *filepath*

plugin_name

Specifies the name of an existing plugin that will be copied onto the system as an alphanumeric string of 1 through 16 characters.

certificate

Specifies the name of a certificate associated with the plugin that will be copied onto the system as an alphanumeric string of 1 through 16 characters.

filepath

Specifies the location of the file to copy. The path must be formatted as follows:

For the ASR 5000:

[file:]{ /flash | /pcmcia1 | /hd }[/*directory* **]/***file_name*

Important Use of the ASR 5000 SMC hard drive is not supported in this release.

For the ASR 5500:

[file:]{ /flash | /usb1 | /hd }[/*directory* **]/***file_name*

For VPC:

[file:]{ /flash | /hd-raid | /usb1 | usb2 | /cdrom1 }[/*directory* **]/***file_name*

Important The USB ports and CDROM must be configured via the hypervisor to be accessible.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

Usage Guidelines

Use this command to verify and copy a patch onto the system. After the patch has been copied onto the system, you must run the **install plugin** command to unpack the kit and validate its contents.

Example

To copy the plugin module named *p2p* onto the system enter the following command:

```
patch plugin p2p http://192.168.1.2/tmp/libp2p-1.2.0.tgz certificate
http://192.168.1.2/tmp/1.2.0.cert
```

When the patch has been successfully copied the following message appears:

```
New patch for plugin p2p available for installation
```

ping

Verifies ability to communicate with a remote node in the network by passing data packets between and measuring the response. This is accomplished by sending IPv4 Internet Control Message Protocol (ICMP) echo request packets to the target node (pinging) and waiting for an ICMP response.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important

Inspector privileges are granted for all variables except **count**. To initiate a ping count, you must have a minimum privilege level of Operator.

Syntax Description

ping **(** *hostname* **|** *ip_address* **}** **[** **broadcast** **]** **[** **count** *num_packets* **]** **[** **df-bit** **{** **off** **|** **on** **}** **]** **[** **dscp** *dscp_value* **]** **[** **flood** **]** **[** **pattern** *packet_pattern* **]** **[** **size** *octet_count* **]** **[** **src** **{** *src_host_name* **|** *src_host_ip_address* **}** **]** **[** **vrf** *vrf_name*

hostname

Sends ICMP echo request packets to the remote node specified the node's name (up to 127 alphanumeric characters) or assigned IPv4 address in dotted-decimal notation.

ip_address

IPv4 address of host to be pinged in dotted-decimal notation.

broadcast

Sends ping packets to broadcast addresses.

count *num_packets*

Specifies the number of packets to send to the remote host for verification as an integer from 1 through 10000. Default: 5

df-bit { off | on }

Specifies whether or not the do-not-fragment bit will be included in the IP header.

dscp *dscp_value*

Specifies the 6-bit DSCP value as an integer from 0 through 63. Default: 0. The DSCP value must be previously mapped to an internal-class-of-service value using the Global Configuration mode **qos ip-dscp-iphb-mapping** command.

flood

Sends ping packets as rapidly as possible or 100 per second, whichever is faster.

Important Use with caution. Flood ping terminates after receiving (count) responses. If flood ping is used against an interface that is not responding, it will run indefinitely

pattern *packet_pattern*

Specifies a pattern to use to fill the internet control message protocol packets in hexadecimal format with a value in the range of 0x0000 through 0xFFFF. By default each octet of the packet is encoded with the octet number of the packet.

size *octet_count*

Specifies the number of bytes in each IP datagram as an integer from 40 through 18432. Default: 56

src *host_ip_address*

Specifies the source IP address in IPv4 dotted-decimal notation.Default: originating system's IP address

vrf *vrf_name*

Specifies the VRF name for which routing information will be displayed. *vrf_name* is an alphanumeric string of 1 through 63 characters.

Usage Guidelines

This command is useful in verifying network routing and if a remote node is able to respond at the IPv4 layer.

Example

The following command is the most basic and will report the results of trying to communication with remote node *remoteABC*.

```
ping remoteABC
```

The following command verifies communication with the remote node *10.2.3.4* using *1000* packets.

```
ping 10.2.3.4 count 1000
```

The following command verifies communication with remote node *remoteABC* while making it appears as though the source is remote node with IP address *10.2.3.4*.

```
ping remoteABC src 10.2.3.4
```

Important The responses from the remote host to the ping packets will be rerouted to the host specified as the source.

ping6

Verifies ability to communicate with a remote node in the network by passing data packets between and measuring the response. This is accomplished by sending IPv6 Internet Control Message Protocol (ICMP) echo request packets to the target node (pinging) and waiting for an ICMP response.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
ping6 { hostname | ipv6_address } [ count num ] [ dscp dscp_value ] [ flood ] [
interface interface_name ] [ pattern val ] [ size val ] [ src ip_address ] [ vrf
 vrf_name
```

host_name

Name of the host to be pinged.

ipv6_address

IPv6 address of host to be pinged in colon-separated-hexadecimal notation.

count*num*

Sets the number of ping packets to be sent as an integer from 1 through 10000.

dscp *dscp_value*

Specifies the 6-bit DSCP value as an integer from 0 through 63. Default: 0. The DSCP value must be previously mapped to an internal-class-of-service value using the Global Configuration mode **qos ip-dscp-iphb-mapping** command.

flood

Configures ping6 to send packets as quickly as possible, or 100 per second, whichever is faster.

Important Use with caution. Flood ping terminates after receiving (count) responses. If flood ping is used against an interface that is not responding, it will run indefinitely

interface *interface_name*

Defines a named source interface from which ping packets will originate. *interface_name* is an alphanumeric string of 1 to 79 characters.

pattern *val*

Specifies the hexadecimal pattern to fill ICMP packets as a hexadecimal number from 0x0 through 0ffff

size *val*

Specifies the size of ICMP datagram (in bytes) as an integer from 40 through 18432. Default: 56.

src *ip_address*

Specifies the source IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation. Default: originating system's IP address

vrf *name*

Specifies the name of an existing VFR as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

This command is useful in verifying network routing and if a remote node is able to respond at the IPv6 layer.

Example

Use this command to ping the IPv6 address *2001:0db8:85a3:0000:0000:8a2e:0370:7334*

```
ping6 2001:0db8:85a3:0000:0000:8a2e:0370:7334
```

port disable, port enable

Disables or enables a port on a specified MIO/UMIO card without affecting the paired port on the other MIO/UMIO card. This capability is very useful in Active-Active LAG configurations on an ASR 5500.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

port { disable | enable } ethernet *slot#/port#*

disable

Disables (shuts down) the specified MIO/UMIO port without disabling its paired port on the other MIO/UMIO card.

enable

Enables a previously disabled port on the specified MIO/UMIO port without affecting its paired port on the other MIO/UMIO card.

ethernet

Specifies the port type as Ethernet.

slot#

Identifies the physical chassis slot (5 or 6) where the MIO/UMIO card is installed.

port#

Identifies the physical port on the MIO/UMIO card to disable or enable.

Usage Guidelines

If you use the Ethernet Port Configuration mode **shutdown** command to shut down one of the ports on an MIO/UMIO card in an Active-Active LAG configuration, by default the paired port on the other MIO/UMIO card will also be shut down.

Use this command to disable (shut down) a port on an MIO/UMIO card without affecting the paired port on the other MIO/UMIO card in an Active-Active LAG configuration.

Example

The following command disables port 11 on the MIO card in slot 6.

```
port disable ethernet 6/11
```

port switch to

Performs a manual switchover to an available redundant/standby line card, SPIO port or MIO port.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

port switch to *slot#*/*port#*

slot#

Identifies the physical chassis slot where the line card, SPIO or MIO is installed.

port#

Identifies the physical port on the line card, SPIO or MIO to automatically switch to.

Usage Guidelines

This command is used to specify the redundant port on a Line Card (LC) or MIO. When port redundancy is enabled, if an external network device or cable failure occurs that causes a link down failure on the port, then the redundant port is used.

Important This command is not supported on all platforms.

Example

On an ASR 5000 this command switched to port 17/1.

```
port switch to 17/1
```

On an ASR 5500 this command swithces to port 6/11.

```
port switch to 6/11
```

ppp echo-test

Sends link control protocol (LCP) keep-alive echo packet to the peer point-to-point protocol (PPP) connection to verify proper communication between PPP connections, and awaits a response.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

ppp echo-test { callid *call_id* **| imsi** *imsi_id* **| ipaddr** *ip_address* **| msid** *ms_id* **| username** *user_name* **} [** *num_packets* **] [| { grep** *grep_options* **| more }]**

callid *call_id*

Specifies the call instance ID for which the PPP link must be verified as a 4-byte hexadecimal number.

imsi *imsi_id*

Specifies the International Mobile Subscriber Identifier (IMSI) for which the PPP link must be verified.

ipaddr *ip_address*

Specifies the IP address for which the PPP link must be verified in IPv4 dotted-decimal notation.

msid *ms_id*

Specifies the mobile subscriber ID for which the PPP link must be verified as 7 to 16 digits of an MIN, or RMI.

username *user_name*

Specifies an existing user for which the PPP link must be verified as an alphanumeric string of 1 through 127 characters.

num_packets

Specifies the number of test packets to generate an integer from 1 through 1000000. Default: 1

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in *Command Line Interface Reference*.

Usage Guidelines

Use this command to verify the point-to-point protocol communications. This command sends LCP keep-alive echo packet to the peer PPP connection to verify proper communication between PPP connections. **ppp echo-test** command waits for LCP echo response for configured numbers of tries, if response is not received it will retry configured no of times with an interval of 5 seconds. This command accepts the parameters call ID, IMSI, IP address, MSID, and user name to specify which active PPP session to consider.

ppp echo-test command makes the dormant session active.

Caution Issuing this command could negatively impact system performance depending on the number of subscribers using the same name and/or if the number of packets used in the test is large.

LCP includes Echo-Request and Echo-Reply codes in order to provide a Data Link Layer loopback mechanism for use in exercising both directions of the link. This is useful as an aid in debugging, link quality determination, performance testing, and for numerous other functions. Upon reception of an Echo-Request in the LCP Opened state, an Echo-Reply is transmitted.

Example

The following command tests the PPP link to user *user1*.

```
ppp echo-test username user1
```

The following command tests the PPP link to the user assigned IP address *10.2.3.4*.

```
ppp echo-test ipaddr 10.2.3.4
```

The following tests the PPP link associated with call ID *fe80AA12*.

```
ppp echo-test callid fe80aa12
```

push ssh-key

Pushes the secure shell (SSH) client public key to a remote server. The key must have been previously generated via the CLI commands in the SSH Client Configuration mode.

Product

All

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[context_name]host_name#`

Syntax Description

`push ssh-key {` *`host_name`* **`|`** *`host_ip_address`* **`} user`** *`username`* **`[ context`** *`context_name`* **`]`**

host_name

Specifies the remote server using its logical host name which must be resolved via DNS lookup. It is expressed as an alphanumeric string of 1 to 127 characters.

host_ip_address

Specifies the host IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

user *username*

Specifies a valid username on the external server as an alphanumeric string of 1 to 79 characters.

context *context_name*

Specifies a valid StarOS context name. The context name is optional. If it is not provided the current context is used for processing.

Usage Guidelines

Use this command to push a public key to an external server. The SSH public key enables SSH access without a password between a StarOS gateway and the external server via the Exec mode **ssh** command. You must first create the SSH client key pair using CLI commands in the SSH Client Configuration mode.

Example

The following command pushes an SSH client public key to an external server named *remoteABC*.

```
push ssh-key remoteABC user admin012 context mme
```

radius interim accounting now

Check points current RADIUS Interim accounting messages immediately.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`radius interim accounting now`

Usage Guidelines

This command check points RADIUS Interim accounting as they are received. It is useful when preparing for system monitoring or troubleshooting.

Example

The following command initiates immediate checkpointing of RADIUS Interim accounting messages:

`radius interim accounting now`

radius test

Verifies the RADIUS servers functions for accounting and authentication.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`radius test { accounting | admin authentication | authentication | probe authentication server` *ip_addr* **`port`** *port_no* **`[ username`** *username* **`password`** *password* **`] } { all | [ on ] | off ] | radius group`** *group_name user_name* **`| server`** *server_name* **`port`** *server_port* **`}`** *user_name password*

accounting

Tests accounting server functionality.

admin authentication *name_admin admin_password*

Tests the RADIUS admin authentication.

name_admin: Specifies he name of the administrator as an alphanumeric string of 1 through 127 characters.

admin_password: Specifies the password for the administrator as an alphanumeric string of 1 through 63 characters.

authentication

Tests authentication server functionality.

all | radius group *group_name user_name* | server *server_name* port *server_port*

all: Tests all configured servers.

server *server_name* **port** *server_port*: Tests only the server specified by *server_name* and *server_port*. The server must have been previously configured.

radius group *group_name user_name*: Tests all configured authentication servers in a specific RADIUS group for a specific user. Must be followed by the RADIUS group name and user name.

group_name is an alphanumeric string of 1 through 63 characters that specifies the name of server group configured in the specific context for authentication/accounting.

on/off

Allows the user to turn RADIUS test accounting on or off.

user_name

Specifies the RADIUS user who is to be verified. The user must have been previously configured.

password

Specifies the RADIUS user who is to have authentication verified. *password* is only applicable when the **authentication** keyword is specified.

Usage Guidelines

Test the RADIUS accounting for troubleshooting the system for specific users or to verify all the system RADIUS accounting functions.

Example

The following verifies all RADIUS servers.

```
radius test accounting all
```

```
radius test authentication all
```

The following verifies the RADIUS accounting and authentication for user **radius test authentication all***user1* for the *sampleServer*.

```
radius test accounting server sampleServer port 5000 user1
radius test authentication server sampleServer port 5000 user1 dumyPwd
```

The following commands will verify the RADIUS accounting and authentication for RADIUS server group *star1* for the current context:

radius test accounting server sampleServer port 5000 user1

radius test authentication server sampleServer port 5000 user1 dummyPwd

radius test authentication all

The following verifies the RADIUS authentication server group *star1* for user *user1*.

radius test authentication radius group star1 user1

reload

Invokes a full system reboot. All processes are terminated and the system initiates a hardware reset (reboot). This command is identical to the **shutdown** command.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

reload [ignore-locks] [-noconfirm]

ignore-locks

Reboots the system regardless of any save configuration operations that may be currently running. StarOS displays a warning message but does not wait for save configuration requests to complete before initiating the reboot.

```
Warning: One or more other administrators are saving configuration
```

⚠

Caution Use of the **ignore-locks** keyword may result in file corruption.

-noconfirm

Executes the command without any additional prompts or confirmation from the user.

Usage Guidelines

The system performs a hardware reset and reloads the highest priority boot image and configuration file specified in the boot.sys file. Refer to the **boot system priority** command in the Global Configuration Mode for additional information on configuring boot images, configuration files and priorities.

By default (without the **ignore-locks** option specified) **reload** waits for save configuration operations to complete before initiating the reboot.

Important To avoid the abrupt termination of subscriber sessions, it is recommended that a new call policy be configured and executed prior to invoking the **reload** command. This policy sets busy-out conditions for the system and allows active sessions to terminate gracefully. Refer to the **newcall** command in the Exec Mode for additional information.

Caution Issuing this command causes the system to become unavailable for session processing until the reboot process is complete.

Example

The following command performs a hardware reset on the system:

```
reload
```

rename

Changes the name of an existing local file.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
rename from_filepath to_filepath [ -noconfirm ]
```

from_filepath

Specifies the path to the file/directory to be renamed. The path must be formatted according to the following format:

For the ASR 5000:

```
[ file: ]{ /flash | /pcmcia1 | /hd-raid }[ /directory ]/file_name
```

For the ASR 5500:

```
[ file: ]{ /flash | /usb1 | /hd-raid }[ /directory ]/file_name
```

Important Use of the SMC hard drive is not supported in this release.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name

filename is the actual file of interest

to_filepath

Specifies the path to the file/directory to be renamed. The path must be formatted according to the following format:

For the ASR 5000:

[file:]{ /flash | /pcmcia1 | /hd }[/*directory* **]/***file_name*

Important Use of the SMC hard drive is not supported in this release.

For the ASR 5500:

[file:]{ /flash | /usb1 | /hd }[/*directory* **]/***file_name*

directory is the directory name

filename is the actual file of interest

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Caution Extreme caution should be taken when using the **-noconfirm** option. The paths to the source and the destination should be verified prior to performing the command.

Usage Guidelines Rename files as part of regular system maintenance in conjunction with the delete command.

Example

The following renames the directory */pub* in the local PCMCIA1 device.

```
rename /pcmcia1/pub /pcmcia1/pub_old
```

The following renames the directory */pub* in the local USB device.

```
rename /usb1/pub /usb1/pub_old
```

reset active-charging

This command resets the active charging services.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **reset active-charging credit-control misc-info max-backpressure { all | facility sessmgr instance** *instance_number* **}**

all

Displays the maximum backpressure information among all the active session manager instances.

facility sessmgr instance ***instance_number***

Specifies the facility session manager instance as an integer ranging from 1 through 65535 characters.

Usage Guidelines Use this CLI command to get or reset the maximum back-pressure hit and the timestamp it reached the maximum value. This helps to reset the gauge value for all/specific session manager instance to zero.

Example

The following command resets the maximum backpressure value for all active session manager instances:

reset active-charging credit-control misc-info max-backpressure all

reset alcap-service

Resets a named Access Link Control Application Part (ALCAP) protocol service. ALCAP is the protocol used for the control plane of the UMTS transport layer. It manges and multiplexes users into ATM AAL2 virtual connections.

Product All (ASR 5000 only)

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **reset alcap-service** *srvc_name* **aal2 node** *node_name* **aal2-path { ***path_name* **| all }**

srvc_name

Specifies the name of an existing ALCAP service as an alphanumeric string of 1 through 63 characters.

aal2 node *node_name*

Specifies the name of an existing ATM Adaptation Layer 2 (AAL2) node as an alphanumeric string of 1 through 64 characters.

Usage Guidelines Reset a named ALCAP service for a specified AAL2 node.

Example

The following command resets the ALCAP service *alcap_01* for the AAL2 node *aal2_1001*, all paths:

```
reset alcap-service alcap_01 aal2-node aal2_1001 aal2-path all
```

reset diameter

This command clears the Diameter statistics.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
reset diameter aaa-statistics misc-data
```

Usage Guidelines Resets the Diameter statistics (highest backpressure statistics).

Example

The following command resets the Diameter related miscellaneous statistics:

```
reset diameter aaa-statistics misc-data
```

reset ims-authorization

Resets the maximum backpressure related information associated with the IMS authorization services.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

reset ims-authorization policy-control misc-info max-backpressure { all | facility sessmgr instance *instance_number* **}**

all

Displays the maximum backpressure information among all the active session manager instances.

facility sessmgr instance ***instance_number***

Specifies the facility session manager instance as a integer from 0 through 10000000 characters.

Usage Guidelines

Use this command to reset the values of maximum backpressure related information.

Example

The following command resets all the backpressure related information:

reset ims-authorization policy-control misc-info max-backpressure all

reveal disabled commands

Enables or disables the input of commands for features that do not have license keys installed. The output of the command **show cli** indicates when this feature is enabled. This command effects the current CLI session only and is disabled by default.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

[no] reveal disabled commands

no

Does not show disabled commands.

Important

This command is not available in release 20.0 and higher Trusted builds.

Usage Guidelines

When this command is enabled and a disabled command is entered, a message is displayed that informs you that the required feature is not enabled and also lists the name of the feature that you need to support the command.

When this command is disabled and a disabled command is entered, the CLI does not acknowledge the existence of the command and displays a message that the keyword is unrecognized.

Example

The following command sets the CLI to accept disabled commands and display the required feature for the current CLI session with the following command:

```
reveal disabled commands
```

The following command sets the CLI to reject disabled commands and return an error message for the current CLI session:

```
no reveal disabled commands
```

rlogin

Attempts to connect to a remote host.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

rlogin { *host_name* | *host_ip_address* } [user *user_name*]

host_name* | *host_ip_address

Identifies the remote node with which to attempt connection.

host_name: Specifies the remote node using the node's logical host name which must be resolved via DNS lookup.

host_ip_address: Specifies the remote node using its assigned IP address in IPv4 dotted-decimal notation.

user *user_name*

Specifies a user name attempting connection as an alphanumeric string of 1 through 1023 characters.

Usage Guidelines

Connect to remote network elements using rlogin.

Important **rlogin** is not a secure method of connecting to a remote host. **ssh** should be used whenever possible for security reasons.

Important The **rlogin** command is not available in Release 20.0 and higher Trusted builds.

Example

The following connects to remote host *remoteABC* as user *user1*.

```
rlogin remoteABC user user1
```

The following connects to remote host *10.2.3.4* without any default user.

```
rlogin 10.2.3.4
```

rmdir

Removes (deletes) a local directory.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

rmdir *path* **[force]**

path

Specifies the directory path to remove. The must be formatted according as follows:

For the ASR 5000:

[file:]{ /flash | /pcmcia1 | /hd-raid }[/*directory* **]/***file_name*

For the ASR 5500:

[file:]{ /flash | /usb1 | /hd-raid }[/*directory* **]/***file_name*

For VPC:

[file:]{ /flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }[/*directory* **]/***file_name*

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name

filename is the actual file of interest

force

Over-rides any warnings to force deletion of the directory and any files contained therein.

Important Use of the **force** keyword should be done with care to ensure the directory is specified accurately as there is no method to recover a directory which has been removed.

Usage Guidelines Remove old directories as part of regular maintenance.

Example

The following removes the local directory */pcmcia1/pub*.

```
rmdir /pcmcia1/pub
```

rollback module

Loads a specified software plugin module from the Version Priority List (VPL) with the next higher priority number. This function is associated with the patch process for accommodating dynamic software upgrades.

Product ADC

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **rollback module** *plugin_name*

plugin_name

Specifies the name of an existing plugin module that you want to downgrade as an alphanumeric string of 1 through 16 characters. If the named module is not known to the system, an error message is displayed.

Usage Guidelines Use this command to initiate a rollback of a previously loaded software plugin module. If it fails to load, the module with next highest priority will be loaded. If none of the modules are installed, the default patch which comes along with the ASR 5000 build is automatically loaded. The specified module must have been previously unpacked/verified and configured via the **install plugin** and **plugin** commands respectively.

For additional information, refer to the *Plugin Configuration Mode Commands* chapter.

Example

To load the next plugin module named *p2p* enter the following command:

```
rollback module p2p
```

rotate-hd-file

Rotates the Diameter files stored on the hard disk drive.

Product

HSGW

P-GW

SAEGW

S-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`rotate-hd-file diameter [ name` *`policy_name`* **`]`**

name *policy_name*

Specifies the hd-storage policy name of an existing HD Storage Policy as an alphanumeric string of 0 through 63 characters.

Usage Guidelines

Use this command to manually rotate the Diameter HD stored files.

Example

The following command rotates Diameter files that were stored using the HD storage policy named CDR1:

`rotate-hd-file diameter name` *`CDR1`*

save configuration

Saves the configuration of current contexts to a local or remote location. The configuration contains the sequence of CLI commands that define system parameters and ends with the **.cfg** extension.

Important

In release 20.0 and higher Trusted StarOS builds, FTP is not supported. SFTP is the recommended file transfer protocol.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`save configuration` *`url`* **`[ confd | ignore-locks | obsolete-encryption | showsecrets | verbose ] [ -redundant ] [ -noconfirm ]`**

url

Default: saves to the location of the active configuration currently loaded.

Specifies the location in which to store the configuration file. *url* may refer to a local or a remote file and must be entered in the following format:

For the ASR 5500:

`[ file: ] { /flash | /usb1 | /hd-raid } [ /`*`directory`***` ] /`***`file_name`***
`tftp:// {` *`host`* **`[ : `***`port#`***` ] } [ /`***`directory`***` ] /`***`file_name`***
`[ ftp: | sftp: ] // [` *`username`***`[ :`***`password`***` ] @ ] {`** *`host`* **`} [ : `***`port#`***` ] [ /`***`directory`***
`] /` *`file_name`*

For VPC:

`[ file: ] { /flash | /hd-raid | /usb1 | usb2 | cdrom1 } [ /`*`directory`***` ]`**
`/`*`file_name`***
`tftp:// {` *`host`* **`[ : `***`port#`***` ] } [ /`***`directory`***` ] /`***`file_name`***
`[ ftp: | sftp: ] // [` *`username`***`[ :`***`password`***` ] @ ] {`** *`host`* **`} [ : `***`port#`***` ] [ /`***`directory`***
`] /` *`file_name`*

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

Important *host* can **only** be used if the **networkconfig** parameter is configured for DHCP and the DHCP server returns a valid nameserver.

The following file transfer protocols are supported on all platforms to save the configuration to a destination on the network (off box):

tftp – Trivial File Transfer Protocol [no username/password required]

ftp – File Transfer Protocol [username/password required]

sftp – SSH File Transfer Protocol [SSH username/password required]

port# is the logical port number that the communication protocol is to use.

[confd | ignore-locks | obsolete-encryption | showsecrets | verbose]

Specifies options when saving the configuration file.

confd: Saves only those configuration commands associated with the YANG model in support of Cisco NSO ConfD and the NETCONF protocol.

ignore-locks: Saves the configuration regardless of any configuration mode locks held by other administrative users or other external restrictions.

Important Use of the **ignore-locks** keyword may result in file corruption.

obsolete-encryption: Saves the configuration with encrypted values generated via an obsolete encryption method. This option may be required to preserve a configuration for a possible downgrade.

Important The **obsolete-encryption** keyword is only available in StarOS 19.1 and prior releases.

showsecrets: Saves the CLI configuration file with all passwords in plain text, rather than their default encrypted format.

Important The **showsecrets** keyword is only available in StarOS 19.1 and prior releases.

verbose: Saves as much information as possible, including default values. If this option is not specified, the configuration will not include default values.

-redundant

Saves the configuration file to the local device on the management card, defined by the *url* variable, and then automatically copies that same file to the like device on the standby management card, if available.

The management card can be any of the following:

- ASR 5500 – Management Input/Output (MIO) card [/flash, usb1, usb2]
- VPC-DI – Control Function (CF) virtual machine

Use the **-redundant** keyword if you have only made changes to the configuration, but not to the boot order or after installing a new boot image. Changes to the boot order or installing a new image requires file synchronization via the **filesystem synchronize** command.

Important This keyword will only work for local devices on both the active and standby management cards. Otherwise, a failure message is displayed. When saving the file to an external network (non-local) device, the system disregards this keyword.

Important This keyword does not synchronize the local file system. If you have added, modified, or deleted other files or directories to or from a local device for the active management card, then you must synchronize the local file system on both cards.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Caution Exercise caution when using the **-noconfirm** option as this will overwrite data if the URL targets an existing file.

Usage Guidelines Backup the current configuration as part of periodic maintenance activities for emergency recovery.

Important Saving a configuration does not save the boot options as configured via the Global Configuration mode **boot** commands.

Example

The following command saves the configuration data to the local file */flash/pub/juneconfig.cfg* with no confirmation from the user:

```
save configuration /flash/pub/juneconfig.cfg -noconfirm
```

The following command saves the configuration data to remote host *remoteABC* at */pub/juneconfig.cfg*:

```
save configuration tftp://remoteABC/pub/juneconfig.cfg
```

The following command saves only those configuration commands associated with the YANG model in support of Cisco NSO ConfD and the NETCONF protocol:

```
save configuration confd /flash/netconf/confd.cfg
```

save logs

Saves the current log file to a local or remote location.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

save logs { url } [active] [inactive] [callid *call_id* **] [event-verbosity** *evt_verboseness* **] [facility** *facility* **] [level** *severity_level* **] [pdu-data** *pdu_format* **] [pdu-verbosity** *pdu_verboseness* **] [since** *from_date_time* **] [until** *to_date_time* **]] [| { grep** *grep_options* **| more }]**

url

Specifies the location to store the log file(s). *url* may refer to a local or a remote file and must be entered in the following format.

For the ASR 5000:

[file:] { /flash | /pcmcia1 | /hd-raid } [/*directory* **] /***file_name*
tftp:// { ***host* **[: ***port#* **] } [/*directory* **] /***file_name*
[ftp: | sftp:] // [***username*[:***password* **] @] { ***host* **} [: ***port#* **] [/***directory* **] / ***file_name*

Important Use of the SMC hard drive is not supported in this release.

For the ASR 5500:

[file:] { /flash | /usb1 | /hd-raid } [/*directory* **] /***file_name*
tftp:// { ***host* **[: ***port#* **] } [/*directory* **] /***file_name*
[ftp: | sftp:] // [***username*[:***password* **] @] { ***host* **} [: ***port#* **] [/***directory* **] / ***file_name*

For VPC:

[file:] { /flash | /hd-raid | /usb1 | /usb2 | /cdrom1 } [/*directory* **] /***file_name*
tftp:// { ***host* **[: ***port#* **] } [/*directory* **] /***file_name*
[ftp: | sftp:] // [***username*[:***password* **] @] { ***host* **} [: ***port#* **] [/***directory* **] / ***file_name*

Important The USB ports and CDROM must be configured via the hypervisor to be accessible.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

Important *hostname* can only be used if the **networkconfig** parameter is configured for DHCP and the DHCP server returns a valid nameserver.

port# is the logical port number that the communication protocol is to use.

active

Saves data from active logs.

inactive

Saves data from inactive logs.

callid *call_id*

Specifies a call ID for which log information is to be saved as a 4-byte hexadecimal number.

event-verbosity *evt_verboseness*

Specifies the level of verboseness to use in displaying of event data as one of:

- *min*: Logs minimal information about the event. Information includes event name, facility, event ID, severity level, date, and time.
- *concise*: Logs detailed information about the event, but does not provide the event source within the system.
- *full*: Logs detailed information about event, including source information, identifying where within the system the event was generated.

facility *facility*

Specifies the facility to modify the filtering of logged information. Valid facilities for this command are:

- **a10**: A10 interface facility
- **a11**: A11 interface facility
- **a11mgr**: A11 Manager facility
- **aaa-client**: Authentication, Authorization and Accounting (AAA) client facility
- **aaamgr**: AAA manager logging facility
- **aaaproxy**: AAA Proxy facility
- **aal2**: ATM Adaptation Layer 2 (AAL2) protocol logging facility
- **acl-log**: Access Control List (ACL) logging facility
- **acsctrl**: Active Charging Service (ACS) Controller facility
- **acsmgr**: ACS Manager facility
- **afctrl**: Fabric Controller facility [ASR 5500 only]

- **afmgr**: Fabric Manager logging facility [ASR 5500 only]
- **alarmctrl**: Alarm Controller facility
- **alcap**: Access Link Control Application Part (ALCAP) protocol logging facility
- **alcapmgr**: ALCAP manager logging facility
- **all**: All facilities
- **asngwmgr**: Access Service Network (ASN) Gateway Manager facility
- **asnpcmgr**: ASN Paging Controller Manager facility
- **bfd**: Bidirectional Forwarding Detection (BFD) protocol logging facility
- **bgp**: Border Gateway Protocol (BGP) facility
- **bindmux**: IPCF BindMux-Demux Manager logging facility
- **bngmgr**: Broadband Network Gateway (BNG) Demux Manager logging facility
- **bssap+**: Base Station Sub-system Application Part+ protocol facility for the login interface between the SGSN and the MSC/VLR (2.5G and 3G)
- **bssgp**: Base Station Sub-system GPRS Protocol logging facility handles exchange information between the SGSN and the BSS (2.5G only)
- **callhome**: Call Home application logging facility
- **cap**: CAMEL Application Part (CAP) logging facility for protocol used in prepaid applications (2.5G and 3G)
- **cbsmgr**: Cell Broadcasting Service (CBS) logging facility [HNBGW]
- **cdf**: Charging Data Function (CDF) logging facility
- **cgw**: Converged Access Gateway (CGW) logging facility
- **cli**: Command Line Interface (CLI) logging facility
- **cmp**: Certificate Management Protocol (IPSec) logging facility
- **connectedapps**: SecGW ASR 9000 oneP communication procotol
- **connproxy**: Controller Proxy logging facility
- **credit-control**: Credit Control (CC) facility
- **csp**: Card/Slot/Port controller facility
- **css**: Content Service Selection (CSS) facility
- **css-sig**: CSS RADIUS Signaling facility
- **cx-diameter**: Cx Diameter Messages facility [CSCF <--> HSS]
- **data-mgr**: Data Manager Framework logging facility
- **dcardctrl**: IPSec Daughter Card Controller logging facility
- **dcardmgr**: IPSec Daughter Card Manager logging facility

- **demuxmgr**: Demux Manager API facility
- **dgmbmgr**: Diameter Gmb Application Manager logging facility
- **dhcp**: Dynamic Host Configuration Protocol (DHCP) logging facility
- **dhcpv6**: DHCPv6
- **dhost**: Distributed Host logging facility
- **diabase**: Diabase messages facility
- **diactrl**: Diameter Controller proclet logging facility
- **diameter**: Diameter endpoint logging facility
- **diameter-acct**: Diameter Accounting
- **diameter-auth**: Diameter Authentication
- **diameter-dns**: Diameter DNS subsystem
- **diameter-ecs**: ACS Diameter signaling facility
- **diameter-engine**: Diameter version2 engine logging facility
- **diameter-hdd**: Diameter Horizontal Directional Drilling (HDD) Interface facility
- **diameter-svc**: Diameter Service
- **diamproxy**: DiamProxy logging facility
- **dpath**: IPSec Data Path facility
- **drvctrl**: Driver Controller facility
- **dpath**: IPSec Data Path logging facility
- **drvctrl**: Driver Controller logging facility
- **doulosuemgr**: Doulos (IMS-IPSec-Tool) user equipment manager
- **eap-diameter**: Extensible Authentication Protocol (EAP) IP Sec urity facility
- **eap-ipsec**: Extensible Authentication Protocol (EAP) IPSec facility
- **eap-sta-s6a-s13-s6b-diameter**: EAP/STA/S6A/S13/S6B Diameter messages facility
- **ecs-css**: ACSMGR <-> Session Manager Signalling Interface facility
- **egtpc**: eGTP-C logging facility
- **egtpmgr**: enhanced GPRS Tunneling Protocol (eGTP) manager logging facility
- **egtpu**: eGTP-U logging facility
- **embms**: evolved Multimedia Broadcast Multicast Services Gateway facility
- **embms**: eMBMS Gateway Demux facility
- **epdg**: evolved Packet Data (ePDG) gateway logging facility
- **event-notif**: Event Notification Interface logging facility

- **evlog**: Event log facility
- **famgr**: Foreign Agent manager logging facility
- **firewall**: Firewall logging facility
- **fng**: Femto Network Gateway (FNG) logging facility
- **gbmgr**: SGSN Gb Interface Manager facility
- **gmm**:
  - For 2.5G: Logs the GPRS Mobility Management (GMM) layer (above LLC layer)
  - For 3G: Logs the access application layer (above the RANAP layer)
- **gprs-app**: GPRS Application logging facility
- **gprs-ns**: GPRS Network Service Protocol (layer between SGSN and the BSS) logging facility
- **gq-rx-tx-diameter**: Gq/Rx/Tx Diameter messages facility
- **gss-gcdr**: GTPP Storage Server GCDR facility
- **gtpc**: GTP-C protocol logging facility
- **gtpcmgr**: GTP-C protocol manager logging facility
- **gtpp**: GTP-prime protocol logging facility
- **gtpu**: GTP-U protocol logging facility
- **gtpumgr**: GTP-U Demux manager
- **gx-ty-diameter**: Gx/Ty Diameter messages facility
- **gy-diameter**: Gy Diameter messages facility
- **h248prt**: H.248 port manager facility
- **hamgr**: Home Agent manager logging facility
- **hat**: High Availability Task (HAT) process facility
- **hdctrl**: HD Controller logging facility
- **henbapp**: Home Evolved NodeB (HENB) App facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw**: HENB-GW facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw-pws**: HENB-GW Public Warning System logging facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw-sctp-acs**: HENB-GW access Stream Control Transmission Protocol (SCTP) facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw-sctp-nw**: HENBGW network SCTP facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgwdemux**: HENB-GW Demux facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgwmgr**: HENB-GW Manager facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **hnb-gw**: HNB-GW (3G Femto GW) logging facility

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **hnbmgr**: HNB-GW Demux Manager logging facility

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **hss-peer-service**: Home Subscriber Server (HSS) Peer Service facility
- **igmp**: Internet Group Management Protocol (IGMP)
- **ikev2**: Internet Key Exchange version 2 (IKEv2)
- **ims-authorizatn**: IP Multimedia Subsystem (IMS) Authorization Service facility
- **ims-sh**: HSS Diameter Sh Interface Service facility
- **imsimgr**: SGSN IMSI Manager facility
- **imsue**: IMS User Equipment (IMSUE) facility
- **ip-arp**: IP Address Resolution Protocol facility
- **ip-interface**: IP interface facility
- **ip-route**: IP route facility
- **ipms**: Intelligent Packet Monitoring System (IPMS) logging facility
- **ipne**: IP Network Enabler (IPNE) facility
- **ipsec**: IP Security logging facility
- **ipsecdemux**: IPSec demux logging facility
- **ipsg**: IP Service Gateway interface logging facility
- **ipsgmgr**: IP Services Gateway facility
- **ipsp**: IP Pool Sharing Protocol logging facility
- **kvstore**: Key/Value Store (KVSTORE) Store facility
- **l2tp-control**: Layer 2 Tunneling Protocol (L2TP) control logging facility
- **l2tp-data**: L2TP data logging facility
- **l2tpdemux**: L2TP Demux Manager logging facility
- **l2tpmgr**: L2TP Manager logging facility
- **lagmgr**: Link Aggregation Group (LAG) manager logging facility

- **lcs**: Location Services (LCS) logging facility
- **ldap**: Lightweight Directory Access Protocol (LDAP) messages logging facility
- **li**: Refer to the *Lawful Intercept Configuration Guide* for a description of this command.
- **linkmgr**: SGSN/BSS SS7 Link Manager logging facility (2.5G only)
- **llc**: Logical Link Control (LLC) Protocol logging facility; for SGSN: logs the LLC layer between the GMM and the BSSGP layers for logical links between the MS and the SGSN
- **local-policy**: Local Policy Service facility
- **location-service**: Location Services facility
- **m3ua**: M3UA Protocol logging facility
- **magmgr**: Mobile Access Gateway manager logging facility
- **map**: Mobile Application Part (MAP) protocol logging facility
- **megadiammgr**: MegaDiameter Manager (SLF Service) logging facility
- **mme-app**: Mobility Management Entity (MME) Application logging facility
- **mme-misc**: MME miscellaneous logging facility
- **mmedemux**: MME Demux Manager logging facility
- **mmemgr**: MME Manager facility
- **mmgr**: Master Manager logging facility
- **mobile-ip**: Mobile IP processes
- **mobile-ip-data**: Mobile IP data facility
- **mobile-ipv6**: Mobile IPv6 logging facility
- **mpls**: Multiprotocol Label Switching (MPLS) protocol logging facility
- **mrme**: Multi Radio Mobility Entity (MRME) logging facility
- **mseg-app**: Mobile Services Edge Gateway (MSEG) application logging facility (This option is not supported in this release.)
- **mseg-gtpc**: MSEG GTP-C application logging facility (This option is not supported in this release.)
- **mseg-gtpu**: MSEG GTP-U application logging facility (This option is not supported in this release.)
- **msegmgr**: MSEG Demux Manager logging facility (This option is not supported in this release.)
- **mtp2**: Message Transfer Part 2 (MTP2) Service logging facility
- **mtp3**: Message Transfer Part 3 (MTP3) Protocol logging facility
- **multicast-proxy**: Multicast Proxy logging facility
- **nas**: Non-Access Stratum (NAS) protocol logging facility [MME 4G]
- **netwstrg**: Network Storage facility
- **npuctrl**: Network Processor Unit Control facility

- **npudrv**: Network Processor Unit Driver facility [ASR 5500 only]
- **npumgr**: Network Processor Unit Manager facility
- **npumgr-acl**: NPUMGR ACL logging facility
- **npumgr-drv**: NPUMGR DRV logging facility
- **npumgr-flow**: NPUMGR FLOW logging facility
- **npumgr-fwd**: NPUMGR FWD logging facility
- **npumgr-init**: NPUMGR INIT logging facility
- **npumgr-lc**: NPUMGR LC logging facility
- **npumgr-port**: NPUMGR PORT logging facility
- **npumgr-recovery**: NPUMGR RECOVERY logging facility
- **npumgr-rri**: NPUMGR RRI (Reverse Route Injection) logging facility
- **npumgr-vpn**: NPUMGR VPN logging facility
- **npusim**: NPUSIM logging facility [ASR 5500 only]
- **ntfy-intf**: Notification Interface logging facility [Release 12.0 and earlier versions only]
- **ocsp**: Online Certificate Status Protocol logging facility.
- **orbs**: Object Request Broker System logging facility
- **ospf**: OSPF protocol logging facility
- **ospfv3**: OSPFv3 protocol logging facility
- **p2p**: Peer-to-Peer Detection logging facility
- **pagingmgr**: PAGINGMGR logging facility
- **pccmgr**: Intelligent Policy Control Function (IPCF) Policy Charging and Control (PCC) Manager library
- **pdg**: Packet Data Gateway (PDG) logging facility
- **pdgdmgr**: PDG Demux Manager logging facility
- **pdif**: Packet Data Interworking Function (PDIF) logging facility
- **pgw**: Packet Data Network Gateway (PGW) logging facility
- **pmm-app**: Packet Mobility Management (PMM) application logging facility
- **ppp**: Point-To-Point Protocol (PPP) link and packet facilities
- **pppoe**: PPP over Ethernet logging facility
- **proclet-map-frwk**: Proclet mapping framework logging facility
- **push**: VPNMGR CDR push logging facility
- **radius-acct**: RADIUS accounting logging facility
- **radius-auth**: RADIUS authentication logging facility

- **radius-coa**: RADIUS change of authorization and radius disconnect
- **ranap**: Radio Access Network Application Part (RANAP) Protocol facility logging info flow between SGSN and RNS (3G)
- **rct**: Recovery Control Task logging facility
- **rdt**: Redirect Task logging facility
- **resmgr**: Resource Manager logging facility
- **rf-diameter**: Diameter Rf interface messages facility
- **rip**: Routing Information Protocol (RIP) logging facility [RIP is not supported at this time.]
- **rlf**: Rate Limiting Function (RLF) logging facility
- **rohc**: Robust Header Compression (RoHC) facility
- **rsvp**: Reservation Protocol logging facility
- **rua**: RANAP User Adaptation (RUA) [3G Femto GW - RUA messages] logging facility
- **s102**: S102 protocol logging facility
- **s102mgr**: S102Mgr logging facility
- **s1ap**: S1 Application Protocol (S1AP) Protocol logging facility
- **sabp**: Service Area Broadcast Protocol (SABP) logging facility
- **saegw**: System Architecture Evolution (SAE) Gateway facility
- **sbc**: SBc protocol logging facility
- **sccp:** Signalling Connection Control Part (SCCP) Protocol logging (connection-oriented messages between RANAP and TCAP layers).
- **sct**: Shared Configuration Task logging facility
- **sctp**: Stream Control Transmission Protocol (SCTP) Protocol logging facility
- **sef_ecs**: Severely Errored Frames (SEF) APIs printing facility
- **sess-gr**: SM GR facility
- **sessctrl**: Session Controller logging facility
- **sessmgr**: Session Manager logging facility
- **sesstrc**: session trace logging facility
- **sft**: Switch Fabric Task logging facility
- **sgs**: SGs interface protocol logging facility
- **sgsn-app**: SGSN-APP logging various SGSN "glue" interfaces (for example, between PMM, MAP, GPRS-FSM, SMS).
- **sgsn-failures**: SGSN call failures (attach/activate rejects) logging facility (2.5G)
- **sgsn-gtpc**: SGSN GTP-C Protocol logging control messages between the SGSN and the GGSN

- **sgsn-gtpu**: SGSN GTP-U Protocol logging user data messages between the SGSN and GGSN
- **sgsn-mbms-bearer**: SGSN Multimedia Broadcast/Multicast Service (MBMS) Bearer app (SMGR) logging facility
- **sgsn-misc**: Used by stack manager to log binding and removing between layers
- **sgsn-system**: SGSN System Components logging facility (used infrequently)
- **sgsn-test**: SGSN Tests logging facility; used infrequently
- **sgtpcmgr**: SGSN GTP-C Manager logging information exchange through SGTPC and the GGSN
- **sgw**: Serving Gateway facility
- **sh-diameter**: Sh Diameter messages facility
- **sitmain**: System Initialization Task main logging facility
- **sls**: Service Level Specification (SLS) protocol logging facility
- **sm-app**: SM Protocol logging facility
- **sms**: Short Message Service (SMS) logging messages between the MS and the SMSC
- **sndcp**: Sub Network Dependent Convergence Protocol (SNDCP) logging facility
- **snmp**: SNMP logging facility
- **sprmgr**: IPCF Subscriber Policy Register (SPR) manager logging facility
- **srdb**: Static Rating Database
- **srp**: Service Redundancy Protocol (SRP) logging facility
- **sscfnni**: Service-Specific Coordination Function for Signaling at the Network Node Interface (SSCF-NNI) logging facility
- **sscop**: Service-Specific Connection-Oriented Protocol (SSCOP) logging facility
- **ssh-ipsec**: Secure Shell (SSH) IP Security logging facility
- **ssl**: Secure Socket Layer (SSL) message logging facility
- **stat**: Statistics logging facility
- **supserv**: Supplementary Services logging facility [H.323]
- **system**: System logging facility
- **tacacsplus**: TACACS+ Protocol logging facility
- **tcap**: TCAP Protocol logging facility
- **testctrl**: Test Controller logging facility
- **testmgr**: Test Manager logging facility
- **threshold**: threshold logging facility
- **ttg**: Tunnel Termination Gateway (TTG) logging facility

- **tucl**: TCP/UDP Convergence Layer (TUCL) logging facility
- **udr**: User Data Record (UDR) facility (used with the Charging Service)
- **user-data**: User data logging facility
- **user-l3tunnel**: User Layer 3 tunnel logging facility
- **usertcp-stack**: User TCP Stack
- **vim**: Voice Instant Messaging (VIM) logging facility
- **vinfo**: VINFO logging facility
- **vmgctrl**: Virtual Media Gateway (VMG) controller facility
- **vmgctrl**: VMG Content Manager facility
- **vpn**: Virtual Private Network logging facility
- **wimax-data**: WiMAX DATA
- **wimax-r6**: WiMAX R6
- **wsg**: Wireless Security Gateway (ASR 9000 Security Gateway)
- **x2gw-app**: X2GW (X2 proxy Gateway, eNodeB) application logging facility
- **x2gw-demux**: X2GW demux task logging facility

level *severity_level*

Specifies the level of information to be logged from the following list which is ordered from highest to lowest:

- *critical*: Logs critical events
- *error*: Logs error events and all events with a higher severity level
- *warning*: Logs warning events and all events with a higher severity level
- *unusual*: Logs unusual events and all events with a higher severity level
- *info*: Logs info events and all events with a higher severity level
- *trace*: Logs trace events and all events with a higher severity level
- *debug*: Logs all events

pdu-data *pdu_format*

Specifies output format for the display of packet data units as one of:

- *none* - raw format (unformatted).
- *hex* - hexadecimal format.
- *hex-ascii* - hexadecimal and ASCII similar to a main-frame dump.

pdu-verbosity *pdu_verboseness*

Specifies the level of verboseness to use in displaying of packet data units as a value from 1 to 5, where 5 is the most detailed.

since *from_date_time* [until *to_date_time*]

Default: no limit.

since *from_date_time*: Saves only the log information which has been collected more recently than *from_date_time*.

until *to_date_time*: Saves no log information more recent than *to_date_time*. Defaults to current time when omitted.

from_date_time and *to_date_time* must be formatted as YYYY:MM:DD:HH:mm or YYYY:MM:DD:HH:mm:ss. Where:

- YYYY = 4-digit year
- MM = 2-digit month in the range 01 through 12
- DD = 2-digit day in the range 01 through 31
- HH = 2-digit hour in the range 00 through 23
- mm = 2-digit minute in the range 00 through 59
- ss = 2 digit second in the range 00 through 59

to_date_time must be a time which is more recent than *from_date_time*.

Using the **until** keyword allows for a time range of log information; using only the **since** keyword will display all information up to the current time.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in *Command Line Interface Reference*.

Usage Guidelines

Backup the current log file as part of periodic maintenance activities.

Example

The following saves the log to the local file */flash/pub/junelogs.logs* with no confirmation from the user:

```
save logs /flash/pub/junelogs.logs -noconfirm
```

The following saves the configuration data to remote host *remoteABC* as */pub/junelogs.logs*:

```
save logs tftp://remoteABC/pub/junelogs.logs
```

session trace

Enable or disables the subscriber session trace functionality based on a specified subscriber device or ID on one or all instance of session on a specified UMTS/EPS network element. It also clears/resets the statistics collected for subscriber session trace on a system.

Product

GGSN

MME

P-GW

SAEGW

S-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

session trace { reset statistics | subscriber network-element { mme | pgw | sgw | ggsn saegw [func-pgw | func-sgw } { imei *id* **| imsi** *id* **| interface { all |** *interface* **} | target-all-ne | target-ne { enb [target-interface { all |** *interface* **}] | pgw [target-interface { all |** *interface* **}] | sgw [target-interface { all |** *interface* **] } } trace-ref** *id* **collection-entity** *ip_address*

no session trace subscriber network-element [mme | pgw | sgw | ggsn] [trace-ref *id* **]**

no

Disables the entire session trace or for a specific network element and/or trace reference.

reset statistics

Clears/resets the entire session trace statistical data collected on a system.

Caution This is a system wide command that affects all statistical data.

session trace subscriber network-element { mme | pgw | sgw | ggsn }

Identifies the network element that, in turn, identifies the interfaces where the session trace is to occur. Specific interfaces can be specified using the interface keyword described below.

ggsn: Specifies that the session trace is to occur on one or all interfaces on the GGSN.

mme: Specifies that the session trace is to occur on one or all interfaces on the MME.

pgw: Specifies that the session trace is to occur on one or all interfaces on the P-GW.

sgw: Specifies that the session trace is to occur on one or all interfaces on the S-GW.

imei *id*

Specifies the International Mobile Equipment Identification number of the subscriber UE. *id* must be the 8-digit TAC (Type Allocation Code) and 6-digit serial number. Only the first 14 digits of the IMEI/IMEISV are used to find the equipment ID.

imsi *id*

Specifies the International Mobile Subscriber Identification (IMSI). *id* must be the 3-digit MCC (Mobile Country Code), 2- or 3- digit MNC (Mobile Network Code), and the MSIN (Mobile Subscriber Identification Number). The total should not exceed 15 digits.

interface { all | *interface* }

Specifies the interfaces where the session trace application will collect data.

all: Specifies all interfaces associated with the selected network element

interface: Specifies the interface type where the session trace application will collect trace data. The following interfaces are applicable for each network element type:

GGSN:

- **gi**: Specifies that the interface where the trace will be performed is the Gi interface between the GGSN and RADIUS server.
- **gmb**: Specifies that the interface where the trace will be performed is the Gmb interface between the GGSN and BM-SC.
- **gn**: Specifies that the interface where the trace will be performed is the Gn interface between the GGSN and the SGSN.
- **gx**: Specifies that the interface where the trace will be performed is the Gx interface between the GGSN and PCRF.
- **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the GGSN and OCS.

MME:

- **s1mme**: Specifies that the interface where the trace will be performed is the S1-MME interface between the MME and the eNodeB.
- **s3**: Specifies that the interface where the trace will be performed is the S3 interface between the MME and an SGSN.
- **s6a**: Specifies that the interface where the trace will be performed is the S6a interface between the MME and the HSS.
- **s10**: Specifies that the interface where the trace will be performed is the S10 interface between the MME and another MME.
- **s11**: Specifies that the interface where the trace will be performed is the S11 interface between the MME and the S-GW.
- **s13**: Specifies that the interface where the trace will be performed is the S13 interface between the MME and the EIR.

P-GW:

- **gx**: Specifies that the interface where the trace will be performed is the Gx interface between the P-GW and the PCRF.
- **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the P-GW and OCS.

- **s2a**: Specifies that the interface where the trace will be performed is the S2a interface between the P-GW and the HSGW.
- **s2b**: Specifies that the interface where the trace will be performed is the S2b interface between the P-GW and an ePDG.
- **s2c**: Specifies that the interface where the trace will be performed is the S2c interface between the P-GW and a trusted, non-3GPP access device.
- **s5**: Specifies that the interface where the trace will be performed is the S5 interface between the P-GW and the S-GW.
- **s6b**: Specifies that the interface where the trace will be performed is the S6b interface between the P-GW and the 3GPP AAA server.
- **s8b**: Specifies that the interface where the trace will be performed is the S8b interface between the P-GW and the S-GW.
- **sgi**: Specifies that the interface where the trace will be performed is the SGi interface between the P-GW and the PDN.

S-GW:

- **gxc**: Specifies that the interface where the trace will be performed is the Gxc interface between the S-GW and the PCRF.
- **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the S-GW and OCS.
- **s11**: Specifies that the interface where the trace will be performed is the S11 interface between the S-GW and the MME.
- **s4**: Specifies that the interface where the trace will be performed is the S4 interface between the S-GW and an SGSN.
- **s5**: Specifies that the interface where the trace will be performed is the S5 interface between the S-GW and the P-GW.
- **s8b**: Specifies that the interface where the trace will be performed is the S8b interface between the S-GW and the P-GW.

target-all-ne

This option is applicable for MME only. Specifies that the trace be propogated to neighboring Network Elements (NEs) including the eNodeB, P-GW and S-GW. With this option, tracing will occur on all applicable interfaces on the respective NEs.

target-ne { enb [target-interface { all | *interface* }] | pgw [target-interface { all | *interface* }] | sgw [target-interface { all | *interface*] }

This option is applicable for MME only.

The **target-ne { enb | pgw | sgw }** keyword specifies that the trace be propogated to the specified neighboring Network Elements (NE). More than one **target-ne** can be configured in the same command.

target-interface { all | *interface* **}**: This optional keyword specifies the interface on the target NE where the trace will be performed. Multiple target-interfaces can be defined within the same command.

trace-ref *id*

Specifies the trace reference for the trace being initiated. *id* must be the MCC (3 digits), followed by the MNC (3 digits), then the trace ID number (3-byte octet string).

collection-entity *ip_address*

Specifies the IP address of the collection entity where session trace data is pushed in IPv4 dotted-decimal notation.

Usage Guidelines

Use this command to initiate a session trace for a specified subscriber device or ID on one or all interfaces on a specified network element.

Important

Session trace configuration is performed in the *Global Configuration Mode* using the **session trace** command. Refer to the *Global Configuration Mode Commands* chapter for more information.

Example

The following command initiates a session trace on a P-GW S5 interface for a subscriber with an IMSI of *322233123456789* and sets the trace reference as *322233987654* and the collection entity IP address as *10.2.3.4*:

```
session trace subscriber network-element pgw imsi 322233123456789 interface
 s5 trace-ref 322233987654 collection-entity 10.2.3.4
```

The following command initiates a session trace on an MME S6a interface for a subscriber with an IMSI of *322233123456789* and sets the trace reference as *322233987654* and the collection entity IP address as *10.2.3.4*:

```
session trace subscriber network-element mme imsi 322233123456789 interface
 s6a trace-ref 322233987654 collection-entity 10.2.3.4
```

The following command initiates a session trace on a Gn interface on GGSN between GGSN and SGSN for a subscriber with an IMSI of *322233123456789* and sets the trace reference as *322233987654* and the collection entity IP address as *10.2.3.4*:

```
session trace subscriber network-element ggsn imsi 322233123456789
interface gn trace-ref 322233987654 collection-entity 10.2.3.4
```

MME Only: The following command activates a session trace on S-GW for S5 interface from the MME:

```
session trace subscriber network-element mme imsi 0000012345 target-ne
sgw target-interface s5
```

session trace random

Enable or disables the subscriber session trace functionality based on a the random trace on the network element. If enabled, the subscriber selection will be based on random logic all instance of session on a specified UMTS/EPS network element. It also clears/resets the statistics collected for subscriber session trace on a system.

Product

GGSN

P-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[no] session trace random` *`random_num`* **`network-element {ggsn | pgw} [interface {all |`** *`interface`***`]`**

no

Disables the entire random subscriber session trace or for a specific network element and/or interface.

session trace random *random_num*}

Configures the number of random subscriber sessions where the session trace is to occur.

random_num is an integer between 1 to 1000 identified the number of subscribers to be selected by random logic.

network-element {ggsn | pgw}

Identifies the network element that, in turn, identifies the interfaces where the random session trace is to occur. Specific interfaces can be specified using the interface keyword described below.

ggsn: Specifies that the random session trace is to occur on one or all interfaces on the GGSN.

pgw: Specifies that the random session trace is to occur on one or all interfaces on the P-GW.

interface { all | *interface* }

Specifies the interfaces where the random session trace application will collect data.

all: Specifies all interfaces associated with the selected network element

interface: Specifies the interface type where the random session trace application will collect trace data. The following interfaces are applicable for the network element type:

- GGSN:
  - **gi**: Specifies that the interface where the trace will be performed is the Gi interface between the GGSN and RADIUS server.
  - **gmb**: Specifies that the interface where the trace will be performed is the Gmb interface between the GGSN and BM-SC.
  - **gn**: Specifies that the interface where the trace will be performed is the Gn interface between the GGSN and the SGSN.
  - **gx**: Specifies that the interface where the trace will be performed is the Gx interface between the GGSN and PCRF.

- **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the GGSN and Diameter.

- P-GW:
  - **gx**: Specifies that the interface where the trace will be performed is the Gx interface between the P-GW and the PCRF.
  - **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the GGSN and Diameter.
  - **s2a**: Specifies that the interface where the trace will be performed is the S2a interface between the P-GW and the HSGW.
  - **s2b**: Specifies that the interface where the trace will be performed is the S2b interface between the P-GW and an ePDG.
  - **s2c**: Specifies that the interface where the trace will be performed is the S2c interface between the P-GW and a trusted, non-3GPP access device.
  - **s5**: Specifies that the interface where the trace will be performed is the S5 interface between the P-GW and the S-GW.
  - **s6b**: Specifies that the interface where the trace will be performed is the S6b interface between the P-GW and the 3GPP AAA server.
  - **s8b**: Specifies that the interface where the trace will be performed is the S8b interface between the P-GW and the S-GW.
  - **sgi**: Specifies that the interface where the trace will be performed is the SGi interface between the P-GW and the PDN.

Usage Guidelines

Use this command to initiate the session trace for a specified subscriber sessions selected on random logic on one or all interfaces on a specified network element.

Important

Session trace configuration is performed in the *Global Configuration Mode* using the **session trace** command. Refer to the *Global Configuration Mode Commands* chapter for more information.

Example

The following command initiates a session trace on a GGSN Gx interface for *1000* subscriber session selected on random logic:

```
session trace random 1000 network-element ggsn interface gx
```

session trace signaling

Enable or disables the subscriber session trace functionality based on signaling information on one or all instance of session on a specified UMTS/EPS network element. It also clears/resets the statistics collected for subscriber session trace on a system.

Product

GGSN

P-GW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[no] session trace signaling network-element {ggsn | pgw}`

no

Disables the entire session trace based on signaling information for a specific network element and/or trace reference.

session trace signaling network-element {pgw | ggsn}

Identifies the network element that where the session trace based on signaling information for a subscriber session is to occur. Specific network element GPRS/EPS can be specified for this session trace.

ggsn: Specifies that the session trace based on signaling is to occur on one or all interfaces on the GGSN.

pgw: Specifies that the session trace based on signaling is to occur on one or all interfaces on the P-GW.

Usage Guidelines

Use this command to initiate a session trace for a specified subscriber based on signaling information on a specified network element.

Important

Session trace configuration is performed in the *Global Configuration Mode* using the **session trace** command. Refer to the *Global Configuration Mode Commands* chapter for more information.

Example

The following command initiates a session trace on a GGSN for a subscriber based on signaling information.

`session trace signaling network-element ggsn`

setup

Enters the system setup wizard which guides the user through a series of questions regarding the system basic configuration options, such as initial context-level administrative users, host name, etc.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`setup`

Usage Guidelines

The setup wizard provides a user friendly interface for initial system configuration.

Important

If the configuration script generated by the setup wizard is applied when an existing configuration is in use, the options which are common to both are updated and all remaining options are left unchanged.

Example

The following command starts the setup wizard:

`setup`

sgs offload

Enables or disables offloading of UEs associated with a VLR which has become unavailable. This enables the MME to preemptively move subscribers away from a VLR which is scheduled to be put in maintenance mode.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`sgs offload sgs-service` *`sgs_svc_name`* **`vlr`** *`vlr_name`* **`{ start time-duration`** *`minutes`* **`| stop } [ -noconfirm ]`**

sgs-service *sgs_svc_name*

Specifies the SGs service to which the VLR belongs.

sgs_svc_name specifies the name of a pre-configured SGs service. For more information on the SGs service, refer to the **sgs-service** command in the *Context Configuration Mode Commands* chapter and refer to the *MME SGs Service Configuration Mode Commands* chapter.

vlr *vlr_name*

Specifies the VLR service which must have its UEs offloaded.

vlr_name specifies the name for a pre-configured VLR and must be an alphanumeric string of 1 through 63 characters. For more information, refer to the **vlr** command in the *MME SGs Service Configuration Mode Commands* chapter.

start time-duration *minutes*

Specifies that the UE offloading should be started for the specified the VLR.

time-duration defines the period in *minutes* over which all qualifying subscribers will be offloaded.

minutes must be an integer from 0 to 3000.

A value of 0 enables only Passive VLR Offloading, where the MME marks all affected session manager with the "VLR Offload" flag. During the next UE activity, the MME requires each UE to perform a combined TAU/LAU. This flag is not affected by the removal of the "offload" state by the operator. Even though the VLR state may later change from "offloaded' to "not-offloaded", the subscriber's state will not change to "not-offloaded".

A value of 1-3000 enables Active VLR Offloading and Passive VLR Offloading. The MME splits this time-duration into *n* intervals, 5 seconds apart. A maximum of 50 subscribers will be actively detached per interval. For example, a setting of 5 minutes with 600 subscribers in a sessmgr (from the given VLR) would detach 10 subscribers per 5-second interval. Node level detach rate should be estimated by taking into account the number of sessmgr tasks. Any subscribers remaining at the expiry of the time-duration will not be detached.

Note: For Release 12.2, only Passive VLR Offloading is supported. While the **time-duration** value is not used in Release 12.2 or earlier, it is required for completion of the **start** command.

stop

Specifies that the offload state should no longer be set for the specified the VLR.

-noconfirm

Indicates that the command is to execute without additional prompt and confirmation from the user.

Usage Guidelines

This command enables the MME to preemptively move subscribers away from a VLR which is scheduled to be put in maintenance mode. When this offload command is set on the MME, all session manager matching this VLR are marked with an "offload" flag. If the time-duration keyword is set to 1-3000, session manager are also detached and required to reattach.

The configured time-duration is used to explicitly detach the subscriber in a specified rate. Upon expiry of the timer, the offload state of the VLR will not be changed and the offloading must be stopped by explicitly triggering the "stop" option.

The behavior of SGs with respect to "Location Updates" towards the MSC is similar to the behavior when the "VLR Reliable" flag is set to "false". In other words, for offloaded subscribers, normal Combined TAUs (without IMSI Attach) and periodic TAUs will trigger a LU towards the MSC.

When issuing the command, the MME notifies the operator if this is the last available VLR in a pool.

More than one VLR may be offloaded at the same time.

VLR Offloading and MME offloading cannot be performed at the same time.

Important This is a licensed feature and is unavailable unless the proper licensed is installed.

Related Commands:

- To display VLR offload information and statistics for a specified SGs service name, refer to the **show sgs-service offload-status service-name** *sgs_svc_name* command.
- To clear the counters displayed by the previous command, issue the **clear sgs-service statistics service-name** *sgs_svc_name* command.

Example

The following command starts offloading the subscribers associated with *vlr1* over the next 60 minutes.

```
sgs offload sgs-service sgs1 vlr vlr1 start time-duration 60 -noconfirm
```

sgs vlr-failure

This command configures the MME to monitor all VLRs and perform a controlled release (detach) of affected UEs when any VLR becomes unavailable.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

sgs vlr-failure sgs-service *sgs_svc_name* **duration** *minutes* **backoff-timer** *seconds* **[-noconfirm]**

no sgs vlr-failure sgs-service *sgs_svc_name*

no

Resets the command to its default setting of disabled.

sgs

Specifies SGS exec commands.

vlr-failure

Specifies VLR failure configuration.

sgs-service *sgs_svc_name*

Specifies the name of a pre-configured SGs Service to which the VLR belongs.

sgs_svc_name must be a string of size 1 to 63.

duration *minutes*

Specifies the amount of time in minutes during which all qualifying UEs will be detached.

The MME splits this duration into *n* intervals, 5 seconds apart. A maximum of 50 subscribers are processed per interval per session manager. For example, a setting of 5 minutes with 600 subscribers in a session manager (from a given VLR) would result in the session manager processing 10 subscribers per 5-second interval. Node level detach rate should be estimated by taking into account the number of sessmgr tasks. Any subscribers remaining at the expiry of the duration will not be processed.

minutes must be an integer from 1 through 3000.

backoff-timer *seconds*

Specifies the period of time the MME will wait following the detection of a VLR condition before starting the controlled release of affected UEs.

Specifies the backoff timer in seconds.

seconds must be an integer from 1 to 3000.

-noconfirm

Indicates that the command is to execute without additional prompt and confirmation from the user.

Usage Guidelines

When this command is issued, the MME monitors the availability of all VLRs. If one or more VLRs become unavailable, the MME performs a controlled release (EPS IMSI detach) for all UEs associated with that VLR. If another VLR is available, the MME sends a combined TA/LA Update with IMSI attach.

This command remains active until it is disabled with the **no sgs vlr-failure** command.

Important This is a licensed feature and is unavailable unless the proper licensed is installed.

Related Commands:

- To display VLR failure information and statistics, refer to the **show sgs-service vlr-status full** command.

Example

The following enables the monitoring and automatic detach of UEs when any VLR becomes unavailable. The MME will wait 2 minutes (120 seconds) after detecting a VLR condition before starting the controlled release of the affected UEs. The MME will process the UEs over a span of 60 minutes.

```
sgs vlr-failure sgs-service sgs1 duration 60 backoff-timer 120 -noconfirm
```

sgs vlr-recover

This command enables active recovery of Circuit Switched Fall Back (SMS-only) UEs when a failed VLR becomes responsive again.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`[no] sgs vlr-recover sgs-service` *`sgs_svc_name`* **`duration`** *`minutes`* **`backoff-timer`** *`seconds`***`[ -noconfirm ]`**

no

Resets the command to its default setting of disabled.

sgs-service *sgs_svc_name*

Specifies the SGs service to which the VLR belongs.

sgs_svc_name specifies the name for a pre-configured SGs service.

duration *minutes*

Specifies the amount of time in minutes over which all qualifying UEs will be recovered.

The MME splits this duration into *n* intervals, 5 seconds apart. A maximum of 50 subscribers will be processed per interval per session manager. For example, a setting of 5 minutes with 600 subscribers in a session manager (from a given VLR) would result in the session manager processing 10 subscribers per 5-second interval. Node level detach rate should be estimated by taking into account the number of session manager tasks. Any subscribers remaining at the expiry of the duration will not be processed.

minutes must be an integer from 1 through 3000.

backoff-timer *seconds*

Specifies the period of time the MME will wait following the detection of a recovered VLR before starting the VLR recovery actions.

seconds must be an integer from 1 to 3000.

-noconfirm

Indicates that the command is to execute without additional prompt and confirmation from the user.

Usage Guidelines

When this command is issued, the MME monitors the availability of all VLRs. If a failed VLRs become available again, the MME attempts to recover CSFB (SMS-only) UEs that failed while the VLR was unavailable with an EPS Detach.

Important

This is a licensed feature and is unavailable unless the proper licensed is installed.

Related Commands:

- To display VLR recovery information and statistics, refer to the **show sgs-service vlr-status full** command.

Example

The following enables the active recovery of Circuit Switched Fall Back (SMS-only) UEs when a failed VLR becomes responsive again. The MME will wait 2 minutes (120 seconds) after detecting a recovered VLR before starting the recovery of the affected UEs. The MME will process the UEs over a span of 60 minutes.

```
sgs vlr-recover sgs-service sgs1 duration 60 backoff-timer 120 -noconfirm
```

sgsn clear-congestion

This command clears (terminates) congestion triggered using the **sgsn trigger-congestion** command.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
sgsn clear-congestion
```

Usage Guidelines

This command is only used if the **sgsn trigger-congestion** command has been issued in an OAM scenario. This **sgsn clear-congestion** command causes the SGSN to resume normal operations and does not apply any congestion control policy.

Example

Clear the triggered congestion on the SGSN.

```
sgsn clear-congestion
```

sgsn clear-detached-subscriptions

Clears subscription data belonging to a subscriber who has already detached.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

sgsn clear-detached-subscriptions imsi *imsi*

imsi *imsi*

Specifies the international mobile subscriber identity (IMSI) of the subscriber session identifying the subscription data to be cleared.

Usage Guidelines

This command can be issued on either a 2G or 3G SGSN to clear subscription data (including subscription information, and information for P-TMSI allocated, received authorization vectors, and NGAF flag values). This command is only effective if the subscriber has already detached.

After the data is purged, the SGSN sends an appropriate message to the HLR.

Related Commands:

- To clear subscription data for subscribers that are currently attached, refer to the **admin-disconnect-behavior clear-subscription** commands described in the chapters for *GPRS Service Configuration Mode* or the *SGSN Service Configuration Mode*.

Example

sgsn clear-detached-subscriptions imsi 040501414199978

sgsn imsimgr

Initiates an audit for managing the SGSN's IMSI manager's (IMSIMgr) IMSI table.

Important These commands are used primarily for troubleshooting purposes and are intended for the use of specially trained service representatives.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

sgsn imsimgr { instance *instance_id* **}{ add-record***imsi* **sessmgr instance** *sessmgr#* **| audit-with sessmgr { all | instance** *sessmgr#* **} | remove-record** *imsi* **}**

instance *instance_id*

The number of IMSI Managers supported is scaled up to "4" on ASR 5500 and a VPC-DI platforms. This keyword is used to specify the IMSI manager instance for which the audit is initiated. The audit is initiated

from only one specified instance of IMSI Manager at a time. This feature is only supported on ASR5500 and VPC-DI platforms.

instance_id: The *instance_id* is an integer from 1 through 4, it identifies the IMSI Manager instance for which the audit is initiated.

add-record *imsi*

Adds a record for an IMSI to the IMSI manager's table and associates a specific session manager (SessMgr) with the IMSI.

imsi: Enter up to 15 digits. An IMSI consists of the 3-digit MCC (mobile country code) + the 2- or 3-digit MNC (mobile network code) + the MSIN (mobile station identification number) for the remaining 10 or 9 digits (depending on the length of the MNC).

audit-with

Initiates an IMSI audit with all SessMgrs or a Session Manager (SessMgr) instance specified.

remove-record *imsi*

Deletes a specific IMSI from the IMSI table.

imsi: Enter up to 15 digits. An IMSI consists of the 3-digit MCC (mobile country code) + the 2- or 3-digit MNC (mobile network code) + the MSIN (mobile station identification number) for the remaining 10 or 9 digits (depending on the length of the MNC).

sessmgr instance *sessmgr#*

For releases prior to 14.0, this keyword specifies a Session Manager (SessMgr) instance associated with the IMSI as an integer from 0 through 4095.

For releases 14.0 and later, this keyword specifies a Session Manager (SessMgr) instance associated with the IMSI as an integer from 0 through 384.

Usage Guidelines

Use this command to manage the IMSIMgr's IMSI table, and to initiate an audit of one or more SessMgrs with the IMSIMgr so that the IMSI table has the correct IMSI-SessMgr association. After this audit, any IMSI in the IMSIMGR which is not found in any Sessmgr is deleted and similarly any missing entries at the IMSIMgr are created.

Example

Delete IMSI *044133255524211* from the audit table:

```
sgsn imsimgr remove-record 044133255524211
```

sgsn offload

Instructs the SGSN to begin the offloading procedure and actually starts and stops the offloading of subscribers which is part of the SGSN Gb (2G) or Iu (3G) Flex load redistribution functionality.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

sgsn offload { gprs-service *service_name* **| sgsn-service** *service_name* **} { activating [imsi** *imsi* **| nri-value** *nri_value* **| stop [imsi** *imsi* **| nri-value** *nri_value* **]] | connecting [nri-value** *nri_value* **| stop [imsi** *imsi* **| nri-value** *nri_value* **| target-nri** *target_nri* **] | t3312-timeout** *seconds* **[nri-value** *nri_value* **| target-nri** *target_nri* **] | target-nri** *target_nri* **[imsi** *imsi* **| target-count** *num_to_offload* **] }**

gprs-service *srvc_name*

Specifies a unique alphanumeric string of 1 through 63 characters that identifies a GPRS service that has already been defined for the 2G SGSN configuration.

sgsn-service *srvc_name*

Specifies a unique alphanumeric string of 1 through 63 characters that identifies an SGSN service that has already been defined for the 3G SGSN configuration.

activating

Instructs the SGSN to off load any subscribers sending an "activate request" message.

connecting

Instructs the SGSN to off load any subscribers sending either an Attach Request or a RAU Request message. Including this keyword without adding the **target-nri** and **target-count** keywords activates local offloading.

imsi *imsi*

Identifies a subscriber by the international mobile subscriber ID (IMSI) which consists of the 3-digit MCC (mobile country code) + the 2- or 3-digit MNC (mobile network code) + the MSIN (mobile station identification number) for the remaining 10 or 9 digits (depending on the length of the MNC).

imsi- enter an integer comprising up to 15 digits.

nri-value *nri-value*

Sets the local NRI. Including this keyword in the configuration instructs the SGSN to check the P-TMSI and use the SGSN matching the configured NRI value to off load subscribers.

Important **nri-value** and **target-nri** are mutually exclusive.

nri-value is an integer from 1 through 63 that identifies a specific, already defined, SGSN in a pool. (NRI defined in the service configuration.)

Use of 0 (zero) value is not recommended.

stop

Instructs the SGSN to stop offloading subscribers from the pool area.

target-nri *target_nri*

Instructs the SGSN to begin dynamically load balancing across a network of pooled SGSNs.

target_nri is an integer from 0 through 63 that identifies an already defined target NRI (SGSN) to which the subscribers are to be offloaded. (NRI previously defined in the service configuration.)

Use of 0 (zero) value is not recommended.

target-count *target_count*

Identifies the number of subscribers to be offloaded as an integer from 0 through 4000000. Instructs the SGSN to begin target count-based offloading.

t3312-timeout *seconds*

Sets the timer (in seconds) for sending period RAUs to the MS as an integer from 2 through 60. Default: 4

Usage Guidelines

Use this command to configure the offloading of subscribers which is a part of the SGSN's load redistribution operation. This command can be used anytime an SGSN is to be taken out of service.

Commands, with different NRI values, are repeated to expand/contract the radius of the offloading.

Target count-based offloading and local offloading can not run simultaneously. When target count offloading is to be used, you should choose an algorithm to control offloading from the perspective of the IMSIMGR and SESSMGR. This is done with the **target-offloading** command in the SGSN-Global configuration mode.

Example

The following two commands initiate **local offloading**.

Command 1: The following command instructs the SGSN to begin local offloading for the local NRI id *1* included in the *gprs1* GPRS service configuration:

```
sgsn offload gprs-service gprs1 connecting nri-value 1
```

Command 2: Enter this second command to add offloading for NRI *2* to the offloading already occurring for NRI *1*:

```
sgsn offload gprs-service gprs1 connecting nri-value 2
```

The following two commands discontinue local offloading and initiate **target count-based offloading.**

Command 1: The following command instructs the SGSN to discontinue local offloading for NRIs *5* included in the *sgsnserv4* SGSN service configuration :

```
sgsn offload sgsn-service sgsnserv4 connecting stop nri 5
```

Important The next command is an example of provision configuration for multiple NRI with a single command.

Command 2: The following command instructs the SGSN to initiate target count-based offloading for target NRI *5* to a target count of *10000* and target NRI *6* to count of *300000*:

```
sgsn offload sgsn-service sgsnserv4 connecting target-nri 5 target-count
 100000 target-nri 6 target-count 300000
```

sgsn op

Instructs the SGSN to begin specific operations or functions.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`sgsn op { auth-ptmsi-counters imsi` *`imsi`* **`| convert | nse { fr | ip | sgsn-invoke-trace } | show | ss7-rd`** *`ss7-rd_id`* **`{ destination | link | linkset | peer } }`**

auth-ptmsi-counters imsi *imsi*

Displays the authentication, P-TMSI reallocation, and P-TMSI signature reallocation counters for the specified IMSI.

imsi: Enter a unique 15-digit number associated with a mobile phone.

convert point-code *pt_code* variant *variant*

Converts SS7 point codes, according to identified variants, from dotted-decimal format to decimal format and vice versa.

point-code *pt_code*: Enters an SS7 point code in either dotted-decimal format or decimal format.

variant *variant*: Identifies the appropriate variant for the point code:

- **ansi**
- **itu**
- **ttc**

nse { fr *operation* | ip *operation* | sgsn-invoke-trace nse-id *nse_id* }

Enables the operator to perform a range of live control functions (for example, reset, block, unblock) for various types of virtual connections based on the signalling type of the NSE:

fr: Identifies a Frame Relay NSE.

ip: Identifies an IP NSE.

operation: Identifies the operation to be performed for the NSE connection (if available for the selected signalling type):

- **block nse-id** *nse_id*: Blocks signal flow through all network service virtual connections (NSVC) for the specified NSE:
  - *nse_id*: an integer from 0 to 65535.
- **bvc-flc-limit rate** *rate* **bvc-id** *bvc_id* **nse-id** *nse_id* - SGSN initiates flow control at the defined percentage rate to limit the flow through the BSSGP virtual connection (BVC) for the specified NSE and optionally for a specified BVC.
  - *rate*: an integer from 0 to 100.
  - *bvc_id*: an integer from 0 to 65000.
  - *nse_id*: an integer from 0 to 65535.
- **bvc-reset bvc-id** *bvc_id* **nse-id** *nse_id*: SGSN initiates a BVC-Reset on the specified BVC and NSE:
  - *bvc_id*: an integer from 0 through 65000.
  - *nse_id*: an integer from 0 through 65535.
- **nsvc** *nsvc_id* **{ block | enable | disable | unblock }***nse_id* - SGSN initiates NS-Block or NS-Unblock for the specified NSVC of the specified NSE:
  - *nsvc_id*: an integer from 0 through 65535.
  - *nse_id*: an integer from 0 through 65535.
- **reset nse-id** *nse_id* - SGSN initiates NS-Reset for all NSVC configured in the NSE. *nse_id* is an integer from 0 through 65535.
- **unblock nse-id** *nse_id* - SGSN initiates NS-Unblock for all NSVC configured for the specified NSE. *nse_id* is an integer from 0 through 65535.

sgsn-invoke-trace nse-id *nse_id* **record-type** *record_type* **trace-reference** *reference* **[mobile-id type** *id_type* **| trace-transaction-id** *trace_id* **]** :

Important This command can be used for troubleshooting/debugging purposes and is primarily intended for the use of specially trained service representatives.

Instructs the SGSN (1) to send the BSSGP message SGSN-INVOKE-TRACE to the BSC to initiate a BSC trace of a particular MS and (2) to define the type and triggering of the trace.

- *nse_id*: Identifies the peer NSE, enter an integer from 0 to 65535.
- *record_type*: Specifies the type of trace to be performed:
  - **basic**
  - **handover**
  - **no-bss-trace**
  - **radio**

- **trace-reference** *reference* : Specifies the trace reference ID as an integer from 0 to 65535.
- **mobile-id type** *id_type*: Select the appropriate mobile ID type for the MS that is to be traced:
  - **imei value** *value* - Specifies the mobile ID type as the unique International Mobile Equipment Identity.

    value: 15-digit IMEI value.
  - **imeisv value** *value*: Specifies the mobile ID type as the unique International Mobile Equipment Identity with the two-digit software version number.

    value: 16-digit IMEISV value.
  - **imsi value** *value* - Specifies the mobile ID type as a network unique International Mobile Subscriber Identity as a 15-digit IMSI value.
- **trace-transaction-id** *trace_id*: Specifies the trace transaction ID as an integer from 0 through 65535.

show plmn-list smgr-inst *sessmgr#*

Important This function is only available in release 8.1.

SGSN displays the configured PLMN list for the specified session manager (SessMgr):

sessmgr#: Enter up to 4 digits, 0 to 4095.

ss7-rd *ss7-rd_id* { destination | link | linkset | peer }

The **ss7-rd** commands assist with troubleshooting connections between the SGSN and the peer server.

ss7-rd_id: Specifies the configured SS7 routing domain as an integer from 1 through 12.

- **destination audit asp-instance** *asp_id* **peer-server-id** *peer_id* **psp-instance-id** *psp_id*

  Initiates destination audit (DAUD) messages for all point codes reachable via the identified peer-server, which is in restricted/unavailable/congested state due to DRST/DUNA/SCON messages respectively from the far end.
  - *asp_id*: Specifies the relevant ASP configuration ID as an integer from 1 through 4.
  - *peer_id*: Specifies the relevant peer server configuration ID as an integer from 1 through 144.
  - *psp_id*: Specifies the relevant PSP configuration ID as an integer from 1 through 4
- **link** *procedure* **linkset-id** *linkset_id* **link-id** *link_id*

  Initiates MTP3 network link management procedures for the specified link:
  - **activate**: Activates the deactivated link.
  - **deactivate**: Deactivates specified link.
  - **deactivate-l2-only**: Deactivates the link only at the MTP3 layer.
  - **inhibit**: Inhibits the link only if it does *not* make any destination unreachable.

- **uninhibit**: Uninhibits the inhibited link.
- *linkset_id*: an integer between 1 and 144.
- *link_id*: an integer between 1 and 16.

- **linkset-id** *procedure* **linkset-id** *linkset_id*

  Initiates MTP3 network link management procedures for all the links in the specified linkset:
  - **activate**: Activates the deactivated linkset.
  - **deactivate**: Deactivates the linkset.
  - **deactivate-l2-only**: Deactivates the linkset only at MTP3 layer.
  - *linkset_id*: an integer between 1 and 144.

- **peer** *message* **asp-instance** *asp_id* **peer-server-id** *peer_id* **psp-instance-id** *psp_id*

  Initiates one of the following SCTP/M3UA management messages from the identified link:
  - **abort**: Sends an SCTP Abort message which aborts the SCTP association ungracefully.
  - **activate**: Sends an M3UA ASP Active message to activate the link.
  - **down**: Sends an M3UA ASP Down message to bring down the M3UA link.
  - **establish**: Sends an SCTP INIT message to start the SCTP association establishment.
  - **inactivate**: Sends an M3UA ASP Inactive message to deactivate the link.
  - **inhibit**: Inhibits the M3UA link locally when the operator wants to lockout the link.
  - **terminate**: Sends SCTP Shutdown message which closes the SCTP association gracefully.
  - **un-inhibit**: Uninhibits the M3UA link.
  - **up**: Sends an M3UA ASP UP message to bring up the M3UA link.
  - *asp_id*: Specifies a relevant ASP configuration ID as an integer from 1 through 4.
  - *peer_id*: Specifies the relevant peer server configuration ID as an integer from 1 through 144.
  - *psp_id*: Specifies the relevant PSP configuration ID as an integer from 1 through 4

Usage Guidelines

In most cases, an operator will block/unblock/reset from the BSC-side. The **nse** commands cause the SGSN to initiate actions, usually for one of the following reasons:

- to resolve issues on the BSC-side,
- as part of an upgrade to the BSC,
- as part of link expansion,
- to resolve NSVC/BVC status mismatches observed between the SGSN and BSC.

The **sgsn-invoke-trace** command initiates the trace procedure where the BSC begins a trace record on a specified MS.

Example

The following command instructs the SGSN to initiate an NS-Block for all NSVC associated with Frame Relay NSE ID *2422*:

```
sgsn op nse fr unblock nse-id 2422
```

Activate linkset *1* configured in SS7 routing domain *1*:

```
sgsn op ss7-rd 1 linkset activate linkset-id 1
```

sgsn retry-unavailable-ggsn

Marks the GGSN as available for further activation.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

sgsn retry-unavailable-ggsn *ip_address*

ip_address

Specifies the IP address of a GGSN in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines

This command allows the operator to directly inform both the session manager and the SGTPC manager that the GGSN has been removed from a blacklist and is now available for activations. This action would override the GGSN blacklist timer configuration with **ggsn-fail-retry-timer** in the SGTP service configuration mode.

Example

The following command indicates that the GGSN identified by its IP address is now available for activation:

```
sgsn retry-unavailable-ggsn 198.168.128.8
```

sgsn trigger-congestion

This command triggers a congestion state for the entire SGSN for operations and maintenance purposes (e.g., testing).

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`sgsn trigger-congestion level { critical | major | minor }`

critical | major | minor

Select one of the three congestion severity levels. Each level is associated with congestion threshold settings and a congestion-action-profile.

Usage Guidelines

Use the **sgsn clear congestion** to disable congestion simulation and return to normal operations.

Use the **show congestion-control configuration** command to display the SGSN's congestion-control policy with the congestion-action-profile name association with the level of congestion severity.

Example

Enable critical congestion control response testing with th following command:

`sgsn trigger-congestion level critical`

sgtpc test echo sgsn-address

Initiates SGTPC echo test procedure.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`sgtpc test echo sgsn-address` *`sgsn_ip_address`* **`{ all | ggsn-address`** *`ggsn_ip_address`* **`}`**

sgsn-address *sgsn_ip_address*

Identifies the IP address of the SGSN issuing the test in IPv4 dotted-decimal notation.

all

Sends GTPC echo requests to all GGSNs having current sessions with the SGTP service.

ggsn-address *ggsn_ip_address*

Sends a GTPC echo request to the specified GGSN whether or not the GGSN has active sessions with the SGTP service. *ggsn_ip_address*is entered using IPv4 dotted-decimal notation.

Usage Guidelines

This command initiates a test for the GTPC echo procedure -- echo from the specified SGSN to a specified GGSN or to all GGSNs that have sessions with the SGTP service. Issue the command from the Exec Mode within the context in which the SGTP service is configured.

Note that if the GGSN does not respond to the initial echo request, the echo requests will be retried for the max-retransmissions times.

Example

This SGSN with IP address of *10.1.1.1* sends an echo test to all GGSNs attached to the SGTP service:

```
sgtpc test echo sgsn-address 10.1.1.1 all
```

shutdown

Terminates all processes within the chassis. After all processes are terminated, the system initiates a hardware reset (reboot). This command is identical to the **reload** command.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
shutdown [ ignore-locks ] [ -noconfirm ]
```

ignore-locks

Reboots the system regardless of any save configuration operations that may be currently running. StarOS displays a warning message but does not wait for save configuration requests to complete before initiating the reboot.

```
Warning: One or more other administrators are saving configuration
```

⚠

Caution

Use of the **ignore-locks** keyword may result in file corruption.

-noconfirm

Executes the command without any additional prompts or confirmation from the user.

Usage Guidelines

The system performs a hardware reset and reloads the highest priority boot image and configuration file specified in the boot.sys file. Refer to the **boot system priority** command in the Global Configuration Mode for additional information on configuring boot images, configuration files and priorities.

By default (without the **ignore-locks** option specified) **shutdown** waits for save configuration operations to complete before initiating the reboot.

Important To avoid the abrupt termination of subscriber sessions, it is recommended that a new call policy be configured and executed prior to invoking the **shutdown** command. This policy sets busy-out conditions for the system and allows active sessions to terminate gracefully. Refer to the **newcall** command in the Exec Mode for additional information.

Caution Issuing this command causes the system to become unavailable for session processing until the reboot process is complete.

Example

The following command performs a hardware reset on the system:

```
shutdown
```

sleep

Pauses the command line interface (CLI).

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
sleep seconds
```

sleep *seconds*

Specifies the number of seconds to pause as an integer from 1 through 3600.

Usage Guidelines Sleep is a command delay which is only useful when creating command line interface scripts such as predefined configuration files/scripts.

Example

The following will cause the CLI to pause for *30* seconds.

```
sleep 30
```

srp disable

Disables the sending of a NACK from a standby ICSR chassis.

Product

All products that support ICSR

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

srp disable nack micro-chkpt-cmd *chkpt_number* **[-noconfirm]**

chkpt_number

Specifies the checkpoint number to be disabled as an integer from 1 through 255. You can obtain checkpoint numbers (CMD ID) via the output of the **show srp checkpoint info** command.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to disable the sending of NACK messages from the standby chassis that trigger a full checkpoint from the active chassis. Sending full checkpoints increases SRP bandwidth. This command disables the NACK feature for a specific micro-checkpoint which is failing continuously.

You can re-enable the micro-checkpoint using the **srp enable nack micro-chkpt-cmd** command.

Example

The following command disables CMD ID 9 (SESS_UCHKPT_CMD_UPDATE_L2TPLNSSTATS).

```
srp disable nack micro-chkpt-cmd 9
```

srp enable

Enables the sending of a previously disabled NACK from a standby ICSR chassis.

Product

All products that support ICSR

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

srp enable nack micro-chkpt-cmd *chkpt_number* **[-noconfirm]**

chkpt_number

Specifies the checkpoint number to be enabled as an integer from 1 through 255. You can obtain checkpoint numbers (CMD ID) via output of the **show srp checkpoint info** command.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to enable the sending of previously disabled NACK messages from the standby chassis. This command enables the NACK feature for a specific micro-checkpoint.

You can disable a micro-checkpoint using the **srp disable nack micro-chkpt-cmd** command.

Example

The following command enables CMD ID 9 (SESS_UCHKPT_CMD_UPDATE_L2TPLNSSTATS).

```
srp enable nack micro-chkpt-cmd 9
```

srp initiate-audit

Initiates an SRP audit between active and standby ICSR chassis.

Product

All products that support ICSR

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

srp initiate-audit manual-with-sync

Usage Guidelines

When issued from the active chassis, this command initiates a forced audit between ICSR chassis. This audit ensures that two ICSR peers are synchronized and identifies any discrepancies prior to scheduled or unscheduled switchover events.

Example

The following command initiates a forced audit between ICSR chassis.

```
srp initiate-audit manual-with-sync
```

srp initiate-switchover

Changes the device status on the primary and backup chassis configured for Interchassis Session Recovery (ICSR) support employing Service Redundancy Protocol (SRP).

Product

All products that support ICSR

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`srp initiate-switchover [ force | post-processing-timeout | reset-route-modifier | timeout` *`seconds`* **`] [ -noconfirm ]`**

Important For release 20.0 and higher, ICSR will verify session manager connectivity on both chassis prior to allowing a manual switchover. If one or more of the session managers in the active chassis is not connected on the standby chassis, the switchover will not be initiated. An error message will appear on the screen noting the number of session managers that are mismatched. The **force** keyword can be used to initiate the switchover despite the mismatch(es). The output of the **show checkpoint statistics verbose** command will not indicate "Ready" for a session manager instance ("smgr inst") in the "peer conn" column for any instance that is not connected in the standby chassis.

force

Switchover by force, without any validating checks.

post-processing-timeout

Specifies the timeout value (in seconds) to initiate the post-switchover process as an integer from 0 through 3600.

reset-route-modifier

During a switchover, resets the route-modifier to the initial value.

timeout *seconds*

Specifies the number of seconds before a forced switchover occurs as an integer from 0 through 65535. Default: 300

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

This command executes a forced switchover from active to inactive. The command must be executed on the active system and switches the active chassis to the inactive state and the standby system to an active state.

The switchover will be blocked if one or more session managers are not connected on the standby chassis. The **force** keyword will initiate the switchover despite any session manager mismatches.

Example

The following initiates a switchover in *30* seconds.

```
srp initiate-switchover timeout 30
```

srp reset-auth-probe-fail

Resets Service Redundancy Protocol (SRP) authentication probe monitor failure information.

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
srp reset-auth-probe-fail
```

Usage Guidelines

This command resets the auth probe monitor failure information to 0.

Example

The following command resets the auth probe monitor failure information to 0:

```
srp reset-auth-probe-fail
```

srp reset-diameter-fail

Resets Service Redundancy Protocol (SRP) Diameter monitor failure information.

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
srp reset-diameter-fail
```

Usage Guidelines

This command resets the Diameter monitor failure information to 0.

Example

The following command resets the SRP Diameter monitor failure information:

```
srp reset-diameter-fail
```

srp reset-sx-fail

Resets the Service Redundancy Protocol (SRP) Sx monitor failure information.

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
srp reset-diameter-fail
```

Usage Guidelines

This command resets the Sx monitor failure information.

srp terminate-post-process

Forcibly terminates post-switchover processing by primary and backup chassis configured for Interchassis Session Recovery (ICSR) support employing Service Redundancy Protocol (SRP).

Product

All products that support ICSR

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
srp terminate-post-process [ -noconfirm ]
```

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Use this command to force the termination of post-switchover processing.

Example

```
srp terminate-post-process
```

srp validate-configuration

Initiates a configuration validation check from the active chassis via Service Redundancy Protocol (SRP).

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`srp validate-configuration`

Usage Guidelines

Validates the configuration for an active chassis.

Example

The following command initiates a configuration validation check from the active chassis:

`srp validate configuraiton`

srp validate-switchover

Validates that both the active and standby chassis are ready for a planned Service Redundancy Protocol (SRP) switchover.

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`srp validate-switchover`

Usage Guidelines

Validates that both the active and standby chassis are ready for a planned SRP switchover.

Example

The following example performs SRP readiness validation on both ICSR chassis:

`srp validate switchover`

ssh

Connects to a remote host using a secure shell (SSH) interface.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

ssh { *host_name* | *host_ip_address* } [port *port_num*] [user *user_name*]

host_name | host_ip_address

Identifies the remote node with which to attempt connection.

host_name: specifies the remote node using its logical host name which must be resolved via DNS lookup. This is an alphanumeric string of 1 through 127 characters.

host_ip_address: specifies the remote node using its assigned IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

port *port_num*

Specifies a specific port for connection as an integer from 1 through 65535. Default = 22

user *user_name*

Specifies the user name attempting connection as an alphanumerical string from 1 through 1024 characters.

Usage Guidelines

SSH connects to a remote network element using a secure interface.

Example

The following connects to remote host *remoteABC* as user *user1*.

```
ssh remoteABC user user1
```

The following connects to remote host *10.2.3.4* without any default user.

```
ssh 10.2.3.4
```

The following connects to remote host *10.2.3.4* via port *2047* without any default user.

```
ssh 10.2.3.4 port 2047
```

start crypto security-association

Initiates Internet Key Exchange (IKE) negotiations.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

start crypto security-association *cryptomap*

cryptomap

Specifies the name of an existing crypto map policy to use when starting the IKE negotiations as an alphanumeric string of 1 through 127 characters.

Usage Guidelines

Use this command to start IKE negotiations for IPSec.

Example

The following command starts the IKE negotiations using the parameters set in the crypto map named *crytpomap1*:

start crypto security-association cryptomap1

statistics-collection

This command allows to dynamically enable collection of Charging, Firewall or Post-processing ruledef statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

statistics-collection active-charging { { all | charging | firewall | post-processing } { callid *call_id* **| imsi** *imsi_number* **} }**
[no] statistics-collection active-charging { callid *call_id* **| imsi** *imsi_number* **}**

no

If previously configured, deletes the specified rule expression from the current ruledef.

all | charging | firewall | post-processing

- **all**: Specifies to collect all ruledef statistics.
- **charging**: Specifies to collect charging ruledef statistics.
- **firewall**: Specifies to collect firewall ruledef statistics.
- **post-processing**: Specifies to collect post-processing ruledef statistics.

callid *call_id*

Specifies a call identification number as an eight-byte hexadecimal number.

imsi *imsi_number*

Specifies the IMSI number to match.

imsi_number must be a sequence of digits.

Usage Guidelines

Use this command to dynamically enable collection of ruledef statistics — Charging, Firewall or Post-processing. By default, the statistics will not be maintained. If the command is not configured, statistics collection will not be enabled and the following error message will be displayed in the **show active-charging sessions full** CLI — "statistics collection disabled; not collecting <*charging/firewall/postprocessing*> ruledef stats".

Example

The following command will collect firewall ruledef statistics with call ID set to *004c9961*:

```
statistics-collection active-charging firewall callid 004c9961
```

system packet-dump

Initiates a packet dump on an SF or CF card in a VPC-DI system.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
system packet-dump { di-net card slot_num | port service_port } [ bond { a |
 b } | direction { both-rxtx | rx | rxtx | tx } | duration seconds |
packet-type { ipv4 | ipv6 } | pcapfile-size  size  | pcapfile-split-val
value  | protocol { icmpv4 | icmpv6 | tcp | udp } | to file filename ]
```

di-net card *slot_num*

Specifies the card from 1 through *n*.

port *card_port/port_num*

Specifies the ethernet interface based on the card number from 1 through *n* and port number from 1 through 50, for example 3/1.

bond { a | b }

Specifies a slave for bonded interfaces.

direction { both-rxtx | rx | rxtx | tx }

Specifies a filter for the direction of the packets to capture, either receive (**rx**), transmit (**tx**), or both (**rxtx**). Use the **both-rxtx** option to capture both receive and transmit, but output each to separate files.

duration *seconds*

Specifies the number of seconds from 1 through 600 for the packet dump. Default: 5 seconds

packet-type { ipv4 | ipv6 }

Specifies a filter for the type of the packets to capture, either **ipv4** or **ipv6**.

pcapfile-size *size*

Specifies the maximum size for each packet capture (pcap) file from 10 to 800 megabytes. Default: 10 megabytes.

pcapfile-split-val *value*

Specifies the number of pcap files to generate for a given capture from 0 to 10. Default: 0 (do not split files).

protocol { icmpv4 | icmpv6 | tcp | udp }

Specifies a filter for the protocol of the packets to capture, either **icmpv4**, **icmpv6**, **tcp**, or **udp**.

to file { /flash | /hd-raid | /cdrom1 | /sftp } [/directory]/ *filename*

Specifies the output location and filename.

Usage Guidelines

Use this command to perform packet captures to troubleshoot issues within a VPC-DI deployment.

Example

The following command initiates a packet dump on card in slot 7, port 1, and output the dump to a file stored locally at /flash/example7-1.pcap

```
system packet-dump port 7/1 to file /flash/example7-1.pcap
```

system ping

Initiates a ping test on the internal network between two VMs within the VPC-DI system.

Product VPC-DI

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`system ping from card` *`slot_num`* **`to card`** *`slot_num`* **`[ count`** *`number_of_packets`* **`| size`** *`bytes`* **`]`**

from card *slot_num*

Specifies the card slot number from 1 through *n* from which the ping test originates.

to card *slot_num*

Specifies the destination card slot number from 1 through *n*.

count *number_of_packets*

Sets the number of ping packets from 1 through 10000 to be sent. Default: 5 packets

size *bytes*

Sets the size of the ICMP Datagram in bytes from 40 to 18432. Default: 56

Usage Guidelines Use this command to perform ping tests to troubleshoot connectivity issues within a VPC-DI deployment.

Example

The following command initiates a ping test of 1000 packets from the card in slot 1 to the card in slot 9:

```
system ping from card 1 to card 9 count 1000
```

system ssh

Manages the persistent ssh user keys used for the internal ssh sessions between cards (VMs) in a VPC-DI system.

Product VPC-DI

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

system ssh key { copy boot1 to card *slot_num* **| create boot1 }**

no system ssh key boot1 { all | card *slot_num* **}**

no system ssh key boot1 { all | card *slot_num* }

Deletes the persistent ssh keys on a specific card or all cards in the VPC-DI system. Deletion of keys may be used to purge a VM of the persistent keys or prepare the system for using a different distribution method (ESC, OpenStack, attached ISO).

- **all** : Deletes the ssh keys on all cards in the VPC-DI system.
- **card** *slot_num* : Deletes the ssh keys on the card specified by *slot_num* .

Note This command does not affect the VM until it is rebooted. It will continue to use the active key found during its boot.

copy boot1 to card *slot_num*

Transfers the persistent ssh keys (both public and private) in /boot1 on the active CF to another VM. That VM must be in a state to accept it by a user with console access placing it in receiver mode during its failed boot.

create boot1

Creates new persistent ssh keys (both public and private) and stores it in /boot1 on the active CF.

Note This command does not affect the VM until it is rebooted. It will continue to use the active key found during its boot.

Usage Guidelines

Use this command to manage the internal ssh keypairs in a VPC-DI deployment. While StarOS provides sshd services for user CLI and SFTP sessions on the management VMs (CF), another set of sshd services run for the exlusive use of internal communication between all component VMs, such as for remote command execution and file transfers. This internal sshd is only used on the internal DI-network interface.

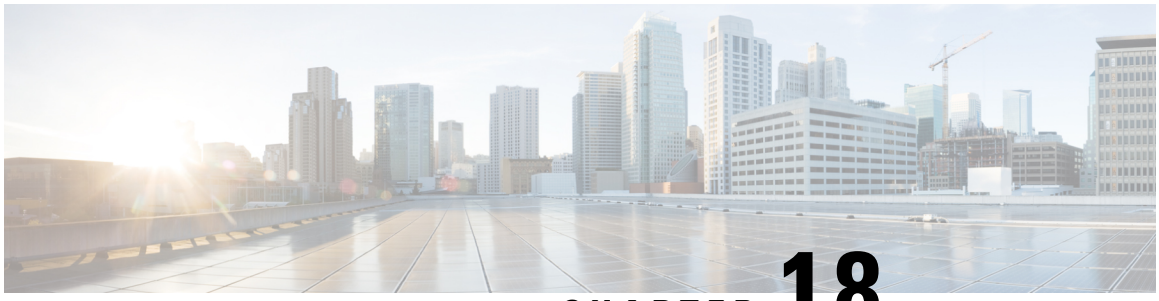
This command enables you to store and manage ssh keys on the VM's virtual hard disk drive (HDD). This provides an alternate option for storing ssh keypairs besides the other methods such as Cisco Elastic Services Controller (ESC), OpenStack, or a directly attached ISO. The /boot1 partition is only accessible by a security administrator.

Use the **show system ssh key status** command to display the fingerprint of the current public key in use, the origin of where the key was found, and the status of all online VMs.

Example

The following command copies the ssh keypairs from the active CF to the card in slot 12

```
system ssh key copy boot1 to card 12
```



CHAPTER 18

Exec Mode Commands (T-Z)

The Exec Mode is the initial entry point into the command line interface system. Exec mode commands are useful in troubleshooting and basic system monitoring.

Command Modes

This section includes the commands **telnet** through **upgrade url-blacklisting database**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

tcpdump kernel

Runs the tcpdump packet analyzer and prints out a description of the contents of packets on a specified network interface that match the boolean expression.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

tcpdump kernel *string*

string

Specifies an existing interface match string as an alaphanumeric stirng of 0 through 80 characters.

Usage Guidelines

Runs the tcpdump packet analyzer and prints out a description of the contents of packets on a specified network interface that match the boolean expression. This analyzer performs a sniff operation at the mcdma0 interface using the kernel BIA (Bump-in-the-API) as a filter. This allows sniffing of kernel traffic complete with midplane header.

Important

The **tcpdump kernel** command is not available in Trusted builds.

Example

The following command initiates a tcpdump for the default kernel interface:

tcpdump BPPP

telnet

Connects to a remote host using the terminal-remote host protocol and a hostname or IPv4 address and port number.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`telnet { host_name | host_ipv4_address } [ port port_num ]`

host_name | host_ipv4_address

Identifies the remote node with which to attempt connection.

host_name: specifies the remote node using its logical host name which must be resolved via DNS lookup.

host_ipv4_address: specifies the remote node using its assigned IP address entered using the IPv4 dotted-decimal notation.

port *port_num*

Specifies a specific port for connect connection as an integer from 1025 through 10000.

Usage Guidelines

Telnet to a remote node for maintenance activities and/or troubleshooting when unable to do so directly.

Important

telnet is not a secure method of connecting between two hosts. **ssh** should be used whenever possible for security reasons.

Example

The following connects to remote host *remoteABC*.

`telnet remoteABC`

The following connects to remote host *10.2.3.4* port *2047*.

`telnet 10.2.3.4 port 2047`

telnet6

Connects to a remote host using the terminal-remote host protocol and a hostname or an IPv6 address and port number.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`telnet6 { host_name | host_ipv6_address } [ port port_num ]`

host_name | host_ipv6_address

Identifies the remote node with which to attempt connection.

host_name: specifies the remote node using its logical host name which must be resolved via DNS lookup.

host_ipv6_address: specifies the remote node using its assigned IP address entered using the IPv6 colon-separated-hexadecimal notation.

port *port_num*

Specifies a specific port for connect connection as an integer from 1025 through 10000.

Usage Guidelines

Telnet to a remote node for maintenance activities and/or troubleshooting when unable to do so directly.

Important

telnet6 is not a secure method of connecting between two hosts. **ssh** should be used whenever possible for security reasons.

Example

The following connects to remote host *remoteABC*.

```
telnet6 remoteABC
```

The following connects to remote host *FE80::172.30.67.89* port *2047*.

```
telnet6 FE80::172.30.67.89 port 2047
```

terminal

Sets the number of rows or columns for display output.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
terminal { length lines | width characters }
```

length *lines* | width *characters*

length *lines*: sets the terminal length in number of lines (rows) of text from 5 to 4294967295 lines or the special value of 0 (zero). The value 0 sets the terminal length to infinity.

width *characters*: sets the terminal width in number of characters from 5 to 512 characters.

Usage Guidelines Set the length to 0 (infinite) when collecting the output of a command line interface session which is part of a scripted interface.

Example

The following sets the length then width in two commands.

```
terminal length 66
terminal width 160
```

The following command sets the number of rows of the terminal to infinity.

```
terminal length 0
```

test alarm

Tests the alarm capabilities of the chassis.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description `test alarm { audible | central-office { critical | major | minor } }`

audible | central-office { critical | major | minor }

audible: Tests the internal alarm on the ASR 5500 System Status Card (SSC) for 10 seconds. The alarm status is returned to its prior state, such as if the audible alarm was enabled prior to the test, the alarm will again be enabled following the test.

central-office { critical | major | minor }: Tests the specified central office alarm type.

Usage Guidelines Test the alarm capabilities of the chassis as periodic maintenance to verify the hardware for generation of the internal audible alarms is functional.

Caution The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Example

```
test alarm audible
test alarm central-office critical
test alarm central-office major
test alarm central-office minor
```

test ggsn vapn

Tests for Virtual Access Point Names (VAPNs) in GGSN networks.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
test ggsn vapn { msisdn range | imsi range }
```

msisdn range | imsi range

msisdn range: Tests VAPNs within a range of previously specified Mobile Subscribers Integrated Services Digital Network (MSISDN) identifiers.

imsi range: Tests VAPNs within a range of previously specified International Mobile Subscriber Identity (IMSI) numbers.

Usage Guidelines

Test for the existence of VAPNs associated with MSISDN or IMSI numbers.

Caution The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Example

```
test ggsn vapn msisdn range
test ggsn vapn imsi range
```

test ipcf bindmux

Tests the status of the Intelligent Policy Control Function (IPCF) BindMux Manager instance and also starts or stops the BindMux Manager instance on the chassis.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description `test ipcf bindmux [ start | stop ]`

start

Starts the IPCF BindMux Manager on the chassis. If already an instance of IPCF BindMux Manager is running it prompts accordingly.

stop

Stops the IPCF BindMux Manager instance running on the chassis.

Usage Guidelines Use this command to test the status of IPCF BindMux Manager instance and also to start or stop the BindMux Manager instance on the chassis.

Caution The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Example

The following command stops the BindMux Manager instance running on the chassis:

`test ipcf bindmux stop`

test ipsec tunnel ip-pool

Tests a specified IPSec tunnel associated with an IP pool name.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description `test ipsec tunnel ip pool pool_name destination-ip ip_address }`

pool_name* destination-ip *ip_address

ip pool *pool_name*: Specifies the name of an existing IP pool as an alphanumeric string of 1 through 32 characters.

destination-ip *ip_address*: Specifies a destination IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation

Usage Guidelines Use this command to test a specified IPSec tunnel.

Caution The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Example

The following command test the IPSec tunnel associated with *pool3* with a destination IP address of *10.2.3.4*:

```
test ipsec tunnel ip pool pool3 destination-ip 10.2.3.4
```

test mobile tunnel

Tests for the existence of a specified mobile tunnel.

Product All

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
test mobile tunnel { callid call_id | imsi imsi_value | ipaddr ip_address | msid msid_num | nai nai_value }
```

callid *call_id*

Specifies the exact call instance ID which is to have trace data logged.as a 4-byte hexadecimal number.

imsi *imsi_value*

Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session to be monitored an integer from 1 though 15 characters.

ipaddr *ip_address*

Specifies the IP address of the subscriber session to be monitored in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

msid *msid_num*

Specifies the mobile subscriber identification number to be monitored as 7 to 16 digits of an IMSI, MIN, or RMI.

nai *nai_value*

Specifies the mobile session Network Access Identifier as an alphanumeric string of 1 through 256 characters. The NAI is the user identity submitted by the client during network access authentication.

Usage Guidelines

Use this command to test a specified mobile tunnel.

Caution The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Example

The following command tests the subscriber session associated with IP address 192.64.66.9:

```
test mobile tunnel ipaddr 192.64.66.9
```

timestamps

Enables or disables the generation of a timestamp in response to each command entered. The timestamp does not appear in any logs as it is a CLI output only. This command affects the current CLI session only. Use the **timestamps** command in the Global Configuration Mode to change the behavior for all future CLI sessions.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
[ no ] timestamps
```

no

Disables generation of timestamp output for each command entered. When omitted, the output of a timestamp for each entered command is enabled.

Usage Guidelines

Enable timestamps when logging a CLI session on a remote terminal such that each command will have a line of text indicating the time when the command was entered.

Example

The following command initiates time stamping of CLI commands as they are entered for this login session:

```
timestamps
```

traceroute

Collects information on the route data will take to a specified IPv4 host.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important

Inspector privileges are granted for all variables except **count and port**. To initiate a traceroute count or to target a specific port for a traceroute, you must have a minimum privilege level of Operator.

Syntax Description

traceroute { *host_name* | *host_ip_address* } [count *packets*] [df] [maxttl *max_ttl*] [minttl *min_ttl*] [port *port_num*] [size *octet_count*] [src { *src_host_name* | *src_host_ip_address* }] [timeout *seconds*] [vrf *vrf_name*] [| { grep *grep_options* | more }]

host_name | host_ip_address

Identifies the remote node to trace the route to.

host_name: specifies the remote node using its logical host name which must be resolved via DNS lookup.

host_ip_address: specifies the remote node using its assigned IP address entered using the IPv4 dotted-decimal notation.

count *packets*

Specifies the number of UDP probe packets to send. Default: 3

df

Indicates the packets for the tracing of the route should not be fragmented. If a packet requires fragmenting, it is dropped and the result is the ICMP response "Unreachable, Needs Fragmentation" is received.

maxttl *max_ttl*

Specifies the maximum time to live for the route tracing packets as an integer from 1 through 255. *max_ttl* must be greater than *min_ttl* whether *min_ttl* is specified or defaulted. Default: 30

The time to live (TTL) is the number of hops through the network; it is not a measure of time.

minttl *min_ttl*

Specifies the minimum time to live for the route tracing packets as an integer from 1 through 255. *min_ttl* must be less than *max_ttl* whether *max_ttl* is specified or defaulted. Default: 1

The time to live (TTL) is the number of hops through the network; it is not a measure of time.

port *port_num*

Specifies a specific port for connection as an integer from 1 through 65535. Default: 33434

size *octet_count*

Specifies the number of bytes for each packet as an integer from 40 through 32768. Default: 40

src { *src_host_name* | *src_host_ip_address* }

Specifies an IP address to use in the packets as the source node. Default: originating system's IP address

src_host_name: specifies the remote node using its logical host name which must be resolved via a DNS lookup.

src_host_ip_address: specifies the remote node using its assigned IP address specified entered using IPv4 dotted-decimal notation.

timeout *seconds*

Specifies the maximum time (in seconds) to wait for a response from each route tracing packet as an integer from 2 through 100. Default: 5

vrf *vrf_name*

Specifies the name of an existing virtual routing and forwarding (VRF) context associated with this route as an alphanumeric string of 1 through 63 characters. Associates a Virtual Routing and Forwarding (VRF) context with this static ARP entry.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in this guide.

Usage Guidelines

Trace an IPv4 route when troubleshooting network problems where certain nodes are having significant packet delays or packet loss. This can also be used to identify bottlenecks in the routing of data within the network.

Example

The following command traces the route to remote host *remoteABC* and sends the output to the more command.

```
traceroute remoteABC | more
```

The following command traces the route to remote host *10.2.3.4*'s port *2047* waiting a maximum of *2* seconds for responses.

```
traceroute 10.2.3.4 port 2047 timeout 2
```

traceroute6

Collects information on the route data will take to a specified IPv6 host.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important

Inspector privileges are granted for all variables except **count and port**. To initiate a traceroute count or to target a specific port for a traceroute, you must have a minimum privilege level of Operator.

Syntax Description

traceroute6 { *host_name* | *host_ipv6_address* } [count *packets*] [maxttl *max_ttl*] [port *port_num*] [size *octet_count*] [src { *src_host_name* | *src_host_ipv6_address* }] [timeout *seconds*] [vrf *vrf_name*] [| { grep *grep_options* | more }]

host_name | host_ipv6_address

Identifies the remote node to trace the route to.

host_name: specifies the remote node using its logical host name which must be resolved via DNS lookup.

host_ipv6_address: specifies the remote node using its assigned IP address entered using the IPv6 colon-separated-hexadecimal notation.

count *packets*

Specifies the number of UDP probe packets to send. Default: 3

maxttl *max_ttl*

Specifies the maximum time to live for the route tracing packets as an integer from 1 through 255. *max_ttl* must be greater than *min_ttl* whether *min_ttl* is specified or defaulted. Default: 30

The time to live (TTL) is the number of hops through the network; it is not a measure of time.

port *port_num*

Specifies a specific port for connection as an integer from 1 through 65535. Default: 33434

size *octet_count*

Specifies the number of bytes for each packet as an integer from 40 through 32768. Default: 40

src { *src_host_name* | *src_host_ipv6_address* }

Specifies an IP address to use in the packets as the source node. Default: originating system's IP address

src_host_name: specifies the remote node using its logical host name which must be resolved via a DNS lookup.

src_host_ipv6_address: specifies the remote node using its assigned IP address specified entered using IIPv6 colon-separated-hexadecimal notation.

timeout *seconds*

Specifies the maximum time (in seconds) to wait for a response from each route tracing packet as an integer from 2 through 100. Default: 5

vrf *vrf_name*

Specifies the name of an existing virtual routing and forwarding (VRF) context associated with this route as an alphanumeric string of 1 through 63 characters.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in this guide.

Usage Guidelines

Trace an IPv6 route when troubleshooting network problems where certain nodes are having significant packet delays or packet loss. This can also be used to identify bottlenecks in the routing of data within the network.

Example

The following command traces the route to remote host *remoteABC* and sends the output to the more command.

```
traceroute6 remoteABC | more
```

The following command traces the route to remote host *2000:4A2B::1f3F*'s port *2047* waiting a maximum of *2* seconds for responses.

```
traceroute6 2000:4A2B::1f3F port 2047 timeout 2
```

update active-charging

Updates specified active charging option(s) for the matching sessions.

Product

ACS

PSF

NAT

TPO

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

update active-charging { override-control rulebase-config | switch-to-fw-and-nat-policy *fw_nat_policy_name* **| switch-to-rulebase** *rulebase_name* **| switch-to-tpo-policy** *tpo_policy_name* **} { all | callid** *call_id* **| fw-and-nat-policy** *fw_nat_policy_name* **| imsi** *imsi* **| ip-address** *ip_address* **| msid** *msid* **| rulebase** *rulebase_name* **| tpo-policy** *tpo_policy_name* **| username** *user_name* **} [-noconfirm] [| { grep** *grep_options* **| more }]**

override-control rulebase-config

This keyword initiates batch processing of all active calls to apply Override Control (OC) or Inheritance after any rulebase changes, charging action changes and/or addition/deletion of ruledefs for all subscribers having OC or Inheritance feature enabled. Since this is the batch processing of all active calls, the command execution will be in the background even after the CLI command returns to the CLI prompt.

Important Override Control is a license-controlled feature. A valid feature license must be installed prior to configuring this feature. For more information on the licensing requirements, contact your Cisco account representative. For more information on the command to enable this feature, refer to *ACS Rulebase Configuration Mode Commands* chapter in the *Command Line Interface Reference*.

Important In this release, both Inheritance and the Override Control features are supported. Note that these two features should not be enabled simultaneously. If by mistake, these two features are enabled, only Override Control is applied.

In 17 and later releases, this CLI command is used to apply the overridden or inherited values after any ruledef, charging action and rulebase changes performed through the CLI commands in the respective configuration modes. This CLI command is necessary because the configuration changes are reflected immediately on any new PDN session that gets established. However, for the existing PDN sessions established before the configuration change, explicit execution of this CLI command is necessary. This will get all the PDN sessions in system in sync with respect to the required configuration changes.

Important It is recommended that this CLI command is executed after all rulebase/charging action/ruledef changes are complete. So, this will help in one-time execution of the CLI to get all PDN sessions in sync.

Typically, this command is used whenever any rulebase, charging action or ruledef modification happens. Once this CLI command is executed, each subscriber will read the configuration and incorporate the rulebase or ruledef changes for Override Control. Until this CLI execution is complete, Inheritance or Override Control values will not be applied to the changes done in configuration for all existing calls. Charging and policy parameters configured at P-GW will apply during this period. Please follow recommended upgrade procedures to avoid this. For the upgrade procedure, contact your Cisco account representative.

In release 17, the batch processing will complete in 15 to 20 minutes depending on the call load in the system. In 18 and later releases, batch processing will complete in 1 to 3 minutes depending on the call load in the system.

If the **override-control rulebase-config** command has been issued multiple times, batch processing will be restarted and the latest rulebase/charging action/ruledef changes will be applied to all the active calls.

Important In release 17, there was no restriction on the usage of the CLI command "**update active-charging override-control rulebase-config**" on a standby chassis. In release 18 and later, this CLI command is not allowed to be executed on the standby chassis.

switch-to-fw-and-nat-policy *fw_nat_policy_name*

Specifies an existing Firewall-and-NAT policy to switch to as an alphanumeric string of 1 through 63 characters.

switch-to-rulebase *rulebase_name*

Specifies an existing rulebase to switch to as an alphanumeric string of 1 through 63 characters.

switch-to-tpo-policy *tpo_policy_name*

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

all

Updates rulebase/policy for all subscribers.

callid *call_id*

Updates rulebase/policy for the Call Identification number specified as an eight-digit hexadecimal number.

fw-and-nat-policy *fw_nat_policy_name*

Updates the rulebase/policy for sessions matching an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 63 characters.

imsi *imsi*

Updates rulebase/policy for International Mobile Subscriber Identification (IMSI) specified here.

imsi must be 3 digits of MCC (Mobile Country Code), 2 or 3 digits of MNC (Mobile Network Code), and the rest with MSIN (Mobile Subscriber Identification Number). The total should not exceed 15 digits. For example, 123-45-678910234 can be entered as 12345678910234.

ip-address *iP_address*

Updates rulebase/policy for the IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

msid *msid*

Updates rulebase/policy for an MSID specified as a string of 1 through 24 characters.

rulebase *rulebase_name*

Updates rulebase/policy for sessions matching an existing rulebase specified as an alphanumeric string of 1 through 63 characters.

tpo-policy *tpo_policy_name*

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

username *user_name*

Updates rulebase/policy for user specified as a an alphanumeric of characters and/or wildcard characters ('$' and '*') of 1 through 127 characters.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

Usage Guidelines

Use this command to change specified active charging option(s) for the matching sessions.

Example

The following command changes the rulebase for sessions using the rulebase named *standard* to use the rulebase named *super*:

```
update active-charging switch-to-rulebase super rulebase standard
```

update firewall policy

This command is obsolete.

update ip access-list

When you update an IP Access list, this command forces the new version of the access list to be applied to any subscriber sessions that are currently using that list.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

update ipv6 access-list *list_name* **subscribers [** *command_keyword* **] [** *filter_keywords* **] [-noconfirm] [verbose]]**

list_name

Specifies the name of an existing IP Access list that you want to apply to the subscriber as an alphanumeric string of 1 through 47 characters.

[*command_keyword*] [*filter_keywords*]

These are the same command keywords and filter keywords available for the **show subscribers** command.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

verbose

Show detailed information.

Usage Guidelines

Use this command to force existing subscriber sessions that are already using a specific IP Access list to have that IP Access list reapplied. This is useful when you edit an IP Access list and want to make sure that even existing subscriber sessions have the new changes applied.

Example

To apply the IP Access list named *ACLlist11* to all existing subscribers that are already using that IP Access list, enter the following command:

```
update ip access-list ACLlist11 subscribers all
```

update ipv6 access-list

When you update an IP Access list, this command forces the new version of the access list to be applied to any subscriber sessions that are currently using that list.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

update ipv6 access-list *list_name* **subscribers [** *command_keyword* **] [** *filter_keywords* **] [-noconfirm] [verbose]]**

list_name

Specifies the name of an existing IPv6 Access list that you want to apply to the subscriber as an alphanumeric string of 1 through 47 characters.

[***command_keyword*** **] [** ***filter_keywords*** **]**

These are the same command keywords and filter keywords available for the **show subscribers** command.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

verbose

Show detailed information.

Usage Guidelines

Use this command to force existing subscriber sessions that are already using a specific IPv6 Access list to have that IPv6 Access list reapplied. This is useful when you edit an IPv6 Access list and want to make sure that even existing subscriber sessions have the new changes applied.

Example

To apply the IPv6 Access list named *ACLv6List1* to all existing subscribers that are already using that IP Access list, enter the following command:

update ipv6 access-list ACLv6List1 subscribers all

update local-user database

Updates the local user (administrative) database with current user information. Run this command immediately after creating, removing or editing administrative users.

Important

In a release 20.0 or higher Trusted build, this command is not available.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`update local-user database`

Usage Guidelines

Use this command to update the local-user database with current information.

Example

The following command updates the local-user database:

`update local-user database`

update module

Loads a specified plugin module from the Module Priority List with the lowest priority number. This will also copy the Module priority list onto the Version priority list. This function is associated with the patch process for accommodating dynamic software upgrades.

Product

ADC

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`update module` *`plugin_name`*

plugin_name

Specifies the name of an existing plugin module that you want to update as an alphanumeric string of 1 through 16 characters. If the named module is not known to the system, an error message is displayed.

Usage Guidelines

Use this command to initiate an update of a new software plugin module. If it fails to load, the module with next highest priority will be loaded. If none of the modules are installed, the default patch which comes along with the StarOS build is automatically loaded. The specified module must have been previously unpacked/verified and configured via the **install plugin** and **plugin** commands respectively.

For additional information, refer to the *Plugin Configuration Mode Commands* chapter.

Example

The following command updates the plugin module named *p2p*:

`update module p2p`

update qos policy map

Updates QoS profile information based on specific subscriber policy maps.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

update qos policy-map *map_name* **use-granted-profile-id** *id1* **[** *id2* **]** **[** *id3* **]** **subscribers** **[** *command_keyword* **]** **[** *filter_keywords* **]** **[-noconfirm]** **[verbose]** **[match-requested-profile-id]** **[| { grep** *grep_options* **| more }]**

map_name

Specifies the name of an existing policy map as an alphanumeric string of 1 through 15 characters.

use-granted-profile-id *id1* [*id2*] [*id3*]

Specifies the profile IDs to update. Up to three different profile IDs can be specified.

Each profile ID is specified as a hexadecimal value from 0x0 and 0xFFFF.

subscribers [*command_keyword*] [*filter_keywords*]

These are the same command keywords and filter keywords available for the **show subscribers** command.

[-noconfirm]

Updates matching subscribers without prompting for confirmation.

[verbose]

Displays details for the profile updates.

[match-requested-profile-id]

Sends session-updates only to profile-ids matching the profile-ids in the requested list.

grep *grep_options* | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in this guide.

Usage Guidelines

Use this command to update subscriber session profile IDs based on the specified criteria.

Example

The following command updates profile IDs *0x3E* and *0x4C* for all subscriber sessions and sends session-updates with the IDs:

```
update qos policy-map test use-granted-profile-id 0x3E 0x4C subscribers
all match-requested-profile-id
```

update qos tft

Updates the subscriber traffic flow template (TFT) associated with the flow ID and direction.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
update qos tft flow-id flow-id flow-dir { forward | reverse }
use-granted-profile-id id1 [ id2 ] [ id3 ] subscribers [ command_keyword ] [
filter_keywords ] [-noconfirm ] [ verbose ] [ match-requested-profile-id ]
[ | { grep grep_options | more }
```

flow-id *flow-id*

Sends session updates only when the flow ID matches the flow-id and flow-direction. *flow-id* must be specified as an integer from 1 through 255.

flow-dir { forward | reverse }

Specifies the direction of the TFT flow.

subscribers [*command_keyword*] [*filter_keywords*]]

These are the same command keywords and filter keywords available for the **show subscribers** command.

Usage Guidelines

Supports QoS updates based on subscriber TFTs.

Example

The following command update QoS for reverse flow 0, profile ID 0x0, all subscribers without prompting for confirmation:

```
update qos tft flow-id 0 flow-dir reverse use-granted-profile-id 0x0
subscribers all -noconfirm
```

update security

Updates database information for the specified Talos Security Intelligence server.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`update security server talos-intelligence` *`server_name`* **`[ force ]`**

server_name

Specifies an existing Talos Intelligence Server name to be updated. *server_name* must be specified as a case-sensitive alphanumeric string from 1 through 31 characters.

force

Deletes the existing DB files before the Talos Intelligence server is queried. When this optional keyword is used, the latest files will always be downloaded and updated even if the system already has the most recent versions.

Usage Guidelines

Use this command to query the Talos Intelligence Server to determine if updated database files exist. If so, the files will be downloaded and updated.

upgrade content-filtering

Upgrades the Static Rating Database (SRDB) for Category-based Content Filtering application.

Product

CF

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`upgrade content-filtering category { database | rater-pkg }`

upgrade content-filtering category database

Triggers the upgrade of the Category-based Content Filtering Static Rating Database (SRDB).

upgrade content-filtering category rater-pkg

Triggers manual upgrade of the Dynamic Content-Filtering Rater Package (**rater.pkg** file).

The **rater.pkg** file contains the models and feature counters that are used to return the dynamic content rating. The upgrade will trigger distribution of the **rater.pkg** to all the SRDBs.

Important This command is customer specific. For more information, please contact your local sales representative.

Usage Guidelines Use this command to load the Static Rating Database (SRDB) in to memory for Category-based Content Filtering application, and/or to load the *rater.pkg* file.

If the default directory of /cf does not exist on the flash, it will create the same. It also locates the recent full database and loads it into memory. This command also clears the old and excess incremental databases.

Important This command is not supported on all platforms.

Example

The following command upgrades the SRDB for the Category-based Content Filtering application:

```
upgrade content-filtering category database
```

upgrade database

This command allows you to upgrades a specified database.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
upgrade database uidh [ all | wl-url-host-db ]
```

uidh all

Upgrades UIDH databases.

uidh wl-url-host-db

Upgrades URL Host databases.

Usage Guidelines Use the following command to upgrade the UIDH whitelist URL database:

upgrade tethering-detection

Upgrades the Tethering Detection feature's database(s).

Product

ACS

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`upgrade tethering-detection database { all | os-signature | tac | ua-signature } [ -noconfirm ]`

all

Upgrades all Tethering Detection databases—OS, TAC and UA.

os-signature

Upgrades only the OS database.

tac

Upgrades only the TAC database.

ua-signature

Upgrades only the UA database.

- noconfirm

Executes the command without any prompts and confirmation from the user.

Usage Guidelines

Use this command to upgrade the database(s) used by the Tethering Detection feature.

This command upgrades the database(s) from file(s) kept in designated path. The name of the existing source file is prefixed with the word "new-". For example for OS DB, if the existing file name is "os-db", the upgrade file name is "new-os-db".

If there is a file named "new-xxx-db", it is verified that it is a valid Tethering Detection database and then loaded it into memory. If successful, the files is renamed "xxx-db" to "xxx-db-<number>" and then renamed "new-xxx-db" to "new-xxx-db".

For example, the command **upgrade tethering-database ua-signature -noconfirm** results in loading the file by name "new-ua-db" if it is present in the designated directory. In case of a successful upgrade, the previous version of the database is stored as backup in a file named "ua-db-1". Also, the newly uploaded database file is renamed as "ua-db".

Also see the **tethering-database** command in the *ACS Configuration Mode Commands* chapter.

Example

The following command upgrades all Tethering Detection databases:

```
upgrade tethering-detection database all -noconfirm
```

upgrade url-blacklisting database

Upgrades the URL blacklisting database.

Product

CF

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
upgrade url-blacklisting database [ -noconfirm ]
```

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

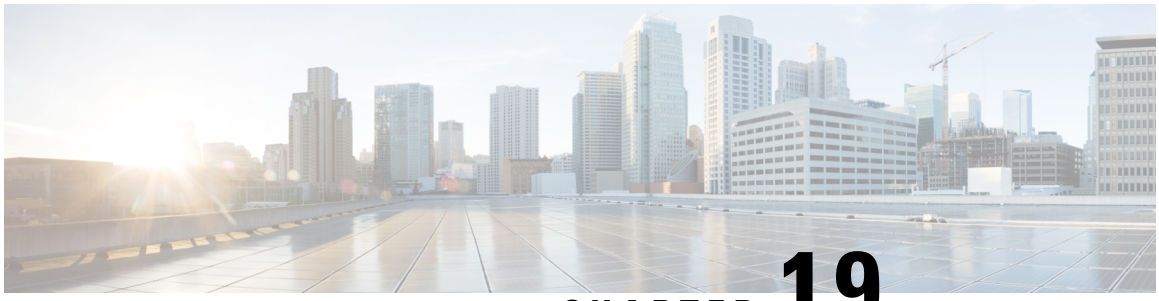
Usage Guidelines

Use this command to upgrade and load a URL blacklisting database whenever required.

Example

The following command updates the URL blacklisting database:

```
upgrade url-blacklisting database
```



CHAPTER 19

Exec Mode show Commands (A-C)

The Exec Mode is the initial entry point into the command line interface system. Exec mode **show** commands are useful in troubleshooting and basic system monitoring.

Command Modes

This section includes the commands **show aaa** through **show css service**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

show active-charging analyzer statistics

Displays statistical information for protocol analyzers.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show active-charging analyzer statistics [name *protocol_name* **[instance** *instance_number* **] [verbose]] [| { grep** *grep_options* **| more }]**

name *protocol_name*

Displays detailed information for the specified protocol analyzer:

- **cdp**
- **dns**

- **file-transfer**
- **ftp**
- **h323**
- **http**
- **icmp**
- **icmpv6**
- **imap**
- **ip**
- **ipv6**
- **mms**
- **p2p [application** *p2p_list* **| protocol-group** *group_list* **| duration [audio { application** *p2p_audio_duration_list* **} | video { application** *p2p_video_duration_list* **}]] [wide [all]]** : Peer-to-peer analyzer.

  p2p application *p2p_list*: The supported applications are:

  - **8tracks**
  - **abcnetworks**
  - **actionvoip**
  - **actsync**
  - **adobeconnect**
  - **aimini**
  - **amazoncloud**
  - **amazonmusic**
  - **amazonvideo**
  - **antsp2p**
  - **apple-push**
  - **apple-store**
  - **applejuice**
  - **applemaps**
  - **ares**
  - **armagettron**
  - **avi**
  - **badoo**
  - **baidumovie**

- **battlefld**
- **bbm**
- **beatport**
- **betternet**
- **bitcasa**
- **bittorrent**
- **bittorrent-sync**
- **blackberry-store**
- **blackberry**
- **blackdialer**
- **box**
- **callofduty**
- **chikka**
- **cisco-jabber**
- **citrix**
- **clubbox**
- **clubpenguin**
- **crackle**
- **crossfire**
- **crunchyroll**
- **cyberghost**
- **ddlink**
- **deezer**
- **didi**
- **directconnect**
- **dish-anywhere**
- **disneymovies**
- **dofus**
- **dramafever**
- **dropbox**
- **edonkey**
- **espn**

- **expressvpn**
- **facebook**
- **facetime**
- **fandor**
- **fasttrack**
- **feidian**
- **fiesta**
- **filetopia**
- **filmontv**
- **flash**
- **flickr**
- **florensia**
- **foursquare**
- **fox-sports**
- **freenet**
- **friendster**
- **fring**
- **funshion**
- **gadu_gadu**
- **gamekit**
- **gmail**
- **gnutella**
- **go90**
- **goober**
- **google-music**
- **google-push**
- **google**
- **googleplay**
- **googleplus**
- **gotomeeting**
- **gtalk**
- **guildwars**

- **halflife2**
- **hamachivpn**
- **hayu**
- **hbogo**
- **hbonow**
- **heytell**
- **hgtv**
- **hike-messenger**
- **hls**
- **hotspotvpn**
- **hulu**
- **hyves**
- **iax**
- **icall**
- **icecast**
- **icloud**
- **idrive**
- **igo**
- **iheartradio**
- **imesh**
- **imessage**
- **imgur**
- **imo**
- **instagram**
- **iplayer**
- **iptv**
- **irc**
- **isakmp**
- **iskoot**
- **itunes**
- **jabber**
- **jap**

- **jumblo**
- **kakaotalk**
- **kik-messenger**
- **kontiki**
- **kugoo**
- **kuro**
- **linkedin**
- **livestream**
- **lync**
- **magicjack**
- **manolito**
- **mapfactor**
- **mapi**
- **maplestory**
- **meebo**
- **mgcp**
- **mlb**
- **mojo**
- **monkey3**
- **mozy**
- **msn**
- **msrp**
- **mute**
- **mypeople**
- **myspace**
- **nateontalk**
- **naverline**
- **navigon**
- **nbc-sports**
- **netmotion**
- **newsy**
- **nick**

- **nimbuzz**
- **nokia-store**
- **octoshape**
- **off**
- **ogg**
- **oist**
- **oovoo**
- **opendrive**
- **openft**
- **openvpn**
- **orb**
- **oscar**
- **outlook**
- **paltalk**
- **pando**
- **pandora**
- **path**
- **pbs**
- **pcanywhere**
- **periscope**
- **pinterest**
- **plingm**
- **poco**
- **popo**
- **pplive**
- **ppstream**
- **ps3**
- **qq**
- **qqgame**
- **qqlive**
- **quake**
- **quic**

- **quicktime**
- **radio-paradise**
- **radius**
- **rdp**
- **rdt**
- **regram**
- **rfactor**
- **rhapsody**
- **rmstream**
- **rodi**
- **rynga**
- **samsung-store**
- **scydo**
- **secondlife**
- **shoutcast**
- **showtime**
- **silverlight**
- **siri**
- **skinny**
- **skydrive**
- **skype**
- **slacker-radio**
- **slingbox**
- **slingtv**
- **smartvoip**
- **snapchat**
- **softether**
- **sopcast**
- **soribada**
- **soulseek**
- **soundcloud**
- **spark**

- **spdy**
- **speedtest**
- **spike**
- **splashfighter**
- **spotify**
- **ssdp**
- **starz**
- **stealthnet**
- **steam**
- **stun**
- **sudaphone**
- **svtplay**
- **tagged**
- **talkatone**
- **tango**
- **teamspeak**
- **teamviewer**
- **telegram**
- **thunder**
- **tinder**
- **tmo-tv**
- **tor**
- **truecaller**
- **truphone**
- **tumblr**
- **tunein-radio**
- **tunnelvoice**
- **turbovpn**
- **tvants**
- **tvland**
- **tvuplayer**
- **twitch**

- **twitter**
- **ultrabac**
- **ultrasurf**
- **univision**
- **upc-phone**
- **usenet**
- **ustream**
- **uusee**
- **vchat**
- **veohtv**
- **vessel**
- **vevo**
- **viber**
- **vine**
- **voipdiscount**
- **vopium**
- **vpnmaster**
- **vpnx**
- **voxer**
- **vtok**
- **vtun**
- **vudu**
- **warcft3**
- **waze**
- **webex**
- **wechat**
- **whatsapp**
- **wii**
- **windows-azure**
- **windows-store**
- **winmx**
- **winny**

- **wmstream**
- **wofkungfu**
- **wofwarcraft**
- **wuala**
- **xbox**
- **xdcc**
- **xing**
- **yahoo**
- **yahoomail**
- **yiptv**
- **youku**
- **yourfreetunnel**
- **youtube**
- **zattoo**

p2p protocol-group *group_list*: The following P2P protocol groups are supported:

- generic
- anonymous-access
- business
- communicator
- cloud
- e-store
- e-mail
- e-news
- internet-privacy
- filesharing
- gaming
- p2p-filesharing
- p2p-anon-filesharing
- remote-control
- social-nw-gaming
- social-nw-generic
- social-nw-videoconf
- standard
- streaming

wide [all]: Displays all available P2P statistics in a single wide line. The **all** keyword displays all available P2P statistics without suppressing zeroes.

- **pop3**
- **pptp**

- **rtcp**
- **rtp**
- **rtsp**
- **sdp**
- **secure-http**
- **sip**
- **smtp**
- **tcp**
- **tftp**
- **udp**
- **wsp**
- **wtp**

[instance *instance_number*]

Displays the ACS/Session Manager information for specific instances.

instance_number must be an integer from 1 through 65535.

verbose

Specifies to display detailed (all available) information. If not specified, concise information is displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistic information for active charging protocol analyzers.

Example

The following command displays detailed statistic information for all P2P protocol analyzers:

```
show active-charging analyzer statistics name p2p verbose
```

The following command displays detailed statistic information for all TCP protocol analyzers:

```
show active-charging analyzer statistics name tcp verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging bandwidth-policy

Displays information on bandwidth policies configured in a service.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging bandwidth-policy { all | name *bandwidth_policy_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information for all bandwidth policies configured in the service.

name *bandwidth_policy_name*

Displays detailed information for an existing bandwidth policy specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information on bandwidth policies configured in a service.

Example

The following command displays detailed information for the bandwidth policy named *standard*:

```
show active-charging bandwidth-policy name standard
```

show active-charging charging-action

Displays information for charging actions configured in the Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging charging-action { { { all | name` *`charging_action_name`* **} [service name** *`acs_service_name`* **] } | statistics [name** *`charging_action_name`* **] } [| { grep** *`grep_options`* **| more }]**

all

Displays information for each configured charging action.

name *charging_action_name*

Displays detailed information for an existing charging action specified as an alphanumeric string of 1 through 63 characters.

statistics

Displays statistical information for all configured charging actions.

service name *acs_service_name*

Displays information for all or a specific charging action in the specified ACS. *acs_service_name* is an alphanumeric string of 1 through 15 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for charging actions configured in a service.

Example

The following command displays a detailed information for all charging actions:

`show active-charging charging-action all`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging content-filtering category policy-id

Displays Content Filtering (CF) category policy definitions.

Product CF

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show active-charging content-filtering category policy-id { all | id`** *`policy_id`* **`} [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays definitions of all Content Filtering category policies.

id *policy_id*

Displays definitions of an existing Content Filtering category policy specified as an integer from 1 through 4294967295.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view Content Filtering category definitions for a specific/all Policy IDs.

Example

The following command displays Content Filtering category definitions for policy ID *3*:

```
show active-charging content-filtering category policy-id id 3
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging content-filtering category statistics

Displays category-based content filtering statistics.

Product CF

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging content-filtering category statistics [rulebase { name *rulebase_name* **| all }] [verbose] [| { grep** *grep_options* **| more }]**

rulebase { name *rulebase_name* | all }

Displays category-based content filtering statistics, either for all or for a specific rulebase.

- **name** *rulebase_name*: Specifies an existing rulebase as an alphanumeric string of 1 through 63 characters.
- **all**: Displays category-based content filtering statistics for each rulebase in the ACS.

verbose

Specifies to display detailed (all available) information. If not specified, concise information is displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view category-based content filtering statistics for a specific rulebase, or cumulative statistics for all rulebases in the ACS.

Note From Release 21.4, the following changes are made to the output of this show command:

- The "Total number of successful Cache lookups" field is excluded.
- The **> 50ms** value is excluded from the “Time taken for rating” field.
- The following sub-fields are added to the “Time taken for rating” field:
  - 50-100ms
  - 100-200ms
  - 200-300ms
  - 300ms

Example

The following command displays category-based content filtering statistics for the rulebase named *consumer*:

show active-charging content-filtering category statistics rulebase name *consumer*

The following command displays cumulative category-based content filtering statistics for all rulebases in verbose mode:

show active-charging content-filtering category statistics verbose

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging content-filtering server-group

Displays information for Content Filtering Server Group (CFSG) configured in the service.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show active-charging content-filtering server-group [name *cfsg_name* **| statistics [name** *cfsg_name* **[acsmgr instance** *instance_number* **[priority** *priority* **]] | verbose] [| { grep** *grep_options* **| more }]**

name *cfsg_name*

Specifies name of an existing CFSG as an alphanumeric string of 1 through 63 characters.

acsmgr instance *instance_number*

Specifies the manager instance as an integer from 1 through 65535.

priority *priority*

Specifies the priority of the server for which statistics has to be displayed as an integer from 1 through 65535.

verbose

Specifies to display detailed (all available) information, for each ICAP server connection at each instance. If not specified, concise information is displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view CFSG information/statistics.

show active-charging content-filtering server-group name *cfsg_name*: The output of this command displays detailed information for the specified CFSG.

show active-charging content-filtering server-group statistics name *cfsg_name*: The output of this command displays cumulative statistics for the specified CFSG. This will include all the instances and all the servers configured in the CFSG.

show active-charging content-filtering server-group statistics name *cfsg_name* **acsmgr instance** *instance_number*: The output of this command displays the cumulative statistics of all the ICAP server connections on the specified manager instance.

show active-charging content-filtering server-group statistics name *cfsg_name* **acsmgr instance** *instance_number* **priority** *priority*: The output of this command displays the statistics for the specified ICAP server connection on the specified manager instance.

show active-charging content-filtering server-group statistics verbose: The output of this command displays statistics of each ICAP server connection at each instance.

Example

The following command displays information for the CFSG named *test12*:

```
show active-charging content-filtering server-group name test12
```

The following command displays detailed information for all CFSGs:

```
show active-charging content-filtering server-group statistics verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging credit-control

Displays statistics for Diameter/RADIUS Prepaid Credit Control Service in the Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging credit-control { misc-info max-backpressure [ all |
 facility sessmgr instance instance_number ] | statistics [ group group_name
| server { all | ip-address ip_address [ port port_num ] | name server_name }
] | session-states [ rulebase rulebase_name ] [ content-id content_id ] } [ |
 { grep grep_options | more } ]
```

misc-info max-backpressure [all | facility sessmgr instance *instance_number*]

Displays miscellaneous information including the maximum backpressure hit count for all active session managers.

- **all**: Displays the max-backpressure count from all session manager instances.
- **facility sessmgr instance** *instance_number*: Displays logged events for specific facility. That is, it will display the maximum backpressure count on that specific session manager instance.

  The session manager instance number must be an integer ranging from 1 through 65535 characters.

statistics [group *group_name* | server { all | ip-address *ip_address* [port *port_num*] | name *server_name* }]

Displays prepaid credit control statistics.

- **group** *group_name*: Displays statistics for an existing credit control group specified as an alphanumeric string of 1 through 63 characters.
- **server { all | ip-address** *ip_address* **[port** *port_num* **] | name** *server_name* **}]**: Displays statistics for the specified credit control server.
  - **all**: Displays all available statistics including host statistics.
  - **ip-address** *ip_address*: Displays available statistics for the specified server's address.
  - **port** *port_num*: Displays available statistics for the specified server's port number.
  - **name** *server_name*: Displays the credit control statistics for the specified server.

session-states [rulebase *rulebase_name*] [content-id *content_id*]

Displays prepaid CCA session status based on rulebase and/or content ID.

- **rulebase** *rulebase_name*: Displays the Credit Control Application (CCA) session state counts for an existing rulebase specified as an alphanumeric string of 1 through 63 characters.
- **content-id** *content_id*: Displays CCA session state counts for a content ID of a credit control service specified as an integer from 1 through 65535.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view statistics for Diameter/RADIUS prepaid credit control service in the ACS.

Example

The following command shows ACS statistics of configured Diameter or RADIUS Credit Control Application:

```
show active-charging credit-control statistics
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging dns-learnt-ip-addresses

Displays DNS learnt IP address statistics for the DNS Snooping feature.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging dns-learnt-ip-addresses statistics { sessmgr { all | instance` *`sessmgr_instance_number`* **`} [ verbose ] | summary } [ | { grep`** *`grep_options`* **`| more } ]`**

sessmgr { all | instance *sessmgr_instance_number* } [verbose]

Displays information for all or the specified Session Manager (SessMgr) instance.

- **all**: Displays information for all SessMgr instances.
- **instance** *sessmgr_instance_number*: Displays information for a SessMgr instance specified as an integer from 1 through 65535.
- **verbose**: Displays detailed statistics for specified criteria. Use this keyword to view the learnt IP addresses.

summary

Displays summary information.

| { grep *grep_options* | more }

Specifies that the output of this command is to be piped (sent) to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view statistics for the DNS Snooping feature related DNS learnt-ip-addresses.

This command displays the number of learnt IP entries per rule line. It displays on a service level the number of resolved (learnt) IP addresses per rule line per rulebase (once if a rule line is used multiple times in the same rulebase as it is shared across rulebase) per destination context per SessMgr instance. It also displays the number of entries flushed due to TTL expiry. The field entries_replaced gives the number of entries replaced (same IP returned again) in the pool due to a DNS response by same/another subscriber for same domain-name, wherein the TTL of the entry will be replaced.

IPv4-overflows will start incrementing when the maximum limit of 51200 across system is reached OR limit of 200 per pattern is reached.

Ipv6-overflows will start incrementing when maximum limit of 25600 across system is reached OR limit of 100 per pattern is reached.

Limits are:

- Maximum of 51,200 IPv4 entries per instance shared across IPv4 all pools.
- Maximum of 200 IPv4 entries per pool (pool is same as discussed before (per rule-line pattern)).
- Maximum of 25,600 IPv6 entries per instance shared across all IPv6 pools.
- Maximum of 100 IPv6 entries per pool.

In releases prior to 14.0, this CLI command **show active-charging dns-learnt-ip statistics sessmgr all** displayed all the configured patterns and rulebase names for each of the pattern entry, even though the pattern has not learnt any IP address. When a large number of DNS snooping ruledefs are configured (configured as ip server-domain name under ruledef configuration), the memory allocated for sending this information exceeded the message size limit for messenger calls and hence the crash was observed.

To avoid the crash occuring, in 14.0 and later releases, the output of the CLI command **show active-charging dns-learnt-ip statistics sessmgr all**is modified to display only the patterns for which at least one IPv4/IPv6 address is learnt as all other information is available from the configuration. Also for each of the patterns this CLI command will not be displaying rulebase name as it can be printed once.

Example

The following command displays summary statistics for DNS learnt IP addresses:

```
show active-charging dns-learnt-ip-addresses statistics summary
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging edr-format

Displays information about Event Data Record (EDR) formats configured in the Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging edr-format [ statistics ] [ all | name edr_format_name
 ] [ | { grep grep_options | more } ]
```

all

Displays information for all EDR formats.

statistics

Displays statistics for all or an existing EDR format.

If neither **all** nor **name** is specified, summarized statistics over all EDR formats is displayed.

name *edr_format_name*

Displays information for an existing EDR format specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for EDR format(s) in the ACS.

Example

The following command displays all configured EDR formats in the ACS.

```
show active-charging edr-format all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging edr-udr-file

Displays CDR flow control information. This command also displays the Event Data Record (EDR) and Usage Data Record (UDR) file information.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging edr-udr-file { flow-control-counters [ verbose ] |
statistics } [ | { grep grep_options | more } ]
```

flow-control-counters [verbose]

Displays the counters for dropped EDR/UDR records. These counters are for when CDRMOD uses flow control to stop ACS/Session Managers from sending the records.

verbose displays detailed information.

statistics

Important This keyword is obsolete. The option is now supported through the **show cdr** command.

Displays EDR and UDR file statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view CDR flow control information.

Example

The following command displays EDR and UDR files statistics:

```
show active-charging edr-udr-file statistics
```

The following command displays CDR flow control information:

```
show active-charging edr-udr-file flow-control-counters
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging file-space-usage

Displays the file space used by Charging Data Record (CDR) and Event Data Record (EDR) files.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description `show active-charging file-space-usage [ | { grep grep_options | more } ]`

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view CDR/EDR file space usage information. The context in which this command is used is not relevant.

Example

The following command displays CDR/EDR file space usage:

```
show active-charging file-space-usage
```

show active-charging firewall dos-protection

Displays the list of servers involved in any IP Sweep attacks.

Product PSF

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description `show active-charging firewall dos-protection ip-sweep server-list { all | instance instance_num } [ | { grep grep_options | more }`

all

Displays the IP Sweep server list for all instances.

instance *instance_num*

Displays statistics for the specified ACS Manager instance.

instance_num must be an integer from 1 through 65535.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display the list of servers involved in any IP Sweep attacks.

Example

The following command displays the IP Sweep server list for all instances:

```
show active-charging firewall dos-protection ip-sweep server-list all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging firewall statistics

Displays Active Charging Stateful Firewall statistics.

Product PSF

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging firewall statistics [ callid call_id | domain-name
domain_name | nat-realm nat_realm_name | protocol { icmp | icmpv6 | ip | ipv6
 | other | tcp | udp } | username user_name ] [ acsmgr instance instance_number
 ] [ verbose ] [ wide ] [ | { grep grep_options | more } ]
```

acsmgr instance *instance_number*

Specifies the ACS/Session Manager instance ID as an integer from 1 through 65535.

callid *call_id*

Specifies the call identification number as an 8-digit hexadecimal number.

domain-name *domain_name*

Specifies the domain name as an alphanumeric string of 1 through 127 characters.

nat-realm *nat_realm_name*

Specifies the NAT realm name as an alphanumeric string of 1 through 31 characters.

protocol { icmp | ip | other | tcp | udp }

Specifies the protocol:

- **icmp**: ICMPv4

- **icmpv6**
- **ip**: IPv4
- **ipv6**
- **other**: Protocols other than TCP, UDP, and ICMPv4/ICMPv6.
- **tcp**
- **udp**

username *user_name*

Specifies the user name as an alphanumeric string of 1 through 127 characters.

verbose

Specifies to display detailed (all available) information. If not specified, concise information is displayed.

wide

Displays all available information in a single wide line.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view Stateful Firewall statistics. If you are in the local context, statistics for all contexts are displayed. Otherwise, only statistics of your current context are displayed.

Example

The following command displays Stateful Firewall statistics:

```
show active-charging firewall statistics
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging firewall track-list

Displays the list of servers being tracked for involvement in any Denial-of-Service (DOS) attacks.

Product

PSF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging firewall track-list attacking-servers [ | { grep` *`grep_options`* **`| more } ]`**

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view details of servers being tracked for involvement in any DOS attack.

Example

The following command displays the list of servers being tracked for involvement in any DOS attacks:

`show active-charging firewall track-list attacking-servers`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging flow-control-counters

Displays information for dropped EDR and UDR records.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging flow-control-counters [ verbose ] [ | { grep` *`grep_options`* **`| more } ]`**

verbose

Specifies to display detailed (all available) information. If not specified, concise information is displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view EDR-UDR flow control information—for dropped EDR and UDR records.

Example

The following command displays detailed EDR-UDR flow control information:

```
show active-charging flow-control-counters verbose
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging flow-kpi

Displays information about the cumulative KPI for ECS rule(s) across session managers.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging flow-kpi sessmgr { all | instance instance_id } [ | { grep grep_options | more } ]
```

all

Displays the KPI information for all rules.

instance *instance_id*

Displays information for all rules based on session manager instance, specified as an integer ranging from 1 through 65535.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the cumulative KPI for ECS rule(s) across session managers.

This command is added in support of the Flow Recovery feature, that requires a separate feature license.

Example

The following command displays the KPI information for all rules:

```
show active-charging flow-kpi all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging flow-mappings

Displays information about all the active flow mappings based on the applied filters.

Product

PSF

NAT

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging flow-mappings [all | call-id *call_id* **| [nat { not-required | required [nat-realm** *nat_realm_name* **] } | trans-proto { tcp | udp }] + [| { grep** *grep_options* **| more }]**

all

Displays all the available active-charging flow-mapping information.

call-id *call_id*

Displays detailed information for a call ID specified as an 8-digit hexadecimal number.

nat { required [nat-realm *string*] not-required }

Displays the active charging flow mappings for which NAT is enabled or disabled.

trans-proto { tcp | udp }

Displays the transport layer.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the Active Charging flow-mapping details.

Example

The following command displays the total number of Active Charging flow-mappings:

```
show active-charging flow-mappings all
```

The following command displays the flow-mappings for which NAT is enabled and the NAT-realm used is *natpool3*:

```
show active-charging flow-mappings nat required nat-realm natpool3
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging flows

Displays information for active charging flows.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging flows { all | [ callid call_id ] [ connected-time [ <
 | > | greater-than | less-than ] seconds ] [ control-connection { ftp |
pptp | rtsp | sip | tftp } ] [ flow-id flow_id ] [ full ] [ idle-time [ <
| > | greater-than | less-than ] seconds ] [ firewall { not-required |
required } ] [ imsi imsi_value ] [ ip-address [ server | subscriber ] [ <
| > | IPv4 | greater-than | less-than ] address ] [ msisdn msisdn_num ] [ nat
 { not-required | required [ nat-ip nat_ip_address ] [ binding-info ] } ] [
 pacing-bitrate [ < | > | = | greater-than | less-than | equal-to ] number
 [ port-number [ server | subscriber ] [ < | > | IPv4 | greater-than |
less-than ] number ] [ rx-bytes [ < | > | greater-than | less-than ] number
 ] [ rx-packets [ < | > | greater-than | less-than ] number ] [ session-id
 session_id ] [ summary ] [ trans-proto { icmp | tcp | udp } ] [ tx-bytes
[ < | > | greater-than | less-than ] number ] [ tx-packets [ < | > |
```

greater-than | less-than] *number* **] [type** *flow_type* **] [username** *user_name* **] } [| { grep** *grep_options* **| more }]**

all

Displays information for all active charging flows.

callid *call_id*

Displays the specific Call Identification Number. *call_id* must be an eight digit hexadecimal number.

connected-time [< | > | greater-than | less-than] *seconds*

Displays information for flows filtered by connected time period.

- < *seconds*: Displays flows that have been connected less than the specified number of seconds.
- > *seconds*: Displays flows that have been connected more than the specified number of seconds.
- **greater-than** *seconds*: Displays flows that have been connected more than the specified number of seconds.
- **less-than** *seconds*: Displays flows that have been connected less than the specified number of seconds.

seconds is an integer from 0 through 4294967295.

control-connection { ftp | pptp | rtsp | sip | tftp }

Displays information for control connection of flows.

- **ftp**: Displays control connection information for the FTP flow.
- **pptp**: Displays control connection information for the PPTP flow.
- **rtsp**: Displays control connection information for the RTSP flow.
- **sip**: Displays control connection information for the SIP flow.
- **tftp**: Displays control connection information for the TFTP flow.

firewall { not-required | required }

Displays information for flows filtered by Firewall required or not required setting.

- **not-required**: Sessions with Firewall processing are not required.
- **required**: Sessions with Firewall processing are required.

flow-id *flow_id*

Displays concise information for specified active charging flow ID.

full

Displays all available information for the specified flows.

idle-time [< | > | greater-than | less-than] *seconds*

Displays information for flows filtered by idle time period.

- < *seconds*: Displays flows that have been idle less than the specified number of seconds.
- > *seconds*: Displays flows that have been idle more than the specified number of seconds.
- **greater-than** *seconds*: Displays flows that have been idle more than the specified number of seconds.
- **less-than** *seconds*: Displays flows that have been idle less than the specified number of seconds.

seconds is an integer from 0 through 4294967295.

imsi *imsi_value*

Displays information for an International Mobile Subscriber Identity (IMSI). *imsi_value* must be a sequence of digits and/or wild characters.

ip-address [server | subscriber] [< | > | IPv4 | greater-than | less-than] *address*

Displays information for flows filtered by IPv4 IP address.

- **server**: Specifies the IP address for a specific server.
- **subscriber**: Displays subscriber details for the IP address specified in IPv4 dotted-decimal format.
- < *address*: Specifies an IPv4 IP address that is less than *address*.
- > *address*: Specifies an IPv4 IP address that is greater than *address*.
- **greater-than** *address*: Specifies an IPv4 IP address that is greater than *address*.
- **less-than** *address*: Specifies an IPv4 IP address that is less than *address*.

address is an IP address expressed in IPV4 dotted-decimal notation.

msisdn *msisdn_num*

Displays information for the mobile user identified by the Mobile Subscriber ISDN Number (MSISDN). *msisdn_num* must be a numeric string of 1 to 15 digits.

nat { not-required | required [nat-ip *nat_ip_address* [nat-port *nat_port*]] [binding-info] }

Important The **nat** keyword and options are only available in StarOS 8.3 and later releases.

Displays information for flows filtered by Network Address Translation (NAT) required or not required setting.

- **not-required**: Sessions with NAT processing are not required.
- **required**: Sessions with NAT processing are required.
- **nat-ip** *nat_ip_address*: Sessions using the NAT IP address expressed in IPv4 dotted-decimal notation.

- **nat-port** *nat_port*: Sessions using the specified NAT IP address and NAT port number specified as an integer from 0 through 65535.
- **binding-info**: Displays the NAT binding information of the NATed flow.

pacing-bitrate [< | > | = | greater-than | less-than | equal-to] *number*

Displays information on video flows filtered by a video pacing bit rate specified an integer from 1 to 256000000.

- < *number*: Specifies a number that is less than the specified video pacing bit rate.
- > *number*: Specifies a number that is greater than the specified video pacing bit rate.
- = *number*: Specifies a number that is equal to the specified video pacing bit rate.
- **greater-than** *number*: Specifies a number that is greater than the specified video pacing bit rate.
- **less-than** *number*: Specifies a number that is less than the specified video pacing bit rate
- **equal-to** *number*: Specifies a number that is equal to the specified video pacing bit rate.

port-number [server | subscriber] [< | > | IPv4 | greater-than | less-than] _*number*

Displays information on flows filtered by port number.

- **server**: Specifies the port-number for a specific server.
- **subscriber**: Specifies subscriber details for this port-number, and must be an integer from 0 through 65535.
- < *number*: Specifies a port number that is less than the specified port-number.
- > *number*: Specifies a port number that is greater than the specified port-number.
- **greater-than** *number*: Specifies a port number that is greater than the specified port-number.
- **less-than** *number*: Specifies a port number that is less than the specified port-number.

rx-bytes [< | > | greater-than | less-than] *number*

Displays information on flows filtered by the number of bytes received in the flow.

- < *number*: Specifies the number of bytes that is less than the specified rx-bytes.
- > *number*: Specifies number of bytes that is greater than the specified rx-bytes.
- **greater-than** *number*: Specifies number of bytes that is greater than the specified rx-bytes.
- **less-than** *number*: Specifies number of bytes that is less than the specified rx-bytes.

number must be an integer from 0 through 18446744073709551615.

rx-packets [< | > | greater-than | less-than] *number*

Displays information on flows filtered by the number of packets received in the flow.

- **greater-than** *number*: Specifies the number of packets that is greater than the specified rx-packets.

- **less-than** *number*: Specifies the number of packets that is less than the specified rx-packets.

number must be an integer from 0 through 18446744073709551615.

session-id *session_id*

Displays detailed information for specific active charging session ID.

summary

Displays summary information for defined sessions, based on defined parameters.

trans-proto { icmp | tcp | udp }

Displays information on flows filtered by the transport protocol.

- **icmp**: ICMP protocol type flow
- **tcp**: TCP protocol type flow
- **udp**: User Datagram Protocol (UDP) flows

tx-bytes [< | > | greater-than | less-than] *number*

Displays information on flows filtered by the number of bytes received in the flow.

- < *number*: Specifies the number of bytes that is less than the specified tx-bytes.
- > *number*: Specifies number of bytes that is greater than the specified tx-bytes.
- **greater-than** *number*: Specifies number of bytes that is greater than the specified tx-bytes.
- **less-than** *number*: Specifies number of bytes that is less than the specified tx-bytes.

number must be an integer from 0 through 18446744073709551615.

tx-packets [< | > | greater-than | less-than] *number*

Displays information on flows filtered by the number of packets received in the flow.

- **greater-than** *number*: Specifies the number of packets that is greater than the specified tx-packets.
- **less-than** *number*: Specifies the number of packets that is less than the specified tx-packets.

number must be an integer from 0 through 18446744073709551615.

type *flow_type*

Displays information on flows filtered by flow type of application protocol.

flow_type must be one of the following:

- **dns**
- **ftp**
- **http**

- **icmp**
- **icmpv6**
- **imap**
- **ip**
- **ipv6**
- **mms**
- **p2p [application** *p2p_list* **[traffic-type** *traffic_type* **] | protocol-group** *group_list* **]**: Peer-to-peer analyzer.

  p2p application *p2p_list*: P2P protocol type flows include one or more of the following applications:

  - **8tracks**
  - **abcnetworks**
  - **actionvoip**
  - **actsync**
  - **adobeconnect**
  - **aimini**
  - **amazoncloud**
  - **amazonmusic**
  - **amazonvideo**
  - **antsp2p**
  - **apple-push**
  - **apple-store**
  - **applejuice**
  - **applemaps**
  - **ares**
  - **armagettron**
  - **avi**
  - **badoo**
  - **baidumovie**
  - **battlefld**
  - **bbm**
  - **beatport**
  - **betternet**

- **bitcasa**
- **bittorrent**
- **bittorrent-sync**
- **blackberry-store**
- **blackberry**
- **blackdialer**
- **box**
- **callofduty**
- **chikka**
- **cisco-jabber**
- **citrix**
- **clubbox**
- **clubpenguin**
- **crackle**
- **crossfire**
- **crunchyroll**
- **cyberghost**
- **ddlink**
- **deezer**
- **didi**
- **directconnect**
- **dish-anywhere**
- **disneymovies**
- **dofus**
- **dramafever**
- **dropbox**
- **edonkey**
- **espn**
- **expressvpn**
- **facebook**
- **facetime**
- **fandor**

- **fasttrack**
- **feidian**
- **fiesta**
- **filetopia**
- **filmontv**
- **flash**
- **flickr**
- **florensia**
- **foursquare**
- **fox-sports**
- **freenet**
- **friendster**
- **fring**
- **funshion**
- **gadu_gadu**
- **gamekit**
- **gmail**
- **gnutella**
- **go90**
- **goober**
- **google-music**
- **google-push**
- **google**
- **googleplay**
- **googleplus**
- **gotomeeting**
- **gtalk**
- **guildwars**
- **halflife2**
- **hamachivpn**
- **hayu**
- **hbogo**

- **hbonow**
- **heytell**
- **hgtv**
- **hike-messenger**
- **hls**
- **hotspotvpn**
- **hulu**
- **hyves**
- **iax**
- **icall**
- **icecast**
- **icloud**
- **idrive**
- **igo**
- **iheartradio**
- **imesh**
- **imessage**
- **imgur**
- **imo**
- **instagram**
- **iplayer**
- **iptv**
- **irc**
- **isakmp**
- **iskoot**
- **itunes**
- **jabber**
- **jap**
- **jumblo**
- **kakaotalk**
- **kik-messenger**
- **kontiki**

- **kugoo**
- **kuro**
- **linkedin**
- **livestream**
- **lync**
- **magicjack**
- **manolito**
- **mapfactor**
- **mapi**
- **maplestory**
- **meebo**
- **mgcp**
- **mlb**
- **mojo**
- **monkey3**
- **mozy**
- **msn**
- **msrp**
- **mute**
- **mypeople**
- **myspace**
- **nateontalk**
- **naverline**
- **navigon**
- **nbc-sports**
- **netmotion**
- **newsy**
- **nick**
- **nimbuzz**
- **nokia-store**
- **octoshape**
- **off**

- **ogg**
- **oist**
- **oovoo**
- **opendrive**
- **openft**
- **openvpn**
- **orb**
- **oscar**
- **outlook**
- **paltalk**
- **pando**
- **pandora**
- **path**
- **pbs**
- **pcanywhere**
- **periscope**
- **pinterest**
- **plingm**
- **poco**
- **popo**
- **pplive**
- **ppstream**
- **ps3**
- **qq**
- **qqgame**
- **qqlive**
- **quake**
- **quic**
- **quicktime**
- **radio-paradise**
- **radius**
- **rdp**

- **rdt**
- **regram**
- **rfactor**
- **rhapsody**
- **rmstream**
- **rodi**
- **rynga**
- **samsung-store**
- **scydo**
- **secondlife**
- **shoutcast**
- **showtime**
- **silverlight**
- **siri**
- **skinny**
- **skydrive**
- **skype**
- **slacker-radio**
- **slingbox**
- **slingtv**
- **smartvoip**
- **snapchat**
- **softether**
- **sopcast**
- **soribada**
- **soulseek**
- **soundcloud**
- **spark**
- **spdy**
- **speedtest**
- **spike**
- **splashfighter**

- **spotify**
- **ssdp**
- **starz**
- **stealthnet**
- **steam**
- **stun**
- **sudaphone**
- **svtplay**
- **tagged**
- **talkatone**
- **tango**
- **teamspeak**
- **teamviewer**
- **telegram**
- **thunder**
- **tinder**
- **tmo-tv**
- **tor**
- **truecaller**
- **truphone**
- **tumblr**
- **tunein-radio**
- **tunnelvoice**
- **turbovpn**
- **tvants**
- **tvland**
- **tvuplayer**
- **twitch**
- **twitter**
- **ultrabac**
- **ultrasurf**
- **univision**

- **upc-phone**
- **usenet**
- **ustream**
- **uusee**
- **vchat**
- **veohtv**
- **vessel**
- **vevo**
- **viber**
- **vine**
- **voipdiscount**
- **vopium**
- **vpnmaster**
- **vpnx**
- **voxer**
- **vtok**
- **vtun**
- **vudu**
- **warcft3**
- **waze**
- **webex**
- **wechat**
- **whatsapp**
- **wii**
- **windows-azure**
- **windows-store**
- **winmx**
- **winny**
- **wmstream**
- **wofkungfu**
- **wofwarcraft**
- **wuala**

- **xbox**
- **xdcc**
- **xing**
- **yahoo**
- **yahoomail**
- **yiptv**
- **youku**
- **yourfreetunnel**
- **youtube**
- **zattoo**

traffic-type *traffic_type*: P2P protocol flows include the following traffic type classifications:

Important The traffic type for a P2P protocol may vary depending on the P2P protocol.

- **ads**
- **audio**
- **file-transfer**
- **im**
- **video**
- **voipout**
- **unclassified**

p2p protocol-group *group_list*: The following P2P protocol groups are supported:

- generic
- anonymous-access
- business
- communicator
- cloud
- e-store
- e-mail
- e-news
- internet-privacy
- filesharing
- gaming
- p2p-filesharing
- p2p-anon-filesharing
- remote-control

- social-nw-gaming
- social-nw-generic
- social-nw-videoconf
- standard
- streaming

- **pop3**
- **pptp**
- **rtcp**
- **rtp**
- **rtsp**
- **secure-http**
- **sip**
- **smtp**
- **tcp**
- **tftp**
- **udp**
- **unknown**: Unknown type of protocol type flow not listed here.
- **wsp-connection-less**
- **wsp-connection-oriented**

username *user_name*

Specifies the user name as a sequence of characters and/or wildcard characters ($ and *). *user_name* must be an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display charging flow type information.

Example

The following command displays a detailed flow information for a session ID of *test*:

```
show active-charging flows session-id test
```

The following command displays a detailed flow information for a P2P type session:

```
show active-charging flows full type p2p
```

The following command displays a detailed information for a P2P type flow:

show active-charging flows type p2p

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging fw-and-nat policy

Displays Firewall-and-NAT Policy information.

Important This command is only available in StarOS 8.1, and in StarOS 9.0 and later. For more information on this command please contact your local service representative.

Product

ACS

PSF

NAT

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show active-charging fw-and-nat policy { { { all | name *fw_nat_policy_name* **} [service name** *acs_service_name* **] } | { statistics { all | name** *fw_nat_policy_name* **} } } [| { grep** *grep_options* **| more }]**

all

Displays information for all Firewall-and-NAT policies configured, optionally all in a specified service.

name *fw_nat_policy_name*

Displays detailed information for an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 63 characters.

service name *acs_service_name*

Displays information for all or the specified Firewall-and-NAT policy in the specified ACS.

acs_service_name must be the name of the active-charging service, and must be an alphanumeric string of 1 through 15 characters.

statistics

Displays statistics for all or the specified Firewall-and-NAT policy.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view Firewall-and-NAT Policy information.

Example

The following command displays detailed information for the Firewall-and-NAT policy named *standard*:

```
show active-charging fw-and-nat policy name standard
```

show active-charging group-of-objects

Displays information for ACS group-of-objects.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging group-of-objects { all | name group_of_objects_name } [
 | { grep grep_options | more } ]
```

all

Displays details of all group-of-objects configured in the system.

name *group_of_objects_name*

Displays details for the specified group-of-objects.

group_of_objects_name must be the name of a group-of-objects, and must be an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information for all/specific group-of-objects.

Example

The following command displays information for a group-of-objects named *test*.

```
show active-charging group-of-objects name test
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging group-of-prefixed-urls

D displays information on group of prefixed URLs configured in an Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging group-of-prefixed-urls { all | name *prefixed_url_group* **} [service name** *acs_service_name* **] [| { grep** *grep_options* **| more }]**

all

Displays information for all group of prefixed URLs configured in an ACS.

name *prefixed_url_group*

Displays detailed information for the group of prefixed URLs specified as an alphanumeric string of 1 through 63 characters.

service name *acs_service_name*

Displays information for all or the specified group of prefixed URLs in the specified ACS. *acs_service_name* must be the name of the ACS expressed as alphanumeric string of 1 through 15 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter

Usage Guidelines Use this command to view information on group of prefixed URLs configured in the ACS.

Example

The following command displays for the group of prefixed URLs named *test123*:

```
show active-charging group-of-prefixed-urls name test123
```

show active-charging group-of-ruledefs

Displays information for all groups or a specified group of ruledefs configured in the Active Charging Service (ACS).

Product ACS

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging group-of-ruledefs { { all | name group_of_ruledefs_name
 } [ service name acs_service_name ] | statistics name group_of_ruledefs_name }
[ | { grep grep_options | more } ]
```

all

Displays information for all groups of ruledefs configured, optionally all in a specified ACS.

name *group_of_ruledefs_name*

Displays detailed information for an existing group of ruledefs specified as an alphanumeric string of 1 through 63 characters.

service name *acs_service_name*

Displays information for all groups or the specified group of ruledefs within the ACS. *acs_service_name* must be the name of the ACS, and must be an alphanumeric string of 1 through 15 characters.

statistics name *group_of_ruledefs_name*

Displays statistics for an existing group of ruledefs specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information on group of ruledefs configured in a ACS.

Example

The following command displays information on all groups of ruledefs configured:

```
show active-charging group-of-ruledefs all
```

show active-charging nat statistics

Displays Network Address Translation (NAT) realm statistics.

Product

NAT

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging nat statistics [instance *instance_number* **| nat-realm** *nat_realm_name* **[summary] | unsolicited-pkts-server-list [instance** *instance_number* **]] [| { grep** *grep_options* **| more }]**

show active-charging nat statistics

When issued in the local context, this command displays statistics for all NAT realms in all contexts. When issued in a specific context, this command displays statistics for all NAT realms in that context.

show active-charging nat statistics instance *instance_number*

When issued in the local context, this command displays statistics for the specified ACS/Session Manager instance in all contexts. When issued in a specific context, this command displays statistics for the specified ACS/Session Manager instance in that context.

show active-charging nat statistics nat-realm *nat_realm_name*

When issued in the local context, this command displays statistics for the specified NAT realm in all contexts. When issued in a specific context, this command displays statistics for the specified NAT realm in that context.

show active-charging nat statistics unsolicited-pkts-server-list instance *instance_num*

When issued in the local context, this command displays statistics for unsolicited packets in all contexts. When issued in a specific context, this command displays statistics for unsolicited packets that context.

instance_number must be an integer from 1 through 65535.

nat-realm *nat_realm_name*

Specifies the NAT realm's / NAT realm group's name.

nat_realm_name must be an alphanumeric string of 1 through 31 characters.

instance *instance_number*

Displays statistics for the specified ACS/Session Manager instance.

instance_number must be an integer from 1 through 65535.

summary

When the *nat_realm_name* specified is a "pool group" and the **summary** option is used, summary statistics of all pools in the pool group are displayed.

When the *nat_realm_name* specified is a pool and the **summary** option is not used, all available statistics for the specified pool are displayed.

When the *nat_realm_name* specified is a "pool group" and the **summary** option is not used, all available statistics of each pool in the specified "pool group" are displayed.

unsolicited-pkts-server-list

Displays statistics with the list of servers from where most number of unsolicited packets are received for the specified ACS/Session Manager instance.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view NAT realm statistics.

Example

The following command when issued in the local context, displays NAT realm statistics for NAT realms named *test135* in all contexts:

```
show active-charging nat statistics nat-realm test135
```

show active-charging p2p-dynamic-rules

This command is under development for a future release and is not supported in this release. This command displays P2P Dynamic signature file information.

Product

ADC

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging p2p-dynamic-rules [ verbose ] [ acsmgr instance` *`instance_number`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

acsmgr instance *instance_number*

Specifies the ACS/Session Manager instance ID as an integer from 1 through 65535.

verbose

Displays P2P Dynamic rule statistics in detail.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view P2P Dynamic signature file statistics/information.

Example

The following command displays P2P Dynamic rule information:

`show active-charging p2p-dynamic-rules`

show active-charging packet-filter

Displays information on packet filters configured in an Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging packet-filter { all | name` *`packet_filter_name`* **`} [ service name`** *`acs_service_name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays information for all packet filters configured, optionally all configured in an ACS.

name *packet_filter_name*

Displays detailed information for an existing packet filter specified as an alphanumeric string of 1 through 63 characters.

service name *acs_service_name*

Displays information for all filters or the specified packet filter in the specified ACS. *acs_service_name* must be the name of the ACS specified as an alphanumeric string of 1 through 15 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information on packet filters configured in an ACS.

Example

The following command displays information for the packet filter *filter12*:

`show active-charging packet-filter name filter12`

show active-charging pcp-service

Displays statistics for Port Control Protocol (PCP) service in the Active Charging Service (ACS).

Important This command is customer specific. For more information contact your Cisco account representative.

Product

ACS

NAT

PSF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show active-charging pcp-service { all | name *pcp_service_name* **| statistics [instance** *instance_number* **| name** *pcp_service_name* **| wide] } [| { grep** *grep_options* **| more }]**

all

Displays information for all PCP services configured in the service.

name *pcp_service_name*

Displays information for an existing PCP service specified as an alphanumeric string of 1 through 63 characters.

statistics [instance *instance_number* | name *pcp_service_name* | wide]

Displays statistical information for all configured PCP services.

- **instance** *instance_number*: Displays statistics for the specified ACS/Session Manager instance.
- **name** *pcp_service_name*: Displays statistics for the specified PCP service.
- **wide**: Displays all available information in a single wide line.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view statistics for PCP service in the ACS.

show active-charging pcp-service statistics: The output of this command displays statistics for all PCP services in all contexts when issued in the local context. When issued in a specific context, this command displays statistics for all PCP services in that context.

show active-charging pcp-service instance *instance_number*: When issued in the local context, this command displays statistics for the specified ACS/Session Manager instance in all contexts. When issued in a specific context, this command displays statistics for the specified ACS/Session Manager instance in that context.

show active-charging pcp-service name *pcp_service_name*: The output of this command displays the statistics for the specified PCP service.

Example

The following command displays PCP service statistics for a PCP service named *pcp1*:

```
show active-charging pcp-service statistics name pcp1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging qos-group-of-ruledefs

Displays information for ACS QoS-group-of-ruledefs.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging qos-group-of-ruledefs { all | name` *`qos_group_of_ruledefs_name`* **`} [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays details of all qos-group-of-ruledefs configured in the system.

name *qos_group_of_ruledefs_name*

Displays details for the specified qos-group-of-ruledefs.

qos_group_of_ruledefs_name must be the name of a qos-group-of-ruledefs, and must be an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view details of all/specific qos-group-of-ruledefs.

Example

The following command displays of a qos-group-of-ruledefs named *test*.

`show active-charging qos-group-of-ruledefs name test`

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging regex

Displays regular expression (regex) related statistics and information.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging regex { statistics { memory | ruledef } { all | instance` *`instance_number`* **`| summary } | status { all | instance`** *`instance_number`* **`} } [ | { grep`** *`grep_options`* **`| more } ]`**

statistics { memory | ruledef }{ all | instance *instance_number* | summary }

Displays regex-related statistics.

- **memory**: Displays regex memory related statistics.
- **ruledef**: Displays regex ruledef related statistics.
- **all**: Displays specified statistics for all Session Manager instances.
- **instance** *instance_number*: Displays specified statistics for specified Session Manager instance.

  instance_number must be an integer from 1 through 65535.
- **summary**: Displays summary information for specified parameter.

status { all | instance *instance_number* } }

Displays status information of regex engines.

- **all**: Displays status for all regex engines.
- **instance** *instance_number*: Displays status of regex engine for specified Session Manager instance.

  instance_number must be an integer from 1 through 65535.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view regular expression (regex) related statistics and status of regex engines.

Example

The following command displays status information of all regex engines:

show active-charging regex status all

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging rulebase

Displays information for ACS rulebases.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show active-charging rulebase { { { all | name *rulebase_name* **} [service name** *acs_service_name* **] } | statistics [name** *rulebase_name* **] } [| { grep** *grep_options* **| more }]**

all

Displays details of all rulebases configured in the system.

name *rulebase_name*

Displays details of an existing rulebase specified as an alphanumeric string of 1 through 63 characters.

service name *acs_service_name*

Displays details of all or the specified rulebase configured in the specified ACS. *acs_service_name* must be the name of the ACS, and must be an alphanumeric string of 1 through 15 characters.

statistics

Displays statistical information for all or the specified rulebase.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view various statistics for a specific charging rulebase.

Example

The following command displays active charging rulebase statistics.

```
show active-charging rulebase statistics
```

The following command displays configurations and statistics for a rulebase named *rulebase_1*.

```
show active-charging rulebase name rulebase_1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging ruledef

Displays information for ACS ruledefs.

Product

ACS

PSF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging ruledef { all | charging | firewall | name ruledef_name
 | post-processing | routing | statistics [ all { charging | firewall [
wide ] | post-processing | tpo } | name ruledef_name [ wide ] ] | tpo } [ |
 { grep grep_options | more } ]
```

all

Displays information for all ruledefs configured in the ACS.

charging

Displays information for all Charging ruledefs configured in the ACS.

firewall

Displays information for all Stateful Firewall ruledefs configured in the ACS.

name *ruledef_name*

Displays detailed information for an existing ruledef specified as an alphanumeric string of 1 through 63 characters.

post-processing

Displays information for all post-processing ruledefs configured in the ACS.

routing

Displays information for all Routing ruledefs configured in the ACS.

service *service_name*

This keyword is obsolete.

statistics [all { charging | firewall [wide] | post-processing | tpo } | name *ruledef_name* [wide]]

Displays statistical information for all/specified ruledefs configured in the ACS. If none of the optional arguments are supplied, statistics totaled for all ruledefs will be displayed.

- **all**: Displays statistics for all ruledefs of the specified type configured in the ACS.
- **charging**: Displays statistics for all Charging ruledefs configured in the ACS.
- **firewall**: Displays statistics for all Firewall ruledefs configured in the service.
- **post-processing**: Displays statistics for all Post-processing ruledefs configured in the ACS.
- **tpo**

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

- **name** *ruledef_name*: Displays statistics for an existing ruledef specified as an alphanumeric string of 1 through 63 characters.
- **wide**: Displays all available information in a single wide line.

tpo

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information for ruledefs configured in the ACS.

Example

The following command displays ACS ruledef statistics.

```
show active-charging ruledef statistics
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging service

Displays detailed information about an Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging service { all | name *acs_service_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information for all configured ACSs.

name *acs_service_name*

Displays detailed information for the ACS specified as an alphanumeric string of 1 through 15 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view ACS details.

Example

The following command displays details for the ACS named *test1*.

```
show active-charging service name test1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging service-scheme

Displays statistics and information on active subscribers.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging service-scheme { all | name *serv_scheme_name* **| statistics [name** *serv_scheme_name* **] } [service name** *service_name* **] [| { grep** *grep_options* **| more }]**

all

Displays information for all service schemes configured in a service.

name *serv_scheme_name*

Displays detailed information for a specific service scheme.

serv_scheme_name must be an alphanumeric string of 1 through 63 characters.

statistics [name *serv_scheme_name*]

Displays the related statistics for the service-scheme.

name *serv_scheme_name* must be the name of a service-scheme and must be an alphanumeric string of 1 through 63 characters.

service *service_name*

Displays service and configuration counters for the specific active charging service.

service_name must be an alphanumeric string of 1 through 15 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view subscriber statistics and information on dynamic updates to charging parameters per call ID.

Example

The following command displays all service-scheme statistics for the configured service-scheme *ss1*:

```
show active-charging service-scheme statistics name ss1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging sessions

Displays statistics for Active Charging Service (ACS) sessions.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging sessions [ full [ wide ] | wf1 | summary ] [
filter_keyword + ] + [ all ] [ | { grep grep_options | more } ]
```

full [wide]

Displays all available information for the specified session.

Optionally all available information can be displayed in a single wide line.

summary

Displays active sessions count and packet and bytes statistics.

wf1

Displays all available information including MSISDN and rulebase in a single wide line.

display-dynamic-charging-rules

Displays information for the dynamic charging rules configured per session under Gx interface support.

dynamic-charging

Displays information for dynamic charging sessions.

filter_keyword

The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters are available for all command keywords. Multiple filter keywords can be entered on a command line.

When multiple filter keywords are specified, the output conforms to all of the filter keywords specifications.

For example, if you enter the following command:

show active-charging sessions full active-charging-service acs_!

Counters for active charging sessions active in ACS *acs_1* with full details is displayed. Information for all other services is not displayed.

acsmgr instance *instance_number*

Displays session information for a specific ACS/Session Manager instance.

active-charging-service *acs_service_name*

Displays session information for the ACS specified as an alphanumeric string of 1 through 15 characters.

all

Displays session information for all active charging sessions.

cae-readdressing

Displays the Content Adaptation Engine (CAE) re-addressing session information for active charging sessions.

callid

Specifies the call identification number.

display-dynamic-charging-rules

Displays dynamic charging rules configured.

dynamic-charging

Displays session information for all dynamic charging sessions.

firewall { not-required | required }

Displays session information for sessions with Firewall Processing required or not required, as specified.

flows {active | idle | total} [< | = | > | equal-to | greater-than | less-than] { *bytes* }

Displays information for all active charging flows filtered by all information, active, or idle sessions.

- < *bytes*or **less-than** *bytes*: Specifies filtering of flows that is less than the specified number of bytes.
- > *bytes*or **greater-than** *bytes*: Specifies filtering of flows that is greater than the specified number of bytes.
- = *bytes*or **equal-to** *bytes*: Specifies filtering of flows that is equal to the specified number of bytes.

bytes must be an integer from 0 through 18446744073709551615.

fw-and-nat policy *fw_nat_policy_name*

Displays information for the Firewall-and-NAT Policy specified as an alphanumeric string of 1 through 63 characters.

imsi

Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session.

ip-address

Specifies the IP address for the specific charging service.

max-flows { < | = | > | equal-to | greater-than | less-than }{ *bytes* }

Displays information for the maximum flows made by the session.

- < *bytes*or **less-than** *bytes*: Specifies filtering of maximum flows that is less than the specified number of bytes.
- > *bytes*or **greater-than** *bytes*: Specifies filtering of maximum flows that is greater than the specified number of bytes.
- = *bytes*or **equal-to** *bytes*: Specifies filtering of maximum flows that is equal to the specified number of bytes.

bytes must be an integer from 0 through 18446744073709551615.

msid

Displays active charging session information for a specific subscriber's Mobile Station Identification (MSID) number.

msisdn *msisdn_number*

Displays active charging session information for a specific subscriber's Mobile Station Integrated Services Digital Network (MSISDN) number.

msisdn_number must be an integer with a maximum of 15 digits.

ipv4

Displays active charging session information with IPv4 Firewall enabled/disabled.

ipv6

Displays active charging session information with IPv6 Firewall enabled/disabled.

nat { not-required | required [nat-realm *nat_realm_name*] } [ipv4 | ipv6]

Displays session information for sessions with NAT required or not required, as specified.

nat-realm *nat_realm_name* specifies the name of a NAT realm as an alphanumeric string of 1 through 63 characters.

ipv4: Displays active-charging sessions for which NAT44 processing is required.

ipv6: Displays active-charging sessions for which NAT64 processing is required.

rulebase

Displays information for a rulebase that is configured in an active charging session.

rx-data

Displays the bytes received in the session.

session-id

Displays detailed session information for a specific session identification.

transrating

Displays the transrating sessions.

tx-data

Displays the bytes sent in the session.

type

Displays session information for specified DNS application type(s).

- **dns**
- **ftp**
- **h323**
- **http**
- **icmp**
- **icmpv6**
- **imap**
- **ip**
- **ipv6**
- **mms**
- **p2p [application** *p2p_list* **[traffic-type** *traffic_type* **] | protocol-group** *group_list* **]**: Displays session information for a P2P application type and P2P protocol group.

  p2p application *p2p_list*: The supported P2P applications are:

  - **8tracks**
  - **abcnetworks**
  - **actionvoip**
  - **actsync**

- **adobeconnect**
- **aimini**
- **amazoncloud**
- **amazonmusic**
- **amazonvideo**
- **antsp2p**
- **apple-push**
- **apple-store**
- **applejuice**
- **applemaps**
- **ares**
- **armagettron**
- **avi**
- **badoo**
- **baidumovie**
- **battlefld**
- **bbm**
- **beatport**
- **betternet**
- **bitcasa**
- **bittorrent**
- **bittorrent-sync**
- **blackberry-store**
- **blackberry**
- **blackdialer**
- **box**
- **callofduty**
- **chikka**
- **cisco-jabber**
- **citrix**
- **clubbox**
- **clubpenguin**

- **crackle**
- **crossfire**
- **crunchyroll**
- **cyberghost**
- **ddlink**
- **deezer**
- **didi**
- **directconnect**
- **dish-anywhere**
- **disneymovies**
- **dofus**
- **dramafever**
- **dropbox**
- **edonkey**
- **espn**
- **expressvpn**
- **facebook**
- **facetime**
- **fandor**
- **fasttrack**
- **feidian**
- **fiesta**
- **filetopia**
- **filmontv**
- **flash**
- **flickr**
- **florensia**
- **foursquare**
- **fox-sports**
- **freenet**
- **friendster**
- **fring**

- **funshion**
- **gadu_gadu**
- **gamekit**
- **gmail**
- **gnutella**
- **go90**
- **goober**
- **google-music**
- **google-push**
- **google**
- **googleplay**
- **googleplus**
- **gotomeeting**
- **gtalk**
- **guildwars**
- **halflife2**
- **hamachivpn**
- **hayu**
- **hbogo**
- **hbonow**
- **heytell**
- **hgtv**
- **hike-messenger**
- **hls**
- **hotspotvpn**
- **hulu**
- **hyves**
- **iax**
- **icall**
- **icecast**
- **icloud**
- **idrive**

- **igo**
- **iheartradio**
- **imesh**
- **imessage**
- **imgur**
- **imo**
- **instagram**
- **iplayer**
- **iptv**
- **irc**
- **isakmp**
- **iskoot**
- **itunes**
- **jabber**
- **jap**
- **jumblo**
- **kakaotalk**
- **kik-messenger**
- **kontiki**
- **kugoo**
- **kuro**
- **linkedin**
- **livestream**
- **lync**
- **magicjack**
- **manolito**
- **mapfactor**
- **mapi**
- **maplestory**
- **meebo**
- **mgcp**
- **mlb**

- **mojo**
- **monkey3**
- **mozy**
- **msn**
- **msrp**
- **mute**
- **mypeople**
- **myspace**
- **nateontalk**
- **naverline**
- **navigon**
- **nbc-sports**
- **netmotion**
- **newsy**
- **nick**
- **nimbuzz**
- **nokia-store**
- **octoshape**
- **off**
- **ogg**
- **oist**
- **oovoo**
- **opendrive**
- **openft**
- **openvpn**
- **orb**
- **oscar**
- **outlook**
- **paltalk**
- **pando**
- **pandora**
- **path**

- **pbs**
- **pcanywhere**
- **periscope**
- **pinterest**
- **plingm**
- **poco**
- **popo**
- **pplive**
- **ppstream**
- **ps3**
- **qq**
- **qqgame**
- **qqlive**
- **quake**
- **quic**
- **quicktime**
- **radio-paradise**
- **radius**
- **rdp**
- **rdt**
- **regram**
- **rfactor**
- **rhapsody**
- **rmstream**
- **rodi**
- **rynga**
- **samsung-store**
- **scydo**
- **secondlife**
- **shoutcast**
- **showtime**
- **silverlight**

- **siri**
- **skinny**
- **skydrive**
- **skype**
- **slacker-radio**
- **slingbox**
- **slingtv**
- **smartvoip**
- **snapchat**
- **softether**
- **sopcast**
- **soribada**
- **soulseek**
- **soundcloud**
- **spark**
- **spdy**
- **speedtest**
- **spike**
- **splashfighter**
- **spotify**
- **ssdp**
- **starz**
- **stealthnet**
- **steam**
- **stun**
- **sudaphone**
- **svtplay**
- **tagged**
- **talkatone**
- **tango**
- **teamspeak**
- **teamviewer**

- **telegram**
- **thunder**
- **tinder**
- **tmo-tv**
- **tor**
- **truecaller**
- **truphone**
- **tumblr**
- **tunein-radio**
- **tunnelvoice**
- **turbovpn**
- **tvants**
- **tvland**
- **tvuplayer**
- **twitch**
- **twitter**
- **ultrabac**
- **ultrasurf**
- **univision**
- **upc-phone**
- **usenet**
- **ustream**
- **uusee**
- **vchat**
- **veohtv**
- **vessel**
- **vevo**
- **viber**
- **vine**
- **voipdiscount**
- **vopium**
- **vpnmaster**

- **vpnx**
- **voxer**
- **vtok**
- **vtun**
- **vudu**
- **warcft3**
- **waze**
- **webex**
- **wechat**
- **whatsapp**
- **wii**
- **windows-azure**
- **windows-store**
- **winmx**
- **winny**
- **wmstream**
- **wofkungfu**
- **wofwarcraft**
- **wuala**
- **xbox**
- **xdcc**
- **xing**
- **yahoo**
- **yahoomail**
- **yiptv**
- **youku**
- **yourfreetunnel**
- **youtube**
- **zattoo**

traffic-type *traffic_type*: P2P protocol flows include the following traffic type classifications:

Important The traffic type for a P2P protocol may vary depending on the P2P protocol.

- **ads**
- **audio**
- **file-transfer**
- **im**
- **video**
- **voipout**
- **unclassified**

p2p protocol-group *group_list*: The following P2P protocol groups are supported:

- generic
- anonymous-access
- business
- communicator
- cloud
- e-store
- e-mail
- e-news
- internet-privacy
- filesharing
- gaming
- p2p-filesharing
- p2p-anon-filesharing
- remote-control
- social-nw-gaming
- social-nw-generic
- social-nw-videoconf
- standard
- streaming

- **pop3**
- **pptp**
- **rtcp**
- **rtp**
- **rtsp**
- **secure-http**
- **sip**
- **smtp**

- **tcp**
- **tftp**
- **udp**
- **unknown**
- **wsp-connection-less**
- **wsp-connection-oriented**

username

Displays session information for a specific user name.

dynamic-charging

Displays all the sessions having received at least one Gx message from Session Manager/IMS Authorization.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configuration information for an active charging session.

Example

The following command displays full information of an active charging session.

```
show active-charging sessions full all
```

The following command displays an active charging session summary.

```
show active-charging sessions summary
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging sessions credit-control server-unreachable

Displays the details of sessions that are currently in server-unreachable state i.e. Gy Assume Positive state.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show active-charging sessions credit-control server-unreachable [*filter_keyword* **+] [| { grep** *grep_options* **| more }]**

filter_keyword

The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters are available for all command keywords. Multiple filter keywords can be entered on a command line.

When multiple filter keywords are specified, the output conforms to all of the filter keywords specifications.

For example, if you enter the following command:

show active-charging sessions credit-control server-unreachable active-charging-service acs_1

Counters for active charging sessions active in ACS *acs_1* are displayed. Information for all other services is not displayed.

acsmgr *instance_number*

Displays session information for a specific ACS/Session Manager instance.

active-charging-service *acs_service_name*

Displays session information for the ACS specified as an alphanumeric string of 1 through 15 characters.

callid

Specifies the call identification number.

credit-control

Displays credit control information.

dynamic-charging

Displays session information for all dynamic charging sessions.

firewall { not-required | required }

Displays session information for sessions with Firewall Processing required or not required, as specified.

flows {active | idle | total} [< | = | > | equal-to | greater-than | less-than] { *bytes* }

Displays information for all active charging flows filtered by all information, active, or idle sessions.

- < *bytes*or **less-than** *bytes*: Specifies filtering of flows that is less than the specified number of bytes.
- > *bytes*or **greater-than** *bytes*: Specifies filtering of flows that is greater than the specified number of bytes.
- = *bytes*or **equal-to** *bytes*: Specifies filtering of flows that is equal to the specified number of bytes.

bytes must be an integer from 0 through 18446744073709551615.

fw-and-nat policy *fw_nat_policy_name*

Displays information for the Firewall-and-NAT Policy specified as an alphanumeric string of 1 through 63 characters.

imsi

Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session.

ip-address

Specifies the IP address for the specific charging service.

max-flows { < | = | > | equal-to | greater-than | less-than }{ *bytes* }

Displays information for the maximum flows made by the session.

- < *bytes*or **less-than** *bytes*: Specifies filtering of maximum flows that is less than the specified number of bytes.
- > *bytes*or **greater-than** *bytes*: Specifies filtering of maximum flows that is greater than the specified number of bytes.
- = *bytes*or **equal-to** *bytes*: Specifies filtering of maximum flows that is equal to the specified number of bytes.

bytes must be an integer from 0 through 18446744073709551615.

msid

Displays active charging session information for a specific subscriber's Mobile Station Identification (MSID) number.

rulebase

Displays information for a rulebase that is configured in an active charging session.

rx-data

Displays the bytes received in the session.

session-id

Displays detailed session information for a specific session identification.

tx-data

Displays the bytes sent in the session.

type

Displays session information for specified DNS application type(s).

- **dns**

- **ftp**
- **h323**
- **http**
- **icmp**
- **icmpv6**
- **imap**
- **ip**
- **ipv6**
- **mms**
- **p2p [application** *p2p_list* **[traffic-type** *traffic_type* **] | protocol-group** *group_list* **]**: Displays session information for a P2P application type and P2P protocol group.

  p2p application *p2p_list*: The supported P2P applications are:

  - **8tracks**
  - **abcnetworks**
  - **actionvoip**
  - **actsync**
  - **adobeconnect**
  - **aimini**
  - **amazoncloud**
  - **amazonmusic**
  - **amazonvideo**
  - **antsp2p**
  - **apple-push**
  - **apple-store**
  - **applejuice**
  - **applemaps**
  - **ares**
  - **armagettron**
  - **avi**
  - **badoo**
  - **baidumovie**
  - **battlefld**

- **bbm**
- **beatport**
- **betternet**
- **bitcasa**
- **bittorrent**
- **bittorrent-sync**
- **blackberry-store**
- **blackberry**
- **blackdialer**
- **box**
- **callofduty**
- **chikka**
- **cisco-jabber**
- **citrix**
- **clubbox**
- **clubpenguin**
- **crackle**
- **crossfire**
- **crunchyroll**
- **cyberghost**
- **ddlink**
- **deezer**
- **didi**
- **directconnect**
- **dish-anywhere**
- **disneymovies**
- **dofus**
- **dramafever**
- **dropbox**
- **edonkey**
- **espn**
- **expressvpn**

- **facebook**
- **facetime**
- **fandor**
- **fasttrack**
- **feidian**
- **fiesta**
- **filetopia**
- **filmontv**
- **flash**
- **flickr**
- **florensia**
- **foursquare**
- **fox-sports**
- **freenet**
- **friendster**
- **fring**
- **funshion**
- **gadu_gadu**
- **gamekit**
- **gmail**
- **gnutella**
- **go90**
- **goober**
- **google-music**
- **google-push**
- **google**
- **googleplay**
- **googleplus**
- **gotomeeting**
- **gtalk**
- **guildwars**
- **halflife2**

- **hamachivpn**
- **hayu**
- **hbogo**
- **hbonow**
- **heytell**
- **hgtv**
- **hike-messenger**
- **hls**
- **hotspotvpn**
- **hulu**
- **hyves**
- **iax**
- **icall**
- **icecast**
- **icloud**
- **idrive**
- **igo**
- **iheartradio**
- **imesh**
- **imessage**
- **imgur**
- **imo**
- **instagram**
- **iplayer**
- **iptv**
- **irc**
- **isakmp**
- **iskoot**
- **itunes**
- **jabber**
- **jap**
- **jumblo**

- **kakaotalk**
- **kik-messenger**
- **kontiki**
- **kugoo**
- **kuro**
- **linkedin**
- **livestream**
- **lync**
- **magicjack**
- **manolito**
- **mapfactor**
- **mapi**
- **maplestory**
- **meebo**
- **mgcp**
- **mlb**
- **mojo**
- **monkey3**
- **mozy**
- **msn**
- **msrp**
- **mute**
- **mypeople**
- **myspace**
- **nateontalk**
- **naverline**
- **navigon**
- **nbc-sports**
- **netmotion**
- **newsy**
- **nick**
- **nimbuzz**

- **nokia-store**
- **octoshape**
- **off**
- **ogg**
- **oist**
- **oovoo**
- **opendrive**
- **openft**
- **openvpn**
- **orb**
- **oscar**
- **outlook**
- **paltalk**
- **pando**
- **pandora**
- **path**
- **pbs**
- **pcanywhere**
- **periscope**
- **pinterest**
- **plingm**
- **poco**
- **popo**
- **pplive**
- **ppstream**
- **ps3**
- **qq**
- **qqgame**
- **qqlive**
- **quake**
- **quic**
- **quicktime**

- **radio-paradise**
- **radius**
- **rdp**
- **rdt**
- **regram**
- **rfactor**
- **rhapsody**
- **rmstream**
- **rodi**
- **rynga**
- **samsung-store**
- **scydo**
- **secondlife**
- **shoutcast**
- **showtime**
- **silverlight**
- **siri**
- **skinny**
- **skydrive**
- **skype**
- **slacker-radio**
- **slingbox**
- **slingtv**
- **smartvoip**
- **snapchat**
- **softether**
- **sopcast**
- **soribada**
- **soulseek**
- **soundcloud**
- **spark**
- **spdy**

- **speedtest**
- **spike**
- **splashfighter**
- **spotify**
- **ssdp**
- **starz**
- **stealthnet**
- **steam**
- **stun**
- **sudaphone**
- **svtplay**
- **tagged**
- **talkatone**
- **tango**
- **teamspeak**
- **teamviewer**
- **telegram**
- **thunder**
- **tinder**
- **tmo-tv**
- **tor**
- **truecaller**
- **truphone**
- **tumblr**
- **tunein-radio**
- **tunnelvoice**
- **turbovpn**
- **tvants**
- **tvland**
- **tvuplayer**
- **twitch**
- **twitter**

- **ultrabac**
- **ultrasurf**
- **univision**
- **upc-phone**
- **usenet**
- **ustream**
- **uusee**
- **vchat**
- **veohtv**
- **vessel**
- **vevo**
- **viber**
- **vine**
- **voipdiscount**
- **vopium**
- **vpnmaster**
- **vpnx**
- **voxer**
- **vtok**
- **vtun**
- **vudu**
- **warcft3**
- **waze**
- **webex**
- **wechat**
- **whatsapp**
- **wii**
- **windows-azure**
- **windows-store**
- **winmx**
- **winny**
- **wmstream**

- **wofkungfu**
- **wofwarcraft**
- **wuala**
- **xbox**
- **xdcc**
- **xing**
- **yahoo**
- **yahoomail**
- **yiptv**
- **youku**
- **yourfreetunnel**
- **youtube**
- **zattoo**

traffic-type *traffic_type*: P2P protocol flows include the following traffic type classifications:

Important The traffic type for a P2P protocol may vary depending on the P2P protocol.

- **ads**
- **audio**
- **file-transfer**
- **im**
- **video**
- **voipout**
- **unclassified**

p2p protocol-group *group_list*: The following P2P protocol groups are supported:

- generic
- anonymous-access
- business
- communicator
- cloud
- e-store
- e-mail
- e-news
- internet-privacy
- filesharing

- gaming
- p2p-filesharing
- p2p-anon-filesharing
- remote-control
- social-nw-gaming
- social-nw-generic
- social-nw-videoconf
- standard
- streaming

- **pop3**
- **pptp**
- **rtcp**
- **rtp**
- **rtsp**
- **secure-http**
- **sip**
- **smtp**
- **tcp**
- **tftp**
- **udp**
- **unknown**
- **wsp-connection-less**
- **wsp-connection-oriented**

username

Displays session information for a specific user name.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configuration information for an active charging session.

Example

The following command displays full information of an active charging session.

show active-charging sessions full all

The following command displays an active charging session summary.

show active-charging sessions summary

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging subscribers

Displays statistics and information on active subscribers.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show active-charging subscribers callid *call_id* **charging-updates [statistics] [charging-action [name** *charging_action_name* **] | qos-group [name** *qos_group_of_ruledefs_name* **] | session] [| { grep** *grep_options* **| more }]**

callid *call_id*

Specifies a call identification number.

call_id must be an eight digit HEX number.

charging-updates [statistics] [charging-action [name *charging_action_name*] | qos-group [name *qos_group_of_ruledefs_name*] | session]

Displays charging-update statistics for subscriber.

- **statistics**: Displays statistics related to dynamic updates to charging parameters.
- **charging-action [name** *charging_action_name* **]**: Displays charging-updates for activated charging-actions or specified charging action.

  charging_action_name must be the name of a charging action, and must be an alphanumeric string of 1 through 63 characters in length.
- **qos-group [name** *qos_group_of_ruledefs_name* **]**: Displays charging-updates for activated QoS groups or the specified QoS-group-of-ruledefs.

  qos_group_of_ruledefs_name must be the name of a QoS-group-of-ruledefs, and must be an alphanumeric string of 1 through 63 characters in length.
- **session**: Displays charging-updates for the session.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view subscriber statistics and information on dynamic updates to charging parameters per call ID.

Example

The following command displays all statistics related to dynamic updates to charging parameters for call ID *ca50ea54*:

```
show active-charging subscribers callid ca50ea54 charging-updates
statistics
```

The following command displays information on charging updates for call ID *ca50ea54* and ACS charging action named *test12*:

```
show active-charging subscribers callid ca50ea54 charging-updates
charging-action name test12
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging subsystem

Displays service and configuration counters for the ACS.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging subsystem { all | facility acsmgr { all | instance *instance_number* **} [rulebase name** *rulebase_name* **] | sip } [| { grep** *grep_options* **| more }]**

all

Displays ACS subsystem information.

facility acsmgr [all | instance *instance_number*]

Displays logged events for all ACS/Session Managers or for a specific instance.

instance_number must be an integer from 1 through 65535.

rulebase name *rulebase_name*

Displays rulebase statistics for the specified rulebase.

rulebase_name must be the name of a rulebase, and must be an alphanumeric string of 1 through 63 characters.

sip

Displays SIP related statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view ACS/Session Manager information.

Example

The following command displays ACS subsystem information:

```
show active-charging subsystem all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging tcp-proxy statistics

Displays TCP Proxy statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging tcp-proxy statistics [ all | dynamic-disable  |
ip-layer | proxy-fac | rulebase rulebase_name | socket-migration | tcp-layer
 ] [ verbose ] [ | { grep grep_options | more } ]
```

all

Displays all TCP Proxy statistics aggregated over all rulebases, including for both IP and TCP layers.

dynamic-disable

Displays statistics for dynamic disabling of TCP Proxy.

ip-layer

Displays TCP Proxy statistics for IP layer.

proxy-fac

Displays TCP Proxy Flow Admission Control statistics.

rulebase *rulebase_name*

Displays TCP Proxy statistics for the rulebase specified as an alphanumeric string of 1 through 63 characters.

socket-migration

Displays TCP Proxy statistics for socket migration.

tcp-layer

Displays TCP Proxy statistics for TCP layer.

verbose

Displays detailed TCP Proxy statistics.

| { grep *grep_options* | more }

Specifies that the output of this command is to be piped (sent) to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view TCP Proxy statistics.

Example

The following command displays detailed TCP proxy statistics for the rulebase named *test14*:

```
show active-charging tcp-proxy statistics rulebase test14 verbose
```

show active-charging tethering-detection

Displays information/statistics pertaining to Tethering Detection databases.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging tethering-detection { database [ os-signature | tac | ua-signature ]+ [ sessmgr { all | instance` *`instance_number`* **}] [| { grep** *`grep_options`* **| more }] | statistics }`**

database [os-signature | tac | ua-signature]+ [sessmgr { all | instance *instance_number* }]

Displays information pertaining to the specified Tethering Detection database(s).

- **os-signature**: Displays Tethering Detection OS (Operating System) database information.
- **tac**: Displays Tethering Detection TAC (Transaction Authorization Code) database information.
- **ua-signature**: Displays Tethering Detection UA (User Agent) database information.
- **+**: Indicates that more than one of the preceding keywords can be entered in a single command.
- **sessmgr { all | instance** *instance_number* **}**: Displays SessMgr Tethering Detection database status.
  - **all**: Displays status for all SessMgr instances.
  - **instance** *instance_number*: Displays status for the SessMgr instance specified as an integer from 1 through 10000.

statistics

Displays Tethering Detection related statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information/statistics pertaining to Tethering Detection databases.

Example

The following command displays information pertaining to Tethering Detection UA and OS databases:

`show active-charging tethering-detection database ua-signature os-signature`

The following command displays information pertaining to all Tethering Detection databases:

`show active-charging tethering-detection database`

show active-charging timedef

Displays the details of timeslots configured in specified time definition(s).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show active-charging timedef { all | name` *`timedef_name`* **`} [ service name`** *`acs_service_name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays information for all timedefs configured in the service.

name *timedef_name*

Displays detailed information for the timedef specified s an alphanumeric string of 1 through 63 characters.

service name *acs_service_name*

Displays information for all or a specific timedef configured in the specified ACS. *acs_service_name* must be the name of the active-charging service, and must be an alphanumeric string of 1 through 15 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view details of timeslots configured in specified timedef(s) that have been configured for the Time-of-Day Activation/Deactivation of Rules feature.

Example

The following command displays timeslot details of all timedefs configured in the ACS:

`show active-charging timedef all`

show active-charging traffic-optimization counters sessmgr

Displays cumulative Traffic Optimization statistics from Cisco Ultra Traffic Optimization engine.

Important This command is license dependent. For more information, contact your Cisco account representative.

Product P-GW

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show active-charging traffic-optimization counters sessmgr { all | instance`** *`number`* **`}`**

counters

Displays aggregate flow counters/statistics from Cisco Ultra Traffic Optimization engine.

all

Displays all session manager (sessmgr) statistics specific to Traffic Optimization.

instance *number*

Displays the statistics for a session manager instance.

Usage Guidelines Use this command to display cumulative Traffic Optimization statistics from Cisco Ultra Traffic Optimization engine.

Example

The following command displays all sessmgr Traffic Optimization statistics from Cisco Ultra Traffic Optimization engine:

`show active-charging traffic-optimization counters sessmgr all`

show active-charging traffic-optimization info

Displays version, mode, and configuration values of Cisco Ultra Traffic Optimization engine.

Product P-GW

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show active-charging traffic-optimization info**

traffic-optimization

Displays all Traffic Optimization options.

info

Displays Cisco Ultra Traffic Optimization engine information.

Usage Guidelines Use this command to display version, mode, and configuration values of Cisco Ultra Traffic Optimization engine. The output of configured values is based on Cisco Ultra Traffic Optimization engine. Only the relevant information for each Cisco Ultra Traffic Optimization engine is displayed as part of this CLI output.

Example

The following command displays detailed statistics about the version, mode, and configuration values of Cisco Ultra Traffic Optimization engine:

show active-charging traffic-optimization info

show active-charging trigger-action

Displays information about the trigger actions configured in a service.

Product ACS

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show active-charging trigger-action { all | name** *trigger_action_name* **[service** *acs_service_name* **] } [| { grep** *grep_options* **| more }]**

all

Displays information for all trigger actions configured in a service.

name *trigger_action_name*

Displays information for the specified trigger action.

trigger_action_name must be specified as an alphanumeric string of 1 through 63 characters.

service *acs_service_name*

Displays service and configuration counters for the specified active charging service.

acs_service_name must be specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information about trigger actions configured in a service.

Example

The following command displays the information for all trigger actions:

```
show active-charging trigger-action all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging trigger-condition

Displays information about the trigger conditions configured in a service.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging trigger-condition { { all | name trigger_condn_name [
service acs_service_name ] } | statistics [ name trigger_condn_name ] } [ | {
grep grep_options | more } ]
```

all

Displays information for all trigger conditions configured in a service.

name *trigger_condn_name*

Displays information for the specified trigger condition.

trigger_condn_name must be specified as an alphanumeric string of 1 through 63 characters.

statistics

Displays statistical information for all configured trigger conditions.

service *acs_service_name*

Displays service and configuration counters for the specified active charging service.

acs_service_name must be specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information about trigger conditions configured in a service.

Example

The following command displays the information for all trigger conditions:

```
show active-charging trigger-condition all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging udr-format

Displays information about UDR formats configured in an Active charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging udr-format { all | name *udr_fromat_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information for all UDR formats.

name *udr_fromat_name*

Displays information for an existing UDR format specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for UDR format(s) in an ACS.

Example

The following command displays all configured UDR formats in an ACS.

```
show active-charging udr-format all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging url-blacklisting statistics

Displays URL Blacklisting statistics.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging url-blacklisting statistics [ rulebase { all | name
 rulebase_name } ] [ verbose ] [ | { grep grep_options | more } ]
```

rulebase { all | name *rulebase_name* }

Displays URL Blacklisting statistics for all or a specific rulebase.

- **all**: Displays URL Blacklisting statistics for all configured rulebases.
- **name** *rulebase_name*: Displays URL Blacklisting statistics for the rulebase specified as an alphanumeric string of 1 through 63 characters.

verbose

Displays detailed URL Blacklisting statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view URL Blacklisting hits and misses statistics.

Example

The following command displays cumulative URL Blacklisting statistics:

```
show active-charging url-blacklisting statistics
```

The following command displays URL Blacklisting statistics for the rulebase *rulebase_1*:

```
show active-charging url-blacklisting statistics rulebase name rulebase_1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show active-charging video detailed-statistics

Displays detailed statistics for TCP video flows. The command options enable you to collect statistical data for video per UE device type, per radio access type, and per video container type.

Important In release 20.0, MVG is not supported. This command must not be used in release 20.0. For more information, contact your Cisco account representative.

Product

MVG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show active-charging video detailed-statistics [ container { flv | mp4 |
 others } | rat { cdma | gprs | hspa | lte | others | umts | wlan } | ue
 { android | ios | laptop | others } ]
```

container { flv | mp4 | others }

Displays detailed statistics for TCP video flows based on the specified container file format.

rat { cdma | gprs | hspa | lte | others | umts | wlan }

Displays detailed statistics for TCP video flows based on the specified radio access type.

ue { android | ios | laptop | others }

Displays detailed statistics for TCP video flows based on the specified UE device type.

Usage Guidelines

Use this command to display detailed statistics about video usage. Use the command options to display detailed statistics based on the UE device type, radio access type, or container file format.

Example

The following command displays detailed statistics about video usage based on the UE device type *ios*:

```
show active-charging video detailed-statistics ue ios
```

show active-charging xheader-format

Displays x-header format configurations for an Active Charging Service (ACS).

Important This is a customer-specific command. Please contact your local sales representative for more information.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show active-charging xheader-format { all | name *xheader_format* **} [| { grep** *grep_options* **| more }]**

all

Displays information for all x-header formats configured.

name *xheader_format*

Displays information for the x-header format specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view details of x-header formats configured in an ACS.

Example

The following command displays information for the x-header format named *test12*:

```
show active-charging xheader-format test12
```

show administrators

Displays information regarding all CLI users currently connected to the system.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show administrators [session id] [| { grep** *grep_options* **| more }]**

session id

Indicates the output is to contain additional information about the CLI user session including the assigned session ID.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines This command displays a list of administrative users that have command line interface sessions active.

Example

The following command displays a list of administrative users with active command line interface sessions:

```
show administrators
```

The following command displays the list along with CLI user session IDs:

```
show administrators session id
```

show alarm

Displays alarm information.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show alarm { all | audible | central-office | facility | outstanding [ all | chassis | port` *`slot/port`* **`| slot`** *`slot`* **`] [ verbose ] | statistics } [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays the state of all alarms in one screen.

audible

Displays the state of the internal audible alarm on the SMC (ASR 5000) or SSC (ASR 5500).

central-office

Displays the state of the CO Alarm contacts on the SPIO (ASR 5000) or SSC (ASR 5500).

facility

Displays the state of the facility (audible and CO) alarms.

outstanding [all | chassis | port *slot/port* | slot *slot*] [verbose]

Displays information on currently outstanding alarms.

- **all**: Displays all alarm information.
- **chassis**: Displays chassis/power/fan alarms.
- **port** *slot/port*: Shows the alarm information for the specified port.
- **slot** *slot*: Shows the alarm information for the card in the specified slot.
- **verbose**: Displays more verbose output, including the internal alarm ID

statistics

Displays basic statistics on the alarming subsystem, including the current number of outstanding alarms of different severities and a cumulative total of alarms generated.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View alarms to verify system status or to periodically check the general health of the system.

Important This command is not supported on all platforms.

Example

The following command displays all alarms that are currently outstanding:

```
show alarm outstanding all
```

The following command displays more detailed information on all alarms that are currently outstanding:

```
show alarm outstanding all verbose
```

The following command displays alarm statistics:

```
show alarm statistics
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show alcap counters

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the Access Link Control Application Part (ALCAP) protocol message counters related to ALCAP protocol sessions associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show alcap counters [alcap-service *alcap_svc_name* **[aal2-node** *aal2_node_name* **[aal2-path** *aal2_path_id* **]]] [| { grep** *grep_options* **| more }]**

name *alcap_svc_name*

Specifies the name of the ALCAP service for which ALCAP protocol session counters are to be displayed.

aal2-node *aal2-node*

Specifies the name of the ATM Adaptation Layer 2 (AAL2) node for which protocol session counters will be filtered.

aal2-path *aal2_path_id*

Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node for which ALCAP protocol counters will be filtered.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to display the sessions statistics and counters for ALCAP service.

Example

The following command displays the ALCAP protocol session counters for ALCAP service named as *alcap_hnb_svc1*:

```
show alcap counters alcap-service alcap_hnb_svc1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show alcap-service

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the Access Link Control Application Part (ALCAP) session statistics of an ALCAP service associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show alcap-service { all | name *alcap_svc_name* **[aal2-node** *aal2_node_name* **[aal2-path** *aal2_path_id* **[aal2-channel** *aal2_channel_num*]] | **endpoint** *aal2_endpoint_name* **] } [| { grep** *grep_options* **| more }]**

name *alcap_svc_name*

Specifies the name of the ALCAP service for which service statistics are to be displayed.

aal2-node *aal2-node*

Specifies the name of the ATM Adaptation Layer 2 (AAL2) node that will be used to filter the display of the ALCAP service statistics.

aal2-path *aal2_path_id*

Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node that will be used to filter the display of the ALCAP service statistics.

aal2-channel *aal2_channel_num*

Specifies the AAL2 channel number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node that will be used to filter the display of the ALCAP service statistics.

endpoint *atm_endpoint_name*

Specifies the ATM endpoint name that will be used to filter the display of the ALCAP service statistics for a specific ATM endpoint.

Usage Guidelines

This command is used to clear the sessions statistics and counters for ALCAP service.

Example

The following command displays the service statistics of ALCAP service named as *alcap_hnb_svc1*:

```
show alcap-service name alcap_hnb_svc1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show alcap statistics

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the session statistics related to Access Link Control Application Part (ALCAP) protocol sessions associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show alcap statistics [alcap-service *alcap_svc_name* **[aal2-node** *aal2_node_name* **[aal2-path** *aal2_path_id* **]]] [verbose] [| { grep** *grep_options* **| more }]**

name *alcap_svc_name*

Specifies the name of the ALCAP service for which statistics are to be displayed.

aal2-node *aal2-node*

Specifies the name of the ATM Adaptation Layer 2 (AAL2) node for which ALCAP service related statistics will be displayed.

aal2-path *aal2_path_id*

Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node for which ALCAP service statistics counters will be displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter of the *Command Line Interface Reference*.

Usage Guidelines

This command is used to display the sessions statistics and counters for ALCAP service.

Example

The following command displays the service session statistics counters for ALCAP service named as *alcap_hnb_svc1*:

```
show alcap counters alcap-service alcap_hnb_svc1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show apn

Displays configuration information for either a specific or all configured Access Point Names (APNs).

Product

GGSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show apn { all | name *apn_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information on all APNs configured on the system.

name *apn_name*

Displays information for an APN specified as an alphanumeric string of 1 through 62 characters that is case sensitive.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more** options, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to verify the configuration of one or all APNs for monitoring or troubleshooting purposes. The output is a concise listing of APN parameter settings.

If this command is executed from within the local context with the all keyword, information for all APNs configured on the system will be displayed.

Example

The following command displays configuration information for all APNs:

```
show apn all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show apn counters ip-allocation

Displays cumulative statistics of IP allocation method for calls set up so far, per Access Point Name (APN) basis.

Product

GGSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show apn counters ip-allocation [ all | name` *`apn_name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays statistics for all APNs.

name *apn_name*

Displays statistics for the APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to display the cumulative IP allocation counters on a per APN basis. Output of this command gives the user clear idea of how many sessions in each APN have used a particular type of ip-allocation method.

If this command is issued from within the local context, the statistics displayed will be cumulative for all APNs configured on the system regardless of context. If no APN name is specified and the command is executed from a context with multiple APNs configured, the output will be cumulative for all APNs in the context.

Example

The following command displays statistics for all APN on a system:

```
show apn counter ip-allocation all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show apn statistics

Displays statistics for either a specific Access Point Name (APN) or all configured APNs. Also can be used to display APN statistics at the ARP/QCI level.

Product

GGSN

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show apn statistics [ all | name apn_name ]qci { all | 1-9 | non-std [ gbr
 | non-gbr ] } arp { all | 1-15 } ] [ | { grep grep_options | more } ]
```

all

Displays statistics for all APNs.

name *apn_name*

Displays statistics for the APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

qci

Enables the configuration of ARP priority level statistics for the specified QCI.

Important ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

all

Configures the collection of ARP priority level statistics for all QCIs.

Important ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

1-9

Configures the collection of ARP priority level statistics for a specific QCI 1 through 9.

Important ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

non-std

Configures collection of ARP priority level statistics for non-standard non-guaranteed bit rate (GBR) QCIs.

Important ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

non-gbr

Configures the collection of ARP priority level statistics for non-standard non-GBR QCIs.

Important ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

gbr

Configures the collection of ARP priority level statistics for non-standard GBR QCIs.

Note ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

arp

Configures the collection of ARP priority level statistics for the specified ARP.

Important ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

1-15

Configures ARP priority level statistics for a specified ARP of 1 through 15.

Important ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to view statistics for one or all APNs within a context for monitoring or troubleshooting purposes.

If this command is issued from within the local context, the statistics displayed will be cumulative for all APNs configured on the system regardless of context. If no APN name is specified and the command is executed from a context with multiple APNs configured, the output will be cumulative for all APNs in the context.

Example

The following command displays statistics for an APN named *isp2*:

```
show apn statistics name isp2
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show apn-profile

Displays information for configured Access Point Name (APN) profiles.

Product

MME

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show apn-profile { all | full { all | name` *`apn_name`* **`} | name`** *`apn_name`* **`} [ | { grep`** *`grep_options`* **`| more } ]`**

all

Lists all APN profiles configured on the system.

full { all | name *apn_name* }

full: Displays all information in the APN profile(s).

all: Displays full information for all APN profiles configured on the system.

name *apn_name*: Displays full information for an APN profile specified as an alphanumeric string of 1 through 64 characters.

name *apn_name*

Displays information for an APN profile specified as an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for APN profiles configured on the system. APN profiles are configured through the global configuration mode and in the APN profile configuration mode. For more information regarding APN profile commands, refer to the *APN Profile Configuration Mode Commands* chapter.

Example

The following command displays all available information for an APN profile named *apn-prof3*:

`show apn-profile full name apn-prof3`

show apn-remap-table

Displays information for Access Point Name (APN) remap tables configured on the system.

Product

MME

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show apn-remap-table { all | full { all | name` *`remap_table_name`* **`} | name`** *`remap_table_name`* **`} [ | { grep`** *`grep_options`* **`| more } ]`**

all

Lists all APN remap tables configured on the system.

full { all | name *remap_table_name* }

full: Displays a full set (all) of available information for the configured APN remap table(s).

all: Displays the full set of available information for all APN remap tables configured on the system.

name *remap_table_name*: Displays the full set of available information for an existing APN remap table specified as alphanumeric string of 1 through 64 characters.

name *remap_table_name*

Displays information for an existing APN remap table specified as an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for APN remap tables configured on the system. APN remap tables are configured through the Global Configuration mode and in the APN remap table configuration mode. For more information regarding APN remap table commands, refer to the *APN Remap Table Configuration Mode Commands* chapter.

Example

The following command displays all available information for an APN remap table named *remap-table12*:

`show apn-remap-table full name remap-table12`

show aps

Displays information for configured Automatic Protection Switching (APS) parameters.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show aps { all | card-stats *slot_number* **[clear] | info** *slot_number/port_number* **| port-stats** *slot_number/port_number* **[clear] | port-status } [| { grep** *grep_options* **| more }]**

all

Lists APS information for all cards configured with APS.

card-stats*slot_number* [clear]

Displays the APS statistics for the identified card. If the **clear** keyword is included with the command, the APS statistics for the specified card are cleared (reset to zero).

slot_number is an integer that identifies the chassis slot holding the card.

info*slot_number/port_number*

Displays APS information for a specific port.

slot_number/port_number: The first number must be an integer that identifies the chassis slot holding the specified card. The slot number must be followed by a slash '/', which must be followed immediately by the port number - an integer from 1 to 4 depending upon the type of card.

port-stats*slot_number/port_number* [clear]

Displays APS statistics for a specific port. If the **clear** keyword is included with the command then the APS statistics for the specified port are cleared (reset to zero).

slot_number/port_number: The first number must be an integer from 1 to 48 to identify the chassis slot holding the specified card. The slot number must be followed by a slash '/', which must be followed immediately by the port number - an integer from 1 to 4 depending upon the type of card.

port-status*slot_number/port_number*

Displays APS status information for a specific port.

slot_number/port_number: The first number must be an integer from 1 to 48 to identify the chassis slot holding the specified card. The slot number must be followed by a slash '/', which must be followed immediately by the port number - an integer from 1 to 4 depending upon the type of card.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display APS redundancy configuration, APS card and port status, and APS card and port statistics. APS is configured at the card level. For details on configuring APS, refer to the *Card Configuration Mode Commands* chapter in this reference.

Important

APS is only relevant for the CLC2 and OLC2 line cards supporting SONET/SDH.

Example

The following command displays all available APS configuration information for a specific port 1 on the line card in slot 27:

```
show aps info 27/1
```

show asngw-service

Displays information about selected Access Service Network Gateway (ASN-GW) calls/services.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show asngw-service { all | name service_name | session | statistics } [
bs-status [ address ip_address | filter { all | icmp-monitored | no-calls
| summary | up ] ] [ | { grep grep_options | more } ]
```

all

Displays information for all configured ASN-GW services.

name *service_name*

Displays information only for an existing ASN-GW service in the current context specified as an alphanumeric string of 1 through 63 characters.

session

Displays information about configured ASN-GW sessions. See the **show asngw-service session** command

statistics

Total of collected information for specific protocol since the last **restart** or **clear** command.

bs-status { address *ip_address* | filter { all | icmp-monitored | no-calls | summary | up } }

Displays the ASN base station (BS) status based on IP address and various filters.

address *ip_address* specifies the IP address of ASN base station whose status is requested. *ip_address* must be entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

filter { all | icmp-monitored | no-calls | summary | up }: Filters the requested BS's status on the basis of following criteria:

- **all**: Displays the status of all ASN base stations.
- **icmp-monitored**: Displays the status of ASN base stations that are monitored through ICMP ping messages.
- **no-calls**: Displays the status of an ASN base station that has no active calls.
- **summary**: Displays a summary of the status of requested ASN base stations.
- **up**: Displays the of status of ASN base stations that are in active state.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information for selected configured ASN-GW services.

Example

The following command displays available information for all active ASN-GW services.

```
show asngw-service all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asngw-service session

Displays statistics for specific Access Service Network Gateway (ASN-GW) sessions.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show asngw-service session [all | anchor-only [full] | callid *call_id* **| counters | full | ip-address** *ipv4_address* **| msid** *msid_number* **| non-anchor-only [full] | peer-address** *ipv4_address* **| summary | username** *user_name* **] [| { grep** *grep_options* **| more }]**

all

Displays all related information for all active ASN-GW service sessions.

anchor-only

Displays all available information for all active ASN-GW service sessions on an anchor ASN-GW only.

callid *call_id*

Displays available information for the call identification number specified as an 8-digit hexadecimal number.

full

Displays all available information for the associated display or filter keyword.

ip-address *ipv4_address*

Specifies the IP address of the subscriber in IPv4 dotted-decimal notation.

msid *msid_number*

Displays available information for the specific mobile station identification number (MSID).

non-anchor-only

Displays all available information for all active ASN-GW service sessions on a non-anchor ASN-GW only.

peer-address *ipv4_address*

Specifies the Ip address of an IP peer in dotted-decimal notation.

summary

Displays summary of available information for associated display or filter keyword (previous keyword).

username *user_name*

Specifies the name of a user within current context as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for an ASN-GW session.

Example

The following command displays all available ASN-GW sessions.

```
show asngw-service session all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asngw-service session counters

Displays statistics for specific Access Service Network Gateway (ASN-GW) sessions.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show asngw-service session counters [[**function-type** { **auth-relay** | **context-transfer** | **data-path** | **handoff** | **im-operation** | **ms-state-change** | **paging** | **qos** }] | [**anchor-only** | **callid** *call_id* | **ip-address** *ipv4_address* | **msid** *msid_number* | **non-anchor-only** | **peer-address** *ipv4_address* | **username** *user_name*] [**r4-only** | **r6-only** | **verbose**]] [| { **grep** *grep_options* | **more** }]

anchor-only

Displays all available information for all active anchor sessions in an ASN-GW service.

callid *call_id*

Displays available information for the call identification number specified as an 8-digit hexadecimal number.

function-type { auth-relay | context-transfer | data-path | handoff | im-operation | ms-state-change | paging | qos }

Displays the counters for specific type of functions in an ASN-GW session.

auth-relay: Displays information about authentication relay messages.

context-transfer: Displays information about context-transfer messages.

data-path: Displays information about data-path registration messages.

handoff: Displays information about hand-off messages.

im-operations: Displays information about idle mode state operation messages.

ms-state-change: Displays information about MS state change messages.

paging: Displays information about paging messages.

qos: Displays information about RR messages.

ip-address *ipv4_address*

Specifies the IP address of the subscriber in IPv4 dotted-decimal notation.

msid *msid_number*

Displays available information for the specific mobile station identification (MSID) number.

non-anchor-only

Displays all available information for all active non-anchor sessions in an ASN-GW service.

peer-address *ipv4_address*

Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

r6-only

Displays all available counters for R6 interface in an ASN-GW session.

r4-only

Displays all available counters for R4 interface in an ASN-GW session.

username *user_name*

Displays available session information for the specific WiMAX user in ASN-GW service session.

user_name is an alphanumeric string of 1 through 127 characters.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the counters of an ASN-GW session.

Example

The following command displays the counters for data path type function.

```
show asngw-service session counters function-type data-path
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asngw-service statistics

Displays statistics for all Access Service Network Gateway (ASN-GW) sessions.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show asngw-service statistics [ function-type { auth-relay |
context-transfer | data-path | handoff | im-operations | ms-state-change
 | paging | qos | capability }] [ name service_name  | r4-only | r6-only |
verbose | peer-address ipv4_address ] [ peer-id id ][ verbose ] [ { grep
grep_options | more } ]
```

function-type

Displays information about selected function type on R4 or R6 interface.

function-type { auth-relay | context-transfer | data-path | handoff | im-operations | ms-state-change | paging | qos | capability} [r4-only | r6-only]

Displays the counters for specific type of functions in an ASN-GW session.

auth-relay: Displays information about authentication relay messages.

context-transfer: Displays information about context-transfer messages.

data-path: Displays information about data-path registration messages.

handoff: Displays information about hand-off messages.

im-operations: Displays information about idle mode state operation messages.

ms-state-change: Displays information about MS state change messages.

paging: Displays information about paging messages.

qos: Displays information about RR messages.

capability: Displays the capability negotiation between the ASNGW and the base station.

r4-only: Displays information about selected function on R4 interface.

r6-only: Displays information about selected function on R6 interface.

name *service_name*

Displays information for an existing service specified as an alphanumeric string of 1 through 63 characters.

r4-only

Displays statistics of R4 interface in ASN-GW services.

r6-only

Displays statistics of R6 interface in ASN-GW services.

peer-address *ipv4_address*

Specifies the IP address of an IP Peer in IPv4 dotted-decimal notation.

peer-id < *id* >

Display the statistics based on the 6-byte BSID or ASNGW ID in addition to the IPv4 address.

verbose

Specifies that the output should display all available information. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display ASN-GW statistics.

Example

The following command displays information about selected MS-State-Change function.

```
show asngw-service statistics function-type ms-state-change
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asnpc-service

Displays information about selected Access Service Network Paging Controller and Location Registry (ASN PC/LR) services.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show asnpc-service { all | id | name` *`service_name`* **`| session | statistics } [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays information for all configured ASN PC services.

paging-group

Displays all the configured paging-groups and associated paging nodes, and the offset count. For a specific paging group, enter the paging group id number.

name *service_name*

Displays information only for an existing ASN PC service specified as an alphanumeric string of 1 through 63 characters.

session

Displays information about configured ASN PC sessions.

statistics

Total of collected information for specific protocol since last restart or clear command.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information for selected configured ASN PC services.

Example

The following command displays available information for all active ASN PC services.

```
show asnpc-service all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asnpc-service session

Displays statistics for specific Access Service Network Paging Controller (ASN PC) service sessions.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show asnpc-service session [all | callid *call_id* **| counters | full | msid** *msid_number* **| peer-address** *ipv4_address* **| summary] [| { grep** *grep_options* **| more }]**

all

Displays all related information for all active ASN PC service sessions.

callid *call_id*

Displays available information for the call identification number specified as an 8-digit hexadecimal number.

full

Displays all available information for the associated display or filter keyword.

msid *msid_number*

Displays available information for the specific mobile station identification (MSID) number.

peer-address *ipv4_address*

Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

summary

Displays summary of available information for associated display or filter keyword (previous keyword).

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for an ASN PC session.

Example

The following command displays all available ASN PC session counters in verbose mode.

```
show asnpc-service session all
```

The following command displays full ASN PC session counters in verbose mode.

```
show asnpc-service session full
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asnpc-service session counters

Displays session counters for Access Service Network Paging Controller (ASN PC) service sessions.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show asngw-service session counters [all | callid *call_id* **| msid** *msid_number* **| peer-address** *ipv4_address* **| verbose]] [| { grep** *grep_options* **| more }]**

all

Displays all available counters for all ASN PC service sessions.

callid *call_id*

Displays available information for the call identification number specified as an 8-digit hexadecimal number.

msid *msid_number*

Displays available information for the specific mobile station identification (MSID) number.

peer-address *ipv4_address*

Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the counters of an ASN PC session.

Example

The following command displays the counters for ASN PC service sessions in verbose mode.

```
show asnpc-service session counters verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asnpc-service session counters verbose

Displays session counters for Access Service Network Paging Controller (ASN PC) service sessions in complete detail.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show asngw-service session counters verbose [ function-type {
context-transfer | im-operations | ms-state-change | paging } ] [ all |
callid call_id | msid msid_number | peer-address ipv4_address ] ] [ | { grep
grep_options | more } ]
```

all

Displays all available counters for all ASN PC service sessions in verbose mode.

callid *call_id*

Displays full information for the call identification number specified as an 8-digit hexadecimal number.

function-type { context-transfer | im-operations | ms-state-change | paging }

Displays the counters for specific type of functions in an ASN-GW session.

context-transfer: Displays information about context-transfer messages.

im-operations: Displays information about idle mode state operation messages.

ms-state-change: Displays information about MS state change messages.

paging: Displays information about paging messages.

msid *msid_number*

Displays full information for the specific mobile station identification (MSID) number.

peer-address *ipv4_address*

Specifies the IP address of an IP peer IPv4 dotted-decimal notation.

r4-only

Displays statistics of R4 interface in ASN PC services in verbose mode.

r6-only

Displays statistics of R6 interface in ASN PC services in verbose mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the counters of an ASN PC session in verbose mode.

Example

The following command displays the counters for data path type function.

```
show asnpc-service session counters verbose
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asnpc-service statistics

Displays statistics for all ASN PC service sessions.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show asnpc-service statistics [name *service_name* **| peer-address** *ipv4_address* **| verbose] [r4-only | r6-only [| { grep** *grep_options* **| more }]**

name *service_name*

Specifies an existing service name as an alphanumeric string of 1 through 63 characters.

peer-address *ipv4_address*

Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display ASN PC statistics.

Example

The following command displays information about ASN PC service in verbose mode.

show asnpc-service statistics verbose

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show asnpc-service statistics verbose

Displays statistics for all Access Service Network Paging Controller (ASN PC) service in verbose mode.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show asnpc-service statistics verbose [function-type { context-transfer | im-operations | ms-state-change | paging }] | all | r4-only | r6-only] [| { grep *grep_options* **| more }]**

function-type { context-transfer | ms-state-change | paging }

Displays the statistics for specific type of functions in an ASN PC service in verbose mode.

context-transfer: Displays information about context-transfer messages.

im-operations: Displays information about idle mode state operation messages.

ms-state-change: Displays information about MS state change messages.

paging: Displays information about paging messages.

all

Displays statistics of all ASN PC services in verbose mode.

r4-only

Displays statistics of R4 interface in ASN PC services.

r6-only

Displays statistics of R6 interface in ASN PC services.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display ASN PC service statistics in verbose mode.

Example

The following command displays information about selected MS-State-Change function.

show asnpc-service statistics verbose function-type ms-state-change

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show banner

Displays the configured banner message for the current context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show banner { all | charging-service | motd | lawful-intercept | pre-login } [ | { grep` *`grep_options`* **`| more } ]`**

all

Displays all banners configured for a service in a system including the enhanced charging service (ECS).

charging-service

Displays banner message configured for an enhanced charging service in the current context.

motd

Display the banner message that is configured for the current context.

lawful-intercept

Refer to the *Lawful Intercept Configuration Guide* for a description of this command.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Show the configured banner to verify the message of the day contents for possible change

Example

The following command displays all current banner messages:

`show banner all`

show bcmcs counters

Displays Broadcast and Multicast Service (BCMCS)-specific counters and statistics.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show bcmcs counters { all | callid` *`call_id`* **`| flow-id`** *`flow_id`* **`}`**

all

Displays BCMCS-specific counters and statistics for all multicast sessions.

callid *call_id*

Displays BCMCS-specific counters and statistics for a specific call ID.

flow_id *flow_id*

Displays BCMCS-specific counters and statistics for a specific BCMCS flow, defined by a flow ID.

Usage Guidelines

Use this command to view BCMCS-specific statistics. You may narrow the results of the command output by specifying a specific call ID or flow ID.

Example

The following command displays all BCMCS counters:

```
show bcmcs counters all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show bcmcs statistics

Displays Broadcast and Multicast Service (BCMCS)-specific statistics for the current PDSN-service.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show bcmcs statistics [ pdsn-service` *`service_name`* **`]`**

pdsn-service *service_name*

Defines a specific PDSN service from which to gather BCMCS-specific statistics.

Usage Guidelines

Shows several sets of BCMCS-specific statistics, and may be configured to show statistics only for a certain PDSN service.

Example

The following command displays BCMCS statistics for the PDSN service named *group_1*:

`show bcmcs statistics pdsn-service group_1`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show bfd

Displays Bidirectional Forwarding Detection (BFD) neighbors and their current debug settings.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show bfd { debugging | neighbors }`

show bfd debugging

Displays current BFD options for peer control messaging.

show bfd neighbors

Displays summary information for BFD-enabled neighbors.

Usage Guidelines

Show the configuration of BFD-enabled neighbors and the current debug settings.

Example

The following command displays information for BFD-enabled neighbors:

```
show bfd neighbors
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show boot

Displays information on the current boot image in use.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show boot [ initial-config | { grep grep_options | more } ]
```

initial-config

Identifies the OS image, configuration file, and boot priority used during the initial start up of the system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Show the boot information in preparing for maintenance activities by verifying current boot data. The boot image in use may not be the same as the boot image stored on the SPC/SMC due to upgrades and pending reboots. **show boot initial-config** displays the actual boot image and configuration file loaded during boot. This may or may not be the highest priority image and makes this command useful when comparing the loaded image to the priority list.

Important This command is not supported on all platforms.

Example

The following command displays the boot system configuration priority list:

```
show boot
```

The following command displays the initial configuration after a system boot:

```
show boot initial-config
```

show bssap+ statistics

Displays Base Station system Application Part (BSSAP+) protocol statistics for the Gs interface between the SGSN and the Mobile services Switching Centre, Visitor Location Register (MSC/VLR).

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show bssap+ statistics [gs-service *gs_svc_name* **] [vlr { isdn-number** *ISDN_Num*| **name** *vlr_name* **}] [verbose] [| { grep** *grep_options* **| more }]**

gs-service *gs_svc_name*

Specifies the name of a specific Gs service to filter the BSSAP+ information as an alphanumeric string of 1 through 63 characters that is case sensitive.

vlr { isdn-number *ISDN_Num*| name *vlr_name*

Identifies a specific VLR (by name or ISDN number) to filter BSSAP+ information.

vlr_name is the configured name of the VLR expressed.

VLR_num is the configured E.164-type ISDN number for the VLR. Enter a numerical string of 1 to 15 digits.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output will be limited to a concise summary.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the BSSAP+ statistics for the SGSN's Gs interface(s). Based on how the command is entered, this command displays collected BSSAP+ protocol statistics for the entire SGSN or for a specified Gs interface. Using the keywords of this command, the interface can be identified by defining a specific VLR connected to the SGSN or by identifying the Gs service to which the interface has been configured.

Example

The following command displays all BSSAP+ information for the Gs interface configured for the Gs service named *gssvc1*.

```
show bssap+ statistics gs-service gssvc1 verbose
```

Important Descriptions for show command outputs are available in the ***Statistics and Counters Reference***.

show bssgp statistics

Displays base station subsystem GPRS protocol statistics for traffic between the base station subsystem (BSS) and the SGSN over the Gb interface.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show bssgp statistics [ gprs-service gprs_svc_name  | nse nse_id [ bvc bvc_id
 [ sessmgr | verbose ] ] ] [ verbose ] [ | { grep grep_options | more } ]
```

gprs-service *gprs_svc_name*

Specifies the name of an existing GPRS service for which the BSSGP information will be filtered as an alphanumeric string of 1 through 63 characters that is case-sensitive.

nse*nse_ID*

Enter this keyword to display the BSSGP statistics for the network service entity (NSE) specified as an integer from 0 through 65535.

bvc*bvc_ID*

Enter this keyword to display the BSSGP statistics for the BSSGP virtual connection (BVC) specified as an integer from 0 through 6500.

sessmgr instance *sessmgr_instance_number*

Enter this keyword to display the BSSGP statistics for a session manager instance specified as an integer from 1 through 4294967295.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the BBSGP statistics for a particular GPRS service or NSEI.

Example

The following command displays BSSGP statistics for the GPRS service named *gprs1*.

```
show bssgp statistics gprs-service gprs1
```

Important

Descriptions for show command outputs are available in the ***Statistics and Counters Reference***.

show bssgp status

Displays the traffic status through the BSSGP (base station subsystem GPRS protocol) layer between the base station subsystem (BSS) and the SGSN over the Gb interface.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show bssgp status { bvc-bucket nsei nse_id bvci bvc_id | bvc-stat nsei nse_id
 bvci bvc_id } [ | { grep grep_options | more } ]
```

bvc-bucket nsei*nse_id* bvci *bvc_id*

Displays traffic status for a specific BVC bucket identified by the NSEI (network service entity ID) and BVCI (BSSGP virtual connection ID).

nse_ID is an integer from 0 through 65535.

bvc_ID is an integer from 0 through 65000.

bvc-stat nsei*nse_id* bvci *bvc_id*

Displays traffic status for a BVC identified by the NSEI (network service entity ID) and BVCI (BSSGP virtual connection ID).

nse_ID is an integer from 0 through 65535.

bvc_ID is an integer from 0 through 65000.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display BVC status of the BBSGP layer for specified NSEI and BVCI.

Example

The following command displays BSSGP traffic status for the BVC bucket for NSEI *2556* BVCI *241*.

```
show bssgp status bvc-bucket nsei 2556 bvci 241
```

Important

Descriptions for show command outputs are available in the ***Statistics and Counters Reference***.

show build

Displays detailed information about the currently active StarOS release build.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show build [ | { grep grep_options | more } ] ]
```

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For information on usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display detailed information on the currently active StarOS release build.

Example

The following command displays StarOS build information:

```
show build
```

show bulkstats

Displays information on bulk statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show bulkstats [ [ data ] | [ schemas ] | [ variables [ schema_name ] [
obsolete ] ] [ | { grep grep_options | more } ] ]
```

data

Displays collected bulk statistical data.

schema

Displays the configuration of the statistics to be collected on a per-schema basis.

Important

For information on available schemas, refer to the *Bulk Statistics Configuration Mode Commands* chapter.

variables *schema_name*

Displays all valid bulkstat schema statistics, or only the statistics for the specified schema.

schema_name specifies the name of the schemas available on system. The following is the list of available schemas in this release.

- aal2

- alcap
- apn
- asngw
- asnpc
- bcmcs
- card
- closedrp
- common
- context
- cs-network-ranap
- cs-network-rtp
- cs-network-sccp
- cscf
- cscfintf
- dcca
- dcca-group
- diameter-acct
- diameter-auth
- diameter-acct
- dlci-util
- dpca
- ecs
- egtpc
- epdg
- fa
- flow-kpi
- fng
- gprs
- gtpc
- gtpp
- gtpu
- ha
- henbgw-access

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. For more information, contact your Cisco account representative.

- henbgw-network

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-hnbap

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-hnbap-access-closed

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-hnbap-access-hybrid

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-hnbap-access-open

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-iubc-sabp

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-iubc-tcp

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-ranap

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-ranap-access-closed

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-ranap-access-hybrid

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-ranap-access-open

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rtp

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rtp-access-closed

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rtp-access-hybrid

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rtp-access-open

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rua

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rua-access-closed

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rua-access-hybrid

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-rua-access-open

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-sabp

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-sabp-access-closed

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-sabp-access-hybrid

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-sabp-access-open

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hnbgw-sctp

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- hsgw
- hss
- icsr
- imsa
- ippool
- ipsg
- lac
- lcs
- link-aggr
- lma
- lns
- mag
- map
- mipv6ha
- mme
- mvs
- nat-realm
- p2p
- pcc-af
- pcc-policy
- pcc-quota
- pcc-service
- pcc-sp-endpt
- pdg
- pdif
- pgw
- phsgw
- phspc
- port
- ppp
- ps-network-gtpu
- ps-network-ranap
- ps-network-sccp
- radius
- radius-group

- readdress-server
- rlf
- rlf-detailed
- rp
- rulebase
- samog
- sbc
- sccp
- sgs
- sgs-vlr
- sgsn
- sgtp
- sgw
- sls
- ss7link
- ss7rd
- system
- tai
- vlan-npu
- vpn
- wsg

obsolete

This keyword shows obsolete (but still available) schema variables. An asterisk (*) is displayed next to schema variables that have been obsoleted.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For information on usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information on bulk statistics supported by the system.

The **variable** keyword can be used to list statistics supported by the system either for all schemas, or for an individual schema.

The **schema** keyword can be used to display the configuration of settings for bulk statistics, including the schema.

The **data** keyword can be used to display bulk statistic data collected up to that point.

Example

The following command displays bulk statistics data:

```
show bulkstats data
```

The following command displays bulk statistics schema configuration:

```
show bulkstats data schemas
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ca-certificate

Displays information for Certificate Authority (CA) digital certificates configured on this system.

Product

All

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ca-certificate { all | name *name* **}**

all

Displays information about all the configured CA certificates.

name *name*

Displays information about an existing configured CA certificate name specified as n alphanumeric string of 1 through 128 characters.

Usage Guidelines

View information for CA certificates configured on this system.

Example

The following command displays information for a CA certificate named *cert-1*:

```
show ca-certificate name cert-1
```

Important Output descriptions for some commands are available in the *Statistics and Counters Reference*.

show ca-crl

Displays information for Certificate Authority (CA) Certificate Revocation List (CRL) configured on this system.

Product All

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show ca-crl { all | name`** *`name`* **`}`**

all

Displays information about all the configured CA-CRLs.

name *name*

Displays information about an existing CA-CRL name specified as an alphanumeric string of 1 through 128 characters.

Usage Guidelines View information for CA-CRLs on this system.

Example

The following command displays information for a CA-CRL named *crl-5*:

`show ca-crl name crl-5`

Important Output descriptions for some commands are available in the *Statistics and Counters Reference*.

show cae-group server

Displays configuration information, including the name of the associated CAE group, for all CAEs or for a specific CAE. The CAE (Content Adaptation Engine) is an optional component of the Mobile Videoscape.

Important In release 20.0, MVG is not supported. This command must not be used in release 20.0. For more information, contact your Cisco account representative.

Product MVG

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show cae-group server { all | name** *cae_name* **}**

all

Shows the configuration information, including the associated CAE group, for all CAEs.

name *cae_name*

Shows the configuration information for a specific CAE.

Usage Guidelines Use this command to display configuration information for all CAEs or for a specific CAE. This command can be issued from either the local context or the context in which the associated CAE group is defined.

Example

The following command displays configuration information for the CAE named *server_1*:

show cae-group server name server_1

show call-control-profile

Displays information for call control profiles configured on the system.

Product MME

SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show call-control-profile { all | full { all | name** *profile_name* **} | name** *profile_name* **} [| { grep** *grep_options* **| more }]**

all

Lists all call-control profiles configured on the system.

full { all | name *profile_name* }

full: Displays a full set (all) of available information in the call-control profile.

all: Displays a full set of available information for all call-control profiles configured on the system.

name *profile_name*: Displays full information for an existing call-control profile specified as an alphanumeric string of 1 through 64 characters.

name *profile_name*

Displays information for an existing call-control profile specified as an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for call-control profiles configured on the system. Call-control profiles are configured through the global configuration mode and in the call-control profile configuration mode. For more information regarding call-control profile commands, refer to the *Call-Control Profile Configuration Mode Commands* chapter.

Example

The following command displays all available information for a call-control profile named *call-prof2*:

```
show call-control-profile full name call-prof2
```

show call-home

Displays information for Smart Call Home settings configured on the system.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show call-home [ alert-group | detail | mail-server status | profile [
all | name profile_name ] | statistics  [ | { grep grep_options | more } ] ]
```

alert-group

Displays information for all alert groups configured on the system. It also indicates if an alert-group has been disabled by the user.

detail

Displays general information and alert-group settings for all configured call-home profiles.

mail-server status

Displays status information for call-home mail servers that are configured on the system.

profile { all | name *profile_name* }

Displays all available information for all call-home profiles on the system or a specified call-home profile.

all: Displays all available information for all call-home profiles configured on the system.

name *profile_name*: Displays all available information for an existing call-home profile specified as an alphanumeric string of 1 through 31 characters.

name *profile_name*

Displays information for a call-home profile specified as an alphanumeric string of 1 through 31 characters.

statistics

Displays statistical information for call-home statistics configured on the system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display profile and notification policy information associated with the call-home profiles configured on the system. Call-home profiles are configured through the Context Configuration Mode and in the Call-home Configuration Mode. For more information regarding call-home commands, refer to the *Call Control Profile Configuration Mode Commands* chapter.

Example

The following command displays all available information for a call-home profile named *call-home-prof1*:

```
show call-home profile name call-home-prof1
```

show camel-service

Displays configuration details for Customized Applications for Mobile networks Enhanced Logic (CAMEL) services configured for this SGSN.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show camel-service { all | name service_name } [ | grep grep_options | more ]
```

all

Displays the configuration details for all configured CAMEL services.

name

Displays the configuration details for an existing CAMEL service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View configuration information for CAMEL services.

Example

The following command displays the configuration information for a CAMEL service identified as *camel4sgsnTO*:

```
show camel-service name camel4sgsnTO
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show card

Displays various types of information for a card or all cards in the system.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show card { diag [ slot# ] | hardware [ slot# ] | info [ slot# ] | mappings
| table [ all ] } [ | { grep grep_options | more } ]
```

diag

Displays diagnostic results for a specific card or all cards.

hardware

Displays information about installed hardware.

info

Displays detailed information for a specific card or all cards

mappings

Displays mappings between front-installed application cards and rear-installed interface cards.

Important This keyword is only supported on the ASR 5000.

table [all]

Displays information about each card in tabular output. The **all** option includes empty slots in the output.

slot#

Specifies the slot number for a card as an integer from 1 through 48.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view various types of information for all cards or a a specified card.

Example

The following command displays diagnostic information for the card in slot 1:

```
show card diag 1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show cbs counters

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays counters associated with cell broadcasting service (CBS).

Product

HNBGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show cbs counters [cbs-service *cbs_service_name* **] [| { grep** *grep_options* **| more }]**

cbs-service *cbs_service_name*

Displays information for specific CBS service. *cbs_service_name* is a string of size 1 through 63.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display the counters for CBS service

Example

The following command displays the counters for the CBS named *my_service*:

```
show cbs counters cbc-service my_service
```

show cbs sessions

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

This command displays the information for CBS sessions.

Product

HNBGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show cbs sessions [all] [cbc-address *cbc_address* **| cbs-service** *cbs_service_name* **] [[full | summary] [cbc-address** *cbc_address* **| cbs-service** *cbs_service_name* **]] [| { grep** *grep_options* **| more }]**

all

Displays all CBS sessions.

cbc-address *cbc_address*

Specifies the IP address of a Cell Broadcast Center (CBC) in IPv4 dotted-decimal notation.

cbs-service *cbs_service_name*

Displays information for a named CBS service. *cbs_service_name* is an alphanumeric string of 1 through 63 characters.

full

Displays all available session information.

summary

Displays summary information for CBS sessions

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display the information for CBS sessions.

Example

The following command displays the full session information for CBS address *101.102.109.211*:

```
show cbs sessions full cbc-address 101.102.109.211
```

show cbs statistics

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays CBS statistics.

Product

HNBGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show cbs statistics [cbc-address *cbc_address* **| cbs-service** *cbs_service_name* **] [sabp-only | tcp-only | verbose] [| { grep** *grep_options* **| more }]**

cbc-address *cbc_address*

Designates the IP address of a CBC in IPv4 dotted-decimal notation.

cbs-service *cbs_service_name*

Displays information for a named CBS service. *cbs_service_name* is an alphanumeric string of 1 through 63 characters.

sabp-only

Displays Service Area Broadcast Protocol (SABP) statistics for the selected CBS Service.

tcp-only

Displays TCP statistics for the selected CBS Service.

verbose

Displays more detailed CBS statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display the statistics for CB service.

Example

The following command displays the SABP statistics for the CBC at *101.102.109.211*:

```
show cbs statistics cbc-address 101.102.109.211 sabp-only
```

show cbs-service

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays information for all or a specific CBS service.

Product

HNBGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show cbs-service { all | name` *`cbs_service_name`* **`} [ status ] [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays all CBS services.

name*cbs_service_name*

Displays information for named CBS service.*cbs_service_name* is an alphanumeric string of 1 through 63 characters.

status

Display detailed status.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display the information for all or a specific CBS service.

Example

The following command displays the detailed status of a CBS service with name*my_service*:

```
show cbs-service name my_service status
```

show cdr

Displays information about Charging Data Records (CDRs).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show cdr { file-space-usage | statistics } [ | { grep` *`grep_options`* **`| more } ]`**

file-space-usage

Displays the amount of file space used by Charging Data Record (CDR) files.

statistics

Displays CDR file statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view CDR flow control information.

Example

The following command displays CDR files statistics:

```
show cdr statistics
```

The following command displays the amount of file space used by the CDR files:

```
show cdr file-space-usage
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show certificate

Displays information about the certificates configured on this system.

Product

All

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show certificate { all | name` *`name`* **`}`**

all

Displays information about all the configured certificates on this system.

name *name*

Displays information of a specified certificate configured.

name must be the name of an existing certificate specified as an alphanumeric string of 1 through 128 characters.

Usage Guidelines

View information for local node certificates on this system.

Example

The following command displays information for a node certificate named *certificate-3*:

`show certificate name certificate-3`

Important

Output descriptions for some commands are available in the *Statistics and Counters Reference*.

show cgw-service

Displays configuration and/or statistical information for CGW services on this system.

Product

SaMOG

Privilege

Security Administrator, Administrator, Operator, Inspector

Syntax Description

`show cgw-service { all | name` *`name`* **`| statistics { all [ verbose ] [ | { grep`** *`grep_options`* **`| more } ] | name`** *`name`***`} } [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays all CGW services.

name *name*

Displays information for an existing CGW service specified as an alphanumeric string of 1 through 63 characters.

statistics

Displays node level Statistics for CGW.

verbose

Specifies detailed statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to displays configuration and/or statistical information for CGW services on this system.

Example

The following command displays information for all CGW services:

```
show cgw-service all
```

show cli

Displays current or historical information about command line interface (CLI) user session(s).

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show cli { configuration-monitor | history [ all | exclude-show ] | session }
[ | { grep grep_options | more } ]
```

configuration-monitor

Displays information related to the **cli configuration-monitor** command, including the number of seconds remaining until the next configuration monitor check is performed.

history [all | exclude-show]

Displays CLI command history for this CLI session when another option is not selected.

all: Displays the CLI command history for all CLI sessions.

exclude-show: Excludes **show** commands.

session

Displays information about the current CLI session.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Displays current or historical CLI sessions, This command is useful when there is some unexpected output from a chassis and a check of current CLI users may reveal other in-progress activities that may have contributed to the anomaly.

Example

The following command displays information about all current CLI sessions:

```
show cli
```

show clock

Displays the current system data and time.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show clock [ universal ] [ | { grep grep_options | more } ]
```

universal

Displays the date and time in universal coordinated time (UTC/GMT) format.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Check the current time of a chassis to compare with network wide time or for logging purposes if network accounting and/or event records appear to have inconsistent timestamps.

Important This command is not supported on all platforms.

Example

The following displays the system time in local time and UTC, respectively.

```
show clock
show clock universal
```

show cloud configuration

Displays the contents of the configuration file.

Product

VPC

Privilege

Security Administrator, Administrator, Inspector, Operator

Mode

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax

```
show cloud configuration
```

Usage

This command dumps the contents of the configuration file to the screen. It displays the configuration file on the config disk or the local flash. Usually the user does not have direct access to these files. The local param file on the flash is defined during the VPC installation and the config disk is usually created by the orchestrator and then attached to the card.

Example

This command displays the hardware configuration associated with card number 1:

```
show cloud configuration
```

show cloud hardware

Displays information regarding the configuration for each card or a specific card.

Product

VPC

Privilege

Security Administrator, Administrator, Inspector, Operator

Mode

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax

show cloud hardware [**iftask** | **optimum** | **test**] [*card_number*]

iftask

Displays IFTASK information.

optimum

Displays the optimum configuration of the underlying VM hardware according to the available parameters. It provides information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC.

test

Compares the configuration of the underlying VM hardware of a specific card or all cards in the VPC to the optimum configuration. It provides information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC and indicates the optimum values for each parameter.

card_number

Specifies the number of the card for which to display information. If no card number is specified, the command displays information for each of the running cards.

Usage

Displays the configuration of the underlying VM hardware for a specific card or all cards in the VPC. When no optional keywords are provided, the command displays information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC.

Example

This command displays the hardware configuration associated with card number 1:

```
show cloud hardware test 1
```

This command displays the hardware configuration associated with card number 1:

```
show cloud hardware 1
```

This command displays the optimum hardware configuration for the associated VM hardware:

```
show cloud hardware optimum
```

show cloud monitor

Displays VPC-DI network latency and packet loss statistics for all cards or a specific card in the VPC.

Product

VPC-DI

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show cloud monitor di-network {detail | summary} card_number
show cloud monitor controlplane [dst dst_slot ] [ src  src_slot ]
show cloud monitor dataplane [dst dst_slot ] [ src  src_slot ]
```

detail

Displays detailed information about the VPC-DI network.

summary

Displays summary information about the VPC-DI network.

card_number

Specifies the number of the card for which to display information.

controlplane

Displays the most recent Control Plane monitor information.

dataplane

Displays the most recent Data Plane monitor information.

dst *dst_slot*

Specifies the slot to which the request was directed.

src *src_slot*

Specifies the slot that originated the request.

Usage Guidelines

Displays the configuration of the underlying VM hardware for a specific card or all cards in the VPC. It provides information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC.

The **show cloud monitor controlplane [dst** *dst_slot* **] [src** *src_slot* **]** command displays the most recent Control Plane monitor information.

The **show cloud monitor dataplane [dst** *dst_slot* **] [src** *src_slot* **]** command displays the most recent Control Plane monitor information.

Example

This command displays summary monitored statistics for VPC-DI network communications from and to the third card in the VPC. The display shows the test packet loss rate for the past five minutes and past 60 minutes. If the rate is larger than 1%, the health status is marked as "Bad".

```
show cloud monitor di-network summary 3
```

```
Card 3 Test Results:

ToCard   Health   5MinLoss   60MinLoss
   1      Good       0.0%       0.0%
   2      Good       0.0%       0.0%
   4       Bad       6.32%      5.36%
   5      Good       0.0%       0.0%
   6      Good       0.0%       0.0%
```

The following command displays slot 3 as the source slot from where the Control Plane monitor information originated.

Specifies the slot that originated the request.

```
show cloud monitor controlplane src_slot 3
```

The following command displays slot 6 as the destination slot from where the most recent Data Plane monitor information was requested.

```
show cloud monitor dataplane dst_slot 6
```

show cmp history

Displays historical information for the last 100 Certificate Management Protocol v2 transactions.

Product

All products supporting IPSec CMPv2 features

Important This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show cmp history`**

Usage Guidelines Display historical information for the last 100 Certificate Management Protocol v2 transactions.

Example

The following command displays CMPv2 transaction history:

`show cmp history`

show cmp outstanding-req

Displays details regarding outstanding Certificate Management Protocol v2 requests.

Product All products supporting IPSec CMPv2 features

Important This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show cmp outstanding-req`**

Usage Guidelines Display information for outstanding Certificate Management Protocol v2 requests.

Example

The following command displays outstanding CMPv2 requests:

`show cmp outstanding-req`

show cmp statistics

Displays statistics related to Certificate Management Protocol v2 functions.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show cmp statistics`

Usage Guidelines

Display statistics related to Certificate Management Protocol v2 functions.

Example

The following command displays CMPv2 statistics:

`show cmp statistics`

show confdmgr

Displays information about the StarOS ConfD Manager (confdmgr) process and its association with NETCONF protocol. ConfD and NETCONF intercommunicate with the Cisco Network Service Orchestrator (NSO).

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax

`show confdmgr [ confd { cdb | netconf | state } | model { bulkstats | confd } | subscriptions ] [ | { grep` *`grep_options`* **`| more } ]`**

confd { cdb | netconf | state }

Displays information about the ConfD engine based on the specified keyword:

- **cdb** - displays ConfD Configuration Database (CDB) information
- **netconf** - displays NETCONF state information
- **state** - displays current ConfD state information

model { bulkstats | confd }

Displays information about the ConfD model based on the specified keyword:

- **bulkstats** - bulk statistics configuration and operational data
- **confd** - server ConfD configuration

subscriptions

Displays ConfD CDB subscription information.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Used this command to display useful in monitoring and troubleshooting NETCONF protocol.

Example

The following command displays ConfD subscription information.

```
show confdmgr subscriptions
```

show configuration

Displays current configuration information for various subcomponents of the system.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show configuration [active-charging service { all | name *srvc_name* **} | apn** *apn_name*

```
| brief | bulkstats | card card_num | checksum  | context name
 | link-aggegation group group_number | obsolete-encryption | port slot/port
| rohc | showsecrets | srp | url url | verbose ] [ | { grep grep_options  |
more } ]
show configuration active-charging service { all | name srvc_name } [ brief
 | obsolete-encryption | showsecrets | verbose ]
show configuration apn apn_name [ obsolete-encryption | showsecrets | verbose
 ]
show configuration brief
show configuration bulkstats [ brief | verbose ]
show configuration card card_num [ brief | obsolete-encryption | showsecrets
 | verbose ]
show configuration checksum  [ brief | obsolete-encryption | showsecrets
 | verbose ]
show configuration confd [ brief | verbose ]
show configuration context name [ brief | obsolete-encryption | radius |
showsecrets | verbose ]
show configuration link-aggregation group group_number
show configuration obsolete-encryption
show configuration port slot/port [ brief | obsolete-encryption | showsecrets
 | verbose ]
show configuration rohc [ all | profile-name name ] [ brief | verbose ]
show configuration showsecrets [ obsolete-encryption ]
show configuration srp [ brief | checksum | obsolete-encrpytion |
showsecrets | verbose ]
show configuration url url
show configuration verbose [ obsolete-encrpytion | showsecrets ]
```

active-charging service { all | name *srvc_name* | statistics}

Displays all active charging parameters for all services, or a specified service name expressed as an alphanumeric string of 1 through 15 characters, or service statistics.

apn *apn_name*

Specifies an APN for which to display the configuration information. All contexts are searched for this APN, and if a match found, the StarOS returns the configuration of this APN.

brief

Displays current configuration information in brief form.

Important The **brief** keyword is only available in StarOS 20.0 and higher releases.

bulkstats

Displays the URL for the backup bulkstats configuration file if it has been configured.

card *card_num*

Specifies a card for which configuration information is to be displayed as an integer from 1 through 48 for the ASR 5000 or 1 through 20 for the ASR 5500.

checksum

Generates and displays a checksum value for the configuration data.

confd

Displays subset of configuration information for ConfD and NETCONF protocol. (ASR 5500 and VPC platforms only)

context *name*

Specifies an existing context for which configuration information is to be displayed as an alphanumeric string of 1 through 79 characters.

link-aggregation group *group_number*

Displays the current configuration of the LAG specified by group number as an integer from 1 through 1023.

obsolete-encryption

Shows encrypted values using a weaker, obsolete encryption method (prior to release 12.2).

Important The **obsolete-encryption** keyword is only available in StarOS 19.1 and prior releases.

port *slot/port*

Displays configuration information for a port identified by its slot and port numbers.

rohc [all | profile-name *name*

Specifies that information for all robust header compression (RoHC) profiles or the named profile is to be displayed.

showsecrets

Displays encrypted and unencrypted secret keys saved in the configuration. If this keyword is not specified, secret keys are not displayed.

Important This keyword is restricted to Administrator privilege or higher.

Important The **showsecrets** keyword is only available in StarOS 19.1 and prior releases.

srp

Shows the Service Redundancy Protocol (SRP) configuration used for Interchassis Session Recovery (ICSR) deployments.

url *url*

Default: configuration which is currently in use.

This keyword is not available to users with Operator level permissions. Specifies the location of the configuration data to use for information display. The *url* may refer to a local or a remote file and must be entered in the following format:

For the ASR 5000:

```
[ file: ]{ /flash | /pcmcia1 | /hd }[ /directory ]/file_name
tftp://{ host[ :port# ] }[ /directory ]/file_name
[ http: | ftp: | sftp: ]//[ username[ :password ]@ ] { host }[ :port# ][ /directory
 ]/file_name
```

For the ASR 5500:

```
[ file: ]{ /flash | /usb1 | /hd }[ /directory ]/file_name
tftp://{ host[ :port# ] }[ /directory ]/file_name
[ http: | ftp: | sftp: ]//[ username[ :password ]@ ] { host }[ :port# ][ /directory
 ]/file_name
```

Important FTP is not supported in StarOS 20.0 or higher Trusted Builds.

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

Important Configuration files should be named with a **.cfg** extension.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the current configuration to analyze recent changes. For additional information, refer to the Administration Guides for products installed on your system.

Example

The following command displays the local in-use port configuration information for port *24/1* in verbose mode.

```
show configuration port 24/1 verbose
```

The following command displays the local in-use port configuration information for port *5/11* in verbose mode.

```
show configuration port 5/11 verbose
```

The following command displays the configuration of all RADIUS server groups configured in context *local*

```
show configuration context local radius group all
```

The following command shows the configuration for a context named PGW.

```
show configuration context pgw
```

show configuration errors

Displays current configuration errors and warning information for the target configuration file as specified for a service.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show configuration errors [section *section_name* **] [verbose] [| { grep** *grep_options* **| more }]**

section {*section_name*}

Specifies the services and section for which to display and validate a configuration.

The following services and sections are supported:

- **aaa-config**: Displays configuration errors/warnings for the AAA service(s) configured on the system.
- **active-charging**: Displays configuration errors/warnings for the Enhanced Charging Service(s) and the Personal Stateful Firewall service(s) configured on the system.
- **alcap-service**: Displays configuration errors/warnings for Access Link Control Application Part (ALCAP) on HNB-GW for IuCS-over-ATM support towards CS core network.

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **apn**: Displays configuration errors/warnings for the APN configuration(s) on the system.
- **apn-profile**: Displays configuration errors/warnings for the APN Profile configuration(s) on the system.
- **apn-remap-table**: Displays configuration errors/warnings for the APN Remap Table configuration(s) on the system.
- **asngw-service**: Displays configuration errors/warnings for the Access Service Network Gateway (ASN-GW) Service configured in a specific context for which configuration errors/warnings is to be displayed.
- **asnpc-service**: Displays configuration errors/warnings for the ASN Paging Controller and Location Registry (ASN PC-LR) Service(s) configured on the system.
- **call-control-profile**: Displays configuration errors/warnings for the Call Control Profile configuration(s) on the system.
- **camel-service**: Displays configuration errors/warnings for the Customised Applications for Mobile networks Enhanced Logic (CAMEL) Service configuration(s) on the system.
- **closed-rp-service**: Displays configuration errors/warnings for the closed RP service(s) configured on the system.
- **cs-network**: Displays configuration errors/warnings for the circuit switched (CS) network configuration(s) on the system.
- **diameter**: Displays configuration errors/warnings for the Diameter configuration(s) on the system.
- **dns-client**: Displays configuration errors/warnings for the DNS client configuration(s) on the system.
- **egtp-service**: Displays configuration errors/warnings for the evolved GPRS Tunneling Protocol (eGTP) service configuration(s) on the system.
- **event-notif**: Displays configuration errors/warnings for the event notification (SNMP) interface client.
- **fa-service**: Displays configuration errors/warnings for the Foreign Agent (FA) service(s) configured on the system.
- **fng-service**: Displays configuration errors/warnings for the Femto Network Gateway (FNG) configuration(s) on the system.
- **ggsn-service**: Displays configuration errors/warnings for the Gateway GPRS Support Node (GGSN) service(s) configured on the system.
- **gprs-service**: Displays configuration errors/warnings for the General Packet Radio Service (GPRS) service(s) configured on the system.
- **gs-service**: Displays configuration errors/warnings for the Gs service(s) configured on the system. The Gs interface between the SGSN and the MSC (VLR) uses the BSSAP+ protocol.
- **ha-service**: Displays configuration errors/warnings for the Home Agent (HA) service(s) configured on the system.
- **henbgw-network-service**: Displays configuration errors/warnings for the Home Evolved Node B Gateway (HNB-GW) network service configuration(s) on the system.

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **hnbgw-service**: Displays configuration errors/warnings for the Home Evolved Node B Gateway (HNB-GW) Service configuration(s) on the system.

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **hsgw-service**: Displays configuration errors/warnings for the HRPD Serving Gateway (HSGW) service(s) configured on the system.
- **imei-profile**: Displays configuration errors/warnings for the International Mobile Equipment Identity (IMEI) Profile configuration(s) on the system.
- **imsa-config**: Displays configuration errors/warnings for the IMS Authorization (IMSA) configuration(s) on the system.

Important In 16.0 and later releases, error message will be displayed in the output of **show configuration errors** command when the user tries to configure an endpoint which is already configured in other IMSA service.

- **imssh-service**: Displays configuration errors/warnings for the IMS Sh (IMSSh) service(s) configured on the system.
- **imsue-service**: Displays configuration errors/warnings for the IMS UE service(s) configured on the system.
- **ipms**: Displays configuration errors/warnings for the Intelligent Packet Monitoring System (IPMS) service(s) configured on the system.
- **ipne**: Displays configuration errors/warnings for the IP Network Enabler (IPNE) facility configured on the system.
- **ipsg-service**: Displays configuration errors/warnings for the IP Security Gateway (IPSG) service(s) configured on the system.
- **iups-service**: Displays configuration errors/warnings for the IuPS service(s) configured on the system.
- **lac-service**: Displays configuration errors/warnings for the Layer 2 Tunneling Protocol (L2TP) Access Concentrator (LAC) service(s) configured on the system.
- **lns-service**: Displays configuration errors/warnings for the L2TP Network Server (LNS) service(s) configured on the system.
- **local-policy**: Displays configuration errors/warnings for the Local Policy configuration(s) on the system.
- **map-service**: Displays configuration errors/warnings for the SS7 Mobile Application Part (MAP) service(s) configured on the system.
- **mme-service**: Specifies the configuration errors for a Mobility Management Entity (MME) service configured in a specific context for which configuration errors/warnings are to be displayed.
- **operator-policy**: Displays configuration errors/warnings for the Operator Policy configuration(s) on the system.

- **pcc-policy-service**: Displays configuration errors/warnings for the Policy and Charging Control (PCC) Policy Service configuration(s) on the system.
- **pcc-quota-service**: Displays configuration errors/warnings for the Policy and Charging Control (PCC) Quote Service configuration(s) on the system.
- **pcc-service**: Displays configuration errors/warnings for the PCC Service configuration(s) on the system.
- **pdg-service**: Displays configuration errors/warnings for the Packet Data Gateway (PDG) Service configuration(s) on the system.
- **pdif-service**: Displays configuration errors/warnings for the Packet Data Interworking Function (PDIF) service(s) configured on the system.
- **pdsn-service**: Displays configuration errors/warnings for the Packet Data Serving Node (PDSN) service(s) configured on the system.
- **pgw-service**: Displays configuration errors/warnings for the PDN-Gateway (P-GW) service configuration(s) on the system.
- **phsgw-service**: Displays configuration errors/warnings for the Payload Header Suppression (PHS) Gateway service(s) configured on the system.
- **policy-grp-config**: Displays configuration errors/warnings for the Policy Group configuration(s) on the system.
- **ps-network**: Displays configuration errors/warnings for the packet switched (PS) network configuration(s) on the system.
- **saegw-service**: Displays configuration errors/warnings for the System Architecture Evolution Gateway (SAE-GW) Service configuration(s) on the system.
- **sccp-network**: Displays configuration errors/warnings for the Signaling Connection Control Part (SCCP) network configuration(s) on the system.
- **sgs-service**: Displays configuration errors/warnings for the SGs Service configuration(s) on the system. The SGs interface connects the databases in the VLR and the MME.
- **sgsn-mode**: Displays configuration errors/warnings for the Serving GPRS Support Node (SGSN) mode configuration(s) on the system.
- **sgsn-service**: Displays configuration errors/warnings for the SGSN service(s) configured on the system.
- **sgtp-service**: Displays configuration errors/warnings for the SGSN GPRS Tunneling Protocol (SGTP) service(s) configured on the system.
- **sgw-service**: Displays configuration errors/warnings for the Serving Gateway (S-GW) service configuration(s) on the system.
- **subscriber-config**: Displays configuration errors/warnings for the subscriber configuration(s) on the system.
- **subscriber-map**: Displays configuration errors/warnings for the Subscriber Map configuration(s) on the system.

verbose

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view the current configuration errors and warning to review recent changes. For additional information, refer to the Administration Guides for products installed on your ASR 5x00 system.

Example

The following command displays configuration errors and warnings for all services configured in a context/system:

```
show configuration errors verbose | more
```

The following command displays configuration errors and warnings for Active Charging service and Personal Stateful Firewall service configured in a context:

```
show configuration errors section active-charging verbose
```

The following command displays configuration errors and warnings for QoS-configuration in a context:

```
show configuration errors section qos-marking verbose
```

show congestion-control

Displays information pertaining to congestion control functionality on the system

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show congestion-control { configuration | statistics { manager [ all |
instance task_instance ] } [ | { grep grep_options | more } ]
show congestion-control statistics mme { critical | full | major | minor
 } [ | { grep grep_options | more } ]
```

configuration

Displays congestion control configuration information including threshold parameters and policy settings for the configured services.

statistics

Displays congestion control statistics for manager services.

manager

Specifies the name of the service/session manager for which statistics are displayed. The following types of *manager* services are supported:

- **a11mgr**: Specifies that statistics are displayed for PDSN services.

- **asngwmgr**: Specifies that statistics are displayed for ASN-GW services.

Important ASNGW is no longer supported. For more information, contact your Cisco account representative.

- **asnpcmgr**: Specifies that statistics are displayed for ASN PC-LR services.
- **bindmux**: Specifies that statistics are displayed for Bindmux Manager used by PCC service.
- **egtpinmgr**: Specifies that statistics are displayed for EGTP ingress demuxmgr.
- **gtpcmgr**: Specifies that statistics are displayed for GGSN services.
- **hamgr**: Specifies that statistics are displayed for HA services.
- **hnbmgr**: Specifies that statistics are displayed for HNB Manager used by HNB-GW service.

Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

- **imsimgr**: Specifies that statistics are displayed for IMSI managers.
- **ipsecmgr**: Specifies that statistics are displayed for IPSec managers.
- **ipsgmgr**: Specifies that statistics are displayed for IPSG managers.
- **l2tpmgr**: Specifies that statistics are displayed for L2TP managers.
- **service**: Specifics that statistics are displayed for services.
- **sgmbmgr**: Specifies that statistics are displayed for SGMB Demux managers.

statistics mme { critical | full | major | minor }

Displays the statistics based on the current state of all instances of the specified task.

- **critical**: Specifies that statistics are displayed for the critical congestion policy for MME services.
- **full**: Specifies that statistics are displayed for all congestion policies for MME services.
- **major**: Specifies that statistics are displayed for the major congestion policy for MME services.
- **minor**: Specifies that statistics are displayed for the minor congestion policy for MME services.

all

Displays the statistics based on the current state of all instances of the specified task.

instance *task_instance*

Displays statistics for a specified software task instance. *task_instance* can be configured to an integer from 1 to 128.

Important The **inst** column of the **show task table** command output displays the instance of a particular task.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command displays congestion control configuration information or statistics for a particular service type.

When the all keyword is used, the system compares the current state of all instances of the specified task. The state is based on whether or not any congestion control thresholds have been exceeded. If one or more instances are experiencing congestion, the state is displayed as "Applied", and the various thresholds that have been crossed are indicated.

Example

The following command displays congestion control statistics for a PDSN service using an **a11mgr** task with an instance of *2*:

```
show congestion-control statistics a11mgr instance 2
```

The following command displays congestion control statistics for an ASN-GW service using an **asngwmgr** task with an instance of *2*:

```
show congestion-control statistics asngwmgr instance 2
```

The following command displays congestion control statistics for an ASN PC-LR service using an **asnpcmgr** task with an instance of *2*:

```
show congestion-control statistics asnpcmgr instance 2
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show connectedapps

Displays information about the current Connected Apps (CA) configuration.

Product

SecGW (WSG)

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show connectedapps
```

Usage Guidelines

Displays information about the current Connected Apps (CA) configuration between the CA client on the ASR 9000 VSM and IOS-XR.

Example

This command displays Connected Apps configuration information:

```
show connected apps
```

show content-filtering category database

Displays details of the specified category based content filtering database for content filtering application configured in a system/service.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show content-filtering category database [active | all | facility srdbmgr { all | instance *instance_number* **} | url** *url_string* **] [verbose] [| { grep** *grep_options* **| more }]**

active

Displays the information about all active databases, for example databases in memory. This is the default setting for category database information.

all

Displays the information about all active databases, for example, databases in memory and all saved databases on a system.

facility

Displays logged events for a specific facility.

srdbmgr { all | instance *instance_number* }

Displays logged events for all static rating database managers or for all or for a specific instance.

- **all**: Displays the logged events for all Static Rating Database (SRDB) Manager instances.
- **instance** *instance_number*: Displays events logged for a specific SRDB Manager instance specified as an integer from 1 through 8.

url *url_string*

Displays the information of the database located at the URL that specifies the name/location of the category database from which to retrieve information as an alphanumeric string of 1 through 512 characters.

verbose

This option enables the detailed mode for additional information display for specific database.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information of database for category based content filtering application in a service.

Example

The following command displays a detailed information for all active databases in memory.

```
show content-filtering category database active all
```

The following command displays the CF database status of all running SRDB managers.

```
show content-filtering category database facility srdbmgr all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show content-filtering category policy-id

Displays Content Filtering category policy definitions.

Important In StarOS 8.1 and later releases this command is replaced by the **show active-charging content-filtering category policy-id** command.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show content-filtering category policy-id { all | id cf_policy_id } [ | { grep grep_options | more } ]
```

all

Displays definitions of all Content Filtering category policies.

id *cf_policy_id*

Displays definitions of an existing Content Filtering category policy ID specified as an integer from 1 through 4294967295.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view Content-Filtering Category definitions for a specific/all Policy IDs.

Example

The following command displays Content Filtering category definitions for policy ID *3*:

```
show content-filtering category policy-id id 3
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show content-filtering category statistics

Displays statistics for the category-based Content Filtering application configured in a system/service.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show content-filtering category statistics [ facility srdbmgr { all |
instance instance_number } ] [ | { grep grep_options | more } ]
```

facility

Displays logged events for a specific facility.

srdbmgr { all | instance *instance_number* }

Displays logged events for all Static Rating Database (SRDB) Manager instances or for the specified instance.

- **all**: Displays events logged for all SRDB Manager instances.
- **instance** *instance_number*: Displays events logged for the SRDB Manager instance specified as an integer from 1 through 8.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the statistics of Category Based Content Filtering application in a service. This command's output also indicates capability of the system to perform Content Filtering and Dynamic Content Filtering if configured.

Important Content filtering cannot be performed if less than two PSCs are activated. Dynamic Content Filtering cannot be performed if less than three PSCs are activated.

Example

The following command displays the detailed statistics of configured category based content filtering application:

```
show content-filtering category statistics
```

The following command displays the detailed statistics of configured category based content filtering application based on running SRDB Manager *instance1*.

```
show content-filtering category statistics facility srdbmgr instance
instance1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show content-filtering category url

Displays the information about the categories of the database at the specific URL configured for the category-based content filtering application in a system/service.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show content-filtering category url *url_string* **[policy-id** *cf_policy_id* **| rulebase** *rulebase_name* **] [verbose] [| { grep** *grep_options* **| more }]**

url *url_string*

Displays the category information of the URL specified as an alphanumeric string of 1 through 512 characters.

policy-id *cf_policy_id*

Displays the category information of a URL configured with an existing content filtering category policy ID specified as n integer from 0 through 65535.

rulebase *rulebase_name*

Displays the category information of a URL configured in ACS Configuration Mode for category-based content filtering in specific rulebase.

rulebase_name must be the name of an existing rulebase, and must be an alphanumeric string of 1 through 15 characters.

verbose

Enables the detailed mode for additional information display for a specific database.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information of a database URL for category based content filtering application in a service.

Example

The following command displays a detailed information for all active databases in memory.

```
show content-filtering category url /cf_server/cf/optcmd.bin verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show content-filtering server-group

Displays information for Content Filtering Server Group (CFSG) configured in the service.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show content-filtering server-group [ name` *`cfsg_name`* **`| statistics ] [ | { grep`** *`grep_options`* **`| more } ]`**

name *cfsg_name*

Displays information for an existing CFSG specified as an alphanumeric string of 1 through 63 characters.

statistics

Displays statistical information for all configured CFSGs.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for Content Filtering Server Group configured in a service.

Example

The following command displays a detailed information for all charging actions:

`show content-filtering server-group statistics`

The following command displays a details of a specific charging action:

`show content-filtering server-group name test123`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show context

Displays information for currently configured contexts.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show context [all | name *context_name* **] [| { grep** *grep_options* **| more }]**

all | name *context_name*

all: Displays information for all currently configured contexts.

name *context_name*: Displays information for an existing context specified as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View configured contexts. This may be useful in verifying configuration or troubleshooting the system.

Example

The following command displays information for the configured context named *sampleContext*:

```
show context name sampleContext
```

The following command displays information for all contexts:

```
show context all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show cpu

Displays information on system CPUs.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show cpu { info [ card` *`card_num`* **`[ cpu`** *`cpu_num`* **`] ] [ crypto-cores ] [ graphs ] [ verbose ] | table } [ | { grep`** *`grep_options`* **| more }]`**

info [card *card_num* [cpu *cpu_num*]] [crypto-cores] [graphs] [verbose]

Displays information for an entire card or a specific CPU.

card *card_num*: Specifies the card for which to display associated information. *card_num* must be a value in the range 1 through 48 on the ASR 5000 or 1 through 20 on the ASR 5500 and must refer to an installed card.

cpu *cpu_num*: Optionally selects a specific CPU on the card of interest to display specific information. *cpu_num* must be a value in the range 0 through 3 and must refer to an installed CPU.

The output of **show cpu info card** *n* **verbose** also includes usage details for individual cores within each CPU.

crypto-cores : Optionally, specifies to display the CPU crypto core utilization information.

graphs: In addition to textual CPU information display CPU utilization information in graphs.

verbose: Output is to display all information available.

table

Display, in tabular format, all cards and CPUs.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View CPU statistics to aid in diagnosing service problems for the case of overload conditions.

Important This command is not supported on all platforms.

Example

The following command displays the CPU information in tabular format for all CPUs on all installed cards:

`show cpu table`

The following command displays CPU information for card *8* in verbose mode:

show cpu info card 8 verbose

The following command displays information for CPU *0* on card *1*:

show cpu info card 1 cpu 0

The following command displays information for crypto core utilization for CPU **0** on card **2**:

show cpu info card 2 cpu 0 crypto-cores

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show crash

Displays software crash events records and associated dump files (minicore, NPU or kernel) for all crashes or a specified crash event.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show crash

all | list | number *crash_num*

all: Displays the dump files for all crash event records in the crash log.

list: Displays a list of recent crash event records. this is the contents of the crashlog2 file.

number *crash_num* displays the dump file for an existing crash number. The crash number can be displayed using the **list** keyword.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

VIew the crash list to determine frequency of crashes or if crashes occur at some specific time of day. To aid in troubleshooting, this command may also be used to view the dump file for a specific crash.

For additional information refer to the *System Logs* section of the *System Administration Guide*.

Example

The following displays the list of crash event records on the active management card.

```
show crash list
```

The following command will display the dump file for crash number *11*.

```
show crash number 11
```

show credit-control sessions

Displays credit control sessions information.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show credit-control session [ all | callid | full | mdn | nai | summary
] [ | { grep grep_options | more } ]
```

session [all | callid | full | mdn | nai | summary]

Displays the credit control session status based on the following keywords:

all: Displays all available information for Credit Control sessions

callid: Displays the Credit Control Session Call ID

full: Displays All available information for the associated display or the filter keyword

mdn: Displays the Credit Control Message Delivery Notification (MDN) information.

nai: Displays the Credit Control NI

summary: Displays the summary of Credit Control session information

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to show active credit control application for service sessions.

Example

The following command shows the configured Credit Control application sessions:

```
show credit-control sessions
```

show credit-control statistics

Displays credit control statistics.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show credit-control statistics cc-service *name* **[| { grep** *grep_options* **| more }]**

cc-service

Specifies the Credit Control Service.

name must be the name of a Credit Control Service, and must be an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to show active credit control statistics.

Example

The following command shows the configured credit control statistics for a service named *service1*:

```
show credit-control statistics cc-service service1
```

show crypto blacklist file

Displays the contents of the blacklist (access denied) file.

Product All products supporting IPSec blacklisting

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show crypto blacklist file`**

Usage Guidelines Use this command to display the current contents of the blacklist file.

Example

The following command displays the contents of the blacklist file:

`show crypto blacklist file`

show crypto group

Displays information pertaining to configured crypto groups.

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

ePDG

FA

GGSN

HA

HeNBGW

HNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show crypto group [ name` *`group_name`* **`| summary ]`**

name *group_name*

Displays information for an existing crypto group specified as an alphanumeric string of 1 through 127 characters.

summary

Displays state and statistical information for configured crypto groups in this context.

Usage Guidelines

Use this command to display information and statistics pertaining to one or all configured crypto groups within the current context.

If the **summary** keyword is not used, detailed information is displayed.

Example

The following command displays detailed information for a crypto group called *group1*:

`show crypto group name group1`

show crypto ikev1

Displays pre-shared key information for peer security gateways configured within the context.

Important

HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

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HNBGW

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SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show crypto ikev1 { keys | policy [*preference*] | security-associations [summary] }

keys

Displays the IKE pre-shared key information based on the peer security gateway.

policy [*preference*]

Displays configuration information for the Internet Exchange Key (IKE) policy priority specified as an integer from 1 through 100. If no preference is specified, information will be displayed for all configured policies.

security-associations [summary]

Displays information for established IPSec security associations (SAs).

Usage Guidelines

Use this command to:

- Display pre-shared key information. This information can be used to verify configuration and/or for troubleshooting.
- Verify the configuration of IKE policies within the context.
- Display established IPSec SA information. This information can be used for troubleshooting.

Example

The following command lists the pre-shared keys received from peer security gateways as part of the Diffie-Hellman exchange:

show crypto ikev1 keys

The following command displays information for an IKE policy with a preference of *1*:

show crypto ikev1 policy 1

The following command displays the currently established SAs:

show crypto ikev1 security-associations summary

show crypto ikev2-ikesa security-associations

Displays a summary view of Internet Key Exchange v2 (IKEv2) IKE Security Associations (IKE SAs).

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

ePDG

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HNBGW

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MME

P-GW

PDSN

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SCM

SecGW

SGSN

Privilege

Administrator, Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show crypto ikev2-ikesa security-associations peer *ipv4/v6_address* **[| { grep** *grep_options* **| more }]**
show crypto ikev2-ikesa security-associations summary [cookies] [distribution] | **[dpd] [ipsecmgr instance** *instance_value* **] [natt [**

remote-gw *ipv4/v6_address* **] [spi][| { grep** *grep_options* **| more }]**
show crypto ikev2-ikesa security-associations tag *crypto_map* **[| { grep** *grep_options* **| more }]**

peer *ipv4/v6_address*

Specifies the crypto map peer IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

summary

Displays SA summary information only.

This information can be one of the following:

- **cookies**: Display IKE cookies for connections.

Important The **cookies** keyword has been deprecated for release 17.0 and above.

- **distribution**: Display summary distribution.
- **dpd**: Display DPD (Dead Peer Detection) information for connections.
- **ipsecmgr instance** *instance_value*: Display ipsecmgr instance information. *instance_value* is an integer from 177 through 352.
- **natt** [**[remote-gw** *ipv4/v6_address* **]**: Display NAT-T information for connections or a specified remote gateway.
- **spi**: Display IKE Security Parameter Index.

tag *tag_name*

Specifies a crypto map name as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Shows the information of the of the SAs configured for a crypto template. It shows the total configured SA lifetime in seconds and the number of seconds left on the timer.

Example

Use this command to display the SA summary:

```
show crypto ikev2-ikesa security-associations summary
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show crypto ikev2-ikesa transform-set

Displays IKEv2/IKESA (Internet Key Exchange v2/IKE Security Association) transform set configuration information.

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

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HNBGW

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PDSN

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Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show crypto ikev2-ikesa transform-set *transform_set_name* [**|** { **grep** *grep_options* | **more** }

show crypto ikev2-ikesa transform-set *transform_set_name*

Specifies the name of an existing IKEv2/IKSA transform set for which to display information as an alphanumeric string of 1 through 127 characters that is case sensitive.

|{ grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to verify the configuration of IKEv2/IKESA transform sets within the context.

If no keyword is specified, information will be displayed for all IKEv2/IKESA transform sets configured within the context.

Example

The following command displays information for an IKEv2/IKESA transform set named *test1*:

```
show crypto ikev2-ikesa transform-set test1
```

show crypto ipsec security-associations

Displays IPSec security associations (SAs) configured within or facilitated by the context and can optionally display statistics for them.

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

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GGSN

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HeNBGW

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S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show crypto ipsec security-associations` [**`map-type`** { **`ikev2-ipv4-cfg`** | **`ikev2-ipv4-node`** | **`ikev2-ipv6-cfg`** | **`ikev2-ipv6-node`** | **`ipsec-dynamic`** | **`ipsec-ikev1 | ipsec-ikev2-subscriber`** | **`ipsec-l2tp`** | **`ipsec-manual`** | **`ipsec-mobile-ip`** } | **`summary`** [**`distribution`** | **`ipsecmgr`** | **`map-type`**] | [**`|`** { **`grep`** *`grep_options`* | **`more`** }] | [**`tag`** *`tag_name`*] | [**`|`**{ **`grep`** *`grep_options`* | **`more`** }]

map-type { ikev2-ipv4-cfg | ikev2-ipv4-node | ikev2-ipv6-cfg | ikev2-ipv6-node | ipsec-dynamic | ipsec-ikev1 | ipsec-ikev2-subscriber | ipsec-l2tp | ipsec-manual | ipsec-mobile-ip }

Specifies that information for all crypto maps of a specific type configured within the context will be displayed. The following types can be specified:

- **ikev2-ipv4-cfg**: IKEv2 IPv4 IPSec configured (ACL) Tunnel
- **ikev2-ipv4-node**: IKEv2 IPv4 IPSec spawned node Tunnel
- **ikev2-ipv6-cfg**: IKEv2 IPv6 IPSec configured (ACL) Tunnel
- **ikev2-ipv6-node**: IKEv2 IPv6 IPSec spawned node Tunnel
- **ipsec-dynamic**: Dynamic IPSec Tunnel
- **ipsec-ikev1**: IKEv1 IPSec Tunnel
- **ipsec-ikev2-subscriber**: IKEv2 Subscriber Tunnel
- **ipsec-l2tp**: L2TP IPSec Tunnel
- **ipsec-manual**: Manual (Static) IPSec Tunnel
- **ipsec-mobile-ip**: Mobile IP IPSec Tunnel

summary [distribution | ipsecmgr | map-type]

Displays only security association summary information.

distribution: Show IPSec Manager SA distribution information.

ipsecmgr *ipsec_mgr_id*: Displays summary SA information for the IPSec manager instance ID specified as an integer from 1 through 200.

map-type *map_type*: Displays summary SA information for the specified type of crypto map.The following types can be specified:

- **ikev2-ipv4-cfg**: IKEv2 IPv4 IPSec configured (ACL) Tunnel
- **ikev2-ipv4-node**: IKEv2 IPv4 IPSec spawned node Tunnel
- **ikev2-ipv6-cfg**: IKEv2 IPv6 IPSec configured (ACL) Tunnel
- **ikev2-ipv6-node**: IKEv2 IPv6 IPSec spawned node Tunnel
- **ipsec-dynamic**: Dynamic IPSec Tunnel
- **ipsec-ikev1**: IKEv1 IPSec Tunnel
- **ipsec-ikev2-subscriber**: IKEv2 Subscriber Tunnel
- **ipsec-l2tp**: L2TP IPSec Tunnel
- **ipsec-manual**: Manual (Static) IPSec Tunnel
- **ipsec-mobile-ip**: Mobile IP IPSec Tunnel

tag *tag_name*

Displays the SAs for an existing crypto map specified as an alphanumeric string of 1 through 127 characters that is case sensitive.

|{ grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display IPSec SA information and statistics. This information can be used for performance monitoring and/or troubleshooting.

The displayed information categorizes control signal and data statistics. Data statistics are further categorized according to the encapsulation method, either GRE or IP-in-IP.

Example

The following command displays summary SA statistics for all IPSec managers.

```
show crypto ipsec security-associations summary
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show crypto ipsec transform-set

Displays IPSec transform set configuration information.

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

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HNBGW

HSGW

MME

P-GW

PDSN

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SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show crypto ipsec transform-set [ transform_name ]`

transform_name

Displays information for the IPSec transform set specified as an alphanumeric string of 1 through 127 characters that is case sensitive.

Usage Guidelines

Use this command to verify the configuration of IPSec transform sets within the context.

If no keyword is specified, information will be displayed for all IPSec transform sets configured within the context.

Important This command is supported in PDIF Release 8.3 only.

Example

The following command displays information for an IPSec transform set named *test1*:

```
show crypto ipsec transform-set test1
```

show crypto isakmp keys

Displays pre-shared key information (Internet Security Association and Key Management Protocol, ISAKMP) for peer security gateways configured within the context.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show crypto isakmp keys
```

Usage Guidelines

Use this command to display pre-shared key information based on the peer security gateway. This information can be used to verify configuration and/or for troubleshooting.

Example

The following command lists the pre-shared keys received from peer security gateways as part of the Diffie-Hellman exchange:

```
show crypto isakmp keys
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show crypto isakmp policy

Displays Internet Security Association and Key Management Protocol (ISAKMP) policy configuration information.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show crypto isakmp policy [ preference ]`

preference

Displays configuration information for the ISAKMP policy priority specified as an integer from 1 through 100.

Usage Guidelines

Use this command to verify the configuration of ISAKMP policies within the context.

If no *preference* is specified, information will be displayed for all configured policies.

Example

The following command displays information for an ISAKMP policy with a preference of *1*:

`show crypto isakmp policy 1`

show crypto isakmp security-associations

Displays currently established Internet key Exchange (IKE) security associations (SAs) facilitated by the context.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show crypto isakmp security-associations [ cookies ]`

cookies

Specifies that cookies should be displayed.

Usage Guidelines

Use this command to display established IPSec SA information. This information can be used for troubleshooting.

Example

The following command displays the currently established SAs:

`show crypto isakmp security-associations`

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show crypto managers

Displays statistics per IPSec Manager.

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

ePDG

FA

GGSN

HA

HeNBGW

HNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show crypto managers [context *context_name* **| crypto-map** *map_name* **| instance** *instance_num* **| summary [distribution | ike-stats | ikev2-stats | ipsec-sa-stats | npu-stats] | |** { **grep** *grep_options* | **more** }]

context *context_id*

Displays IPSec manager statistics for an existing context specified as n alphanumeric string of 1 through 80 characters.

crypto-map *map_name*

Displays IPSec Managers for an existing crypto map specified as an alphanumeric string of 1 through 128 characters.

instance *instance_num*

Displays statistics for the IPSec manager instance specified as an integer from 1 through 366.

summary [distribution | ike-stats | ikev2-stats [demux-stats] | ipsec-sa-stats | npu-stats]

Shows statistics per service IP address for each manager.

distribution: Displays a summary list of IPSec manager distribution.

ike-stats: Displays a summary list of IPSec IKE statistics. for each IPSec manager.

ikev2-stats: Displays IKEv2 Statistics on each IPSec Manager.

- **demux-stats**: Displays session demux statistics on each IPSec Manager.

ipsec-sa-stats: Displays a summary list of IPSec Security Association (SA) statistics for each IPSec Manager.

npu-stats: Displays NPU statistics on each IPSec Manager.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to view statistics relating to IPSec managers.

Example

The following command displays summary information for all IPSec managers:

```
show crypto managers summary
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show crypto map

Displays crypto map configuration information.

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

ePDG

FA

GGSN

HA

HeNBGW

HNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show crypto map [**map-type** [**ikev2-ipv4-cfg** | **ikev2-ipv4-node** | **ikev2-ipv6-cfg** | **ikev2-ipv6-node** | **ipsec-ikev1 | ipsec-ikev2-subscriber** | **ipsec-l2tp** | **ipsec-manual** | **ipsec-mobile-ip** | **|** { **grep** *grep_options* | **more** }] | [**summary**] | [**tag** *tag_name*] | [**|**{ **grep** *grep_options* | **more** }]

map-type [ikev2-ipv4-cfg | ikev2-ipv4-node | ikev2-ipv6-cfg | ikev2-ipv6-node | ipsec-ikev1 | ipsec-l2tp | ipsec-manual | ipsec-mobile-ip | | { grep *grep_options* | more }]

Specifies that information for all crypto maps of a specific type configured within the context will be displayed. The following types can be specified:

- **ikev2-ipv4-cfg**: IKEv2 IPv4 IPSec configured (ACL) Tunnel
- **ikev2-ipv4-node**: IKEv2 IPv4 IPSec spawned node Tunnel
- **ikev2-ipv6-cfg**: IKEv2 IPv6 IPSec configured (ACL) Tunnel

- **ikev2-ipv6-node**: IKEv2 IPv6 IPSec spawned node Tunnel
- **ipsec-ikev1**: IKEv1 IPSec Tunnel
- **ipsec-ikev2-subscriber**: IKEv2 Subscriber Tunnel
- **ipsec-l2tp**: L2TP IPSec Tunnel
- **ipsec-manual**: Manual (Static) IPSec Tunnel
- **ipsec-mobile-ip**: Mobile IP IPSec Tunnel

summary

Displays summary information for all crypto maps configured in the context.

tag *map_name*

Specifies the name of an existing crypto map in the current context for which to display configuration information as an alphanumeric string of 1 through 127 characters that is case sensitive.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to verify the configuration of crypto maps within the context.

If no keyword is specified, information will be displayed for all maps configured within the context regardless of type.

Example

The following command displays configuration information for a dynamic crypto map named *test_map3*:

```
show crypto map tag test_map3
```

show crypto statistics

Displays Internet Protocol Security (IPSec) statistics.

Important

HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

ePDG

FA

GGSN

HA

HeNBGW

HNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show crypto statistics [**ikev1** | **ikev2** [**service-ip-address** *ip-address*] [**service-name** *name*] | [**|** { **grep** *grep_options* | **more**]]

ikev1

Displays global ikev1 statistics for this context.

ikev2 [service-ip-address *ip-address*] [service-name *name*]

Displays global ikev2 statistics for this context.

service-ip-address *ip-address*: Specifies the Packet Data Interworking Function (PDIF) service IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

service-name*name*: Specified PDIF service name, a string of size 1 through 63.

| { grep *grep_options* | more]

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display statistics for IPSec tunnels facilitated by the context. This information can be used for performance monitoring and/or troubleshooting.

Example

The following command displays cumulative IPSec statistics for the current context:

```
show crypto statistics
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show crypto template

Displays information about crypto templates.

Important HNBGW is not supported from Release 20 and later, and HeNBGW is not supported in Releases 20, 21.0 and 21.1. This command must not be used for HNBGW and HeNBGW in these releases. For more information, contact your Cisco account representative.

Product

ePDG

FA

GGSN

HA

HeNBGW

HNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show crypto template [**map-type** [**ikev2-dynamic** | **ipsec-dynamic**] | **summary** | **tag** *map_name*] [**|** { **grep** *grep_options* | **more**

map-type [ikev2-dynamic | ipsec-dynamic

Specifies a specific map type.

summary

Displays summary information for all templates.

tag *map_name*

Specifies a crypto map name as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more]

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display statistics for crypto templates. This information can be used for performance monitoring and/or troubleshooting.

Example

The following command displays summary information for all crypto templates:

```
show crypto template summary
```

show crypto vendor-policy

Displays information about crypto vendor policy.

Product

ePDG

FA

GGSN

HA

HeNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show crypto vendor-policy [ name` *`vendor_policy_name`* **`| summary ] [ | grep`** *`grep_options`* **`| more ]`**

name *vendor_policy_name*

Displays information on the specified vendor policy.

vendor_policy_name must be an alphanumeric string from 1 to 127 characters.

summary

Displays summary information for all vendor policies.

| { grep *grep_options* | more]

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display statistics for crypto templates. This information can be used for performance monitoring and/or troubleshooting.

Example

The following command displays summary information for all crypto vendor policies:

```
show crypto vendor-policy summary
```

show crypto whitelist file

Displays the contents of the whitelist (access granted) file.

Product

All products supporting IPSec whitelisting

Important This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show crypto blacklist file

Usage Guidelines

Use this command to display the current contents of the whitelist file.

Example

The following command displays the contents of the whitelist file:

show crypto whitelist file

show cs-network

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays statistics for the Circuit Switched (CS)-network(s) instance configured on a chassis for HNB-GW service sessions.

Product

HNB-GW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show cs-network { all | name *cs_name* **} [status] [| { grep** *grep_options* **| more }]**

all

Displays status counters for all CS (circuit switched) networks configured for HNB-GW service sessions on a chassis.

name *cs_name*

Displays status counters for a CS network configured for HNB-GW service specified as an alphanumeric string of 1 through 127 characters that is case sensitive

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display the status of any or all CS-network(s) instance configured on a chassis for HNB-GW service sessions.

Example

The following command displays the output for CS network instance status named *cs_1_hnb*:

```
show cs-network name cs_1_hnb status
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show cs-network counters

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the session counter information for an HNB-CS Network associated with Home-NodeB Gateway (HNB-GW) services configured and running on a system.

Product

HNB-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show cs-network counters [ name cs_svc_name [ msc msc_point_code ] ] [ | { grep
 grep_options | more } ]
```

name *cs_svc_name*

Filters the counter display based on an existing HNB-CS Network service name associated with an HNB-GW service running on system. *cs_svc_name* is an alphanumeric string of 1 through 63 characters.

msc *msc_point_code*

Filters the counter display filtered on the basis of MSC address provided in the SS7 point code that is connected to a particular HNB-CS Network service. *msc_point_code* must be the address of an MSC in SS7 point code notation.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session counter information for HNB-CS Network services configured and MSCs connected on a system.

Example

The following command displays the counters for the HNB-CS Network service named *hnb_cs_svc1*:

```
show cs-network counters name hnb_cs_svc1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show cs-network statistics

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the Circuit Switched session statistics for Home-NodeB Gateway (HNB-GW) services configured and running on this system.

Product

HNB-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show cs-network statistics [name *cs_svc_name* **[msc** *msc_point_code*]] [**ranap-only | rtp-only | sccp-only] [| { grep** *grep_options* **| more }]**

name *cs_svc_name*

Filters the session statistics display based on an existing HNB-CS Network service name that is associated with an HNB-GW service running on this system. *cs_svc_name* is an alphanumeric string of 1 through 63 characters.

msc *msc_point_code*

Filters the counter display filtered on the basis of MSC address provided in the SS7 point code that is connected to a particular HNB-CS Network service. *msc_point_code* must be the address of an MSC in SS7 point code notation.

ranap-only

Filters the session statistics to display only Radio Access Network Application Protocol (RANAP) traffic for an HNB-CS Network service which is configured and associated with an HNB-GW service running on this system.

rtp-only

Filters the session statistics to display only Realtime Streaming Protocol (RTP) and Realtime Streaming Control Protocol (RTCP) traffic for the specified HNB-CS Network service which is configured and associated with an HNB-GW service running on this system.

sccp-only

Filters the session statistics to display only Signaling Connection Control Part (SCCP) traffic for the specified HNB-CS Network service which is configured and associated with an HNB-GW service running on this system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter of the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view the session statistics for overall session or in selected part of user session for HNB-GW services configured and running on this system.

Example

The following command displays the session statistics for RTP and RTCP part of session for the HNB-CS Network service named *hnb_cs1*:

```
show cs-network statistics name hnbcs1 rtp-only
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show css delivery-sequence

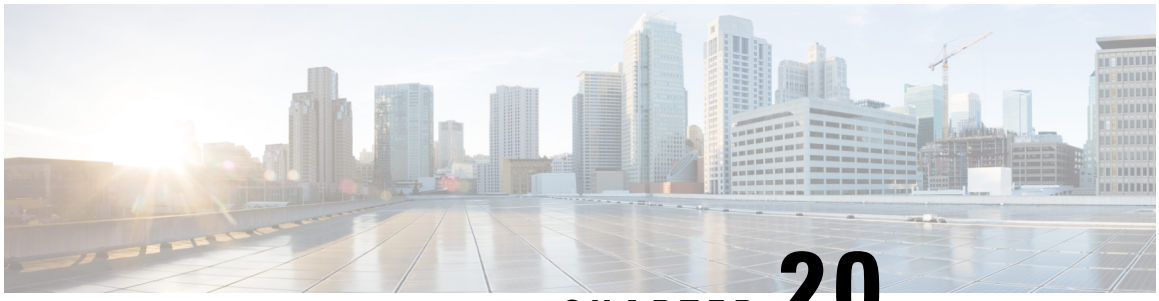
In StarOS 9.0 and later releases, this command is deprecated.

show css server

In StarOS 9.0 and later releases, this command is deprecated.

show css service

In StarOS 9.0 and later releases, this command is deprecated.



CHAPTER 20

Exec Mode show Commands (D-G)

The Exec Mode is the initial entry point into the command line interface system. Exec mode **show** commands are useful in troubleshooting and basic system monitoring.

Command Modes

This section includes the commands **show dhcp** through **show gtpu-service**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

show dhcp

Displays counter information pertaining to Dynamic Host Configuration Protocol IPv4 (DHCP) functionality based on specific criteria.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show dhcp [counters | full | summary] [all | apn *apn_name* **| callid** *id* **| chaddr** *mac_address* **| dhcp-service** *svc_name* **| imsi** *imsi* **| msid** *msid* **| server** *server_address* **| statistics [dhcp-service** *svc_name* **| server** *server_address* **] | status [dhcp-service** *svc_name* **| server** *server_address* **] | user-address** *address* **| username** *name* **] [wf1] [| { grep** *grep_options* **| more }]**

counters

Displays DHCP counter information.

full

Displays all available information pertaining to the criteria specified.

summary

Displays a summary of the DHCP statistics.

all

Displays counter information for each active PDP context.

apn *apn_name*

Displays information based on an existing Access Point Name (APN) specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

callid *id*

Displays information for an existing call identification number specified as a 4-digit hexadecimal number.

chaddr *mac_address*

Displays information for a mobile node specified by its MAC address.

dhcp-service *svc_name*

Displays information for an existing DHCP service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

imsi *imsi*

Displays information for an International Mobile Subscriber Identity (IMSI) specified as a string of 1 to 15 digits.

msid *msid*

Displays information for a Mobile Subscriber Identity (MSID) specified as a string of 1 to 15 digits.

server *server_address*

Displays information for a DHCP server specified by its IP address in IPv4 dotted-decimal notation.

statistics [dhcp-service *svc_name* | server *server_address*

Displays DHCP statistics for either a specific or for all DHCP services and servers configured.

dhcp-service *svc_name*: Displays statistics for a DHCP service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

server *server_address*: Displays statistics for a DHCP server specified by its IP address in IPv4 dotted-decimal notation.

status [dhcp-service *svc_name* | server *server_address*

Displays configuration information for either a specific or for all DHCP services and servers configured.

dhcp-service *svc_name*: Displays statistics for a DHCP service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

server *server_address*: Displays statistics for a DHCP server specified by its IP address in IPv4 dotted-decimal notation.

user-address *address*

Displays information for a DHCP-assigned user IP address specified in IPv4 dotted-decimal notation.

username *name*

Displays information for a subscriber specified as an alphanumeric string of 1 through 127 characters (including wildcards "$" and "*") that is case sensitive.

wf1

Displays all available information for associated filter keyword in wide-format number 1.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Counters pertaining to DHCP functionality can be displayed as cumulative values or for specific APNs, PDP contexts, servers, or DHCP services.

Example

The following command displays DHCP counter information for a DHCP service called *DHCP-Gi*:

show dhcp dhcp-service DHCP-Gi

The following command displays DHCP counter information for a DHCP Call ID *01ca11a2*:

show dhcp call-id DHCP-Gi

The following command displays DHCP information for the specified mobile node:

show dhcp chaddr 00:05:47:00:37:44

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show dhcp-service

Displays information for either a specific or for all Dynamic Host Configuration Protocol IPv4 (DHCP) services.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show dhcp-service { all | name *svc_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information for all configured DHCP services.

name *svc_name*

Displays information for a DHCP service name specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

This command is used to verify the configuration of one or all DHCP services for monitoring or troubleshooting purposes. The output is a concise listing of DHCP service parameter settings.

If this command is executed from within the local context with the all keyword, information for all DHCP services configured on the system will be displayed.

Example

The following command displays configuration information for a DHCP service called *dhcp1*:

```
show dhcp-service name dhcp1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show dhcpv6

Displays counter information pertaining to Dynamic Host Configuration Protocol IPv6 (DHCPv6) functionality based on specific criteria.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show dhcpv6 [counters | full | summary] [all | callid *id* **| server** *server_address* **| service** *svc_name*| **statistics [dhcp-service** *svc_name* **| server** *server_address* **] | status [dhcp-service** *svc_name* **| server** *server_address* **] [| { grep** *grep_options* **| more }]**

counters

Displays DHCPv6 counter information.

full

Displays all available information pertaining to the criteria specified.

summary

Displays a summary of the DHCPv6 statistics.

all

Displays counter information for each active PDP context.

callid *id*

Displays information for an existing call identification number specified as an 8-digit hexadecimal number.

server *server_address*

Displays information for a DHCPv6 server specified by its IP address in IPv6 colon-separated-hexadecimal notation.

Important In StarOS 15.0 and later releases, this option is deprecated

statistics [dhcp-service *svc_name*

Displays DHCPv6 statistics for either a specific or for all DHCPv6 services.

dhcp-service *svc_name*: Displays statistics for a DHCPv6 service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

server *server_address*: Displays statistics for a DHCPv6 server specified by its IP address in IPv6 colon-separated-hexadecimal notation.

Important In StarOS 15.0 and later releases, this option is deprecated

status [dhcp-service *svc_name*

Displays configuration information for either a specific or for all DHCPv6 services and servers configured.

dhcp-service *svc_name*: Displays statistics for a DHCPv6 service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

server *server_address*: Displays statistics for a DHCPv6 server specified by its IP address in IPv6 colon-separated-hexadecimal notation.

Important In StarOS 15.0 and later releases, this option is deprecated

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Counters pertaining to DHCP IPv6 functionality can be displayed as cumulative values or for specific APNs, PDP contexts or DHCPv6 services.

Example

The following command displays DHCPv6 status information for a DHCPv6 service called *DHCPv6-Gi*:

```
show dhcpv6 status service DHCPv6-Gi
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show dhcpv6-client-profile

Displays configuration information for a specific or all Dynamic Host Configuration Protocol IPv6 (DHCPv6) client profiles.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show dhcpv6-client-profile [all | name *profile_name* **] | { grep** *grep_options* **| more }**

all

Displays configuration information for all DHCPv6 client profiles.

name *profile_name*

Displays profile configuration information for an existing DHCPv6 client profile specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to display configuration information for one or all DHCPv6 client profiles.

Example

The following command displays all DHCPv6 client profiles:

```
show dhcpv6-client-profile all
```

show dhcpv6-server-profile

Displays configuration information for a specific or all Dynamic Host Configuration Protocol IPv6 (DHCPv6) server profiles.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show dhcpv6-server-profile [ all | name profile_name ] | { grep grep_options
| more }
```

all

Displays configuration information for all DHCPv6 server profiles.

name *profile_name*

Displays profile configuration information for an existing DHCPv6 server profile specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines Use this command to display configuration information for one or all DHCPv6 server profiles.

Example

The following command displays all DHCPv6 server profiles:

```
show dhcpv6-server-profile all
```

show dhcpv6-service

Displays service information and configuration counters for a specific or all Dynamic Host Configuration Protocol IPv6 (DHCPv6) services.

Product

GGSN

ASN-GW

P-GW

SAEGW

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show dhcpv6-service [all | name** *svc_name* **] | { grep** *grep_options* **| more }**

all

Displays configuration information and counters for all DHCPv6 services.

name *svc_name*

Displays configuration information and counters for an existing DHCPv6 service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines Use this command to display configuration information and counters for one or all DHCPv6 services.

Example

The following command displays all DHCPv6 services:

```
show dhcpv6-service all
```

show diameter-hdd-module

Displays the HDD module configuration information.

Important This command is license dependent. For more information, contact your Cisco account representative.

Product

HA

P-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show diameter-hdd-module { file-space-usage | statistics } [ | { grep
grep_options | more } ] ]
```

file-space-usage

Displays the limit and usage of hard-disk space for the credit-control-event module.

statistics

Displays statistics for the credit-control-event module.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view the HDD module configuration information.

Example

The following command displays the hard-disk space utilization for the credit-control-event module:

```
show diameter-hdd-module file-space-usage
```

show diameter aaa-statistics

Displays Diameter Authentication, Authorization and Accounting (AAA) statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show diameter aaa-statistics [all | group *group_name* **[server** *server_name* **] | misc-data [instance** *instance_number* **] | server** *server_name* **] [| { grep** *grep_options* **| more }]**

all

Displays all available Diameter server statistics.

group *group_name* [server *server_name*]

Displays all Diameter server statistics within an existing AAA group specified as an alphanumeric string of 1 through 64 characters.

server_name must be the name of a Diameter server, expressed as an alphanumeric string of 1 through 64 characters.

misc-data instance *instance-number*

Displays Diameter specific miscellaneous statistics among all AAA manager instances. This display also includes the maximum backpressure statistics and the time at which it was seen.

instance *instance_number*: Displays the maximum backpressure statistics at a specified AAA manager instance. The instance number must be an integer from 1 through 385 characters.

server *server_name*

Displays Diameter server statistics for the Diameter server name specified as an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view Diameter AAA statistics.

Example

The following command displays all available Diameter server statistics:

```
show diameter aaa-statistics all
```

show diameter accounting servers aaa-group

Displays Diameter accounting server information for an Authentication, Authorization and Accounting (AAA) group.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter accounting servers [aaa-group *group_name* **] [| { grep** *grep_options* **| more }]**

aaa-group *group_name*

Specifies the name of an existing AAA group as an alphanumeric string of 0 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view Diameter accounting server information for an AAA group.

Example

The following command displays Diameter accounting server information for an AAA group named in *group12*:

```
show diameter accounting servers aaa-group group12
```

show diameter authentication servers aaa-group

Displays Diameter Authentication server information for a specified AAA group.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show diameter authentication servers [aaa-group** *group_name* **]**

aaa-group *group_name*

Specifies the name of an existing AAA group as an alphanumeric string of 0 through 64 characters.

Usage Guidelines Use this command to view Diameter authentication server information for an AAA group.

Example

The following command displays Diameter authentication server information for an AAA group named *group12*:

show diameter authentication servers aaa-group group12

show diameter dynamic-dictionary

Displays the contents of Diameter dictionary that is loaded dynamically at run time.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show diameter dynamic-dictionary { { all [contents] } | { name** *dict_name* **[contents | { full facility { aaamgr | diamproxy | sessmgr instance** *instance_no* **} }] [| { grep** *grep_options* **| more }] }**

all

Displays, in text format, the information for all dynamically loaded dictionaries configured in the Global Configuration mode. Displays up to 10KB buffered text from each dictionary file.

name *dict_name*

Displays detailed information for an existing dynamically loaded dictionary specified as an alphanumeric string of 1 through 15 characters. Displays up to 10KB buffered text from the specified dictionary file.

full facility { aaamgr | diamproxy | sessmgr }

Displays all available information for the specified instance associated with one of the following facilities:

- aaamgr — Accounting and authentication Manager
- diamproxy — Diameter Proxy
- sessmgr — Session Manager

instance *instance_no*

Specifies the instance number from which dynamic dictionary details to be fetched, is an integer value between *0* thriugh *4294967295*.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view the contents of dynamically loaded Diameter dictionaries.

For more details on the dynamic configuration of Diameter dictionary, refer to the **diameter dynamic-dictionary** command in the *Global Configuration Mode Commands* chapter.

Example

The following command displays the contents of dynamically loaded Diameter dictionary file named *dyn1*:

```
show diameter dynamic-dictionary name dyn1
```

show diameter endpoint

This command has been deprecated, and is replaced by the show diameter endpoints, on page 801 command.

show diameter endpoints

This command displays the status of Diameter client endpoint(s).

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter endpoints { all | endpoint *endpoint_name* **} [| { grep** *grep_options* **| more }]**

all

Displays status of all Diameter client endpoints.

endpoint *endpoint_name*

Displays status of an existing Diameter client endpoint specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view the status of Diameter client endpoints.

If you are in the local context, then all contexts are searched for the specified endpoint(s). Specify **all** to see all endpoints; otherwise, just the named endpoint will be displayed. If no argument is provided, a summary of all endpoints is displayed.

Default value: N/A

Example

The following command displays status of all Diameter client endpoints.

```
show diameter endpoints all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show diameter message-queue

Displays Diameter message queue statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter message-queue counters { inbound | outbound } [endpoint *endpoint_name* **[peer-host** *peer_id* **[peer-realm** *realm_id* **]] | session-id** *session_id* **] [| { grep** *grep_options* **| more }]**

counters { inbound | outbound }

Specifies the message counters:

inbound: Specifies Diameter inbound messages

outbound: Specifies Diameter outbound messages

endpoint *endpoint_name*

Specifies the Diameter endpoint as an alphanumeric string of 1 through 63 characters.

peer-host *peer_id*

Specifies the Diameter peer host as an alphanumeric string of 1 through 63 characters.

peer-realm *realm_id*

Specifies the Diameter peer realm as an alphanumeric string of 1 through 127 characters.

session-id *session_id*

Specifies the session ID as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view the count of the messages in the Diameter message queue for specific counter type, session ID, or endpoint, peer host, and peer realm.

Example

The following command displays message queue statistics for outbound messages specific to the Diameter endpoint named *asr5k.testnetwork.com*:

```
show diameter message-queue counters outbound endpoint
asr5k.testnetwork.com
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show diameter peers

Displays Diameter peer information.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter peers [full | summary] [all | [endpoint *endpoint_name* **] [peer-host** *peer_id* **] [peer-realm** *realm_id* **]] [| { grep** *grep_options* **| more }]**

full

Displays full details of all or specified Diameter peers.

summary

Displays summary details of all or specified Diameter peer(s).

all

Displays details of all Diameter peers.

endpoint *endpoint_name*

Displays details of the origin Diameter endpoint specified as an alphanumeric string of 1 through 255 characters.

peer-host *peer_id*

Displays details of the Diameter peer host specified as an alphanumeric string of 1 through to 63 characters.

peer-realm *realm_id*

Displays details of the Diameter peer realm ID specified as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view the details of Diameter peers.

If you are in the local context, then all contexts are searched for the specified peer(s).

This is similar to the **show subscribers** CLI command and supports multiple filter options specified at the same time.

If filter options are specified (e.g., **all**, **endpoint**, etc.), the default is for one line of output to be displayed per peer. Use **full** to get detailed information per peer, or **summary** to get summarized information about all matching peers.

If no filter options are specified, a summary output for all peers is displayed. Use the **full** option to get detailed information about every peer.

Default value: N/A

Example

The following command details of the Diameter endpoint named *endpoint12*:

```
show diameter peers endpoint endpoint12
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show diameter proclet-map-memcache

Displays DIAMPROXY proclet cached memory information for aaamgr, diactrl or sessmgr.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter proclet-map-memcache { aaamgr *integer* **| diactrl | sessmgr** *integer* **} [| { grep** *grep_options* **| more }]**

aaamgr *integer*

Selects memcache information for the aaamgr (AAA manager) instance specified as an integer from 1 to 1152.

diactrl

Selects memcache information for the diactrl (Diameter controller).

sessmgr *integer*

Selects memcache information for the sessmgr (Session manager) instance specified as an integer from 1 to 1152.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to selectively display the memcache information for specified Diameter-related StarOS proclets.

Example

The following command displays the diactrl memcache:

```
show diameter proclet-map-memcache diactrl
```

show diameter proclet-map-table

Displays DIAMPROXY proclet mapping table information for aaamgr, diactrl or sessmgr.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show diameter proclet-map-table { aaamgr integer | diactrl | sessmgr integer
 } [ | { grep grep_options | more } ]
```

aaamgr *integer*

Selects map table information for the aaamgr (AAA manager) instance specified as an integer from 1 to 1152.

diactrl

Selects map table information for the diactrl (Diameter controller).

sessmgr *integer*

Selects map table information for the sessmgr (Session manager) instance specified as an integer from 1 to 1152.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to selectively display the table information for specified Diameter-related StarOS proclets.

Example

The following command displays the diactrl map table information:

```
show diameter proclet-map-table diactrl
```

show diameter route status

Displays Diameter route health status information.

Important In 17.0 and later releases, this command has been deprecated.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter route status [endpoint *endpoint_name* **| full [endpoint** *endpoint_name* **]] [host** *host_name* **[peer** *peer_id* **]] [| { grep** *grep_options* **| more }]**

full

Displays information about which Diameter clients are using which peer/host combinations.

endpoint *endpoint_name*

Displays detailed information for the Diameter client endpoint specified as an alphanumeric string of 1 through 63 characters.

host *host_name*

Displays information for the Diameter host specified as an alphanumeric string of 1 through 63 characters.

peer *peer_id*

Displays information for the Diameter peer host specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view the Diameter route health status.

If you are in the local context, then the route information used by Diameter endpoints in all contexts will be used in the display.

The route status displays status of peer/host combinations. Refer to the **route-failure** CLI command in Diameter Endpoint Configuration mode. When no options are specified, the display will give one line per peer/host combination, indicating how many Diameter clients are using each combination, and for how many clients the combination is available or failed. Specify **full** to see which Diameter clients are using which peer/host combinations. Specify **host** or **peer** to see just combinations with the named host or peer. Specify **endpoint** to see detailed information about the named Diameter client.

Default value: N/A

Example

The following command displays route health status details of the Diameter client endpoint named *endpoint12*:

```
show diameter route status endpoint endpoint12
```

show diameter route table

Displays the Diameter routing table.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter route table [wide] [endpoint *endpoint_name* **] [| { grep** *grep_options* **| more }]**

wide

Displays the route table information in wide-format.

endpoint *endpoint_name*

Displays the Diameter routing table for the Diameter endpoint specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the status of Diameter client endpoints.

If you are in the local context, then the route information used by Diameter endpoints in all chassis contexts will be used in the display.

The route table displays all static and dynamic routes. Refer to the route-entry CLI command in Diameter Endpoint Configuration Mode.

Default value: N/A

Example

The following command displays status of the Diameter client endpoint named *endpoint12*.

```
show diameter route table endpoint endpoint12
```

show diameter statistics

Displays Diameter peer statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show diameter statistics [[proxy] endpoint *endpoint_name* **[peer-host** *peer_id* **[peer-realm** *realm_id* **]] [| { grep** *grep_options* **| more }]]**

endpoint *endpoint_name*

Displays statistics for the Diameter endpoint specified as an alphanumeric string of 1 through 63 characters.

peer-host *peer_id*

Displays statistics for the Diameter host peer specified as an alphanumeric string of 1 through 255 characters.

peer-realm *realm_id*

Displays statistics for the Diameter peer realm specified as an alphanumeric string of 1 through 127 characters.

proxy

Displays proxy related statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view Diameter statistics for the specified endpoint or proxy.

Example

The following command displays Diameter peer statistics for the endpoint named *endpoint12*:

```
show diameter statistics endpoint endpoint12
```

show diameter-service

Displays information about configured Diameter services.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show diameter-service { all | lte-s6a trace-id { all | user-name user_name
 } | name service_name | statistics name service_name [ vpn-name vpn_context_name
 ] } [ | { grep grep_options | more } ]
```

all

Displays full information for all configured Diameter services.

lte-s6a trace-id { all | user-name *user_name* }

Displays user trace ID information for an LTE/S6a application.

all: Displays full information.

user-name *user_name*: Displays information for the user specified an alphanumeric string of 1 through 79 characters.

name *service_name*

Displays information for the Diameter service name specified as an alphanumeric string of 1 through 79 characters.

statistics name *service_name* [vpn-name *vpn_context_name*]

Displays statistics for the Diameter service name specified as an alphanumeric string of 1 through 79 characters.

vpn-name *vpn_context_name*: Specifies the name of VPN context as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view information on configured Diameter services.

Example

The following command displays statistics for the Diameter service named *ggsn12*:

```
show diameter-service name ggsn12
```

show diameter tps-statistics

Displays the Transactions Per Second (TPS) statistics per Diameter application, endpoint and Diameter proxy facility.

Product

ePDG

P-GW

SAEGW

S-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show diameter tps-statistics [ diamproxy diamproxy_num | application {
auth-eap | e2 | gmb | gx |  gy | rf | s6a |  s6b | sgmb | sta |  swm } |
 endpoint endpoint_name | summary | verbose ] + [ | { grep grep_options | more
 } ]
```

diamproxy *diamproxy_num*

Displays the TPS Key Performance Indicator (KPI) information for the specified Diameter Proxy facility. The *diamproxy_num* must be an integer from 1 through 144.

endpoint *endpoint_name*

Displays the TPS KPI information only for the endpoint specified as a string of size ranging from 1 through 255 characters.

Important The Diameter Endpoints configured on ASR 5000 and ASR 5500 platforms are not shared between various Diameter applications. For example, Gx and Gy should have separate Diameter endpoints configured.

application { auth-eap | e2 | gmb | gx | gy | rf | s6a | s6b | sgmb | sta | swm }

Displays the TPS KPI information only for the specified Diameter application.

summary

Displays summary information of TPS statistics.

verbose

Specifies to display detailed (all available) information. If not specified, concise information is displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display TPS KPI information (the cumulative and the historical statistics) for all Diameter applications, endpoint and Diameter proxy facility.

In releases prior to 20, well-defined Key Performance Indicators (KPIs) were not available for measuring the session and Voice-over-LTE (VoLTE) signaling transaction rates on the gateway platforms. KPIs did not differentiate between successful or unsuccessful PDN session activations and deactivations. In addition, the KPIs did not provide any information related to the VoLTE service.

An external server used to collect bulkstats data every 2 minutes from the gateway node. The bulkstats data such as PDN session activations and deactivations events counters are used to calculate the Call Events Per Second (CEPS) KPI on the external server. The gateway node does not calculate the CEPS; but it only provides the counters to the external server for additional processing of relevant bulkstats data.

To address these issues, CEPS, Session Events Per Second (SEPS), Gx Transactions Per Second (TPS), Gy-TPS, S6b-TPS, Rf-TPS, SWm-TPS KPIs have been implemented. These KPIs measure the signaling load on the gateway, and also the event rate for VoLTE call setup and tear down. This enables operators to perform network dimensioning/planning for the gateway node.

This show CLI command is capable of providing the following for all signaling interfaces:

- CEPS and SEPS KPI values per second, but calculated averaged over 2 minutes

- 8 historical SEPS and CEPS KPI values
- Gx-TPS, Gy-TPS, S6b-TPS, Rf-TPS, and SWm-TPS KPIs per second, but calculated averaged over 1, 10 seconds, 30 seconds, 1 minute, 5 minutes, 10 minutes and 15 minutes

Important TPS is computed based on average of sent and received Diameter messages.

Average values of all KPIs will be provided by the gateway to the external servers using bulkstats data every 2 minutes if requested. The total KPI TPS value as well as breakdown TPS values by each card (i.e., Diameter proxy) on every Diameter interface will be provided using the show CLI command and bulkstats data.

Example

The following command displays the summary information of TPS KPI statistics for Gy application:

```
show diameter tps-statistics application gy summary
```

show dns-client

Displays cache and/or statistics for a specified Domain Name System (DNS) client.

Product

ePDG

SGSN

HSGW

MME

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show dns-client { cache client *name* **[query-name** *name* **| query-type { A | AAAA | NAPTR | SRV }] | statistics client** *name* **} [| { grep** *grep_options* **| more }]**

cache client *name* [query-name *name* | query-type { A | AAAA | NAPTR | SRV }]

displays statistics for the cache of an existing DNS client specified as an alphanumeric string of 1 through 255 characters.

query-name *name*: Filters DNS results based on the domain name specified as an alphanumeric string of 1 through 255 characters. *name* is the domain name used to perform the DNS query. It is different from the

actual domain name which is resolved. For example, to resolve the SIP server for *service.com*, the query name is *_sip._udp.service.com* and the query type is **SRV**.

query-type:

- **A**: Filters DNS results based on 32-bit domain IPv4 address records (A records).
- **AAAA**: Filters DNS results based on 128-bit domain IPv6 address records (AAAA resource records).
- **NAPTR**: Filters DNS results based on Naming Authority Pointer records.
- **SRV**: Filters DNS results based on service locator records (SRV records).

statistics client *name*

Displays statistics for an existing DNS client specified as an alphanumeric string of 1 through 255 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display DNS cache and/or statistics for a specified DNS client.

Example

The following command displays statistics for a DNS client named *domain1.com*:

```
show dns-client statistics client domain1.com
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show dynamic-policy statistics

Displays policy control and charging (PCC) statistics from the interface communicating with the Policy and Charging Rules Function (PCRF) via Gx(x).

Product

HSGW

PDSN

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show dynamic-policy statistics { hsgw-service *name* **| pdsn-service** *name* **| sgw-service** *name* **}**

hsgw-service *name*

Displays policy control and charging statistics from the Gxa interface communicating with the PCRF. *name* must be an existing HSGW service name and be from 1 to 63 alphanumeric characters.

pdsn-service *name*

Displays policy control and charging statistics from the Gx interface communicating with the PCRF. *name* must be an existing PDSN service name and be from 1 to 63 alphanumeric characters.

sgw-service *name*

Displays policy control and charging statistics from the Gxc interface communicating with the PCRF. *name* must be an existing S-GW service name and be from 1 to 63 alphanumeric characters.

Usage Guidelines

Use this command to display PCC statistics for the specified service and its Gx interface communicating with the PCRF.

Example

The following command displays HSGW statistics for an HSGW service named *hsgw4*:

show dynamic-policy statistics hsgw-service hsgw4

The following command displays PCC statistics for a PDSN service named *cdma4*:

show dynamic-policy statistics pdsn-service cdma4

The following command displays S-GW statistics for an S-GW service named *sgw4*:

show dynamic-policy statistics sgw-service sgw4

show egtpc peers

Displays information about eGTP-C peers.

Product

ePDG

MME

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show egtpc peers [address *ip_address* **| egtp-service** *name* **] | interface { epdg-egress | mme | pgw-ingress | sgsn | sgw-egress | sgw-ingress | path-failure-history } [address** *ip_address* **] [wf1] }] [| { grep** *grep_options* **| more }]**

address *ip_address*

Displays information about a eGTP-C peer specified by its IP address in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

egtp-service *name* [address *ip_address*]

Displays information about eGTP-C peers associated with an existing egtp-service name specified as an alphanumeric string of 1 through 63 characters.

address *ip_address*: Additionally, the results can be filtered based on the IP address associated with an existing eGTP-C peer service specified in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

interface { epdg-egress | mme | pgw-ingress| sgsn | sgw-egress | sgw-ingress } [address *ip_address*] [wf1]

Displays information about eGTP-C peers associated with the service interface configured on this system.

epdg-egress:Displays ePDG's egress EGTP interface.

mme: Displays information about eGTP-C MME peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the MME peer.

pgw-ingress: Displays information about eGTP-C P-GW ingress peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the P-GW ingress peer.

sgsn: Displays information about eGTP-C SGSN peers associated with the S4 service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the SGSN peer.

sgw-egress: Displays information about eGTP-C S-GW egress peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the S-GW egress peer.

sgw-ingress: Displays information about eGTP-C S-GW ingress peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the S-GW ingress peer.

address *ip_address*: Specifies the IP address of the selected peer in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

wf1: Specifies that the output is to be displayed in wide format number 1.

path-failure-history

Provides detailed information on the last five path failures that occur per configured P-GW peers. This information can assist operators in debugging path failures in the network.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information about eGTP-C peers associated with the service interface configured on this system. The output contains the following information about the peer:

- Status of the peer
- Echo status
- Restart counter status
- Peer restart counter knowledge
- Service ID
- Peer IP address
- Current sessions
- Maximum sessions

Important The primary command, **show egtpc peers**, when entered without additional keywords, displays information for all peers associated with the service operating on this system.

Example

The following command returns an output for an eGTP-C S-GW egress peers associated with the service interface configured on this system with an IP address of *10.2.3.4*:

```
show egtpc peers interface sgw-egress address 10.2.3.4
```

The following command returns an output for an eGTP-C MME peer associated with the service interface configured on this system with an IP address of *10.2.3.4*:

```
show egtpc peers interface mme address 10.2.3.4
```

show egtpc sessions

Displays eGTP-C session information.

Product

ePDG

MME

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show egtpc sessions [egtp-service *name* **| interface { epdg-egress | mme | pgw-ingress | sgsn | sgw-egress | sgw-ingress }] [| { grep** *grep_options* **| more }]**

egtp-service *name*

Displays information about eGTP-C sessions associated with an existing egtp-service specified as an alphanumeric string of 1 through 63 characters.

interface { epdg-egress | mme | pgw-ingress | sgsn | sgw-egress | sgw-ingress }

Displays information about eGTP-C sessions associated with the service interface configured on this system.

epdg-egress:Displays information about ePDG egress associated with EGTP interface.

mme: Displays information about eGTP-C sessions associated with the MME interface configured on this system.

pgw-ingress: Displays information about eGTP-C sessions associated with the P-GW ingress interface configured on this system.

sgsn: Displays information about eGTP-C sessions associated with the SGSN eGTP-C S4 interface configured on this system.

sgw-egress: Displays information about eGTP-C sessions associated with the S-GW egress interface configured on this system.

sgw-ingress: Displays information about eGTP-C sessions associated with the S-GW ingress interface configured on this system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display session information for a specific eGTP service or for sessions associated with an interface type configured on this system.

Example

The following command displays eGTP-C session information for sessions associated with all P-GW ingress interfaces configured on this system:

```
show egtpc sessions interface pgw-ingress
```

The following command displays eGTP-C session information for sessions associated with all MME interfaces configured on this system:

```
show egtpc sessions interface mme
```

show egtpc statistics

Displays evolved GPRS Tunneling Protocol Control (eGTP-C) plane statistics for a specific service name or interface type.

Product

ePDG

MME

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show egtpc statistics [demux-only | egtp-service *name* **[interface-type { s2a | s2b | s5s8 }] | epdg-address** *ip_address* **| event-statistics | header-decoder-errors | interface { epdg-egress | mme | pgw-ingress [interface-type { s2a | s2b | s5s8 }]| sgsn | sgw-egress | sgw-ingess } | mme-address** *ip_address* **| path-failure-reasons | pgw-address** *ip_address* **| piggybacking-statistics | sessmgr-only | sgsn-address** *ip_address* **| sgw-address** *ip_address* **] [verbose] [| { grep** *grep_options* **| more }]**

demux-only

Displays entry point statistics at demux manager.

egtp-service *name* [interface-type { s2a | s2b | s5s8 }]

Displays statistics for an existing eGTP service specified as an alphanumeric string of 1 through 63 characters.

interface-type: Displays the eGTP-C sub-interface statistics only for the specified eGTP-C service. Possible interfaces are:

- **s2a**: Interface type Sa

- **s2b**: Interface type Sb
- **s5s8**: Interface type S5/S8

Important The keywords **s2a** and **s2b** are only visible if WiFi Integration functionality is enabled. WiFi Integration requires that a valid license key be installed. Contact your local Sales or Support representative for information on how to obtain a license.

epdg-address *ip_address*

Displays eGTP-C statistics for an existing ePDG IP address expressed in IPv6 colon-separated-hexadecimal notation.

event-statistics

Displays total eGTP-C events sent/received.

header-decoder-errors

Displays header decoding errors of incoming packets at eGTP-C stack/demux manager.

interface { epdg-egress | mme | pgw-ingress [interface-type { s2a | s2b | s5s8 }]| sgw-egress | sgw-ingess }

epdg-egress: Displays eGTP-C statistics for all ePDG egress interfaces.

mme: Displays eGTP-C statistics for all MME interfaces.

pgw-ingress: Displays eGTP-C statistics for all eGTP P-GW ingress interfaces.

interface-type: Displays the eGTP-C interface statistics of a particular sub-interface of P-GW ingress. Possible interfaces are:

- **s2a**: Interface type Sa
- **s2b**: Interface type Sb
- **s5s8**: Interface type S5/S8

Important The keywords **s2a** and **s2b** are only visible if WiFi Integration functionality is enabled. WiFi Integration requires that a valid license key be installed. Contact your local Sales or Support representative for information on how to obtain a license.

sgsn: Displays eGTP-C statistics for all eGTP S4 SGSN interfaces.

sgw-egress: Displays eGTP-C statistics for all eGTP S-GW egress interfaces.

sgw-ingress: Displays eGTP-C statistics for all eGTP S-GW ingress interfaces.

mme-address *ip_address*

Displays eGTP-C statistics for an existing MME IP address expressed in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

path-failure-reasons

Displays breakup of reasons for path failure.

pgw-address *ip_address*

Displays eGTP-C statistics for an existing P-GW IP address expressed in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

piggybacking-statistics

Displays total piggybacked messages sent/received at eGTP-C stack.

sessmgr-only

Displays entry point statistics at sessmgr.

sgsn-address *ip_address*

Displays eGTP-C statistics for an existing SGSN S4 IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgw-address *ip_address*

Displays eGTP-C statistics for an existing S-GW IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

verbose

Displays the maximum amount of detail available for this commands output. If this option is not specified, the output is truncated to a more concise level.

All of the cause codes supported for GTPv2 are displayed as part of this option. All the cause code values are shown for each of the messages.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display evolved GPRS Tunneling Protocol Control (eGTP-C) plane statistics for a specific service name or interface type.

Example

The following command displays eGTP-C statistics for interfaces configured as S-GW ingress interfaces:

```
show egtpc statistics interface sgw-ingess
```

The following command displays eGTP-C session information for sessions associated with all MME interfaces configured on this system:

show egtpc sessions interface mme

show egtp-service

Displays configuration information for evolved GPRS Tunneling Protocol (eGTP) services on this system.

Product

ePDG

MME

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show egtp-service { all | name *service_name* **} [| { grep** *grep_options* **| more }]**

all

Displays configuration information for all eGTP services configured on this system.

name *service_name*

Displays configuration information for an existing eGTP service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference Guide*.

Usage Guidelines

Use this command to view configuration information for eGTP services on this system.

Example

The following command displays service statistics for the eGTP service named *egtp1*:

show egtp-service name egtp1

show emps-profile

Displays a particular or all eMPS profile(s) configured with its associated attributes.

Product

P-GW

SAEGW

S-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax

show emps-profile { all | name *emps_profile_name* **}**

all

Displays configuration information for all eMPS profiles configured with its associated attributes.

name *emps_profile_name*

Displays configuration information for an existing eMPS profile specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command for displaying emps-profile-name, configured eARP value, configured DSCP value, and enabled or disabled message-priority.

Example

The following command displays service statistics for the eMPS profile named *emps1*:

show emps-profile name emps1

show epdg-service

Displays information about selected EPDG calls/services.

Product

ePDG

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show epdg-service { **all** [**counters** [| { **grep** *grep_options* | **more** }]] | **name** *epdg_service_name* [**counters** [| { **grep** *grep_options* | **more** }]] | **statistics** [**apn-name** *apn_name* | **dns-stats** | **name** *name*] | **session** { **all** | **apn-name** *apn_name* | **callid** *call_id* | [**counters**] | [**full**] | **ip-address** { **<** *ip_address* | **>** *ip_address* | **IP-ADDRESS** | **greater-than** *ip_address* | **less-than** *ip_address* } | **peer-address** *peer_address* | [**summary**] | **username** *user_name* [| { **grep** *grep_options* | **more** }] } **statistics** [**dns-stats**] [**name** *service_name*] [**peer-address** *peer_address*] [| { **grep** *grep_options* | **more** }] }

all

Displays information for all configured services.

counters

Displays counters associated with EPDG service.

name *epdg_service_name*

Displays specific service. This must be followed by service name *epdg_service_name*, which is a string of size between 1 and 63.

statistics

Displays information about total of collected information for specific protocol since last restart or clear command.

apn-name *apn-name*

Displays statictics for specific APN, must be followed by apn name, which is a string of size between 1 and 63.

dns-stats

Displays information related to DNS PGW selection.

name *name*

Displays specific service. Must be followed by service name.

session

Displays information about configured EPDG sessions.

callid *call_id*

Specifies a Call Identification Number as an eight-digit hexadecimal number.

full

Displays all available information for associated display or filter keyword (previous keyword).

ip-address

Displays IP address of the subscriber. Must be followed by IPv4 address in dotted-decimal notation.

< *ip_address* | less-than *ip_address*

Specifies Less Than. Must be followed by an IP address specified in IPv4 dotted-decimal or IPV6 colon-separated-hexadecimal notation.

> *ip_address* | greater-than *ip_address*

Specifies Greater Than. Must be followed by an IP address specified in IPv4 dotted-decimal or IPV6 colon-separated-hexadecimal notation.

peer-address *peer_address*

Specifies the IP address of an IP Peer in IPv4 address dotted-decimal or IPV6 address colon-separated-hexadecimal notation.

summary

Displays the summary of available information for associated display or filter keyword (previous keyword).

username *user_name*

Displays the name of specific user within current context. *user_name* is an alphanumeric string of 1 through 127 characters.

statistics

Displays the total of collected information for specific protocol since last **reload** or **clear** command.

dns-stats

Displays information related to DNS PGW selection.

name *service_name*

Displays specific service. *service_name* is an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information about selected EPDG calls/services.

Example

The following command displays ePDG counter information:

```
show epdg-service all counters | grep 21
```

show event-record

Displays event record statistics for a P-GW node.

Product

P-GW

ePDG

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show event-record statistics { epdg | pgw } [| {grep *grep_options* **| more }]**

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display all event record statistics for a P-GW node.

Example

The following command displays all P-GW event level statistics:

show event-record statistics pgw

show external-inline-servers

This command is obsolete.

show fa-service

Displays information on configured foreign agent (FA) services.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show fa-service { all | name *fa_name* **} [| { grep** *grep_options* **| more }]**

all | name *fa_name*

all: indicates information on all foreign agent services is to be displayed.

name *fa_name*: indicates only the information for the named FA service is to be displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Display foreign agent service configuration information.

Example

The following commands display information on the FA service *sampleService* and all services, respectively.

```
show fa-service name sampleService
show fa-service all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show fa-spi-list

Displays Security Parameter Indices (FA-SPIs) for configured foreign agent (FA) services.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show fa-spi-liste { all | name *fa_name* **} [| { grep** *grep_options* **| more }]**

all | name *fa_name*

all: indicates information on all foreign agent services is to be displayed.

name *fa_name*: indicates only the information for the named FA service is to be displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Display foreign agent SPI information.

Example

The following command displays SPI information for the FA service *sampleService*.

show fa-spi-list name sampleService

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show fans

Displays the current control status, speed, and temperature for the upper and lower fans in an ASR 5x00 chassis.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show fans [verbose] [| { grep *grep_options* **| more }]**

verbose

ASR 5500 only: Displays additional information regarding the state of the fan trays.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

View the fan information to verify system hardware status as necessary.

Example

The following command displays information regarding the cooling fans in the ASR 5x00 chassis:

```
show fans
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show file

Displays the contents of the file specified. The contents are paginated as if it were normal ASCII output.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show file url url [ | { grep grep_options | more } ]
```

url *url*

Specifies the location of a file to display. *url* may refer to a local or a remote file. *url* must be entered using the following format:

For the ASR 5000:

```
[ file: ]{ /flash | /pcmcia1 | /hd }[ /directory ]/file_name
tftp://{ host[ :port# ] }[ /directory ]/file_name
[ http: | ftp: | sftp: ]//[ username[ :password ]@ ] { host }[ :port# ][
/directory ]/file_name
```

Important Use of the SMC hard drive is not supported in this release.

For the ASR 5500:

[file:]{ /flash | /usb1 | /hd }[/*directory*]/*file_name*
tftp://{ *host*[*:port#*] }[/*directory*]/*file_name*
[http: | ftp: | sftp:]//[*username*[*:password*]@] { *host* }[*:port#*][/*directory*]/*file_name*

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Display the contents of files to view such information as log data, trace information, etc.

Example

The following will display the contents of the local file */pub/log.txt*.

```
show file //pcmcia1/pub/log.txt
```

The following command will display the contents of the file */pub/log.txt* on remote host *remoteABC*.

```
show file ftp://remoteABC/pub/log.txt
```

show fng-service

Displays information about specified Femto Network Gateway (FNG) service configuration, status, and counters, and includes information about all the sessions currently maintained by the FNG.

Product FNG

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show fng-service { all [counters] | name *service_name* **| session | statistics }**

all

Displays information for all configured FNG services.

counters

Displays counters associated with the FNG service.

name *service_name*

Displays information only for an existing FNG service specified as an alphanumeric string of 1 through 63 characters.

session

Displays information about configured FNG sessions.

Important See **show fng-service session** for detailed options.

statistics *service_name*

Total of collected information for specific protocol since the last **restart** or **clear** command.

Important See **show fng-service statistics** for detailed options.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the section *Regulating a Command's Output* in the chapter *Command Line Interface Overview* in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to view information for selected configured FNG services.

Example

The following command displays available information for all active FNG services.

```
show fng-service all
```

Important Command output descriptions are available in the *Statistics and Counters Reference*.

show fng-service session

Displays statistics for specific Femto Network Gateway (FNG) sessions.

Product

FNG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show fng-service session [all | callid *call_id* **| counters | full [all | callid** *call_id* **| ip-address** *ip-address* **| peer-address** *ip_address* **| username** *name* **] | ip-address** *ip-address* **| peer-address** *ip-address* **| summary [all | callid** *call_id* **| ip-address** *ip-address* **| peer-address** *ip-address* **| username** *name* **] | username** *name* **]**

all

Displays all related information for all active FNG sessions.

callid

Displays PPP information for the call ID specified as a 4-digit hexadecimal number.

counters

Displays counters for the configured FNG sessions.

full

Displays all available information for the associated display or filter keyword.

ip-address *ipv4_address*

Displays information for the subscriber IP address specified in IPv4 dotted-decimal notation.

peer-address *ipv4_address*

Displays information for the IP peer specified by its IP address in IPv4 dotted-decimal notation.

summary

Displays summary information for FNG sessions.

username *user_name*

Displays information for a username within the current context specified as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the section *Regulating a Command's Output* in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for an FNG session.

Example

The following command displays all available FNG sessions.

```
show fng-service session all
```

Important

Command output descriptions are available in the *Statistics and Counters Reference*.

show fng-service statistics

Displays statistics for the FNG since the last restart or clear command. The output includes the number of each type of protocol message. For example, the output includes the various types of EAP messages.

Product

FNG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show fng-service statistics [name *service_name* **| peer-address** *ipv4_address* **]**

name *service_name*

Displays statistics for an existing service name specified as an alphanumeric string of 1 through 63 characters.

peer-address *ipv4_address*

Displays statistics for an IP peer specified by its IP address in IPv4 dotted-decimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the section *Regulating a Command's Output* in the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display FNG statistics.

Important You may use more than one keyword per command line.

Example

The following command displays information about the FNG service.

```
show fng-service statistics
```

Important Command output descriptions are available in the *Statistics and Counters Reference.*

show freeze-ptmsi imsi

Displays the P-TMSI (packet-temporary mobile subscriber identify) corresponding to the IMSI (international mobile subscriber identity) that has entered a frozen state after the purge timeout timer expires.

Product SGSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show freeze-ptmsi imsi** *imsi_num*

imsi *imsi_num*

Specifies the IMSI that has been frozen as a sequence of up to 15 digits. The first three digits are the MCC (mobile country code). The next two or three digits are the MNC (mobile network code). The remaining digits are the MSIN (mobile station identification number).

Usage Guidelines This command enables the operator to know whether a frozen IMSI has an associated P-TMSI.

Example

The following command displays the P-TMSI corresponding to a frozen IMSI:

```
show freeze-ptmsi imsi 262090426000194
```

show ggsn sessmgr

Displays session manager (SessMGR) statistics specific to the gGSN service.

Product

GGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ggsn sessmgr { all | instance` *`smgr_inst`* **`}`**

all

Displays all SessMGR statistics specific to the system's GGSN services.

instance *smgr_inst*

Displays the statistics for a session manager instance of the GGSN service specified as an integer between 1 and 10000000.

Usage Guidelines

Use this command to display information for GGSN services.

Example

The following command displays GGSN SessMGR statistics for all GGSN services on the system:

`show ggsn sessmgr all`

show ggsn-service

Displays configuration information for Gateway GPRS Support Node (GGSN) services on the system.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ggsn-service { all | name` *`ggsn_svc_name`* **`} [ | { grep`** *`grep_options`* **`| more }]`**

all

Displays information for all GGSN services configured with the given context.

name *ggsn_svc_name*

Displays information for an existing GGSN service name specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference*.

Usage Guidelines

This command is used to verify the configuration of one or all GGSN services for monitoring or troubleshooting purposes. The output is a concise listing of GGSN service parameter settings.

If this command is executed from within the local context with the all keyword, information for all GGSN services configured on the system will be displayed.

Example

The following command displays configuration information for a GGSN service called *ggsn1*:

```
show ggsn-service name ggsn1
```

show ggsn-service sgsn-table

Lists all Serving GPRS Support Nodes (SGSNs) by IP addresses and shows the current number of subscribers to each SGSN.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ggsn-service sgsn-table
```

Usage Guidelines

While there are existing commands to show SGSN subscriber information, this command is the only way to list all SGSNs by IP address and show the current number of subscribers to each SGSN.

Example

The following command will bring up a table showing the current active/inactive status, IP address, reboots/restarts and SGSN users.

```
show ggsn-service sgsn-table
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show global-title-translation

Displays configuration information for Global Title Translation (GTT).

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show global-title-translation { address-map { all | instance instance } |
association { all | instance instance } }
```

address-map { all | instance }

Displays configuration information for either the entire GTT address map database or for a specific instance of an address map. *instance* is an integer from 1 to 4096 which uniquely identifies the address map configuration.

association { all | instance }

Displays configuration information for either the entire database of GTT association lists for for a specific instance of GTT association configuration. *instance* is an integer from 1 to 16 which uniquely identifies the GTT association configuration.

Usage Guidelines This command displays the configuration for the GTT address maps and associations.

Example

The following command displays the address map *2047*.

```
show global-title-translation address-map 2047
```

show gmb statistics

Displays the collected statistics for the Gmb reference point. Gmb handles broadcast multicast service center (BM-SC) related signaling, which includes the user specific and bearer service messages for Multimedia Broadcast/Multicast Service (MBMS) service.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show gmb statistics [ apn` *`name`* **`| bmsc-profile`** *`profile_name`* **`] [ | { grep`** *`grep_options`* **`| more }]`**

apn *name*

Displays only the Gmb information for the specified Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters.

bmsc-profile *profile_name*

Displays only the Gmb information for the specified BM-SC profile specified as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference*.

Usage Guidelines

Use this command to display usage statistics for the Gmb reference point.

Example

The following command displays all Gmb statistics:

```
show gmb statistics
```

show gmm-sm statistics

Displays statistics for the GPRS Mobility Management and Session Management (GMM/SM) configuration of the system's SGSN service. GMM/SM supports mobility to allow the SGSN to know the location of a

Mobile Station (MS) at any time and to activate, modify and deactivate the PDP sessions required by the MS for user data transfer.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show gmm-sm statistics [gmm-only | gprs-service *srvc_name* **| iups-service** *srvc_name* **| plmn-id mcc** *mcc* **mnc** *mnc* **[access-type { gprs | umts }] | recovered-values | sgsn-service** *srvc_name* **| sm-only] [verbose] [| { grep grep_options | more }]**

Keywords are presented below. Primary keywords are listed in the order of selection as shown in the syntax. Secondary or filtering keywords are presented alphabetically after the description of the primary keywords.

gmm-only

Displays only GPRS mobility management (GMM) information for other specified keyword parameters for the current context.

gprs-service *srvc_name*

Displays the statistics for an existing 2.5G GPRS service name specified as an alphanumeric string of 1 through 63 characters.

The display request can be narrowed by adding either the **nsei** or **routing-area** filter keywords.

iups-service *srvc_name*

Displays the statistics for an existing IuPS service specified as an alphanumeric string of 1 through 63 characters.

The display request can be narrowed by adding either the **rnc** or **routing-area** filter keywords.

plmn-id mcc *mcc* mnc*mnc* [access-type { gprs | umts }]

Filters the statistics display per PLMN.

Enter the **access-type** keyword to fine-tune the display of the GMM/SM statistics to an aggregate of the IuPS (select access-type UMTS) and/or the GPRS (select access-type GPRS) services belonging to the PLMN.

recovered-values

Only displays recovered values for key KPI counters that were backed-up.

sgsn-service *srvc_name*

Displays the statistics for an existing 3G SGSN service specified as an alphanumeric string of 1 through 63 characters.

The display request can be narrowed by adding either the **rnc** or **routing-area** filter keywords.

sm-only

Displays only session management (SM) information for other specified keyword parameters for the current context.

access-type *type*

Filters the display of service statistics by 2.5G GPRS services or 3G IuPS services for UMTS:

- **gprs**
- **umts**

If this keyword is not included, then statistics for both access types are displayed.

lac *lac_id*

Specifies the location area code (LAC) as part of the identification of the RNC or RA as an integer from 1 through 65535.

mcc *mcc_id*

Specifies the mobile country code (MCC) as part of the identification of the RNC or RA an integer from 100 through 999.

mnc *mnc_id*

Specifies the mobile network code (MNC) as part of the identification of the RNC or RA as a 2- or 3-digit integer from 00 through 999.

nsei *nse_id*

Displays the GMM/SM session statistics for an existing network service entity (NSEI) specified as an integer from 0 to 65535.

rac *rac_id*

Specifies the routing area code (RAC) as part of the identification of the RNC or RA as an integer from 1 through 255.

rnc *rnc_id*

Enter this keyword to fine-tune the display of the GMM/SM session statistics just for the radio network controller (RNC) specified as an integer from 0 through 4095.

routing-area mcc *mcc_id* mnc *mnc_id* lac *lac_id* rac *rac_id*

Enter the **routing-area** keyword to fine-tune the display of the GMM/SM statistics for a specified routing area (RA) identified by the MCC, MNC, LAC and RAC.

verbose

Displays all possible statistics for specified command or keyword.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display usage statistics for the GMM/SM session configurations for SGSN services, including a BSC attaches, activations, and throughput.

Example

The following command displays GMM/SM statistics for a specific routing area defined for the 2.5G SGSN's GPRS service:

```
show gmm-sm statistics gprs-service gprs1 routing-area mcc 123 mcc 131
lac 24 rac 11
```

The following command displays all possible information for GMM/SM statistics:

```
show gmm-sm statistics verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gprsns statistics

Displays the statistics for the 2.5G SGSN's GPRS NS layer (link level).

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show gprsns statistics { msg-stats { consolidated nse nse_id | nse nse_id
} | sns-msg-stats } | { grep grep_options | more }
```

msg-stats

Displays the transmit (Tx) and receive (Rx) message statistics (except for SNS messages) in the statistics output.

consolidated nse *nse_id*

nse_id: Enter an integer from 0 to 65535.

nse *nse_id*

Display statistics for a NSE specified as an integer from 0 to 65535.

sns-msg-stats

Display subnetwork service (SNS) sublayer message statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

This command is used to display Frame Relay statistics configured for the NSE/NSVC with the commands documented in the *Network Service Entity - Peer NSEI Configuration Mode Commands* chapter.

Collected statistics are cleared (deleted) with the **clear gprsns statistics** described in the *Exec Mode Commands (A-C)* chapter.

Example

Use the following command to display the collected message statistics for NSEI *1422*:

```
show gprsns statistics msg-stats nse 1422
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gprsns status

Displays the status of the network service virtual circuits (NSVC) for the GPRS NS layer (link level).

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show gprsns status { nsvc-status-all nse nse_id | nsvc-status-consolidated
 nse nse_id | nsvc-status-per-bvci bvci bvc_id nse nse_id } | { grep grep_options
 | more }
```

nsvc-status-all nse { all | nse*nse_id* }

Displays status information for all NSVCs included in the NSE specified as an integer from 0 to 65535.

nsvc-status-consolidated nse *nse_id*

nsvc-status-per-bvci bvci *bvc_id* nse *nse_id*

bvc_id is an integer from 0 to 65535.

nse_id is an integer from 0 to 65535.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

This command is used to display the status of the NSVC.

Example

Use the following command to display status of all NSVC for NSE 1422:

```
show gprsns status nsvc-status-all nse 1422
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gprs-service

Displays the statistics for GPRS services.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show gprs-service { all | name gprs_srvc_name } [ nsei { all | id nse_id } |
 { grep grep_options | more } ]
```

all

Instructs the SGSN to display information for all GPRS services configured with this context.

name *gprs_srvc_name*

Instructs the SGSN to display information for the specified GRPS service.

gprs_srvc_name is a case-sensitive string of 1 to 63 characters, any combination of letters, digits, dots (.) and dashes (-) that identifies a specific GPRS service.

nsei { all | id }*nse_id*

Instructs the SGSN to display network service entity information for either a specific NSEI or for all NSEI configured for the specified GRPS service(s).

nse_id is an integer from 0 to 65535.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Reference.

Usage Guidelines

This command is used to verify the configuration of one or all GPRS services for monitoring or troubleshooting purposes. The output is a concise listing of GPRS service parameter settings.

If this command is executed from within the local context with the all keyword, information for all GPRS services configured on the system will be displayed.

Example

The following command displays configuration information for all GPRS services configured in this context:

```
show gprs-service all
```

Use a command similar to the following to display statistics for NSEI *4257* for the GPRS service named *London2*:

```
show gprs-service name London2 nsei id 4257
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gprsssf

Displays statistics for various 3GPP Customised Applications for Mobile network Enhanced Logic (CAMEL) service GPRS Service Switching Function (gprsSSF) entities.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show gprsssf { counters | statistics } [camel-service *srvc_name* **| gprs [2g-sgsn-app | 3g-sgsn-app] | gsmscf-address { *address* | all } | sms] [| { grep | more }]**

counters

Displays collected status counter information for CAMEL service entities.

statistics

Displays collected statistics for CAMEL service entities.

camel-service *srvc_name*

Filters the display of counters and statistics for an existing CAMEL service name in the SGSN configuration specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

gprs [2g-sgsn-app | 3g-sgsn-app]

Filters the counter/statistic output to display GPRS protocol information specific to either the 2.5G or 3G SGSN.

gsmscf-address { *address* | all }

The GSM service control function (gsmSCF) address is the ISDN address of the SCP where the CAMEL service resides. It is possible to display information for one or all of the configured CAMEL services.

address is a standard ISDN E.164 address of 1 to 15 digits.

sms

Filters the display of counters and statistics for SMS protocol information.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to display CAMEL service status counter information and statistics collected since the last restart or clear command. If filters are not included with the command, then all statistics or counters are displayed for all CAMEL services in all contexts in which CAMEL services have been defined.

Collected statistics are cleared (deleted) with the **clear gprsssf statistics** command described in the chapter *Exec Mode Commands (A-C)*.

Example

Use the following command to display the status counter totals of the GPRS Dialogue parameters for a 3G SGSN:

```
show gprsssf counter gprs 3g-sgsn-app
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gs-service

Displays configuration information and statistics for Gs services configured on system.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show gs-service { all | name *svc_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information for all Gs services configured with in the given context.

name *svc_name*

Displays information for an existing Gs service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Reference.

Usage Guidelines

This command is used to verify the configuration of one or all Gs services for monitoring or troubleshooting purposes.

If this command is executed from within the local context with the all keyword, information for all Gs services configured on the system will be displayed.

Example

The following command displays configuration information for all Gs services configured on a system:

```
show gs-service all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpc

Displays GPRS Tunnelling Protocol-Control (GTPC) information for GTPv0, GTPv1-C, GTPv1-U with filtering options.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show gtpc [full | counters | summary] { all | apn *apn_name* **| imsi***imsi_value* **[nsapi** *nsapi_value* **] | callid** *callid* **| sgsn-address** *ip_address* **| ggsn-service** *ggsn_name* **| user-address** *ip_address* **| username** *username* **}**

[full | counters | summary]

Specifies the level of information to be displayed. The following levels can be used:

- **full**: Indicates detailed information is to be displayed.
- **counters**: Indicates the output is to include the statistical counters.
- **summary**: Indicates only summary information is to be displayed.

{ all | apn *apn_name* | imsi *imsi_value* [nsapi *nsapi_value*] | callid *callid* | sgsn-address *ip_address* | ggsn-service *ggsn_name* | user-address *ip_address* | username *username* }

Specifies the filter criteria used when displaying GTP information. The following filters can be used:

- **all**: Specifies that all available information is to be displayed.
- **apn** *apn_name*: Specifies that GTP information for an APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
- **imsi** *imsi_value* **[nsapi** *nsapi_value* **]**: Displays GTP information for an International Mobile Subscriber Identity (IMSI) specified as an integer from 1 through 15 characters. Optionally, the IMSI could be further filtered by specifying a particular PDP context using the Network Service Access Point Identifier (NSAPI) expressed as an integer from 5 through 15.

Important In release 18.2 and later, this command option has been deprecated.

- **callid** *callid*: Displays GTP information for a call identification number specified as a 4-digit hexadecimal number.

Important In release 18.2 and later, this command option has been deprecated.

- **sgsn-address** *ip_address*: Displays GTP information for an SGSN specified by its IP address in IPv4 dotted-decimal notation.
- **ggsn-service** *ggsn_name*: Displays GTP information for an existing GGSN service specified an alphanumeric string of 1 through 63 characters that is case sensitive.
- **user-address** *ip_address*: Displays GTP information for a user PDP context specified as an IP address in IPv4 dotted-decimal notation.

Important In release 18.2 and later, this command option has been deprecated.

- **username** *username*: Displays GTP information for a username specified as an alphanumeric string of 1 through 127 characters (including wildcards '$' and '*') that is case sensitive.

Important In release 18.2 and later, this command option has been deprecated.

Usage Guidelines

This command displays statistics for every GTP message type based on the filter criteria. This information is useful for system monitoring or troubleshooting.

Example

The following command displays GTPC counters for a GGSN service named *ggsn1*:

```
show gtpc counters ggsn-service ggsn1
```

The following command displays GTPC full information:

```
show gtpc full
```

The following command displays GTPC summary information for a specific call identification number of *05f62f34*:

```
show gtpc summary callid 05f62f34
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpc statistics

Displays GTPv0, GTPv1-C, GTPv1-U statistics with filtering options.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show gtpc statistics [[custom1 | custom2] [apn *apn_name* **| ggsn-service** *ggsn_service_name* **| mseg-service** *mseg_service_name* **| sgsn-address** *ipv4_address* **] [[verbose] format1] [| { grep** *grep_options* **| more }]**

custom1

Displays statistics of GTP-C messages for preservation mode and free of charge service.

This keyword is customer specific and license enabled. For more information, contact your Cisco sales representative.

custom2

Displays statistics for GTP-C messages related to overcharging protection on loss of radio coverage for a GGSN service.

This keyword is feature specific and license enabled. For more information, contact your Cisco sales representative.

apn *apn_name*

Displays GTP-C statistics for an existing APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

ggsn-service *ggsn_service_name*

Displays GTP-C statistics for an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

mseg-service *mseg_service_name*

Important This keyword is not supported in this release.

sgsn-address *ipv4_address*

Displays GTP statistics for an SGSN specified by its IP address in IPv4 dotted-decimal notation.

verbose

Displays detailed instead of concise statistics.

format1

Displays more detailed statistical breakouts.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

The information displayed by this command consists of session statistics such as the number of currently active sessions categorized by PDP context type, and statistics for every GTP message type. The statistics are cumulative.

If the verbose keyword is used, additional information will be displayed such as statistics for every type of error code.

Example

The following command displays verbose GTP statistics:

```
show gtpc statistics verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpp

Displays information on the GPRS Tunneling Protocol Prime (GTPP) for the selected charging gateway function (CGF) or GCDR storage server.

Product

GGSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show gtpp { accounting | counters { all | cgf-address | group } | group
{ all | name } | statistics { cgf-address | group } | storage server {
counters | group | local | statistics | status | streaming } } [ | { grep
 grep_options | more } ]
```

Usage Guidelines

This command displays the GTPP related information for the selected CGF or the G-CDRs storage server.

If this command is issued from within the local context, information for all GTPP accounting servers configured on the system is displayed regardless of context.

Example

The following command displays the GTPP counters for all the servers:

```
show gtpp counters all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpp accounting

Displays information on the GPRS Tunneling Protocol Prime (GTPP) accounting server configuration.

Product

GGSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show gtpp accounting servers { group name group_name } [ | { grep grep_options
 | more } ]
```

group name *group_name*

Displays information and CDR statistics for an existing GTPP server group name specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command is used to view the status of GTPP accounting servers configured within a context for monitoring or troubleshooting purposes.

If this command is issued from within the local context, information for all GTPP accounting servers configured on the system is displayed regardless of context.

Example

The following command displays the status of and information on configured GTPP accounting servers:

```
show gtpp accounting servers
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpp counters

Displays GTPP counters for configured Charging Gateway Functions (CGFs) within the given context.

Product

ePDG

GGSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show gtpp counters { all [gcdrs] | cgf-address *ipv4/ipv6_address* **[gcdrs | port** *port_num* **] | group name** *group_name* **} [| { grep** *grep_options* **| more }]**

all

Displays counters for all CGFs configured within the context.

cgf-address *ipv4/ipv6_address* [gcdrs | port *port_num*]

Displays counters for a CGF specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

gcdrs: Displays G-CDR specific GTPP counters only.

port *port_num*: Specifies the port number of CGF server. The port number must be an integer ranging from 1 to 65535.

This optional keyword is introduced to ease the identification of product specific CDRs. This configuration provides the flexibility to send ePDG, SaMOG and P-GW LBO CDRs to the same CGF server on different ports.

When port is specified along with the IP address, this command displays the GTPP counters for the specified CGF server IP address and port. If port is not provided, then it will show the accumulated counters for all CGF servers with the specified IP address.

group name *group_name*

Displays counters for a GTPP server group name specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Counters for a single CGF can be viewed using the **cgf-address** keyword. Counters for all CGFs in the context can be viewed by entering the command with the **all** keyword.

If this command is issued from within the local context and no CGF-address is specified, the counters displayed will be cumulative for all CGFs configured on the system regardless of context.

Example

The following command displays counters for all CGF servers:

```
show gtpp counters all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpp group

Displays information pertaining to the configured GTPP storage server group.

Product

GGSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show gtpp group { name *gtpp_group_name* **| all } [| { grep** *grep_options* **| more }]**

name *gtpp_group_name*

Displays information and CDR statistics for an existing GTPP server group name specified as an alphanumeric string of 1 through 63 characters.

all

Displays statistics for all configured GTPP storage server groups, including default group.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the CDR statistics on the basis of GTPP server groups. It shows the information for all or specific GTPP server group configured in the context from which this command is issued.

Example

The following command displays the status of the GTPP server group backup server configured in a context called *GTPP_Group1*:

show gtpp group name GTPP_Group1

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpp statistics

Displays GTPP statistics for configured Charging Gateway Functions (CGFs) within the context.

Product

ePDG

GGSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show gtpp statistics { cgf-address *ipv4/ipv6_address* **[port** *port_num* **] | group name** *group_name* **} [| { grep** *grep_options* **| more }]**

cgf-address *ipv4/ipv6_address* [port *port_num*]

Displays statistics for a CGF specified by its IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

port *port_num*: Specifies the port number of CGF server. The port number must be an integer ranging from 1 to 65535.

This optional keyword is introduced to ease the identification of product specific CDRs. This configuration provides the flexibility to send ePDG, SaMOG and P-GW LBO CDRs to the same CGF server on different ports.

When the port is specified, this command displays statistics of GTPP messages sent/received by CGF server IP address and specified port. If port is not provided then it will show the accumulated statistics for all CGF servers with the specified IP address.

group name *group_name*

Displays server statistics information of an existing GTPP server group name specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Statistics for a single CGF can be viewed by specifying its IP address. Statistics for all CGFs in the context can be viewed by **not** specifying an IP address.

If this command is issued from within the local context, the statistics displayed will be cumulative for all CGFs configured on the system regardless of context.

Example

The following command displays statistics for a CGF with an IP address of *192.168.1.14*:

```
show gtpp statistics cgf-address 192.168.1.14
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpp storage-server

Displays information pertaining to the configured GTPP storage server (GSS).

Product

GGSN

P-GW

SAEGW

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show gtpp storage-server [counters { all | group name *group_name* **} | group name** *group_name* **| local file { counters { all | group name** *group_name* **} | statistics [group name** *group_name* **] } | status { group name** *group_name* **| verbose } | streaming file { counters { all | group name** *group_name* **} | statistics [group name** *group_name* **] }] [| { grep** *grep_options* **| more }]**

counters

Displays counters for the external GTPP storage server.

group name *group_name*

Displays GTPP backup server information for the group name specified as an alphanumeric string of 1 through 63 characters.

local file

Displays statistics and counters for the local storage-server. This is the hard disk if hard disk support has been enabled with the **gtpp storage-server mode** command in the GTPP Group Configuration Mode.

statistics

Displays statistics for the GTPP storage server.

status [verbose]

Displays status of the GTPP storage server. **verbose** enables the detailed view.

streaming

Displays the status of Charging Data Record (CDR) backup on HDD while streaming mode is enabled.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Executing this command with no keywords displays status information for the GTPP backup server configured in the context from which this command is issued.

Example

The following command displays the GTPP CDR file statistics stored on the local SMC hard disk.

```
show gtpp storage-server local file counters all
```

The following command displays the status of the GTPP backup server configured in a context called ggsn1:

```
show gtpp storage-server
```

The following command displays statistics for the GTPP backup server configured in a context called ggsn1:

```
show gtpp storage-server statistics
```

The following command displays GCDR storage server counters:

```
show gtpp storage-server counters
```

The following command displays GCDR storage server status:

```
show gtpp storage-server status
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show gtpu

Displays GPRS Tunneling Protocol user plane (GTP-U) statistics and counters on this system.

Product

ePDG

P-GW

SAEGW

SGSN

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show gtpu { local-addresses | statistics [[gtpu-service *gtpu_service_name* **] [gtpumgr-instance** *gtpumgr_instance* **| local-address** *ipv4/ipv6_address* **| mseg-service** *mseg_service_name*| **peer-address** *ipv4/ipv6_address* **]] [| { grep** *grep_options* **| more }] }**

local-addresses

Displays the number of sessions on all GTPU local addresses in all GTPU services.

statistics

Diplays all GTP-U statistics on all GTP-U services. Refine the display by including one of the filters listed below.

gtpu-service *gtpu_service_name*

Displays GTP-U statistics for an existing GTP-U service specified s an alphanumeric string of 1 through 63 characters.

gtpumgr-instance *instance_number*

Displays information for an existing GTP-U manager instance specified as an integer from 1 through 4294967295.

local-address *ipv4/ipv6_address*

Displays subsriber statistics and counters in the current active session per local GTPU IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation in a GTPU service.

mseg-service *mseg_service_name*

Important This keyword is not supported in this release.

peer-address *ipv4/ipv6_address*

Displays GTP-U statistics and counters for an existing peer IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference Guide*.

Usage Guidelines

Use this command to view statistics and counters for GTP-U traffic on this system. Refine the statistics display by including a filter with the command.

Important The **show gtpu statistics** command should be given from the local context only; issuing the command from any other context will result in an error message.

Example

The following command displays statistics for the GTP-U service named *gtp1*:

```
show gtpu statistics gtpu-service gtp1
```

The following command displays active sessions on all local-addresses categorisied by GTPU service:

```
show gtpu local-addresses
```

The following command displays statistics for local GTPU address *168.123.123.1*:

```
show gtpu statistics local-address 168.123.123.1
```

show gtpu-service

Displays configuration information for GPRS Tunneling Protocol user plane (GTP-U) services on this system.

Product

ePDG

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show gtpu-service { all | name service_name } [ | { grep grep_options | more } ]
```

all

Displays configuration information for all GTP-U services configured on this system.

name *service_name*

Displays configuration information for an existing GTP-U service specified an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference Guide*.

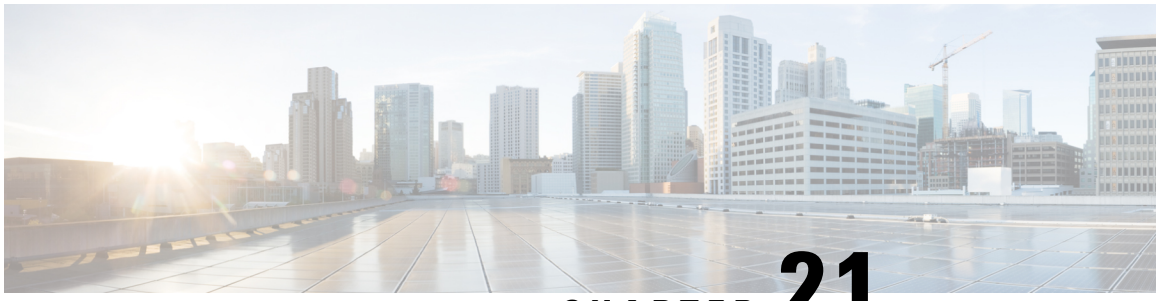
Usage Guidelines

Use this command to view configuration information for GTP-U services on this system.

Example

The following command displays service statistics for the GTP-U service named *gtpu1*:

```
show gtpu-service name gtpu1
```



CHAPTER 21

Exec Mode show Commands (H-L)

The Exec Mode is the initial entry point into the command line interface system. Exec mode **show** commands are useful in troubleshooting and basic system monitoring.

Command Modes

This section includes the commands **show ha-service** through **show lte-policy**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

show ha-service

Displays information on configured Home Agent (HA) services.

Product

HA

Privilege

Security Administrator Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ha-service { all | name` *`ha_name`* **`} [ | { grep`** *`grep_options`* **`| more } ]`**

all | name *ha_name*

all: Displays information on all Home Agent services.

name *ha_name*: Displays information for an existing HA service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display home agent service configuration information.

Example

The following commands displays information on the HA service *sampleService* and all services, respectively.

```
show ha-service name sampleService
show ha-service all
```

show ha-spi-list

Displays all or a specific Home Agent-Security Parameters Index (HA-SPI) remote address list(s).

Product

HA

Privilege

Security Administrator Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ha-spi-list { all | name *ha_name* **} [| { grep** *grep_options* **| more }]**

all | name *ha_name*

all: Displays information on all HA-SPI lists.

name *ha_name*: Displays information for an existing HA-SPI list specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display a single or all HA-SPI lists.

Example

The following commands displays information on the HA-SPI list named *spi012* and all lists, respectively.

```
show ha-spi-list name spi012
show ha-spi-list all
```

show hardware

Displays information on the system hardware.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show hardware { card [ card_num ] | inventory | version [ board | diags | fans] } [ | { grep grep_options | more } ]`

card [*card_num*]

Provides the hardware information for all ASR 5x00 cards or the card specified by *card_num*. *card_num* must be a value in the range 1 through 48 for the ASR 5000 or 1 through 20 for the ASR 5500 and must refer to an installed card.

inventory

Displays the ASR 5x00 hardware information for all slots in tabular format.

version [board | diags | fans]

Displays the CPU information for all ASR 5x00 application cards and fan controller version for the upper and lower fan trays.

board: Only include the CPLD and FPGA version information.

diags: Only include the CFE diagnostics version information.

fans: Show the fan controller versions for the upper and lower fan trays.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Show the hardware information and hardware component versions.

Example

The following displays the hardware information for a card installed in slot *1*.

`show hardware card 1`

The following command displays the hardware inventory for the entire chassis.

show hardware inventory

The following command results in the display of the CPU version for all application cards displaying only the CPLD and FPGA information.

show hardware version board

The following command displays VPC virtual card information:

show hardware

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show hd raid

Shows the output of the Redundant Array of Independent Disks (RAID) established on the ASR 5000 SMCs or ASR 5500 FSCs.

Product

All

Privilege

Security Administrator, Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show hd raid [verbose]

Example

The following command displays HD RAID configuration information:

show hd raid verbose

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show hd-storage-policy

Displays Array Configuration Replicator (ACR) counter and statistical information.

Product

HSGW

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show hd-storage-policy { all | counters [ all ] [ name name ] [ verbose ] | name name | statistics [ all ] [ name name ] [ verbose ] }`

all

Displays ACR information for all HD storage policies configured on the system.

counters [all] [name *name*] [verbose]

all: Displays ACR counter information for all HD storage policies configured on the system.

name *name*: Displays ACR counter information for an existing HD storage policy specified as an alphanumeric string of 0 through 63 characters.

statistics [all] [name *name*] [verbose]

all: Displays ACR statistical information for all HD storage policies configured on the system.

name *name*: Displays ACR statistical information for an existing HD storage policy specified as an alphanumeric string of 0 through 63 characters.

verbose

Displays HD storage statistics based on instance.

Usage Guidelines

Use this command to display ACR counter and statistic information.

Example

The following command displays ACR statistical information for an HD storage policy named *pgwsgw*:

`show hd-storage-policy statistics name pgwsgw`

show henbgw

Important

In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

This command displays Home evolved NodeB Gateway (HeNBGW) service related information.

Product HeNBGW

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show henbgw { henb-association [all | full | henbgw-access-service *henbgw_acc_svc_name* **| peer-address** *peer_ip_address* **| peer-id** *peer_id_value* **| summary] | session [all | callid** *call_id* **| full [all | callid** *call_id* **| qci** *qci_value* **| s1-peer** *s1_peer_address* **] | qci** *qci_value* **| s1-peer** *s1_peer_address* **| summary [all | callid** *call_id* **| qci** *qci_value* **| s1-peer** *s1_peer_address* **]]| ue [all | summary] [| { grep grep_options | more }] }**

henb-association [all | full | henbgw-access-service *henbgw_acc_svc_name* | peer-address *peer_ip_address* | peer-id *peer_id_value* | summary]

henb-association : Displays information about HENB associations.

all: Displays information for all HeNB associations.

full: Displays all available information for associated display or filter keyword (previous keyword).

henbgw-access-service: Displays information about HeNB associations with the specified HeNBGW access service.

henbgw_acc_svc_name is an alphanumeric string of 1 through 63 characters.

peer-address: Displays information about HeNB associations with the specified peer.

peer_ip_address is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.

peer-id: Displays information about HeNB associations for the specified peer.

peer_id_value is an integer from 0 to 4294967295.

summary: Displays a summary of available information for the associated keyword (previous keyword).

session

Displays HeNBGW sessions.

all

Displays information for all HeNB sessions.

call-id*call_id*

call-id: Specifies a Call Identification Number. *call_id* is an eight-digit hexadecimal number.

full

Displays information on session state for matching sessions.

qci *qci_value*

call-id: Displays information for the HeNB associated with a specific QCI value. *qci_value* is an integer between 1 and 9.

s1-peer *s1_peer_address*

s1-peer: a specific S1 peer identified by the IP address of a peer eNodeB.

s1_peer_address is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.

summary

This command displays summary information covering matching sessions.

ue

Displays UE information.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to displays HeNBGW service related information.

Example

The following command displays information for all HeNB associations :

```
show henbgw henb-association all
```

show henbgw-access-service

Important

In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

This command displays HeNBGW Access service related information.

Product

HeNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show henbgw-access-service { all | henb-association [all | csg-id *csg_id_value*| **full | henbgw-access-service** *henbgw_acc_svc_name* **| peer-address** *peer_ip_address* **| peer-id** *peer_id_value* **| summary | tai mcc** *mcc_val* **mnc** *mnc_val* **tac] | name** *name* **| statistics [henbgw-access-service** *henbgw_acc_svc_name* **| miscellaneous [verbose] | peer-id** *peer_id_value***s1ap [cause | [verbose]] | sctp [buffer [sessmgr** *sessmgr_value*] **] [verbose]] [| { grep grep_options | more }]}**

henb-association [all | csg-id *csg_id_value*| full | henbgw-access-service *henbgw_acc_svc_name* | peer-address *peer_ip_address* | peer-id *peer_id_value* | summary | tai mcc *mcc_val* mnc *mnc_val* tac] | name *name*

henb-association : Displays information about HeNB associations.

all: Displays information about all HeNBGW Access services.

csg-id: Displays information about HeNB associations for the specified CSG ID.

csg_id_value is an integer between 0 and 4294967295.

full: Displays all available information for associated display or filter keyword (previous keyword).

henbgw-access-service: Displays information about HeNB associations with the specified HeNBGW Access service.

henbgw_acc_svc_name is an alphanumeric string of 1 through 63 characters.

peer-address: Displays information about HeNB associations with the specified peer.

peer_ip_address is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.

peer-id: Displays information about HeNB associations for the specified peer.

peer_id_value is an integer from 0 to 4294967295.

summary: Displays a summary of available information for associated display or filter keyword (previous keyword).

tai: Displays information about HeNB associations for the specified TAI.

mcc: Specifies a Mobile Country Code (MCC) as a three-digit number between 100 to 999.

*mcc_val*is MCC value. MCC values of 000-099 are Reserved codes.

mnc: Specifies the Mobile National Code (MNC).

*mnc_val*is MCC a two- or three-digit number between 00 to 999.

tac: Displays information about HeNB associations for the specified Type Allocation Code (TAC).

miscellaneous : Displays all available information for associated display or filter keyword (previous keyword).

name*name* statistics [henbgw-access-service *henbgw_acc_svc_name* | miscellaneous [verbose] | peer-id *peer_id_value*s1ap [cause | [verbose]] | sctp [buffer [sessmgr *sessmgr_value*

name: Displays information for specific HeNBGW Access service name.

name: is an alphanumeric string of 1 through 63 characters.

statistics: Displays HeNBGW Access service statistics

miscellaneous : Displays Miscellaneous statistics.

s1ap: Displays S1AP statistics.

cause: Displays S1AP cause statistics.

sctp: Displays SCTP statistics.

buffer: Displays SCTP TX/RX buffer statistics.

sessmgr: Displays SCTP TX/RX buffer statistics on a specific sessmgr.

verbose: Specifies the verbosity.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display HeNBGW Access service related information.

Example

The following command displays S1AP statistics:

```
show henbgw-access-service statistics s1ap
```

show henbgw-network-service

Important

In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

This command displays configuration for HeNBGW Network service.

Product

HeNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show henbgw-network-service { all | mme-association [ all | full |
henbgw-network-service  henbgw_net_svc_name | peer-address peer_ip_address  |
peer-id peer_id_value | summary ]  | name name | statistics [
henbgw-network-service henbgw_net_svc_name | peer-id peer_id_value | s1ap [
```

cause | [verbose]] | sctp [buffer [henbgwmgr *henbgwmgr_value*]] [**verbose]] [| { grep grep_options | more }] }**

henb-association [all | csg-id *csg_id_value*| full | henbgw-access-service *henbgw_acc_svc_name* | peer-address *peer_ip_address* | peer-id *peer_id_value* | summary] | name *name*

mme-association : Displays information about MME associations.

all: Displays all HeNBGW Network services.

full: Displays all available information for associated display or filter keyword (previous keyword).

henbgw-network-service: Displays information about HeNB associations with the specified HeNBGW Network service.

henbgw_net_svc_name is an alphanumeric string of 1 through 63 characters.

peer-address: Displays information about HeNB associations with the specified peer.

peer_ip_address is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.

peer-id: Displays information about HeNB associations for the specified peer.

peer_id_value is an integer from 0 to 4294967295.

summary: Displays a summary of available information for the associated display or filter keyword (previous keyword).

name*name*statistics [henbgw-network-service *henbgw_net_svc_name* | peer-id *peer_id_value*s1ap [cause | [verbose]] | sctp [buffer [henbgwmgr *sessmgr_value*

name: Displays information for specific HeNBGW Network service name.

name: is an alphanumeric string of 1 through 63 characters.

statistics: Displays statistics for specified object.

s1ap: Displays S1AP statistics.

cause: Displays S1AP cause statistics.

sctp: Displays SCTP statistics.

buffer Displays SCTP TX/RX buffer statistics.

henbgwmgr: Displays SCTP TX/RX buffer statistics on a specific henbgwmgr.

verbose: Specifies the verbosity.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display HeNBGW Network service related information.

Example

The following command displays S1AP Cause statistics :

show henbgw-network-service statistics s1ap cause

show hexdump-module

This command displays hexdump module related information.

Product

ePDG

SaMOG

Privilege

Administrator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show hexdump-module { file-space-usage | statistics } [| { grep *grep_options* **| more }]**

file-space-usage

Displays information about the file space usage of hexdump records.

statistics

Displays information on various statistics related to hexdump records.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display hexdump module related information.

Example

The following command displays information about the file space usage of hexdump records:

show hexdump-module file-space-usage

show hnbgw access-control-db

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the white list of IMSI records in the Access Control database residing on Home NodeB Gateway (HNB-GW) service instances that control HNB and UE access to HNB-GW sessions.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show hnbgw access-control-db { hnbgw-service *hnbgw_svc_name* **| imsi** *imsi_value***}**

hnbgw-service *hnbgw_svc_name*

Displays Access Control database records for an existing HNB-GW service specified as an alphanumeric string of 1 through 63 characters.

Note This keyword is not supported in StarOS 14.0 and higher releases.

imsi *imsi_value*

Specifies the International Mobile Subscriber Identification (IMSI) number which is found on the Access Control database for he HNB-GW service.

imsi_value is an integer consisting of the 3-digit MCC (Mobile Country Code), the 2- or 3-digit MNC (Mobile Network Code) followed by the MSIN (Mobile Subscriber Identification Number). The total IMSI value must not exceed 15 digits.

Usage Guidelines

This command displays the white list IMSI records in an Access Control database residing on a system support all Home-NodeB Gateway (HNB-GW) service instances. The white list controls HNB and UE access to HNB-GW sessions. Access Control database records can be filtered by IMSI value.

Example

The following command displays the information for registered IMSIs and their status in the HNB-GW database:

show hnbgw access-control-db imsi

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show hnbgw counters

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the session counter information for Home-NodeB Gateway (HNB-GW) services connected on this system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show hnbgw counters [ hnbgw-service` *`hnbgw_svc_name`* **`| hnbid`** *`hnb_identifier`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

hnbgw-service *hnbgw_svc_name*

Filters the counter display based on an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

hnbid *hnb_identifier*

Filters the counter display based on a Home-NodeB identifier specified as an alphanumeric string of 1 through 255 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session counter information for HNB-GW services configured and HNBs connected on this system.

Example

The following command displays the counters for the HNB-GW service named *hnbgw1*:

show hnbgw counter hnbgw-service hnbgw1

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show hnbgw-global

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the global configuration parameters for configured HNBGW service(s) on this system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show hnbgw-global

Usage Guidelines

Use this command to view the global configuration parameters set for all HNBGW service(s) on this system.

Example

The following command displays the global configuration parameters applicable for all HNBGW services configured on this system:

show hnbgw-global

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show hnbgw sessions

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the active/dormant session information about registered HNB(s) on Home-NodeB Gateway (HNB-GW) service instances configured and running on this system based on different filter criteria.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show hnbgw sessions [**full** | **summary**] [**all**] [**address** *hnb_ip_address* | **cell-id** *cell_id* | **hnb-access-mode** {**closed| hybrid | open** } | **hnb-local-id** *hnb_id* | **hnbgw-service** *hnbgw_svc_name* [**hnb-access-mode** { **closed | hybrid | open** }]| **hnbid** *hnb_glbl_id* | **mcc** *mcc* | **mnc** *mnc* [**lac** *lac* | **rac** *rac* | **rnc** *rnc*]] [| {**grep** *grep_options* | **more** }]

full

Displays the full information for a specific registered HNB session(s) on an HNB-GW service instance running on the system. The display can be filtered based on given filtering criteria.

summary

Displays summarized information for a specific registered HNB session(s) on an HNB-GW service instance running on the system. The display can be filtered based on given filtering criteria.

all

Displays summarized information for all registered HNB sessions on an HNB-GW service instance running on the system. The display can be filtered based on given filtering criteria.

address *hnb_ip_address*

Filters the display of full or summarized session statistics to show only HNB session(s) based on the registered HNB IP address expressed in IPv4 dotted-decimal notation.

cell-id *cell_id*

Filters the display of full or summarized session statistics to show only HNB session(s) based on the registered Femto cell ID where the user/subscriber is geographically located. and must be an integer from 0 through 268435455.*cell_id* is an integer from 0 through 268435455.

hnb-access-mode {closed | open | hybrid }

Filters the display of full or summarized session statistics to show only HNB session(s) based on the HNB access mode in an HNB-GW service instance.

- **closed** filters the session statistics for closed HNBs connected with HNB-GW service instance in Closed Access mode.
- **hybrid** filters the session statistics for hybrid HNBs connected with HNB-GW service instance in Hybrid Access mode.

- **open** filters the session statistics for open HNBs connected with HNB-GW service instance in Open Access mode.

hnb-local-id *hnb_id*

Filters the display of full or summarized session statistics to show only HNB session(s) based on the registered local ID of HNB specified as an integer from 1 through 25.

hnbgw-service *hnbgw_svc_name*

Filters the display of session statistics to show only registered HNB session(s) based on an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

This can be further filtered by using access-mode criteria: Closed, Hybrid, or Open.

hnbid *hnb_glbl_id*

Displays summarized or full information of HNB session(s) based on the registered global ID of HNB specified as an integer between 1 through 255.

mcc *mcc*

Displays summary information of HNB session(s) based on the registered Mobile Country Code (MCC) identification number of the UE specified as an integer between 101 through 999.

mnc *mnc*

Displays summarized or full information of HNB session(s) based on the registered Mobile Network Code (MCC) identification number of the UE specified as a 2- or 3-digit integer between 00 through 999.

lac *lac*

Displays summarized or full information for HNB session(s) based on the registered Location Area Code (LAC) identification number of the UE specified as an integer between 1 through 65535.

rac *rac*

Displays summarized or full information for HNB session(s) based on the registered Radio Access Code (RAC) identification number of the UE specified as an integer between 1 through 255.

rnc *rnc*

Displays summarized or full information for HNB session(s) based on the registered Radio Network Code (RAC) identification number of the HNB specified as an integer between 1 through 65535.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session statistics of all or specific registered HNB session(s) or in selected part of user session for HNB-GW services configured and running on this system.

Example

The following command displays summarized session statistics for all registered HNBs on the HNB-GW service named *hnbgw1*:

```
show hnbgw sessions summary hnbgw-service hnbgw1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show hnbgw statistics hnbgw-service

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the session statistics for Home-NodeB Gateway (HNB-GW) services configured and running on this system.

Product

HNB-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show hnbgw statistics [ gtpu-only ] [ hnb-access-mode { closed | hybrid
| open }] [ hnbgw-service hnbgw_svc_name [ gtpu-only | hnb-access-mode {
closed | hybrid | open } | hnbap-only | ipne-only | paging-only |
ranap-only | rtp-only | rua-only | sabp-only | sctp-only ] ] [ hnbid
hnb_identifier ] [ hnbap-only | ipne-only | paging-only |ranap-only | rua-only
 | sccp-only | sctp-only ] ] [ verbose] [ | { grep grep_options | more } ]
```

gtpu-only

Displays Forwarded GTPU Pkt statistics for selected HNB/HNBGW Service.

hnb-access-mode { closed | hybrid | open }

Displays the session statistics of an existing HNB-GW service based on access mode filters. Other supported filters are:

- **closed**: shows the statistics of only those UEs which are connected through Closed HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

- **hybrid**: shows the statistics of only those UEs which are connected through Hybrid HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.
- **open**: shows the statistics of only those UEs which are connected through Open HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

hnbgw-service *hnbgw_svc_name*

Filters the display of session statistics for an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

hnbap-only

Filters the display of session statistics to show only Home NodeB Application Part (HNBAP) traffic for the selected HNB-GW service which is configured and running on this system.

ipne-only

Filters the display of session statistics to show only IPNE for selected HNBGW Service which is configured and running on this system.

paging-only

Filters the display of Paging statistics for selected HNBGW Service.

ranap-only

Flitters the display of session statistics t to show only Radio Access Network Application Protocol (RANAP) traffic for the selected HNB-GW service which is configured and running on this system.

rua-only

Filters the display of session statistics to show only RANAP User Adaptation (RUA) traffic for the selected HNB-GW service which is configured and running on this system.

sccp-only

Filters the display of session statistics to show only Signaling Connection Control Part (SCCP) traffic for the selected HNB-GW service which is configured and running on this system.

sctp-only

Filters the display of session statistics to show only Stream Control Transmission Protocol (SCTP) traffic for selected HNB-GW service which is configured and running on this system.

verbose

Displays detailed statistics for all sessions on HNB-GW services or for a selected filtered and named HNB-GW service which is configured and running on this system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session statistics for overall session or in selected part of user session for HNB-GW services configured and running on this system.

Example

The following command displays session statistics for the HNBAP part of session details for the HNB-GW service named *hnbgw1*:

```
show hnbgw statistics hnbgw-service hnbgw1 hnbap-only
```

The following command displays session statistics for the RANAP part of session with maximum details for the HNB-GW service named *hnbgw1*:

```
show hnbgw statistics hnbgw-service hnbgw1 ranap-only verbose
```

show hnbgw statistics hnbid

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the session statistics for Home-NodeB (HNB) connected to an HNB-GW service on this system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show hnbgw statistics hnbid *hnb_identifier* **[hnbap-only | ranap-only | rua -only] [verbose] [| { grep** *grep_options* **| more }]**

hnbid *hnb_identifier*

Filters the display of session statistics based on an existing Home-NodeB identifier specified as an alphanumeric string of 1 through 255 characters.

hnbap-only

Filters the display of session statistics display to show only Home NodeB Application Part (HNBAP) traffic for the selected HNB which is connected to this system through HNB-GW service.

ranap-only

Filters the display of session statistics display to show only Radio Access Network Application Protocol (RANAP) traffic for the selected HNB which is connected to this system through HNB-GW service.

rua-only

Filters the display of session statistics display to show only RANAP User Adaptation (RUA) traffic for the selected HNB which is connected to this system through HNB-GW service.

verbose

Displays detailed statistics for all HNB sessions or for the selected filter and HNB which is connected to this system through HNB-GW service.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session statistics for overall session or in selected part of user session for selected HNB which is connected to this system through HNB-GW service.

Example

The following command displays session statistics for the HNBAP part of session details for the HNB identified as *hnb112234* on this system:

```
show hnbgw statistics hnbid hnb112234 hnbap-only
```

The following command displays detailed session statistics for the RANAP part of session details for the HNB identified as *hnb112234* on this system:

```
show hnbgw statistics hnbid hnb112234 ranap-only verbose
```

show hnbgw-service

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the configuration details for configured HNBGW service(s) on this system.

Product HNBGW

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show hnbgw-service { all | hnbgw-service`** *`hnbgw_svc_name`* **`}`**

all

Displays configuration and other default parameters for all HNB-GW service configured on this system.

hnbgw-service *hnbgw_svc_name*

Displays configuration and default parameters for an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines Use this command to view the configuration and service parameters set for all or any specific HNB-GW service(s) on this system.

Example

The following command displays configuration parameters for all HNB-GW services configured on this system:

```
show hnbgw-service all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show hsgw-service

Displays information for HRPD Serving Gateway (HSGW) services on this system.

Product HSGW

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show hsgw-service { all | name`** *`service_name`* **`| statistics { all | name`** *`service_name`* **`} } [ dns-stats | pcf-status [ address`** *`IPv4_address`* **`| filter { all |`**

icmp-monitored | no-calls | summary | up }]] [| { grep *grep_options* **| more }]**

all

Displays configuration information for all HSGW services configured on this system.

name ***service_name***

Displays configuration information for an existing HSGW service specified as an alphanumeric string of 1 through 63 characters.

statistics

Displays node-level statistics for the HSGW.

dns-stats

Displays information related to DNS P-GW selection for load balancing using DNS SRV lookup.

pcf-status

Displays information about the status of Packet Control Functions (PCFs) being monitored.

address ***IPv4_address***

Displays status information for the specified PCF.

IPv4_address must be specified using IPv4 dotted-decimal notation.

filter { all | icmp-monitored | no-calls | summary | up }

Filters the PCF status information. Must be followed by the filter to be applied.

all: Shows all the PCFs.

icmp-monitored: Shows only PCFs which are ICMP monitored.

no-calls: Shows only PCFs which has no active sessions.

summary: Shows only a summary of the status of the PCFs.

up: Shows only PCFs which are alive.

| { grep ***grep_options*** **| more }**

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for HSGW services on this system.

Example

The following command displays service statistics for the HSGW service named *hsgw1*:

```
show hsgw-service name hsgw1
```

show hss-peer-service

Displays service, session, and statistics information for Home Subscriber Server (HSS) peer services configured on this system.

Product

MME

Privilege

Inspector

Syntax Description

```
show hss-peer-service { service { all | name name } | session { all |
callid id | full | mdn mdn | nai nai | summary } | statistics { all | service
 name | summary } } [ | { grep grep_options | more } ]
```

service { all | name *name* }

Displays HSS peer service statistics for HSS peer services configured on this system.

all: Displays HSS peer service statistics for all configured HSS peer services on this system.

name *name*: Displays HSS peer service statistics for an existing HSS peer service specified as an alphanumeric string of 1 through 63 characters.

session { all | callid *id* | full | mdn *mdn* | nai *nai* | summary }

Displays HSS peer service statistics for sessions on this system.

all: Displays HSS peer service statistics for all sessions on this system.

This keyword is also used to further filter the **full** and **summary** options.

callid *id*: Displays summarized or detailed statistics of HSS peer service sessions running and filtered on the basis of the call identifier specified as an 8-digit hexadecimal number.

This keyword is also used to further filter the **full** and **summary** options.

mdn *mdn*: Displays summarized or detailed statistics of MME sessions running and filtered on the basis of an existing Mobile Directory Number (MDN) expressed as an alphanumeric string of 1 through 100 characters.

This keyword is also used to further filter the **full** and **summary** options.

nai *nai*: Displays summarized or detailed statistics of MME-HSS sessions running and filtered on the basis of an existing Network Access Identifier (NAI) expressed as an alphanumeric string of 1 through 128 characters.

This keyword is also used to further filter the **full** and **summary** options.

summary: Displays a summarized output of session information. This keyword can be further filtered by adding the following options:

- **full**

- **callid** *id*
- **mdn** *mdn*
- **nai** *nai*

statistics { all | service *name* | summary }

Displays statistics for HSS peer services configured on this system.

all: Displays statistics for all HSS peer services configured on this system.

service *name*: Displays statistics for a an existing HSS peer service expressed as an alphanumeric string of 1 through 63 characters.

summary: Displays summarized statistics for all HSS peer services configured on this system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *CLI Overview* chapter of the *Command Line Interface Reference*.

Usage Guidelines

Use this command to display service, session, and statistics information for HSS peer services configured on this system.

Example

The following command displays HSS peer service information and statistics for a session with a call ID of *08f11fa4*:

```
show hss-peer-service sessions full callid 08f11fa4
```

show imei-profile

Displays information for configured International Mobile Equipment Identity (IMEI) profiles.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show imei-profile { all | full { all | name imei_name } | name imei_name } [
 | { grep grep_options | more } ]
```

all

Lists all IMEI profiles configured on the system.

full { all | name *apn_name* }

full: Instructs the system to display all information in the IMEI profile(s).

all: Displays a full set of information for all IMEI profiles configured on the system.

name *imei_name*: Displays a full set of information for a specific IMEI profile.

apn_name: Must be an existing IMEI profile expressed as an alphanumeric string of 1 through 64 characters.

name *imei_name*

Displays information for a specific IMEI profile expressed as an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for IMEI profiles configured on the system. APN profiles are configured through the global configuration mode and in the IMEI profile configuration mode. For more information regarding IMEI profile commands, refer to the *IMEI Profile Configuration Mode Commands* chapter.

Example

The following command displays all available information for an IMEI profile named *imeiprof1*:

```
show imei-profile full name imeiprof1
```

show ims-authorization policy-control

Displays information and statistics specific to the policy control in IP Multimedia Subsystem (IMS) authorization service.

Product

SCM

GGSN

IMS

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ims-authorization policy-control statistics [ service ims_auth_svc_name
 | server { ip-address ip_address [ port port_value ] | name server_name } ] [
 | { grep grep_options | more } ]
```

statistics

Displays the total collected statistics of all policy control parameters of IMS authorization service sessions since the last system **restart** or **clear** command.

service *ims_auth_svc_name*

Displays the total collected statistics of all IMS authorization sessions processed by a specific IMS authorization service since the last system restart or clear command. *ims_auth_svc_name* must be an existing IMS authorization service name, expressed as an alphanumeric string of 1 through 64 characters.

server { ip-address *ip_address* [port *port_value*] | name *server_name* }

Displays the server-level message statistics and the server IP address.

Specify the PCRF server name (1 through 64 alphanumeric characters), or server IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information and statistics about policy control configuration in existing IMS authorization services.

Example

The following command displays the existing IMS authorization service name *ims_auth_gx1* on the system:

```
show ims-authorization policy-control statistics service ims_auth_gx1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ims-authorization policy-control misc-info

Displays the maximum backpressure information.

Product

GGSN

P-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ims-authorization policy-control misc-info max-backpressure [ all | facility sessmgr instance` *`instance_number`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays the max-backpressure count among all active session manager instances.

facility sessmgr instance*instance_number*

Displays logged events for specific facility. That is, it will display the maximum backpressure count on that specific session manager instance.

instance_number must be an existing IMS authorization service name, expressed as an alphanumeric string of 0 to 10000000 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the maximum backpressure at a particular session manager instance or at all instances, and the time stamp at which maximum backpressure was seen.

Example

The following command displays the maximum backpressure information for *session1* facility on the system:

```
show ims-authorization policy-control misc-info max-backpressure facility
 sessmgr instance  session1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ims-authorization policy-gate

Displays information of installed Policy Gates for specific subscriber in an IP Multimedia Subsystem (IMS) authorization (IMSA) service.

Product

SCM

GGSN

IMS

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ims-authorization policy-gate { { status [summary | full] [{ imsi *imsi_value* **[nsapi** *nsapi_value* **] } | callid** *call_id* **| { ims-auth-service** *ims_auth_svc* **} [rulename** *rule_name* **] } | { counters [all | { imsi** *imsi_value* **[nsapi** *nsapi_value* **] } | { rulename** *rule_name***} | { callid** *call_id* **}] } [| { grep** *grep_options* **| more }]]**

status [summary | full]

Displays the status of the installed policy gates and their flow definitions along with the run-time status in an IMS authorization service based on the specified criteria.

summary: Limits the display to a summary on the status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.

full: Displays the full information on status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.

counters all

Displays the counters/statistics of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.

all displays all counters of the installed gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.

imsi *imsi_value* [nsapi *nsapi_value*]

Displays all of the counters/status of the installed policy gates and their flow definitions along with the run-time status in an IMS authorization service based on the International Mobile Subscriber Identity (IMSI).

nsapi *nsapi_value* specifies the Network Service Access Point Identifier (NSAPI) and limits the display to a single PDP context of the subscriber.

callid *call_id*

Displays all of the counters/status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the call identifier.

ims-auth-service *ims_auth_svc*

Displays the status of the installed policy gates and their flow definitions along with their run-time status in the named IMS authorization service.

rulename *rule_name*

Displays all of the counters/status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the named dynamic charging rule.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference* for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display information/statistics/counters about all of the installed policy gates and their flow definitions along with the run-time status with specified criteria and filters in existing IMS authorization services.

Example

The following command displays the full status of the installed policy gates in an existing IMS authorization service on the system:

```
show ims-authorization policy-gate status full
```

The following command displays the all counters of the installed policy gates in an existing IMS authorization service on the system:

```
show ims-authorization policy-gate counters all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ims-authorization servers

Displays information and statistics specific to the authorization servers used for IP Multimedia Subsystem (IMS) authorization (IMSA) service.

Product

SCM

GGSN

IMS

P-GW

SAEGW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ims-authorization servers [ ims-auth-service` *`ims_auth_svc_name`* **`[ | { grep`** *`grep_options`* **`| more } ] ]`**

server [ims-auth-service *ims_auth_svc_name*]

Displays the information and statistics for all authorization servers configured within an IMS authorization service in a system.

ims-auth-service *ims_auth_svc_name*: Displays the configured authorization servers for IMS authorization within the named IMS authorization service.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference* for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display information and statistics about IMS authorization servers configured on a system or IMS authorization service.

Example

The following command displays the information and statistics of the authorization servers in the IMS authorization service named in *ims_auth_gx1*:

`show ims-authorization servers ims-auth-service ims_auth_gx1`

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ims-authorization service

Displays information, configuration, and statistics of all/specific IP Multimedia Subsystem (IMS) authorization (IMSA) service.

Product

GGSN

P-GW

SAEGW

SCM

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ims-authorization service { { all [verbose] | name *ims_auth_svc_name* **[p-cscf { all | ip_address** *ipv4/ipv6_address* **| summary] } | { statistics [all | name** *ims_auth_svc_name* **] [verbose] } [| { grep** *grep_options* **| more }]**

all [verbose]

Displays information and configuration for all configured IMS authorization services with a single line of information for each IMS authorization service.

verbose: Displays all information and configuration data for all IMS authorization services configured on system.

name *ims_auth_svc_name* [p-cscf { all | ip_address *ipv4/ipv6_address*

Displays the information, statistics, and configuration data for the named IMS authorization service. If the optional keyword is configured, this command displays the statistics information of all P-CSCF servers or specific server.

summary

Displays summarized information and configuration data for all IMS authorization services configured in a system.

statistics [all | name *ims_auth_svc_name*] [verbose]

Displays the IMS Authorization service statistics including following information:

- Initial authorization procedures
- Re-authorization procedures initiated by us
- Re-authorization procedures initiated by servers
- Various failure statistics

If no criteria are specified, only summarized statistics for all IMS Authorization services are displayed

- **all**: displays individual statistics for every IMS authorization service configured on system.
- name *ims_auth_svc_name*: Displays the statistics for the IMS authorization service named in *ims_auth_svc_name*
- verbose: displays detailed statistics for a configured IMS authorization service.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference* for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display the status, counters and configuration. for an IMS Authorization service. The status includes the state of a server table switchover. The Statistics option displays information about various processes.

Example

The following command displays the information and configuration data of the IMS authorization service named in *ims_auth_gx1*:

```
show ims-authorization service name ims_auth_gx1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ims-authorization sessions

Displays information, configuration, and statistics of sessions active in an IP Multimedia Subsystem (IMS) authorization (IMSA) service.

Product

SCM

GGSN

IMS

P-GW

SAEGW

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ims-authorization sessions [all | apn *apn_name* **| callid** *call_id* **| facility sessmgr instance** *instance_no* **| full | ggsn-only | ims-auth-service** *ims_auth_svc_name* **| imsi** *imsi_value* **[nsapi** *nsapi_value* **]| ip-address** *ip_address* **| local-sessions | remote-sessions | summary] [| { grep** *grep_options* **| more }]]**

all

Displays information and configuration for all sessions running in IMS authorization services with a single line of information for each IMS authorization session.

apn *apn_name*

Displays all of the counters/status for the running services in an IMS authorization service based on the specified Access Point Name (APN).

callid *call_id*

Displays all of the counters/status for the running services in IMS authorization service based on the named call identifier.

facility sessmgr instance *instance_no*

Displays the IMS authorization sessions at the session manager instance level.

full

Displays complete information and configuration data for all sessions in IMS authorization services configured in a system.

ggsn-only

Displays GGSN-specific information in addition to detailed information about the session.

ims-auth-service *ims_auth_svc_name*

Displays the information, statistics, and configuration data for sessions in the named IMS authorization service.

imsi *imsi_value* [nsapi *nsapi_value*]

Displays all of the counters/status of the running services in an IMS authorization service based on the specified International Mobile Subscriber Identity (IMSI) and Network Service Access Point Identifier (NSAPI). The display is limited to a single PDP context of the subscriber.

ip-address *ip_address*

Displays all of the counters/status for the running services in IMS authorization service based on the specified host IP address.

local-sessions

Displays the IMS authorization sessions that are associated with local-policy.

remote-sessions

Displays the IMS authorization sessions that are associated with PCRF.

summary

Displays summarized information and configuration data for all IMS authorization services configured in a system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference* for details on the usage of **grep** and **more**.

Usage Guidelines Use this command to display the sessions running under IMS Authorization service on a system with different filter criteria.

Example

The following command displays the information and statistical data for a session in an IMS authorization service:

```
show ims-authorization sessions full
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show instance-logging

Displays the instance numbers for all currently enabled, facility-specific log instances.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show instance-logging facility facility_name[ | { grep grep_options | more } ]
```

facility *facility_name*

Specifies the facility for which instance-level logging has been enabled. *facility_name* can be aaamgr, hamgr or sessmgr.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines Displays the instance numbers for all currently enabled, facility-specific log instances. These instances have been previously enabled via the Exec mode **logging filter enable facility** command.

Example

The following command displays instance-specific logging enabled for the sessmgr facility:

```
show instance-logging facility sessmgr
```

show inventory

Displays Unique Device Identifier (UDI) information for all hardware in the system for which a UDI is available.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show inventory [ | { grep grep_options | more } ]
```

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Displays UDI information (card/item description, Cisco PID, serial number) for all hardware installed in this system.

Example

The following command displays UDI information for all cards in the system:

```
show inventory
```

show ip access-group statistics

Displays statistics for each rule in an access control group.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ip access-group statistics [| { grep grep_options | more }]

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configured access control groups in the current context.

Example

The following command displays the contents of an access control group named *ACG_4*:

show ip access-list ACG_4

show ip access-list

Displays the information for all Access Control Lists (ACLs) or the named ACL. With no keyword supplied, a list of all access lists and their entries is displayed.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ip access-list *list_name* **[| { grep grep_options | more }]**

list_name

Specifies the name of an existing ACL configured in the current context as an alphanumeric string of 1 through 47 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configured ACLs in the current context.

Example

The following command displays the contents of an ACL named *ACL_4*:

```
show ip access-list ACL_4
```

show ip arp

Displays the ARP table or the ARP information associated with the specified IP address.

Important When it restarts, the VPN Manager removes all interfaces from the kernel; the kernel then removes all ARP entries. When this happens, the NPU still holds all of the ARP entries so that there is no traffic disruption. From a user point of view, **show ip arp** is broken since this command gathers information from the kernel and not the NPU.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ip arp [ ip_address | vrf vrf_name ] [ | { grep grep_options | more } ]
```

ip_address

Specifies an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

| vrf *vrf_name*

Displays information for an existing VPN Routing and Forwarding (VRF) name expressed as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configured ACLs in the current context.

Example

The following command displays the contents of an ACL named *ACL_4*:

```
show ip access-list ACL_4
```

show ip as-path-access-list

Displays the contents of a Border Gateway Protocol (BGP) router Autonomous System (AS) path access list in the current context.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ip as-path-access-list *list_name* **[| { grep grep_options | more }]**

list_name

Specifies the name of an existing AS path access list configured in the current context as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configured entries for the specified BGP router AS path access list in the current context.

Example

The following command displays the contents of an AS path access list named *ASlist1*:

```
show ip as-path-access-list ASlist1
```

show ip bgp

Displays Border Gateway Protocol (BGP) information for the current context.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ip bgp [*ip_address/mask* **| debugging | filter-list** *list_name* **| neighbors [** *ip_address* **] | route-map** *map_name* **| vpnv4 [all [** *ip_address/mask* **| neighbors | summary] | route-distinguisher {** *ipv4_address* **|** *asn_value* **}** *rd_value* **| vrf** *vrf_name* **[** *ip_address/mask* **| neighbors | summary] | vpnv6 [all [** *ipv4_ddress* **| neighbors | summary] | route-distinguisher {** *ipv4_address* **|** *asn_value* **}** *rd_value* **| vrf** *vrf-name* **[** *ip_address/mask* **| neighbors | summary]] [| { grep** *grep_options* **| more }]**

ip_address/mask

Specifies the IP address and netmask bits for the network for which information should be displayed. The IP address and mask is the number of subnet bits, representing a subnet mask in CIDR notation. These must be entered in the IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal CIDR notation.

debugging

Displays debug flags that are enabled.

filter-list *list_name*

Displays routes that match the specified filter list.

neighbors [*ip_address*]

Displays information for all neighbors or a neighbor specified as an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

route-map *map_name*

Displays routes that match the specified route-map.

summary

Displays summary BGP information.

| vpnv4 [all [*ip_address/mask* | neighbors | summary] | route-distinguisher { *ipv4_address* | *asn_value* } *rd_value* | vrf *vrf_name* [*ip_address/mask* | neighbors | summary]

Displays all VPNv4 routing data.

- **all**: Displays all VPNv4 routing information. If this is specified, the information displayed is gathered from all the VRF's known to BGP and displayed. It could contain the list of neighbors, the list of networks, or a particular network.
- **neighbors**: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
- **summary**: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.

- **route-distinguisher {** *ipv4_address* **|** *asn_value* **}** *rd_value*: Displays information about the route distinguisher. Where
  - *ipv4_address*: Specifies an IP address in IPv4 dotted-decimal notation.
  - *asn_value*: Specifies an autonomous system number as an integer from 0 through 65535.
  - *rd_value*: Specifies a route distinguisher value as an integer from 0 through 4294967295.
- **vrf** *vrf_name* **[** *ipv4_address*/*mask* **| neighbors | summary]**: Displays information about the VRF. Where
  - *vrf_name*: Specifies the name of the VRF as an alphanumeric string of 1 through 63 characters.
  - *ip_address*/*mask*: Specifies an IP address in IPv4 dotted-decimal CIDR notation.
  - **neighbors**: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
  - **summary**: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.

| vpnv6 [all [*ipv4_ddress* | neighbors | summary] | route-distinguisher { *ipv4_address* | *asn_value* } *rd_value* | vrf *vrf-name* [*ip_address*/*mask* | neighbors | summary]]

Displays all VPNv6 routing data.

- **all**: Displays all VPNv6 routing information. If this is specified, the information displayed is gathered from all the VRF's known to BGP and displayed. It could contain the list of neighbors, the list of networks, or a particular network.
- **neighbors**: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
- **summary**: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.
- **route-distinguisher {** *ipv4_address* **|** *asn_value* **}** *rd_value*: Displays information about the route distinguisher. Where
  - *ipv4_address*: Specifies an IP address in IPv4 dotted-decimal notation.
  - *asn_value*: Specifies an autonomous system number as an integer from 0 through 65535.
  - *rd_value*: Specifies a route distinguisher value as an integer from 0 through 4294967295.
- **vrf** *vrf_name* **[** *ipv4_address*/*mask* **| neighbors | summary]**: Displays information about the VRF. Where
  - *vrf_name*: Specifies the name of the VRF as an alphanumeric string of 1 through 63 characters.
  - *ip_address*/*mask*: Specifies an IP address in IPv4 dotted-decimal CIDR notation.
  - **neighbors**: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
  - **summary**: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command display to BGP information for the current context.

Example

The following command displays information for all BGP neighbors:

```
show ip bgp neighbors
```

show ip framed-prefixes

Displays the framed-prefixes along with session-id, vrf-name and pool-name. The command will also display the total number of framed-prefixes matching the filtering criteria.

Product

All

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ip framed-prefixes [sess-id *session_identifier* **| vrf** *vrf_identifier* **]**

sess-id *session identifier*

Displays framed-prefixes added by a specific session.

session_identifier must be an integer from 1 to 1152.

vrf *vrf_identifier*

Displays VRF specific routing information.

vrf_identifier must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to display the framed-prefixes. This command also enables filtering of framed-prefixes based on vrf-name and/or session-id to the display. The display will show framed-prefixes along with session-id, vrf-name, and pool-name. The command will also display the total number of framed-prefixes matching the filtering criteria.

Example

The following command displays ip framed-prefixes by a specific session.

```
show ip framed-prefixes sess-id session_identifer
```

show ip igmp group

Displays Internet Group Management Protocol (IGMP) information for all groups in a context or a specific IP address.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ip igmp group [*ip_address* **| all } [| { grep grep_options | more }]**

ip_address

Displays IGMP information for the IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

all

Displays information for all IGMP groups associated with this context.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display IGMP group information.

Example

To display general IGMP information for all groups in this context, enter the following command;

```
show ip igmp all
```

show ip interface

Displays statistical and configuration information for the IPv4-based interfaces, including a Virtual Routing and Forwarding (VRF) table for a specific context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ip interface [vrf *vrf-name* **] [name** *intfc_name* **[tunnel [gre-keepalive]] [summary] [vrf** *vrf-name* **] [| { grep** *grep_options* **| more }]**

name *intfc_name*

Displays information for an existing interface specified as an alphanumeric string of 1 through 79 characters. If no interface name is specified, the information for all IP interfaces is displayed.

summary

Displays summarized information about requested IP interfaces.

tunnel [gre-keepalive]

Filters the IP interface information for GRE/IP-in-IP tunnel type interfaces.

gre-keepalive: Displays the keepalive information for a generic routing encapsulation (GRE) tunnel configured with this IP interface.

vrf *vrf_name*

Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the summarized of detailed configuration and statistical information for a configured IP interface. This information can be used to verify and/or troubleshoot communication difficulties between to a remote host/node.

Example

The following command displays the interface information, including statistics, for the IP interface *Interface_1*.

```
show ip interface Interface_1 statistics
```

The following command displays the GRE keepalive information for an IP interface named in *IP_gre1*.

```
show ip interface IP_gre1 tunnel gre-keepalive
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip ipsp

Displays the names of IP pools that are enabled for the IP pool sharing protocol (IPSP) and lists the disposition of addresses in the pools.

Product

PDSN

HA

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ip ipsp [ summary ] [ | { grep grep_options | more } ]`

summary

Displays only the disposition of the addresses in the participating IP pools. Does not show the names of the participating IP pools.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to list the names of IP pools that are participating in the IPSP and list the disposition of IP addresses in those pools.

Important For information on configuring and using IPSP refer to the *System Administration Guide*.

Example

To list information on all IPSP participating pools and address disposition, enter the following command:

`show ip ipsp`

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip localhosts

Displays host name to IP address mapping for current context. Must be followed by a specific IP host name.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ip localhosts` *`hostname`* **`[ | { grep`** *`grep_options`* **`| more ]`**

hostname

Specifies a configured hostname as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display mappings of a host name to IP addresses.

Example

To display IP address mapping for host name *local_2345*, enter the following command;

`show ip localhosts local_2345`

show ip ospf

Displays Open Shortest Path First (OSPF) routing information.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ip ospf [border-routers | database [verbose] [ls-id *ip_addr* **] [adv-router** *ip_addr* **] [ls-type { router | network | summary | asbr-summary | external | nssa |** *integer* **}] | debugging | interface | neighbor [details] | route | virtual-links] [| { grep grep_options | more }]**

border-routers

Displays all known area border routers (ABRs) and autonomous system border routers (ASBRs) for OSPF.

database [verbose] [ls-id *ip_addr*] [adv-router *ip_addr*] [ls-type { router | network | summary | asbr-summary | external | nssa | *integer* }]

Displays a summary of the database information for OSPF.

verbose: Displays detailed OSPF database information.

ls-id *ip_addr*: Displays OSPF database information for the link state advertisements (LSAs) with the specified link state identifier (LSID). *ip_addr* is entered using IPv4 dotted-decimal notation.

adv-router *ip_addr*: Displays OSPF database information for the advertising router with the specified LSID. *ip_addr* is entered using IPv4 dotted-decimal notation.

ls-type { router | network | summary | asbr-summary | external | nssa | *LSA_Numerical_Type* **}]**: Displays OSPF database information for the specified LSA type.

debugging

Lists which debugging parameters are enabled.

interface

Displays interface information for OSPF.

neighbor [details]

Displays summarized information about all known OSPF neighbors.

details: Displays detailed information about all known OSPF neighbors.

route [summary]

Displays the OSPF routing table.

summary: Displays the number of intra-area, inter-area, external-1 and external-2 routes.

virtual-links

Displays the OSPF virtual links.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display OSPF information.

Example

To display general OSPF information, enter the following command;

```
show ip ospf
```

show ip policy-forward

Displays information for IP packet redirecting policy for Home Agent (HA).

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ip policy-forward [ | { grep grep_options | more } ]
```

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to see all the settings for IP packet redirection configuration from existing HA to new HA during upgrade.

Important

This is a customer specific command.

Example

The following command displays forward policy configuration for an HA:

show ip policy-forward

show ip pool

Displays statistics specific to IP pools.

Product

PDSN

GGSN

HA

ASN-GW

A-BG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ip pool [address { pool-name *pool_name* **| group-name** *group_name* **} { used | free | hold | release } [limit** *limit* **] | group-name** *group_name* **| groups | hold-timer { imsi** *imsi* **| msid** *msid* **| username** *username* **[imsi** *imsi* **| msid** *msid* **] } | many-to-one | nat-realm | one-to-one | overlap | pool-name** *pool_name* **| private | public | resource | static | summary | verbose | wide] [| { grep** *grep_options* **| more }**

address { pool-name *pool_name* | group-name *group_name* } { used | free | hold | release} [limit *limit*]

Displays IP pool addresses for the specified IP pool or pool group that are currently in the specified state.

pool-name *pool_name*: Displays IP addresses from an existing IP pool name specified as an alphanumeric string of 1 through 31 characters.

group-name *group_name*: Displays IP addresses from an existing IP pool group name specified as an alphanumeric string of 1 through 31 characters.

used: Displays the IP addresses that are in a used state.

free: Displays the IP addresses that are in a free state.

hold: Displays the IP addresses that are in a hold state.

release: Displays the IP addresses that are in a release state.

limit *limit*: Specifies the maximum number of address to display as an integer from 1 through 524287.

group-name *group_name*

Displays information about an existing IP pool group name specified as an alphanumeric string of 1 through 31 characters.

groups

Lists information about all IP pool groups.

hold-timer {imsi *imsi* | msid *msid* | username *username* [imsi *imsi* | msid *msid*]}

Displays hold timer address information for the specified IMSI, MSID, or username.

imsi *imsi*: Displays hold-timer information for a valid IMSI (International Mobile Subscriber Identity), specified as a 15-character field that identifies the subscriber's home country and carrier.

msid *msid*: Displays hold-timer information for the MSID specified as a number from 7 through 16 digits.

username *username*: Displays hold-timer information for an existing username specified as an alphanumeric string of 1 through 127 characters.

Important Active users cannot be displayed. If an active ID or username is entered, the following error message appears: Failure: No address matching the specified information was found! Please confirm that the options used match the network architecture/deployment, such as IMSI/MSID only, Username only, or IMSI/MSID plus Username. Please note that this command does not apply for addresses in the used state.

many-to-one

Lists information on Many-to-One NAT Realm IP address pools.

nat-realm

Lists information on NAT Realm IP address pools.

one-to-one

Lists information One-to-One NAT Realm IP address pools.

overlap

Lists information on overlapping IP pools.

pool-name *pool_name*

Displays information about an existing IP pool.

private

Displays information about IP pools marked Private.

public

Displays information about IP pools marked Public.

resource

Displays information about resource IP pools.

static

Displays information about static IP pools.

summary

Displays a summary of all IP pool information.

verbose

Displays detailed information about all IP pools.

wide

Displays detailed information formatted to more than 80 columns.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistics pertaining to IP Pools in the current context.

Example

The following command displays IP address information for an IP Pool named *pool1*:

```
show ip pool address pool-name pool
```

To display a summary list for all IP pools in the current context, enter the following command:

```
show ip pool summary
```

The following command displays IP pool information for all IP pools configured in the current context:

```
show ip pool verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip prefix-list

Displays IP prefix lists used to filter routes. With no keyword supplied, a list of all prefix lists and their entries is displayed.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ip prefix-list [ detail | name | summary ]` *`list_name`* **`[ | { grep`** *`grep_options`* **`| more ]`**

detail

Displays detailed information for the named prefix list.

name

Displays information for the named prefix list.

summary

Displays summary information for the named prefix list.

list_name

Specifies the name of an existing prefix list as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information about IP prefix lists.

Example

To display detailed information about a prefix list named *route_101*, enter the following command:

```
show ip prefix-list detail route_101
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip route

Displays information related to currently configured static or VRF routes for the current context.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show ip route [ ip_address/mask | vrf vrf_name ] [ | { grep grep_options | more ]`**

ip_address/mask

Specifies an IP address/mask (CIDR) for a static route in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

| vrf *vrf_name*

Displays information for an existing Virtual Routing and Forwarding (VRF) name expressed as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display information related to currently configured static or VRF routes for the current context.

Example

To display detailed information about a route for a static IP address, enter the following command:

```
show ip route 10.1.0.0/24
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip route-access-list

Displays information related to currently configured route-access-list used to filter routes.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ip route-access list [ name] [ | { grep grep_options | more ]`

name

Specifies the name of an existing route access list as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information about IP route access lists.

Example

To display detailed information about an access list named *access_route_3*, enter the following command:

`show ip route-access-list accesss_route_3`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip static-route

Displays information related to currently configured static routes.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ip static route [ ip_address/mask ] | { grep grep_options | more ]`

ip_address/mask

Specifies an IP address/mask (CIDR) for a static route in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information about IP static routes.

Example

To display detailed information about route *192.155.33.2/24*, enter the following command:

```
show ip static route 192.155.33.2/24
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip vrf

Displays configuration information for VPN Routing and Forwarding instances.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

In 21.20.19 and earlier releases:

```
show ip vrf [  vrf_name [ mpls-map-dscp-exp ] ] ] | { grep grep_options | more
 ]
```

In 21.20.19 21.24 and later releases:

```
show ip vrf [  name vrf_name [ mpls-map-dscp-exp ] ] ] | { grep grep_options
| more ]
```

vrf_name

Specifies an existing VRF name as an alphanumeric string of 1 through 63 characters.

mpls-map-dscp-exp

Displays the MPLS mapping for the VRF.

Usage Guidelines

Use this command to display information about VRF names.

Example

To display information for a VRF named *corporate_range2* with MPLS mapping:

```
show ip vrf name corporate_range2 mpls-map-dscp-exp
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ip vrf-list

Displays configuration information for VRF lists currently on the system.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ip vrf-list [ list_name ]
```

list_name

Specifies the name of an existing VRF list as an alphanumerical string of 1 through 63 characters.

Usage Guidelines Use this command to display information about all VRF lists or a specified VRF list.

Example

The following command displays information about all VRF lists in the system:

```
show ip vrf-list
```

show ipms status

Displays the status of Intelligent Packet Monitoring System (IPMS) client service with information related to system and call events. It also displays the status of configured IPMS servers.

Product IPMS

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ipms status [ summary | all | server address` *`ip_address`* **`]`**

summary

Displays the summary of all configured IPMS client and IPMS servers.

all

Displays information for all configured IPMS client and IPMS servers.

server address *ip_address*

Displays status for the IPMS server specified as an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines

This command is used to show/verify the status or configuration of one or all IPMS server along with system and call event information.

Example

The following command displays status of an IPMS server with IP address *10.2.3.4*:

`show ipms status server address 10.2.3.4`

show ipne peers

Generates a list of the IP Network Enabler (IPNE) peers.

Product

MME.

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ipne peers { all | service` *`ipne_service_name`* **`| summary } [ | { grep`** *`grep_options`* **`| more } ]`**

all

Generates a list of all peers bound to the IPNE services, including the local and peer addresses. Also displays the TCP connections for every Session Manager.

service *ipne_service_name*

Generates a list of the peers associated with the specified IPNE service.

Summary

Generates a summary of all available IPNE peer statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to monitor and troubleshoot MME connections to the IPNE client and peer.

Example

List all IPNE peers with a command similar to the following:

```
show ipne peers all
```

show ipsg service

Displays IP Service Gateway (IPSG) service information.

Product

eWAG

IPSG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ipsg service { all | name *ipsg_service_name* **} [counters][| { grep** *grep_options* **| more }]**

all

Displays information for all IPSG service(s) configured on the system.

name *ipsg_service_name*

Displays information for the specified IPSG service. *ipsg_service_name* must be an alphanumeric string of 1 through 63 characters.

counters

counters requires the output is to display counters associated with the IPSG service(s).

| { grep *grep_options* | more }

Specifies to pipe (send) the output of this command to the specified command. You must specify a command to which the output of this command should be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information for all IPSG services or a specific IPSG service.

Example

The following command displays information for all IPSG services configured on the system:

```
show ipsg service all
```

show ipsg sessions

Displays IP Service Gateway (IPSG) session information.

Product

eWAG

IPSG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ipsg sessions [counters | full | summary] [all | callid *call_id* **| ip-address** *ipv4_address* **| msid** *msid_number* **| peer-address** *ipv4_address* **| username** *user_name* **] [| { grep** *grep_options* **| more }]**

counters

Displays session counters for matching sessions.

full

Displays all available information for matching sessions.

summary

Displays a summary of available information for matching sessions.

all

Displays session information including call ID, NAI, and home address for all current IPSG sessions.

This is the default behavior for the **show ipsg sessions** command.

callid *call_id*

Displays session information for a current IPSG session based on the specified call ID.

call_id must be an 8-digit hexadecimal number.

ip-address *ipv4_address*

Displays session information for a specific IPSG session based on the subscriber IP address.

ipv4_address must be specified in IPv4 dotted-decimal notation.

msid *msid_number*

Displays session information for a current IPSG session based on the specified MSID.

msid_number must be an 8-digit hexadecimal number.

peer-address *ipv4_address*

Displays session information for a current IPSG session based on the IP address of the device sending the RADIUS accounting messages.

ipv4_address must be specified in IPv4 dotted-decimal notation.

username *user_name*

Displays session information for an IPSG session based on subscriber's user name.

user_name must be an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view IPSG session information.

Example

The following command displays all the existing IPSG service sessions on the system:

```
show ipsg session all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ipsg statistics

Displays IP Services Gateway (IPSG) service statistics.

Product

eWAG

IPSG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ipsg statistics [name *ipsg_service_name* **| peer-address** *ipv4_address* **] [| { grep** *grep_options* **| more }]**

name *ipsg_service_name*

Displays cumulative statistics of all IPSG sessions processed by the specified service since the last system restart or clear command.

ipsg_service_name must be the name of an IPSG service, and must be an alphanumeric string of 1 through 63 characters.

peer-address *ipv4_address*

Displays cumulative statistics of all IPSG sessions associated with the specified IP address of the device sending the RADIUS accounting messages. The statistics displayed are from the last system restart or clear command.

ipv4_address must be specified in IPv4 dotted-decimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view IPSG service statistics.

Example

The following command displays cumulative IPSG session statistics on the system:

```
show ipsg statistics
```

The following command displays the cumulative IPSG session statistics for an IPSG service named *ipsg1*:

```
show ipsg statistics name ipsg1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ipv6 access-group statistics

Displays statistics for each rule in all IPv6 access groups or a specified IPv6 access control group.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ipv6 access-group statistics [ | { grep grep_options | more } ]`

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configured IPv6 access control groups in the current context.

Example

The following command displays the contents of an IPv6 access control group named *ACGv6_4*:

`show ipv6 access-group ACGv6_4`

show ipv6 access-list

Displays the information for all IPv6 Access Control Lists (ACLs) or the named ACL. With no keyword supplied, a list of all access lists and their entries is displayed.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ipv6 access-list` *`list_name`* **`[ | { grep grep_options | more } ]`**

list_name

Specifies the name of an existing ACL configured in the current context as an alphanumeric string of 1 through 47 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the configured IPv6 ACLs in the current context.

Example

The following command displays the contents of an IPv6 ACL named *ACLv6_4*:

```
show ipv6 access-list ACLv6_4
```

show ipv6 interface

Displays statistical and configuration information for the IPv6-based interfaces, including a Virtual Routing and Forwarding (VRF) table for a specific context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ipv6 interface [ name intfc_name ] [ statistics ] [ summary ] [ vrf
vrf-name ] [ | { grep grep_options | more } ]
```

name *intfc_name*

Displays information for an existing interface specified as an alphanumeric string of 1 through 79 characters. If no interface name is specified, the information for all IPv6 interfaces is displayed.

statistics

Displays the session statistics of all ingress and egress packets processed through this IPv6 interface.

summary

Displays summarized information about requested IPv6 interfaces.

vrf *vrf_name*

Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the summarized of detailed configuration and statistical information for a configured IPv6 interface. This information can be used to verify and/or troubleshoot communication difficulties between to a remote host/node.

Example

The following command displays the interface information, including statistics, for the IPv6 interface *IPv6Interface_2*.

```
show ipv6 interface IPv6Interface_2 statistics
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ipv6 neighbors

Displays the neighbor table for all IPv6 addresses or a specified IPv6 address in the current context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ipv6 neighbors [ ipv6_address ] [ vrf vrf-name ] [ | { grep grep_options | more } ]
```

ipv6_address

Displays information for an existing IPv6 address specified in IPv6 colon-separated-hexadecimal notation. If no IPv6 address is specified, the information for all IPv6 addresses is displayed.

vrf *vrf_name*

Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display neighbor information for IPv6 address(es) in the current context. This information can be used to verify and/or troubleshoot communication difficulties between to a remote host/node.

Example

The following command displays the neighbor information for the IPv6 address *ffe:ffff:101::230:6eff:fe04:d9aa*.

```
show ipv6 neighbor ffe:ffff:101::230:6eff:fe04:d9aa
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ipv6 ospf

Displays information regarding the configuration of the OSPFv3 Protocol on this system.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ipv6 ospf [ database | debugging | interface | nieghbor | route |
virtual-links ] [ verbose [ verbose ] [ | { grep grep_options | more } ]
show ipv6 ospf database [ adv-routeripv4-address  ] [ ls-type { external |
inter-prefix  | inter-router | intra-prefix | link | network | router }
show ipv6 ospf debugging
show ipv6 ospf interface
show ipv6 ospf neighbor [ details]
```

```
show ipv6 ospf route [ summary ]
show ipv6 ospf virtual-links
```

show ipv6 ospf database

Displays the OSPFv3 database including the following components.

- **adv-router** *ipv4-address*: Displays OSPF database information from the advertising router specified as an IP address in IPv4 dotted-decimal notation.
- **ls-type**: Displays the specified Link-State Advertisement (LSA) type, which can be one of the following:
  - **external**: Display External LSA information
  - **inter-prefix**: Displays Inter Area Prefix LSA information
  - **inter-router**: Displays Inter Area Router LSA information
  - **intra-prefix**: Displays Intra Area Prefix LSA information
  - **link**: Displays Link LSA information
  - **network**: Displays Network LSA information
  - **router**: Displays Router LSA information

show ipv6 ospf debugging

Displays OSPFv3 Debugging Flags.

show ipv6 ospf interface

Displays OSPFv3 Interfaces.

show ipv6 ospf neighbor [details]

Displays OSPFv3 neighbors with the option for full details.

show ipv6 ospf route [summary]

Displays OSPFv3 route information with the option for summarized information.

show ipv6 ospf virtual-links

Displays OSPFv3 virtual links.

verbose

Displays detailed information.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to see all OSPFv3 information.

Example

The following command displays IPv6 OSPF information:

```
show ipv6 ospf
```

show ipv6 pool

Displays information related IPv6 Pool configuration/state.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ipv6 pool[**group-name** *group-name*] [**pool-name** *pool-name*] [**summary**] [**verbose**] [**|** { **grep** *grep_options* | **more** }]

group-name*group-name*

Displays IP address pool information for an existing group-name specified as an alphanumeric string of 1 through 31 characters.

pool-name *pool-name*

Displays IPv6 address pool information for an existing pool name specified as an alphanumeric string of 1 through 31 characters.

summary

Displays summary information about all IP address pools; this is the default.

verbose

Displays detailed information about all IP address pools.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to see all the ipv6 pool information.

Example

The following command displays IPv6 pool information:

```
show ipv6 pool
```

show ipv6 prefix-list

Displays information related to an IPv6 prefix list.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ipv6 prefix-list[ detailprefix-list-name ] [ nameprefix-list-name [
ip-address/mask [ longer ] [ match-first ] ] [ seq seq_value ] ] [ summary
prefix-list-name] [ | { grep grep_options | more } ]
```

detail*prefix-list-name*

Displays detailed IP address information for an existing prefix-list specified as an alphanumeric string of 1 through 79 characters.

name*prefix-list-name*

Displays IP address information for an existing prefix-list specified as an alphanumeric string of 1 through 79 characters.

ip-address/mask

Specifies an IPv6 Network Address/Mask Bits combination in CIDR notation.

longer

Displays IP address prefix-list details in longer format.

match-first

Displays first matched IP address prefix-list details.

seq *seq_value*

Specifies the sequence number as an integer from 1 through 4294967295.

seq_value is the integer value between 1 through 4294967295.

summary *prefix-list-name*

Displays prefix-list summary for an existing prefix-list specified as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to see all the ipv6 prefix-list information.

Example

The following command displays IPv6 prefix list information:

```
show ipv6 prefix-list
```

show ipv6 route

Displays information related to specific route for current context.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ipv6 route [*ip-address/mask*] [**vrf** *vrf-name*] [**|** { **grep** *grep_options* | **more** }]

ip-address/mask

Specifies an IP address entered using IPv6 colon-separated-hexadecimal and CIDR notation.

vrf *vrf-name*

Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to see all the ipv6 route information.

Example

The following command displays IPv6 route information:

```
show ipv6 route 2001:0db8:85a3:0000:0000:8a2e:0370:7334/5
```

show ipv6 route-access-list

Displays the route access list.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ipv6 route-access-list [*route-access-list*] [**|** { **grep** *grep_options* | **more** }]

route-access-list

route-access-list is an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to see all the IPv6 route access list information.

Example

The following command displays IPv6 route access list information:

```
show ipv6 route-access-list
```

show iups-service

Displays information for Iu-PS services in the current context. The Iu-PS interface links the radio network controller (RNC) with the packet switched core network.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show iups-service { all | name *srvc_name*} **[gtpu-table | rnc { all | id** *rnc_id* **}] [| { grep** *grep_options* **| more }]**

all

Shows information for all configured IuPS services.

name *srvc_name*

Specifies an existing IuPS service as an alphanumeric string of 1 through 63 characters.

gtpu-table

Displays the configured GTPU database.

rnc all

Displays information for all configured RNCs.

rnc *rnc_id*

Specifies the identification number of an existing RNC configuration instance as an integer from 0 through 4095.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Iu-PS services control the interface between the SGSN and the RNCs in the UMTS radio access network (UTRAN). Iu-PS services include the control plane and the data plane between these nodes.

Use this command to display information for a specific Iu-PS service or for all Iu-PS services configured within the context. A filtering keyword can limit the display to only information for a specific RNC or for a GTPU table in the Iu-PS service configuration.

Example

The next command displays information for all Iu-PS services configured in the current context:

```
show iups-service all
```

This command displays information for a specific RNC for a specific Iu-PS services:

```
show iups-service name iups-svc-1 rnc 123name
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show l2tp sessions

Displays information for Layer 2 Tunneling Protocol (L2TP) tunnels.

Product

LNS

PDSN

GGSN

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show l2tp sessions [full | summary | counters] [all | callid *id* **| username** *name* **| msid** *ms_id* **| lac-service** *service_name* **| lns-service** *service_name* **| pdsnclosedrp-service** *service_name* **| peer-address [** *operator* **]** *peer_address* **]**

full

Displays all available information for the specified sessions.

summary

Displays a summary of available information for the specified sessions.

counters

Displays counters for the specified L2TP sessions.

all

Displays all current sessions.

callid *id*

Displays session information for the call ID. specified an 8-byte hexadecimal number. The output of the command **show l2tp tunnels** contains a field labeled Callid Hint which lists the call ID information to use with this command.

username *name*

Displays session information for an existing subscriber specified as an alphanumeric string of 1 through 127 characters. Wildcard characters $ and * are allowed.

msid *ms_id*

Displays session information for the MSID specified as 7 to 16 digits for an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed.

lac-service *service_name*

Displays all L2TP sessions in the specified LAC service.

lns-service *service_name*

Displays all L2TP sessions in the specified LNS service.

pdsnclosedrp-service *service_name*

Displays all L2TP sessions in the specified Closed R-P service.

peer-address [*operator*] *peer_address*

Displays all L2TP sessions to the destination (peer LNS) specified as an IP address in IPv4 dotted-decimal notation.

In conjunction with **sessions** keyword, indicates a range of peers is to be displayed.

peer-address [*operator*] *peer_address* is specified using IPv4 dotted-decimal notation.

operator implies how to logically specify a range of peer-address and it must be one of the following:

- <: IP address less than the specified *peer_address*
- >: IP address less than the specified *peer_address*
- **greater-than**: IP address less than the specified *peer_address*
- **less-than**: IP address less than the specified *peer_address*

Usage Guidelines

Use this command to show information for sessions in the current context.

Important If this command is executed from within the local context, cumulative session information is displayed for all contexts.

Example

The following command displays cumulative statistics for all sessions processed within the current context:

```
show l2tp sessions
```

The following command displays all information pertaining to the L2TP session of a subscriber named *isp1vpnuser1*:

```
show l2tp session full username isp1vpnuser1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show l2tp statistics

Displays statistics for all Layer 2 Tunneling Protocol (L2TP) tunnels and sessions.

Product

PDSN

GGSN

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show l2tp statistics [lac-service *service_name* **| lns-service** *service_name* **| pdsnclosedrp-service** *service_name* **| peer-address** *peer_ip_address* **]**

lac-service *service_name*

Displays L2TP statistics for all tunnels and sessions in an existing L2TP Access Concentrator (LAC) service specified as an alphanumeric string of 1 through 63 characters.

lns-service *service_name*

Displays L2TP statistics for all tunnels and sessions in tan existing L2TP Network Server (LNS) service specified as an alphanumeric string of 1 through 63 characters.

pdsnclosedrp-service *service_name*

Displays L2TP statistics for all tunnels and sessions in an existing Closed R-P service specified as an alphanumeric string of 1 through 63 characters.

peer-address *peer_address*

Displays L2TP statistics for all tunnels and sessions to the destination (peer LNS) at the IP address specified in IPv4 dotted-decimal notation.

Usage Guidelines

Use this command to display statistics for L2TP services.

Example

The following command displays statistics for a specific LAC service named *vpn1*:

```
show l2tp statistics lac-service vpn1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show l2tp tunnels

Displays information for Layer 2 Tunneling Protocol (L2TP) tunnels.

Product

PDSN

GGSN

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show l2tp tunnels [full | summary | counters] [all | callid *id* **| username** *name* **| msid** *ms_id* **| lac-service** *service_name* **| lns-service** *service_name* **| pdsnclosedrp-service** *service_name* **| peer-address [** *operator* **]** *peer_address* **]**

full

Displays all available information for the specified tunnels.

summary

Displays a summary of available information for the specified tunnels.

counters

Displays counters for the specified L2TP tunnels.

all

Displays all current tunnels.

callid *id*

Displays tunnel information for the call id specified as an 8-digit hexadecimal number. The output of the command **show l2tp tunnels** contains a field labeled Callid Hint which lists the call id information to use with this command.

username *name*

Displays tunnel information for an existing subscriber specified as an alphanumeric string of 1 through 127 characters. Wildcard characters $ and * are allowed.

msid *ms_id*

Displays tunnel information for the MSID specified as 7 to 16 digits for an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed.

lac-service *service_name*

Displays all L2TP tunnels in the specified LAC service.

lns-service *service_name*

Displays all L2TP tunnels in the specified LNS service.

pdsnclosedrp-service *service_name*

Displays all L2TP tunnels in the specified Closed R-P service.

peer-address [*operator*] *peer_address*

Displays all L2TP tunnels to the destination (peer LNS) at the IP address specified in IPv4 dotted-decimal notation.

In conjunction with **tunnels** keyword, indicates a range of peers is to be displayed.

peer-address [*operator*]: Specifies a peer address using IPv4 dotted-decimal notation.

operator implies how to logically specify a range of peer-address and it must be one of the following:

- <: IP address less than the specified *peer_address*
- >: IP address less than the specified *peer_address*
- **greater-than**: IP address less than the specified *peer_address*
- **less-than**: IP address less than the specified *peer_address*

Usage Guidelines Use this command to show information for tunnels in the current context.

Example

The following command displays all of the tunnels currently being facilitated by LAC services within the current context:

```
show l2tp tunnels all
```

The following command displays information pertaining to the L2TP tunnel(s) established for a LAC-service named vpn1:

```
show l2tp tunnels full lac-service vpn1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show lac-service

Displays the information for all L2TP Access Concentrator (LAC) services or for a particular LAC service.

Product

PDSN

HA

GGSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show lac-service { all | name service_name } [ | { grep grep_options | more } ]
```

all

Display information for all LAC services.

name *service_name*

Display information only for an existing LAC service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to list information for LAC services configured on this system.

Example

The following commands display information for all LAC services and the LAC service named *lac1*, respectively.

```
show lac-service all
```

```
show lac-service name lac1
```

show lawful-intercept

Refer to the *Lawful Intercept Configuration Guide* for a full description of this command.

show lawful-intercept ssdf statistics

Refer to the *Lawful Intercept Configuration Guide* for a description of these statistics.

show ldap connection all

Displays all details about the Lightweight Directory Access Protocol (LDAP) subsystem.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ldap connection all   [ | { grep grep_options | more } ]
```

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display all details about the LDAP subsystem.

Example

The following command displays full information about the LDAP subsystem.

```
show ldap connection all
```

show leds

Displays the current status of the light emitting diodes (LEDs) for a specific card or all cards.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show leds { all | card_num } [ | { grep grep_options | more } ]
```

all | *card_num*

all: Displays the LED status for all cards.

card_num: Displays the LED status for the card specified by its slot number.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display the status of the LEDs as a part of an automated periodic script which checks the LEDs of the chassis.

Important

This command is not supported on all platforms.

Example

The following commands display the LED status for all cards and only card *8*, respectively.

```
show leds all
show leds 8
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show license

Displays information about licensing as configured on this system.

Product

All

Privilege

Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show license { all | enforcement { policy | status [ allowed | blocked ]
 [ feature | service ] } | eval-period | history | information [ key
key_name ] [ full ] | key | privilege-bits | smart-tags [ feature | service
 ] | statistics [ verbose ] | status | summary | tech-support | udi |
usage } [ | { grep grep_options | more } ]
```

all

Shows a superset of information that includes show status, show usage, show UDI, as well as the Smart Licensing agent version.

This keyword applies to Smart Licensing only.

enforcement { policy | status [allowed | blocked] [feature | service] }

Shows the enforcement policy applied to or current enforcement status of Smart Licenses. Status information can be filtered based on the licenses which are currently allowed or blocked, or by license type.

allowed: displays the current status, and if out of compliance (OOC) the list of services which are blocked.

blocked: displays the list of services and features which are blocked.

feature: displays the current status, and if out of compliance (OOC) the list of services which are blocked.

service: displays the current status and if out of compliance (OOC) the list of services and features which are blocked.

This keyword applies to Smart Licensing only.

eval-period

Shows information about the evaluation period. Licenses are granted a 90 day evaluation period until they are registered.

This keyword applies to Smart Licensing only.

history

Displays the history of installed license and how much time each license was in each state. This keyword applies to legacy licensing only.

information [key *key_name*] [full]

Displays the license information to verify the proper keys have been installed. This command is also helpful in troubleshooting user system access due to the maximum number of sessions being reached.

key *key_name*: Displays the information for an existing license key specified as an alphanumeric string of 1 of 1 through 500 characters.

full: Displays the full features and quantities without any hardware limits in place.

key

Displays the installed keys in encrypted format.

privilege-bits

Displays all the CLI privilege bits that are turned on. This keyword applies for legacy licensing only.

smart-tags [feature | service]

Shows the features and services that are currently supported and the corresponding Smart Entitlement Tags.

feature: filters the output to show only features.

service: filters the output to show only services.

This keyword applies to Smart Licensing only.

statistics [verbose]

Shows Smart Licensing details for each individual feature. Use the optional **verbose** keyword to display additional information.

status

Shows information about the current state of Smart Licensing on the system, such as registration and license authorization status.

summary

Shows information about the current state of Smart Licensing on the system, such as registration, license authorization, and license usage status.

tech-support

Shows information useful for debugging issues with Smart Licensing.

udi

Shows details for all Unique Device Identifiers (UDI). This keyword applies to Smart Licensing only.

usage

Shows the usage information for all entitlements that are currently in use. This keyword applies to Smart Licensing only.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command displays licensing information, both the legacy licensing model as well as the Smart Licensing model introduced in Release 21.3. The history, information, key, and privilege-bits keywords apply only to the legacy license key model. All other keywords display information related to Smart Licensing introduced in Release 21.3.

Refer to the *Smart Licensing* chapter of the *System Administration Guide* for more details about Smart Licensing.

Example

The following displays all information about Smart Licensing as configured on the system.

```
show license all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show link-aggregation

Displays information about any Link Aggregation Group (LAG) configured in this system. A LAG works by exchanging control packets via Link Aggregation Control Protocol (LACP) over configured physical ports with peers to reach agreement on an aggregation of links. The LAG sends and receives the control packets directly on physical ports.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

```
show link-aggregation { info | lacp info | statistics } group group_number
[ | { grep grep_options | more } ]
show link-aggregation table [all] [ | { grep grep_options | more } ]
show link-aggregation utilization table [ | { grep grep_options | more } ]
```

{ info | lacp info | statistics }

Displays the following categories of LAG information:

- **info** – LAG configuration and operating state
- **lacp info** – LACP Rx and Tx counters
- **statistics** – LAG Rx and Tx counters and data throughput statistics

group *group_number*

Specifies the LAG number as an integer from 1 through 1023.

table [all] *group_number*

Displays information about the current LAG port configuration in tabular form. The **all** option includes ATM PVCs for ATM ports (ASR 5000 only).

utilization table

Displays LAG utilization data in tabular form.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to displays information about any Link Aggregation Group (LAG) configured in this system.

Example

The following command displays configuration information for LAG number 100:

show link-aggregation info group 100

Important Output descriptions for **show** commands are available in the *Statistics and Counters Reference*.

show linkmgr

Displays statistics for the link manager (linkmgr).

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show linkmgr { all | instance instance } [ parser | | ]`

all

Display statistics for all link managers.

instance *instance*

Display statistics for a single instance of a link manager specified as an integer from 1 to 4.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command displays statistical information for the SGSN's link manager which handles the layer between the session manager and the SS7 functionality downwards from layer 3.

Example

Use the following command to display the statistics for link manager *4*:

`show linkmgr 4`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show llc statistics

Displays traffic statistics for the GPRS logical link-control (LLC) layer.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show llc statistics [gprs-service *srvc_name* **] [verbose] [| { grep grep_options | more }]**

gprs-service *srvc_name*

Displays the statistics for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

verbose

Displays all possible statistics for specified command or keyword.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference*.

Usage Guidelines

This command can display either a summarized or full (verbose) view of statistics collected for the traffic that has gone through the LLC layer for either all GPRS services or for a specified GPRS service.

Example

The following command displays the frame Tx/Rx LLC statistics for GPRS service *gprs1*:

```
show llc statistics gprs-service gprs1
```

show llc status

Displays status information for the GPRS logical link-control (LLC) layer.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show llc status gprs-service *srvc_name* **sessmgr instance** *instance* **{ dlci ms-id** *ms_id* **sapi** *sapid* **| lsap sapid** *sapid* **| ms** *ms_id* **| usap sapid** *sapid* **[| { grep grep_options | more }]**

gprs-service *srvc_name*

Displays the LLC layer status for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

sessmgr instance *instance*

Displays the LLC status for a session manager instance specified as an integer. The range varies depending upon the release:

- for releases prior to 14.0, the range is from 1 to 4294967295.
- for releases 14.0 and later, the range is from 1 to 384.

dlci ms-id *ms_id* [sapi *sapid*]

Displays the LLC status for a specific data link connection identifier (DLCI) between the LLC and the mobile station (MS). *ms_id* must be an integer from 0 to 65536 that identifies the DLCI interface connecting to a specific MS.

sapi: Filters the display of the LLC status information to focus on a specific service access point interface (SAPI) within the specified DLCI specified as.an integer from 1 to 11

lsap *sapid*

Refines the display of the LLC status to focus on a specific lower service access point interface (LSAP) specified as an integer from 0 to 65536.

ms-id *ms_id*

Displays the LLC status for a connected MS specified as an integer from 0 to 65536.

usap *sapid*

Refines the display of the LLC statistics to focus on a specific upper service access point interface (USAP) specified as an integer from 0 to 65536.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference*.

Usage Guidelines

This command can display either a summarized or full (verbose) view of statistics collected for the traffic that has gone through the LLC layer for either all GPRS services or for a specified GPRS service.

Example

The following command displays the frame Tx/Rx LLC statistics for GPRS service *gprs1*:

```
show llc statistics gprs-service gprs1
```

show lma-service

Displays statistic and counter information for Local Mobility Anchor (LMA) services on this system.

Product

P-GW

SAEGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show lma-service all
show lma-service name service_name
show lma-service session [ all | callid id | counters | full | ipv6-address
 { < address | > address | address | greater-than address [ less-than address ]
 | less-than address [ greater-than address ] } | summary | username name ]
show lma-service statistics [ lma-service name ] } [ | { grep grep_options
| more } ]
```

all

Displays information about all configured LMA services on this system.

name *service_name*

Displays configuration information for an existing LMA service specified as an alphanumeric string of 1 through 63 characters.

session [all | callid *id* | counters | full | ipv6-address { < *address* | > *address* | *address* | greater-than *address* [less-than *address*] | less-than *address* [greater-than *address*] } | summary | username *name*]

Displays session information filtered by the following parameters:

all: Displays all active LMA sessions using LMA services on the system.

callid *id*: Displays available session information for the call identification number specified as an eight-byte hexadecimal number.

counters: Displays session counters for active LMA sessions using LMA services on the system. This keyword can also be filtered by the following:

- **all**

- **callid**
- **ipv6-address**
- **username**

Refer to the keyword descriptions in this command for information regarding these filters.

full: Displays additional session information for active LMA sessions using LMA services on the system. This keyword includes the information in the output of the **all** keyword plus additional information. This keyword can also be filtered by the following:

- **all**
- **callid**
- **ipv6-address**
- **username**

Refer to the keyword descriptions in this command for information regarding these filters.

ipv6-address:

- < *address* and **less-than** *address*: Displays summarized information for a group of IPv6 addresses that are less than the specified IPv6 address using one of these keywords. A range can be specified by including an address with the **greater-than** option. *address* must be specified in IPv6 colon-separated-hexadecimal notation.
- > *address* and **greater-than** *address*: Displays summarized information for a group of IPv6 addresses that are greater than the specified IPv6 address using one of these keywords. A range can be specified by including an address with the **less-than** option. *address* must be specified in IPv6 colon-separated-hexadecimal notation.
- *address*: Displays summarized information for a specific IPv6 address using an LMA service on this system. *address* must be specified in IPv6 colon-separated-hexadecimal notation.

summary: Displays the number of LMA sessions currently active for LMA services configured on the system.

username *name*: Displays available session information for an existing user specified as an alphanumeric string of 1 through 127 characters.

statistics [lma-service *name*]

lma-service *name*: Displays LMA service statistics for an existing LMA service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for LMA services on this system.

Example

The following command displays service statistics for the LMA service named *lma1*:

```
show lma-service name lma1
```

show lns-service

Displays the information for all L2TP Network Server (LNS) services or for a particular LNS service.

Product

PDSN

HA

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show lns-service { all | name service_name } [ | { grep grep_options | more } ]
```

all

Display information for all LNS services.

name *service_name*

Displays information only for an existing LNS service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to list information for LNS services configured on this system.

Example

The following commands display information for all LNS services and the LNS service named *lns1*, respectively.

```
show lns-service all
```

```
show lns-service name lns1
```

show local-policy

Displays information pertaining to local QoS policy services.

Product

P-GW

SAEGW

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show local-policy statistics { all | service *service_name* **| summary } | { grep** *grep_options* **| more }**

statistics { all | service *service_name* | summary }

Display statistics pertaining to local QoS services.

all: Displays information for all local QoS services.

service *service_name*: Displays statistics only for an existing local QoS service specified as an alphanumeric string of 1 through 64 characters.

summary: Displays summarized statistics all local QoS services.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistics for local QoS policies on this system.

Example

The following command displays statistics for the local QoS policy named *sample1*.

show local-policy statistics service sample1

show local-user

Displays information pertaining to local-user accounts.

Important In a release 20.0 or higher Trusted build, this command is not available.

Product All

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

```
show local-user [ [ username name ] [ inactive filter ] [ verbose | wide ]
 | statistics [ verbose ] ]
```

username *name*

Displays information for an existing local-user administrative account specified as an alphanumeric string of 3 through 16 characters that is case sensitive. If a username is not specified, information is displayed for all local users.

inactive *filter*

Specifies a filter for displaying inactive local-user accounts:

- < *days*: Displays accounts that have been inactive less than the specified number of days.
- > *days*: Displays accounts that have been inactive more than the specified number of days.
- **greater-than** *days*: Displays accounts that have been inactive more than the specified number of days.
- **less-than** *days*: Displays accounts that have been inactive less than the specified number of days.

days can be configured to an integer from 1 through 365.

[verbose | wide]

Specifies how the information is to be displayed as one of the following options:

- **verbose**: The data is displayed in list format. Additional information is provided beyond what is displayed when the **wide** option is used.
- **wide**: The data is displayed in tabular format. This is the default setting.

statistics [verbose]

Displays local-user statistics.

Using the **verbose** keyword displays additional statistics.

Usage Guidelines Use this command to display information and statistics on local-user administrative accounts.

Example

The following command displays detailed information on local-user administrative accounts that have been inactive for more than 10 days:

```
show local-user inactive greater-than 10 verbose
```

The following command displays detailed information for a local-user account named *Test*:

```
show local-user username Test verbose
```

The following command displays detailed local-user account statistics:

```
show local-user statistics verbose
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show location-service

Displays information and statistics for all location services or for a specific location service.

Product

MME

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show location-service { service { all | name service_name } | statistics {
 all | service service_name } [ | { grep grep_options | more } ]
```

service { all | name *service_name* }

Display configuration information pertaining to location services.

all: Displays information for all location services.

name *service_name*: Displays information only for an existing location service specified as an alphanumeric string of 1 through 63 characters.

statistics { all | service *service_name* }

Display statistics pertaining to location services.

all: Displays statistics for all location services.

name *service_name*: Displays statistics only for an existing location service specified as an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to list configuration information and statistics for location services configured on this system.

Example

The following commands display information for all location services and the location service named *location_service1*, respectively.

```
show location-service service all
```

```
show location-service service name location_service1
```

The following command displays statistics for the location service named *location_service1*.

```
show location-service statistics service location_service1
```

show logging

Displays the defined logging filters for the current context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show logging [ active | verbose ] [ | { grep grep_options | more } ]
```

active | verbose

active: Displays only active CLI logging filter information in concise format.

verbose: Displays as much information as possible.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines View log filters to troubleshoot disk utilization issues.

Example

```
show logging
show logging active
show logging verbose
show logging active verbose
```

show logical-port utilization table

Displays logical port (VLAN and NPU) utilization for a specified interface port.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show logical port utilization table slot/port [vlan { 5-minute | hourly }]
 [ | { grep grep_options | more } ]
```

slot/port

Specifies the port for which logical-port statistics will be displayed. The slot and port must refer to an installed card and port.

vlan { 5-minute | hourly }

Displays only active VLAN information for the specified collection interval.

- **5-minute**: Displays 5-minute utilization intervals for the past 24 hours.
- **hourly**: Displays hourly utilization intervals for the past 24 hours.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines View logical port (VLAN) statistics for 5-minute intervals on port 17/1.

Example

```
show logical-port utilization table 17/1 vlan 5-minute
```

show logs

Displays active and inactive logs filtered by the options specified.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show logs [active] [inactive] [callid *call_id* **] [encrypted-li] [event-verbosity** *evt_verboseness* **] [facility** *facility* **] [level** *severity_level* **] [pdu-data** *pdu_format* **] [pdu-verbosity** *pdu_verboseness* **] [proclet** *facility* **] [since** *from_date_time* **[until** *to_date_time* **]] [| { grep** *grep_options* **| more }]**

active

Displays data from active logs.

inactive

Displays data from inactive logs.

callid *call_id*

Displays log information only for a call ID specified as a 4-digit hexadecimal number.

encrypted-li

This keyword is only visible to an administrator with li-privilege. It displays the boot config output for the encrypted LI configuration when **require segregated li-configuration** has been enabled.

Note For additional information, see the *Lawful Intercept Configuration Guide*.

event-verbosity *evt_verboseness*

Specifies the level of verboseness to use in displaying of event data as one of:

- **min** - displays minimal information about the event. Information includes event name, facility, event ID, severity level, date, and time.

- **concise** - displays detailed information about the event, but does not provide the event source within the system.
- **full** - displays detailed information about event, including source information, identifying where within the system the event was generated.

facility *facility*

Specifies the facility to modify the filtering of logged information for as one of:

- **a10**: A10 interface facility
- **a11**: A11 interface facility
- **a11mgr**: A11 Manager facility
- **aaa-client**: Authentication, Authorization and Accounting (AAA) client facility
- **aaamgr**: AAA manager logging facility
- **aaaproxy**: AAA Proxy facility
- **aal2**: ATM Adaptation Layer 2 (AAL2) protocol logging facility
- **acl-log**: Access Control List (ACL) logging facility
- **acsctrl**: Active Charging Service (ACS) Controller facility
- **acsmgr**: ACS Manager facility
- **afctrl**: Fabric Controller facility [ASR 5500 only]
- **afmgr**: Fabric Manager logging facility [ASR 5500 only]
- **alarmctrl**: Alarm Controller facility
- **alcap**: Access Link Control Application Part (ALCAP) protocol logging facility
- **alcapmgr**: ALCAP manager logging facility
- **all**: All facilities
- **asngwmgr**: Access Service Network (ASN) Gateway Manager facility
- **asnpcmgr**: ASN Paging Controller Manager facility
- **bfd**: Bidirectional Forwarding Detection (BFD) protocol logging facility
- **bgp**: Border Gateway Protocol (BGP) facility
- **bindmux**: IPCF BindMux-Demux Manager logging facility
- **bngmgr**: Broadband Network Gateway (BNG) Demux Manager logging facility
- **bssap+**: Base Station Sub-system Application Part+ protocol facility for the login interface between the SGSN and the MSC/VLR (2.5G and 3G)
- **bssgp**: Base Station Sub-system GPRS Protocol logging facility handles exchange information between the SGSN and the BSS (2.5G only)
- **bulkstat**: Statistics logging facility

- **callhome**: Call Home application logging facility
- **cap**: CAMEL Application Part (CAP) logging facility for protocol used in prepaid applications (2.5G and 3G)
- **cbsmgr**: Cell Broadcasting Service (CBS) logging facility [HNBGW]

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **cdf**: Charging Data Function (CDF) logging facility
- **cgw**: Converged Access Gateway (CGW) logging facility
- **cli**: Command Line Interface (CLI) logging facility
- **cmp**: Certificate Management Protocol (IPSec) logging facility
- **confdmgr**: ConfD Manager proclet (NETCONF) logging facility
- **connectedapps**: SecGW ASR 9000 oneP communication procotol
- **connproxy**: Controller Proxy logging facility
- **credit-control**: Credit Control (CC) facility
- **csp**: Card/Slot/Port controller facility
- **css**: Content Service Selection (CSS) facility
- **css-sig**: CSS RADIUS Signaling facility
- **cx-diameter**: Cx Diameter Messages facility [CSCF <--> HSS]
- **data-mgr**: Data Manager Framework logging facility
- **dcardctrl**: IPSec Daughter Card Controller logging facility
- **dcardmgr**: IPSec Daughter Card Manager logging facility
- **demuxmgr**: Demux Manager API facility
- **dgmbmgr**: Diameter Gmb Application Manager logging facility
- **dhcp**: Dynamic Host Configuration Protocol (DHCP) logging facility
- **dhcpv6**: DHCPv6
- **dhost**: Distributed Host logging facility
- **diabase**: Diabase messages facility
- **diactrl**: Diameter Controller proclet logging facility
- **diameter**: Diameter endpoint logging facility
- **diameter-acct**: Diameter Accounting

- **diameter-auth**: Diameter Authentication
- **diameter-dns**: Diameter DNS subsystem
- **diameter-ecs**: ACS Diameter signaling facility
- **diameter-engine**: Diameter version2 engine logging facility
- **diameter-hdd**: Diameter Horizontal Directional Drilling (HDD) Interface facility
- **diameter-svc**: Diameter Service
- **diamproxy**: DiamProxy logging facility
- **dpath**: IPSec Data Path facility
- **drvctrl**: Driver Controller facility
- **dpath**: IPSec Data Path logging facility
- **drvctrl**: Driver Controller logging facility
- **doulosuemgr**: Doulos (IMS-IPSec-Tool) user equipment manager
- **eap-diameter**: Extensible Authentication Protocol (EAP) IP Sec urity facility
- **eap-ipsec**: Extensible Authentication Protocol (EAP) IPSec facility
- **eap-sta-s6a-s13-s6b-diameter**: EAP/STA/S6A/S13/S6B Diameter messages facility
- **ecs-css**: ACSMGR <-> Session Manager Signalling Interface facility
- **egtpc**: eGTP-C logging facility
- **egtpmgr**: enhanced GPRS Tunneling Protocol (eGTP) manager logging facility
- **egtpu**: eGTP-U logging facility
- **embms**: evolved Multimedia Broadcast Multicast Services Gateway facility
- **embms**: eMBMS Gateway Demux facility
- **epdg**: evolved Packet Data (ePDG) gateway logging facility
- **event-notif**: Event Notification Interface logging facility
- **evlog**: Event log facility
- **famgr**: Foreign Agent manager logging facility
- **firewall**: Firewall logging facility
- **fng**: Femto Network Gateway (FNG) logging facility
- **gbmgr**: SGSN Gb Interface Manager facility
- **gmm**:
  - For 2.5G: Logs the GPRS Mobility Management (GMM) layer (above LLC layer)
  - For 3G: Logs the access application layer (above the RANAP layer)

- **gprs-app**: GPRS Application logging facility
- **gprs-ns**: GPRS Network Service Protocol (layer between SGSN and the BSS) logging facility
- **gq-rx-tx-diameter**: Gq/Rx/Tx Diameter messages facility
- **gss-gcdr**: GTPP Storage Server GCDR facility
- **gtpc**: GTP-C protocol logging facility
- **gtpcmgr**: GTP-C protocol manager logging facility
- **gtpp**: GTP-prime protocol logging facility
- **gtpu**: GTP-U protocol logging facility
- **gtpumgr**: GTP-U Demux manager
- **gx-ty-diameter**: Gx/Ty Diameter messages facility
- **gy-diameter**: Gy Diameter messages facility
- **h248prt**: H.248 port manager facility
- **hamgr**: Home Agent manager logging facility
- **hat**: High Availability Task (HAT) process facility
- **hdctrl**: HD Controller logging facility
- **henbapp**: Home Evolved NodeB (HENB) App facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw**: HENB-GW facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw-pws**: HENB-GW Public Warning System logging facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw-sctp-acs**: HENB-GW access Stream Control Transmission Protocol (SCTP) facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgw-sctp-nw**: HENBGW network SCTP facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgwdemux**: HENB-GW Demux facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgwmgr**: HENB-GW Manager facility

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **hnb-gw**: HNB-GW (3G Femto GW) logging facility

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **hnbmgr**: HNB-GW Demux Manager logging facility

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **hss-peer-service**: Home Subscriber Server (HSS) Peer Service facility
- **igmp**: Internet Group Management Protocol (IGMP)
- **ikev2**: Internet Key Exchange version 2 (IKEv2)
- **ims-authorizatn**: IP Multimedia Subsystem (IMS) Authorization Service facility

- **ims-sh**: HSS Diameter Sh Interface Service facility
- **imsimgr**: SGSN IMSI Manager facility
- **imsue**: IMS User Equipment (IMSUE) facility
- **ip-arp**: IP Address Resolution Protocol facility
- **ip-interface**: IP interface facility
- **ip-route**: IP route facility
- **ipms**: Intelligent Packet Monitoring System (IPMS) logging facility
- **ipne**: IP Network Enabler (IPNE) facility
- **ipsec**: IP Security logging facility
- **ipsecdemux**: IPSec demux logging facility
- **ipsg**: IP Service Gateway interface logging facility
- **ipsgmgr**: IP Services Gateway facility
- **ipsp**: IP Pool Sharing Protocol logging facility
- **kvstore**: Key/Value Store (KVSTORE) Store facility
- **l2tp-control**: Layer 2 Tunneling Protocol (L2TP) control logging facility
- **l2tp-data**: L2TP data logging facility
- **l2tpdemux**: L2TP Demux Manager logging facility
- **l2tpmgr**: L2TP Manager logging facility
- **lagmgr**: Link Aggregation Group (LAG) manager logging facility
- **lcs**: Location Services (LCS) logging facility
- **ldap**: Lightweight Directory Access Protocol (LDAP) messages logging facility
- **li**: Refer to the *Lawful Intercept Configuration Guide* for a description of this command.
- **linkmgr**: SGSN/BSS SS7 Link Manager logging facility (2.5G only)
- **llc**: Logical Link Control (LLC) Protocol logging facility; for SGSN: logs the LLC layer between the GMM and the BSSGP layers for logical links between the MS and the SGSN
- **local-policy**: Local Policy Service facility
- **location-service**: Location Services facility
- **m3ua**: M3UA Protocol logging facility
- **magmgr**: Mobile Access Gateway manager logging facility
- **map**: Mobile Application Part (MAP) protocol logging facility
- **megadiammgr**: MegaDiameter Manager (SLF Service) logging facility
- **mme-app**: Mobility Management Entity (MME) Application logging facility

- **mme-misc**: MME miscellaneous logging facility
- **mmedemux**: MME Demux Manager logging facility
- **mmemgr**: MME Manager facility
- **mmgr**: Master Manager logging facility
- **mobile-ip**: Mobile IP processes
- **mobile-ip-data**: Mobile IP data facility
- **mobile-ipv6**: Mobile IPv6 logging facility
- **mpls**: Multiprotocol Label Switching (MPLS) protocol logging facility
- **mrme**: Multi Radio Mobility Entity (MRME) logging facility
- **mseg-app**: Mobile Services Edge Gateway (MSEG) application logging facility (This option is not supported in this release.)
- **mseg-gtpc**: MSEG GTP-C application logging facility (This option is not supported in this release.)
- **mseg-gtpu**: MSEG GTP-U application logging facility (This option is not supported in this release.)
- **msegmgr**: MSEG Demux Manager logging facility (This option is not supported in this release.)
- **mtp2**: Message Transfer Part 2 (MTP2) Service logging facility
- **mtp3**: Message Transfer Part 3 (MTP3) Protocol logging facility
- **multicast-proxy**: Multicast Proxy logging facility
- **nas**: Non-Access Stratum (NAS) protocol logging facility [MME 4G]
- **netwstrg**: Network Storage facility
- **npuctrl**: Network Processor Unit Control facility
- **npudrv**: Network Processor Unit Driver facility [ASR 5500 only]
- **npumgr**: Network Processor Unit Manager facility
- **npumgr-acl**: NPUMGR ACL logging facility
- **npumgr-drv**: NPUMGR DRV logging facility
- **npumgr-flow**: NPUMGR FLOW logging facility
- **npumgr-fwd**: NPUMGR FWD logging facility
- **npumgr-init**: NPUMGR INIT logging facility
- **npumgr-lc**: NPUMGR LC logging facility
- **npumgr-port**: NPUMGR PORT logging facility
- **npumgr-recovery**: NPUMGR RECOVERY logging facility
- **npumgr-rri**: NPUMGR RRI (Reverse Route Injection) logging facility
- **npumgr-vpn**: NPUMGR VPN logging facility
- **npusim**: NPUSIM logging facility [ASR 5500 only]

- **ntfy-intf**: Notification Interface logging facility [Release 12.0 and earlier versions only]
- **ocsp**: Online Certificate Status Protocol logging facility.
- **orbs**: Object Request Broker System logging facility
- **ospf**: OSPF protocol logging facility
- **ospfv3**: OSPFv3 protocol logging facility
- **p2p**: Peer-to-Peer Detection logging facility
- **pagingmgr**: PAGINGMGR logging facility
- **pccmgr**: Intelligent Policy Control Function (IPCF) Policy Charging and Control (PCC) Manager library
- **pdg**: Packet Data Gateway (PDG) logging facility
- **pdgdmgr**: PDG Demux Manager logging facility
- **pdif**: Packet Data Interworking Function (PDIF) logging facility
- **pgw**: Packet Data Network Gateway (PGW) logging facility
- **pmm-app**: Packet Mobility Management (PMM) application logging facility
- **ppp**: Point-To-Point Protocol (PPP) link and packet facilities
- **pppoe**: PPP over Ethernet logging facility
- **proclet-map-frwk**: Proclet mapping framework logging facility
- **push**: VPNMGR CDR push logging facility
- **radius-acct**: RADIUS accounting logging facility
- **radius-auth**: RADIUS authentication logging facility
- **radius-coa**: RADIUS change of authorization and radius disconnect
- **ranap**: Radio Access Network Application Part (RANAP) Protocol facility logging info flow between SGSN and RNS (3G)
- **rct**: Recovery Control Task logging facility
- **rdt**: Redirect Task logging facility
- **resmgr**: Resource Manager logging facility
- **rf-diameter**: Diameter Rf interface messages facility
- **rip**: Routing Information Protocol (RIP) logging facility [RIP is not supported at this time.]
- **rlf**: Rate Limiting Function (RLF) logging facility
- **rohc**: Robust Header Compression (RoHC) facility
- **rsvp**: Reservation Protocol logging facility
- **rua**: RANAP User Adaptation (RUA) [3G Femto GW - RUA messages] logging facility
- **s102**: S102 protocol logging facility

- **s102mgr**: S102Mgr logging facility
- **s1ap**: S1 Application Protocol (S1AP) Protocol logging facility
- **sabp**: Service Area Broadcast Protocol (SABP) logging facility
- **saegw**: System Architecture Evolution (SAE) Gateway facility
- **sbc**: SBc protocol logging facility
- **sccp:** Signalling Connection Control Part (SCCP) Protocol logging (connection-oriented messages between RANAP and TCAP layers).
- **sct**: Shared Configuration Task logging facility
- **sctp**: Stream Control Transmission Protocol (SCTP) Protocol logging facility
- **sef_ecs**: Severely Errored Frames (SEF) APIs printing facility
- **sess-gr**: SM GR facility
- **sessctrl**: Session Controller logging facility
- **sessmgr**: Session Manager logging facility
- **sesstrc**: session trace logging facility
- **sft**: Switch Fabric Task logging facility
- **sgs**: SGs interface protocol logging facility
- **sgsn-app**: SGSN-APP logging various SGSN "glue" interfaces (for example, between PMM, MAP, GPRS-FSM, SMS).
- **sgsn-failures**: SGSN call failures (attach/activate rejects) logging facility (2.5G)
- **sgsn-gtpc**: SGSN GTP-C Protocol logging control messages between the SGSN and the GGSN
- **sgsn-gtpu**: SGSN GTP-U Protocol logging user data messages between the SGSN and GGSN
- **sgsn-mbms-bearer**: SGSN Multimedia Broadcast/Multicast Service (MBMS) Bearer app (SMGR) logging facility
- **sgsn-misc**: Used by stack manager to log binding and removing between layers
- **sgsn-system**: SGSN System Components logging facility (used infrequently)
- **sgsn-test**: SGSN Tests logging facility; used infrequently
- **sgtpcmgr**: SGSN GTP-C Manager logging information exchange through SGTPC and the GGSN
- **sgw**: Serving Gateway facility
- **sh-diameter**: Sh Diameter messages facility
- **sitmain**: System Initialization Task main logging facility
- **sls**: Service Level Specification (SLS) protocol logging facility
- **sm-app**: SM Protocol logging facility
- **sms**: Short Message Service (SMS) logging messages between the MS and the SMSC

- **sndcp**: Sub Network Dependent Convergence Protocol (SNDCP) logging facility
- **snmp**: SNMP logging facility
- **sprmgr**: IPCF Subscriber Policy Register (SPR) manager logging facility
- **srdb**: Static Rating Database
- **srp**: Service Redundancy Protocol (SRP) logging facility
- **sscfnni**: Service-Specific Coordination Function for Signaling at the Network Node Interface (SSCF-NNI) logging facility
- **sscop**: Service-Specific Connection-Oriented Protocol (SSCOP) logging facility
- **ssh-ipsec**: Secure Shell (SSH) IP Security logging facility
- **ssl**: Secure Socket Layer (SSL) message logging facility
- **stat**: Statistics logging facility

Important The keyword **bulkstat** was added in StarOS release 21.1 to provide consistency with other CLI commands. Both keywords are supported for statistics logging facility.

- **supserv**: Supplementary Services logging facility [H.323]
- **system**: System logging facility
- **tacacsplus**: TACACS+ Protocol logging facility
- **tcap**: TCAP Protocol logging facility
- **testctrl**: Test Controller logging facility
- **testmgr**: Test Manager logging facility
- **threshold**: threshold logging facility
- **ttg**: Tunnel Termination Gateway (TTG) logging facility
- **tucl**: TCP/UDP Convergence Layer (TUCL) logging facility
- **udr**: User Data Record (UDR) facility (used with the Charging Service)
- **user-data**: User data logging facility
- **user-l3tunnel**: User Layer 3 tunnel logging facility
- **usertcp-stack**: User TCP Stack
- **vim**: Voice Instant Messaging (VIM) logging facility
- **vinfo**: VINFO logging facility
- **vmgctrl**: Virtual Media Gateway (VMG) controller facility
- **vmgctrl**: VMG Content Manager facility
- **vpn**: Virtual Private Network logging facility

- **wimax-data**: WiMAX DATA
- **wimax-r6**: WiMAX R6
- **wsg**: Wireless Security Gateway (ASR 9000 Security Gateway)
- **x2gw-app**: X2GW (X2 proxy Gateway, eNodeB) application logging facility
- **x2gw-demux**: X2GW demux task logging facility

level *severity_level*

level *severity_level*: Specifies the level of information to be logged from the following list which is ordered from highest to lowest:

- **critical** - display critical events
- **error** - display error events and all events with a higher severity level
- **warning** - display warning events and all events with a higher severity level
- **unusual** - display unusual events and all events with a higher severity level
- **info** - display info events and all events with a higher severity level
- **trace** - display trace events and all events with a higher severity level
- **debug** - display all events

pdu-data *pdu_format*

Specifies output format for the display of packet data units as one of:

- **none** - output is in raw format (unformatted).
- **hex** - output being displayed in hexadecimal format.
- **hex-ascii** - output being displayed in hexadecimal and ASCII similar to a main-frame dump.

pdu-verbosity *pdu_verboseness*

Specifies the level of verboseness to use in displaying of packet data units as an integer from 1 through 5, where 5 is the most detailed.

proclet *facility*

Shows the logs from a specific proclet facility. The available facilities are the same as those listed earlier.

since *from_date_time* [until *to_date_time*]

Default: no limit.

since *from_date_time*: indicates only the log information which has been collected more recently than *from_date_time* is to be displayed.

until *to_date_time*: indicates no log information more recent than *to_date_time* is to be displayed. **until** defaults to current time when omitted.

from_date_time and *to_date_time* must be formatted as YYYY:MM:DD:HH:mm or YYYY:MM:DD:HH:mm:ss. Where:

- YYYY = 4-digit year
- MM = 2-digit month in the range 01 through 12
- DD = 2-digit day in the range 01 through 31
- HH = 2-digit hour in the range 00 through 23
- mm = 2-digit minute in the range 00 through 59
- ss = 2-digit second in the range 00 through 59

to_date_time must be a time which is more recent than *from_date_time*.

The use of the **until** keyword allows for a time range of log information while only using the **since** keyword will display all information up to the current time.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View log files for general maintenance or troubleshooting system issues.

Example

The following command displays log information for the *a11mgr* facility starting with July 1th, 2011 at midnight.

```
show logs facility allmgr since 2011:07:11:00:00
```

The following command displays the log information for call ID *FE881D32* only in active logs.

```
show logs active callid FE881D32
```

show lte-policy

Displays information for Long term Evolution (LTE) policy configurations on this system including congestion action profiles, handover restriction lists, paging maps, paging profiles, subscriber maps, and tracking area identifiers (TAIs).

Product

HeNBGW

MME

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show lte-policy { cause-code-group { name *group_name* **| summary } | congestion-action-profile { name** *congest_profile_name* **| summary } | foreign-plmn-guti-mgmt-db { name** *db_name* **| summary } | henbgw { mme-pool { name** *mme_pool_name* **| summary } | qci-dscp-mapping-table { name** *table_name* **| summary } | overload-control | s1-reset | session-recovery }| ho-restriction-list { name** *ho_list_name* **| summary } | lte-emergency-profile { name** *emer_profile_name* **| summary } | mme { henbgw mgmt-db { name** *henbgw_mgmtdb_name* **| summary } | paging cache parameters | paging-map { name** *page_map_name* **| summary } | paging-profile { name** *page_profile_name* **| summary } | peer-map { name** *sub_map_name* **| summary } | subscriber-map { name** *sub_map_name* **| summary } | tai-list-db { name** *tai_list_name* **summary } | tai-mgmt-db { name** *tai_name* **[tai-mgmt-obj name** *obj_name* **| tai-custom-list tac** *cstm_tac_value* **] | summary } } [| { grep** *grep_options* **| more }]**

cause-code-group { name *group_name* | summary }

This MME-specific keyword displays information about the Cause Code Groups configured on this system.

name *group_name*: Displays information about a specific cause code group configured on this system. *group_name* must be an existing cause code group, expressed as an alphanumeric string of 1 to 16 characters.

summary: Displays summarized information about all cause code groups configured on this system.

congestion-action-profile { name *congest_profile_name* | summary }

Displays information about MME congesting action profiles configured on this system.

name *profile_name*: Displays information about a specific congestion action profile configured on this system. *profile_name* must be an existing HO restriction list, expressed as an alphanumeric string of 1 to 64 characters.

summary: Displays summarized information about all congestion action profiles configured on this system.

foreign-plmn-guti-mgmt-db { name *db_name* | summary }

This MME-specific keyword displays information about LTE Foreign PLMN GUTI management databases configured on this system.

name *db_name*: Displays information about a specific management database configured on this system. *db_name* must be an existing management database, expressed as an alphanumeric string of 1 to 64 characters.

summary: Displays summarized information about all Foreign PLMN GUTI management databases configured on this system.

henbgw { mme-pool { name *mme_pool_name* | summary } | qci-dscp-mapping-table { name *table_name* | summary } | overload-control | session-recovery }

This HeNBGW keyword displays information about HeNBGW configured on this system.

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

mme-pool shows mme pool.

name *mme_pool_name*: Displays detailed information about specified MME Pool configured on this system. *mme_pool_name* must be an existing management database, expressed as an alphanumeric string of 1 to 63 characters.

summary: Displays summarized information about MME Pool configured on this system.

qci-dscp-mapping-table shows qci-dscp-mapping-table information.

name *table_name*: Displays information for specific qci-dscp-mapping-table.*table_name* must be qci-dscp-mapping-table expressed as an alphanumeric string of 1 to 63 characters.

summary: Displays summary of all qci-dscp-mapping-table.

overload-control: Displays information about overload control.

s1-reset: Displays information about s1 reset.

session-recovery: Displays information about session recovery.

ho-restriction-list { name *list_name* | summary }

Displays information about handover restriction lists configured on this system.

name *ho_list_name*: Displays information about a specific handover restriction list configured on this system. *name* must be an existing HO restriction list, expressed as an alphanumeric string of 1 to 64 characters.

summary: Displays summarized information about all handover restriction lists configured on this system.

lte-emergency-profile { name *emer_profile_name* | summary }

Displays information about LTE emergency profiles configured on this system.

name *emer_profile_name*: Displays information about a specific LTE emergency profile configured on this system. *emer_profile_name* must be an existing LTE emergency profile, expressed as an alphanumeric string of 1 to 64 characters.

summary: Displays summarized information about all LTE emergency profiles configured on this system.

mme paging cache parameters

Displays the configured MME paging cache timeout and MME paging cache size configured with the **mme paging cache** command in the LTE Policy configuration mode.

paging-map { name *page_map_name* | summary }

Displays information about LTE paging maps configured on this system.

name *page_map_name*: Displays information about an existing LTE paging map specified as an alphanumeric string of 1 through 64 characters.

summary: Displays summarized information about all LTE paging maps configured on this system.

paging-profile { name *page_profile_name* | summary }

Displays information about LTE paging profiles configured on this system.

name *page_profile_name*: Displays information about an existing LTE paging profile specified as an alphanumeric string of 1 through 64 characters.

summary: Displays summarized information about all LTE paging profiles configured on this system.

peer-map { name *name* | summary }

Displays information about peer maps configured on this system.

name *map_name*: Displays information about an existing peer map specified as an alphanumeric string of 1 through 64 characters.

summary: Displays summarized information about all peer maps configured on this system.

subscriber-map { name *name* | summary }

Displays information about subscriber maps configured on this system.

name *sub_map_name*: Displays information about an existing subscriber map specified as an alphanumeric string of 1 through 64 characters.

summary: Displays summarized information about all subscriber maps configured on this system.

tai-list-db { name *tai_list_ name* | summary }

Displays information about TAI list databases configured on this system

name*tai_list_ name*: Displays information about specified TAI list database as an alphanumeric string of 1 through 64 characters.

summary: Displays summarized information about specified TAI list databases configured on this system.

tai-mgmt-db { name *name* [tai-mgmt-obj name *obj_name* | tai-custom-list tac *cstm_tac_value*] | summary }

Displays information about TAI management databases configured on this system.

name *tai_name*: Displays information about an existing TAI management database specified as an alphanumeric string of 1 through 64 characters.

tai-mgmt-obj name *obj_name* : Filters the information by the specified TAI Management Object name, where *obj_name* is a string from 1 through 64 characters.

tai-custom-list tac *cstm_tac_value* : Filters the information by the specified Custom TAI List TAC, where *cstm_tac_value* is an integer from 0 through 65535.

summary: Displays summarized information about all TAI management databases configured on this system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *CLI Overview* chapter.

Usage Guidelines

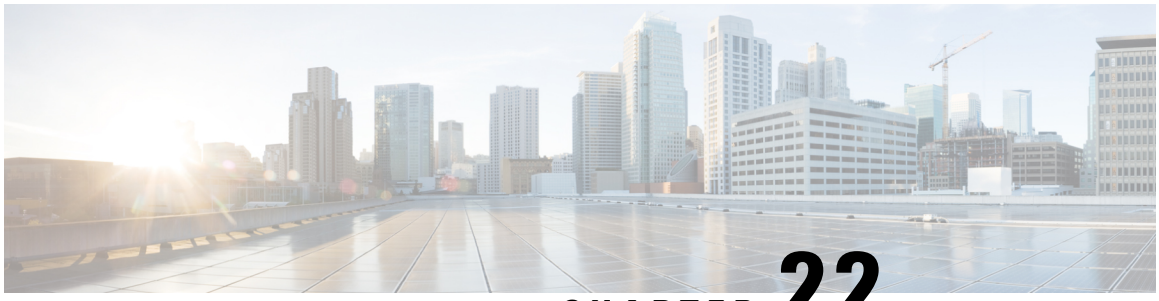
Use this command to display information for LTE policy configurations on this system including congestion action profiles, handover restriction lists, paging maps, paging profiles, subscriber maps, and tracking area identifiers (TAIs).

Example

The following command displays information about a subscriber map named *map3*:

```
show lte-policy subscriber-map name map3
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.



CHAPTER 22

Exec Mode show Commands (M-P)

The Exec Mode is the initial entry point into the command line interface system. Exec mode **show** commands are useful in troubleshooting and basic system monitoring.

Command Modes

This section includes the commands **show mag-service** through **show ps-network statistics**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

• show ps-network counters, on page 1052
• show ps-network statistics, on page 1053

show mag-service

Displays statistic and counter information for Mobile Access Gateway (MAG) services on this system.

Product

HSGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show mag-service { all | name` *`service_name`* **`| session [ all | callid`** *`id`* **`| counters | full | ip-address`** *`home_ip_address`* **`| msid`** *`id`* **`| summary | username`** *`name`* **`] | statistics [ name`** *`service_name`* **`] } [ | { grep`** *`grep_options`* **`| more } ]`**

all

Displays information for all configured MAG services on this system.

name *service_name*

Displays configuration information for a specific MAG service configured on this system.

service_name must be an existing MAG service expressed as an alphanumeric string of 1 through 63 characters.

session [all | callid *id* | counters | full | ip-address *home_ip_address* | msid *id* | summary | username *name*]

all: Displays all active MAG sessions using MAG services on the system.

callid *id*: Displays available session information for the specific call identification number.

id must be an 8-digit hexadecimal number.

counters: Displays counters for all MAG services on the system.This keyword can also be filtered by the following:

- **all**
- **callid**
- **ip-address**
- **msid**
- **summary**
- **username**

Refer to the keyword descriptions in this command for information regarding these filters.

full: Displays additional session information for all active MAG sessions using MAG services on the system. This keyword includes the information in the output of the **all** keyword plus additional information. This keyword can also be filtered by the following:

- **all**
- **callid**
- **ip-address**
- **msid**
- **summary**
- **username**

Refer to the keyword descriptions in this command for information regarding these filters.

ip-address *home_ip_address*: Displays available session information for a specific home IPv4 or IPv6 address of a subscriber in a service session.

msid *id*: Displays available information for a specific mobile station identification number or group of numbers based on wildcard entry.

id must be a valid MSID number and can be a sequence of characters and/or wildcard characters ('$' and/or '*'). The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes ('). For example: '$'.

summary: Displays the number of MAG sessions currently active for MAG services configured on the system.

username *name*: Displays available session information for a specific user in a service session.

name must be followed by an existing user name expressed as an alphanumeric string of 1 through 127 characters.

statistics [name *service_name*]

name *service_name*: Displays MAG service statistics for an existing MAG service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for MAG services on this system.

Example

The following command displays service statistics for the MAG service named *mag1*:

```
show mag-service name mag1
```

show map-service

Displays information configured for the Mobile Application Part (MAP) services, including MAP service features and operational configuration. Also includes some related configuration information for the HLR and EIR configuration parameters.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show map-service [ all | name` *`srvc_name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

name *srvc_name*

Specifies an existing MAP service as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display all MAP service or the statistics for a particular MAP service.

Example

The following command displays configuration information for the MAP service named *map-svc-1*:

```
show map-service name map-srv-1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show map statistics

Displays Mobile Application Part (MAP) statistics.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show map statistics [ name` *`srvc_name`* **`] [ recovered-values ] [ | { grep`** *`grep_options`* **`| more } ]`**

name *srvc_name*

Specifies an existing MAP service as an alphanumeric string of 1 through 63 characters.

recovered-values

Only displays recovered values for key KPI counters that were backed-up.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display all MAP statistics or the statistics for a particular MAP service.

Example

The following command displays statistics for the MAP service named *map-svc-1*:

`show map statistics name map-svc-1`

The following command displays combined statistics for all MAP services in the current context:

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show maximum-temperatures

Shows the maximum temperature reached by each card since the last temperature timestamp reset.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show maximum-temperatures [verbose] [| { grep *grep_options* **| more }]**

verbose

Indicates that the output is to contain detailed information.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Verify the maximum temperature reached by components in the chassis since the indicated timestamp.

Important This command is not supported on all platforms.

Example

```
show maximum-temperatures
show maximum-tempteratures verbose
```

show mbms bearer-service

Displays configuration information for bearer services configured for the multimedia broadcast multicast service (MBMS) running on this system.

Product

GGSN

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show mbms bearer-service [all] [apn *apn_name* **mcast-addr** *ip_address* **] [full] [instance** *instance_id* **] [service-type { broadcast | multicast }] [sgsn-sessions] [summary] [| { grep grep_options | more }]**

all

Displays information on all bearer services configured on the system.

apn *apn_name* mcast-addr *ip_address*

Displays bearer service information of the MBMS for a specific Access Point Name (APN). *apn_name* is bound to a given BM-SC (Broadcast Multicast - Service Center) server address *ip_address*.

apn_name is the name of the APN expressed as an alphanumeric string of 1 through 62 characters that is case sensitive.

ip_address is the IP address of the BM-SC server in IPv4 dotted-decimal notation bound to the APN.

full

Displays full information for specific or all instances of bearer service in MBMS feature on system.

instance *instance_id*

Displays session information filtered for an instance of a bearer service running as an MBMS session and specified an integer from 1 through 64.

service-type { broadcast | multicast }

Displays information for a specific type of service for MBMS.

broadcast: Specifies the MBMS service type as broadcast only.

multicast: Specifies the MBMS service type as multicast only.

sgsn-sessions

Displays summary information for all the SGSN multicast sessions.

summary

Displays summary information for specific or all instances of a bearer service.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more** options, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to verify the configuration of one or all bearer services and active instances of bearer services under MBMS. It is also useful for monitoring or troubleshooting purposes.

If this command is executed from within the local context with the **all** keyword, information for all bearer service instances running under MBMS will be displayed.

Example

The following command displays configuration information for all bearer service instances running on system:

```
show mbms bearer-service full all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show mipfa

Displays information for specified Mobile IP Foreign Agent (MIP-FA) calls.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show mipfa { [[counters | full | summary] { all | callid *call_id* **| msid** *ms_id* **| peer-address [** *operator* **]** *peer_address* **| reverse-tunnel { on | off } | username** *user_name* **} | statistics [fa-service** *fa_name* **| peer-address [** *peer_address* **| greater-than** *peer_address* **| less-than** *peer_address* **| >** *peer_address* **| <** *peer_address* **] }] | peers fa-service** *service_name* **[current-sessions { { > | greater-than }** *sessions* **[<** *sessions* **] | { < | less-than }** *sessions* **[>** *sessions* **] | sessions }] [peer-address** *address* **] } [| { grep** *grep_options* **| more }]]**

counters | full | summary

counters: Displayed output includes the statistical counters.

full: Displays detailed information.

summary: Displays only summary information. this is the default setting.

These options are not available in conjunction with the **statistics** keyword.

all | callid call_id | msid *ms_id* | peer-address *peer_ip_address* | reverse-tunnel { on | off } | username *user_name*

all: Displays all available information.

callid *call_id*: Displays information only for calls with the call ID specified as a 4-byte hexadecimal number.

msid *ms_id*: Displays information for a mobile subscriber ID expressed as a string from 7 to 16 digits for an IMSI, MIN, or RMI and/or characters $ and * for wildcard filter.

show mipha msid *01234567$$*

Shows any subscriber with an MSID that matches the upper 8 digits of the supplied MSID, such as 01234567, and any two digits at the remaining two places.

peer-address *peer_ip_address*: Displays information for the MIP call for the peer IP address specified using IPv4 dotted-decimal notation.

reverse-tunnel { **on** | **off** }: Enables the display of reverse IP tunnel information.

username *user_name*: Displays MIP call user information for the username specified as an alphanumeric string of 1 through 127 characters that may include wildcard characters ($ and *).

statistics [fa-service *fa_name* | peer-address [peer_address | greater-than *peer_address* | less-than *peer_address* | > *peer_address* | < *peer_address*]

Displays information for the foreign agent service specified by name or peer IP address.

fa-service *fa_name* must be an alphanumeric string of 1 through 63 characters.

peer-address *peer_address* must be specified using IPv4 dotted-decimal notation.

greater-than *peer_address*: Specifies the range of IPv4 addresses greater than *peer_address.*

less-than *peer_address*: Specifies the range of IPv4 addresses less than *peer_address.*

> *peer_address*: Specifies the range of IPv4 addresses greater than *peer_address.*

< *peer_address*: Specifies the range of IPv4 addresses less than *peer_address.*

peer-address [*operator*] *peer_address*

In conjunction with the **mipfa [summary] peer-address** keyword, indicates a range of peers is to be displayed.

peer-address [*operator* **]** *peer_address* must be specified using IPv4 dotted-decimal notation.

operator implies how to logically specify a range of peer-address and it must be one of the following:

- <: IP address is less than the specified *peer_address*
- >: IP address is greater than the specified *peer_address*
- **greater-than**: IP address is greater than the specified *peer_address*
- **less-than**: IP address is less than the specified *peer_address*

peers fa-service *service_name* [current-sessions { { > | greater-than } *sessions* [< *sessions*] | { < | less-than } *sessions* [> *sessions*] | *sessions* }] [peer-address *address*]

Displays peer servers for the specified FA service.

fa-service *service_name*: Specifies the name of an existing FA service for which the associated peer servers are to be displayed as an alphanumeric string of 1 through 63 characters.

current-sessions: Displays only peer servers with current sessions meeting the following criteria:

- > | greater-than *sessions*: Displays only peer servers currently running sessions higher than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000. **Note**: the keyword "**greater-than**" and the ">" symbol are interchangeable in this instance of the command.
- < *sessions*: Displays only peer servers that are currently running sessions l than the **greater-than** parameter but less than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000.

- < | less-than *sessions*: Displays only peer servers currently running sessions lower than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000. **Note**: the keyword "**less-than**" and the "<" symbol are interchangeable in this instance of the command.
- > *sessions*: Displays only peer servers that are currently running sessions lower than the **less-than** parameter but more than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000.
- *sessions*: Displays only peer servers currently running sessions that are equal to the value entered in this parameter. *sessions* must be an integer from 1 to 3000000.

peer-address *address*: Displays only peer servers matching the IP address entered in this parameter. *address* must be specified using IPv4 dotted-decimal notation and can be followed by the netmask of the address.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View MIP foreign agent information to support troubleshooting subscriber issues by viewing call information and filtering on the subscriber information using various methods.

Example

The following displays the call information for all mobile IP FA calls and statistics for *fa1*, respectively:

```
show mipfa all
```

The following command displays the statistics for the foreign agent service *fa1*:

```
show mipfa statistics fa-service fa1
```

The following commands displays call information for user *user6@aaa* in full detail and in summary:

```
show mipfa full username user6@aaa
show mipfa summary username user1
```

The following displays MIP FA call information for calls from mobile subscriber *4412345678* and peer address *10.2.3.4*, respectively:

```
show mipfa msid 4412345678 4412345678
show mipfa peer-address 10.2.3.4
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show mipha

Displays information for specified Mobile IP Home Agent (MIP-HA) calls.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show mipha { [[counters | full | summary] { all | callid *call_id* **| imsi** *imsi_num* **| ip-address** *ip_addr* **| msid** *msid_num* **| peer-address [** *operator* **]** *peer_address* **| reverse-tunnel { on | off } | username** *user_name* **} | statistics [ha-service** *ha_name* **| peer-address** *peer_address* **] }] | peers ha-service** *service_name* **[current-sessions { { > | greater-than }** *sessions* **[<** *sessions* **] | { < | less-than }** *sessions* **[>** *sessions* **] |** *sessions* **}] [peer-address** *address* **] } [| { grep** *grep_options* **| more }]**

counters | full | summary

Default: concise output.

counters: Displayed output includes the statistical counters.

full: Displays detailed information.

summary: Displays only summary information.

These options are not available in conjunction with the **statistics** keyword.

msid *msid_num*

Displays information for the subscriber with the supplied MSID on HA.

msid *msid_num* specifies a mobile subscriber ID for which information is to be displayed. *ms_id* must be from 7 to 16 digits for an IMSI, MIN, or RMI and /or characters $ and * for wildcard filtering.

If **enforce imsi-min equivalence** is enabled on the chassis and MIN or IMSI numbers are supplied, this keyword/ filter will show subscribers with a corresponding MSID (MIN or IMSI) whose lower 10 digits matches the lower 10 digits of the supplied MSID.

show mipha msid *ABCD0123456789* or

show mipha msid *0123456789*

Shows any subscriber with a MSID that match the lower 10 digits of MSID supplied, such as 0123456789.

show mipha msid *01234567$$*

Shows any subscriber with a MSID that match the upper 8 digits of the supplied MSID, such as 01234567 and any two digits at the remaining two places.

all | callid *call_id* | imsi *imsi_num* | ip-address *ip_addr* | msid *msid_num* | peer-address [*operator*] *peer_address* | reverse-tunnel { on | off } | username *user_name*

all: Displays all available information.

callid *call_id*: Displays information only for calls with the call ID specified as a 4-byte hexadecimal number.

imsi *imsi_num*: Specifies an IMSI (international mobile subscriber ID) for which information is to be displayed. The IMSI is a 15-character field which identifies the subscriber's home country and carrier.

ip-address *ip_addr*: Displays statistics for a call with the IP address specified in IPv4 dotted-decimal notation.

msid *msid_num*: Specifies a mobile subscriber ID only for which information is to be displayed. *ms_id* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI.

peer-address *peer_address*: Displays statistical information for the peer IP address specified using IPv4 dotted-decimal notation.

reverse-tunnel { **on** | **off** }: Enables the display of reverse IP tunnel information.

username *user_name*: Displays user MIP call information for the username specified as an alphanumeric string of 1 through 127 characters including wildcard characters ($ and *).

peer-address [*operator*] *peer_address*

In conjunction with **mipha [summary] peer-address** keyword, indicates a range of peers is to be displayed.

peer_address must be specified using IPv4 dotted-decimal notation.

operator implies how to logically specify a range of peer-addresses and it must be one of the following:

- <: IP address is less than the specified *peer_address*
- >: IP address is greater than the specified *peer_address*
- **greater-than**: IP address is greater than the specified *peer_address*
- **less-than**: IP address is less than the specified *peer_address*

statistics [ha-service *ha_name* | peer-address *peer_address*]

Displays statistical information for the home agent service specified by its name (an alphanumeric string of 1 through 63 characters) or peer IP address (IPv4 notation).

peers ha-service *service_name* [current-sessions { { > | greater-than } *sessions* [< *sessions*] | { < | less-than } *sessions* [> *sessions*] | *sessions* }] [peer-address *address*]

Displays peer servers for the specified HA service.

ha-service *service_name*: Specifies the name of an existing HA service for which the associated peer servers are to be displayed as an alphanumeric string of 1 through 63 characters.

current-sessions: Displays only peer servers with current sessions meeting the following criteria:

- > | greater-than *sessions*: Displays only peer servers currently running sessions higher than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000. **Note**: the keyword "**greater-than**" and the ">" symbol are interchangeable in this instance of the command.
- < *sessions*: Displays only peer servers that are currently running sessions higher than the **greater-than** parameter but less than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000.
- < | less-than *sessions*: Displays only peer servers currently running sessions lower than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000. **Note**: the keyword "**less-than**" and the "<" symbol are interchangeable in this instance of the command.

- > *sessions*: Displays only peer servers that are currently running sessions lower than the **less-than** permitter but more than the value entered in this parameter. *sessions* must be an integer from 1 to 3000000.
- *sessions*: Displays only peer servers currently running sessions that are equal to the value entered in this parameter. *sessions* must be an integer from 1 to 3000000.

peer-address *address*: Displays only peer servers matching the IP address entered in this parameter. *address* must be specified using IPv4 dotted-decimal notation and can be followed by the netmask of the address.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View MIP home agent information to support troubleshooting subscriber issues by viewing call information and filtering on the subscriber information using various methods.

Example

The following displays the call information for all mobile IP HA calls and statistics for *ha1*, respectively:

```
show mipha all
show mipha statistics ha-service ha1
```

The following commands displays call information for user *isp1user1* in full detail and in summary:

```
show mipha full username isp1user1
show mipha summary username user1
```

The following displays MIP-HA call information for calls from mobile subscribers with reverse tunneling *off* and peer address *10.2.3.4*, respectively:

```
show mipha reverse-tunnel off
show mipha peer-address 10.2.3.4
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show mipv6ha

Displays information for specified Mobile IPv6 Home Agent (MIPv6-HA) calls.

Product

PDSN

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show mipv6ha [all | callid *callid* **| counters** *filter* **| full** *filter* **| ipv6-address** *ip_addr*| **statistics mipv6ha-service** *mipv6ha-service_name* **| summary** *filter* **| username** *user_name* **]**

all

Displays all information for MIPv6-HA calls.

callid *call_id*

Specifies the Call Identification number as an 8-digit hexadecimal number.

counters [all | callid | ipv6-address | username]

Displays the counters associated with the MIPv6-HA service. The following filters are available:

- **all**
- **callid:**
- **ipv6-address**
- **username**

full [all | callid | ipv6-address | username]

Displays all available information for the associated display or filter keyword.

The following filters are available:

- **all**
- **callid:**
- **ipv6-address**
- **username**

ipv6-address *ip_addr*

Displays information for subscribers connected via the packet control function for a specific or range of IPv6 addresses. The address must be specified using the IPv6 colon-separated-hexadecimal notation.

- <: Filters output so that only information less than the specified IPv6 address value is displayed.
- >: Filters output so that only information greater than the specified IPv6 address value is displayed.
- **less-than**: Filters output so that only information less than the specified IPv6 address value is displayed.
- **greater-than**: Filters output so that only information greater than the specified IPv6 address value is displayed.

statistics [mipv6ha-service *mipv6ha-service_name*]

Displays all information collected for specific protocol since last the **restart** or **clear** command.

This can be filtered according to a specified **mipv6ha-service**.

summary [all | callid | ipv6-address | username]

Displays summary information for defined sessions, based on defined parameters.

The following filters are available:

- **all**
- **callid:**
- **ipv6-address**
- **username**

username *user_name*

Displays session information for a specific username.

Usage Guidelines

View MIPv6 home agent information to support troubleshooting subscriber issues by viewing call information and filtering on the subscriber information using various methods.

Example

The following displays the call information for all mobile IPv6 HA calls:

```
show mipv6ha all
```

The following command displays call information for user *mipv6hauser1* in full detail and in summary:

```
show mipv6ha full username mipv6hauser1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show mme-embms-service

Displays configuration information for MME-eMBMS services on this system. MME-eMBMS is the LTE version of Multimedia Broadcast/Multicast Service (eMBMS) on the Cisco Mobility Management Entity (MME).

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show mme-embms-service { all | all-session-info [summary] | m3ap statistics { all [verbose] | name *mme_embms_service_name* **} | mce-association { all [summary] | full | name** *mme_embms_service_name* **[summary] | path-info { all | name** *mme_embms_service_name* **} } | mce-session-association { plmn-id mcc** *mcc* **mnc** *mnc* **mce-id** *mce_id* **| tmgi-service-id** *tmgi_serv_id* **[mbms-flow-id** *mbms_flow_id* **] } | name** *mme_embms_service_name* **| sctp statistics { all | name** *mme_embms_service_name* **} }**

mme_embms_service_name

Identifies the name of a specific MME-eMBMS service. The name comprises a string of 1 to 63 alphanumeric characters.

all

Lists all configured MME-eMBMS service instances on the system and displays upper-level service information for each of the services.

all-session-info [summary]

Lists all active eMBMS sessions currently being handled by the MMEmgr. Optionally, the display can provide a summary of eMBMS information for each session.

m3ap statistics { all [verbose] | name }

Displays all M3AP statistics available for the MME or displays the M3AP statistics for the named "active" MME-eMBMS service. With the **all** keyword, the command output is used to clarify status of MBMS sessions with the following counters in the output:

- MBMS Session Start Request
- MBMS Session Start Response
- MBMS Session Start Response Failure

mce-association { all | full | name | path-info }

Displays peer MCE associations for either all eMBMS services or specifically for the named eMBMS service. Filters are included in the CLI to control the level of detail in the output.

When the **mce-association** and **path-info** keywords are used together, the output displays path informaiton for the MCEs associated with either all or only with the named MME-eMBMS service(s).

mce-session-association { plmn-id mcc *mcc* mnc *mnc* mce-id *mce_id* | tmgi-service-id *tmgi_service_id* mbms-flow-id *mbms_flow_id* }

Displays the MCE session associations for either

- a specific carrier, identified by the PLMN ID
- specific session attributes, such as Temporary Mobile Group Identity (TMGI) and/or Flow Identifier

name *mme_embms_service_name* [summary]

Displays the configuration for the named eMBMS service.

sctp statistics { all | name *mme_embms_service_name* }

Displays SCTP statistics for all or named “active” eMBMS service(s)

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for MME-eMBMS services on this system and to monitor status of the MCE associations and sessions.

Example

The following command displays MCE session information filtered by the TMGI *42949672*:

```
show mme-embms-service mce-session-association tmgi-service-id 42949672
```

show mme-hss session

Displays session information of Mobility Management Entity-Home Subscriber Server (MME-HSS) service(s) running on a peer or local system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show mme-hss session [ summary | full ] [ all | call-id call_identifier |
mdn mdn_string | nai nai_string ] [ verbose ] [ | { grep grep_options | more }
 ]
```

summary

This keyword displays the summarized output of this command.

full

This keyword displays detailed output of this command.

all

This keyword displays information of all MME-HSS sessions running on this system.

call-id *call_identifier*

Displays summarized or detailed statistics of MME-HSS sessions running and filtered by the call identifier with an MME-HSS service configured on this system.

call_identifier must an existing call identity in eight character Hex digit format running on an MME service on system.

mdn *mdn_string*

Displays summarized or detailed statistics of MME-HSS sessions running and filtered by mobile directory Number (MDN) with an MME-HSS service configured on this system.

mdn_string must be an alphanumeric string of 1 to100 characters.

nai *nai_string*

Displays summarized or detailed statistics of MME-HSS sessions running and filtered by Network Access Identifier (NAI) with an MME service configured on this system.

nai_string must be an alphanumeric string of 1 to128 characters.

verbose

This keyword displays the comprehensive information of specific or set of arguments.

| { grep *grep_options* | more }

This argument searches the output of the root command and selects the lines matching one or more patterns/options. The types of patterns are controlled by the options specified with *grep_options*.

For details on the usage of the **grep** and **more** commands, refer to the Regulating a Command's Output section in CLI Overview chapter of the Command Line Interface Reference.

Usage Guidelines

Use this command to view detailed or summarized session statistics of MME-HSS sessions running on MME-HSS services on a system. This command also provides the various filter criteria to display the session statistics.

Example

The following command displays information of all MME-HSS sessions of MME-HSS services running on a system:

```
show mme-hss session all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

The following command displays summarized session information of all MME-HSS sessions running on a system:

```
show mme-hss session summary all
```

show mme-service

Displays configuration information for Mobility Management Entity (MME) services on this system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show mme-service { all | name *svc_name* **[offload statistics] } [| { grep** *grep_options* **| more }]**

all

Displays configuration information for all MME services configured on this system.

name *service_name*

Displays configuration information for an existing MME service specified as an alphanumeric string of 1 through 63 characters.

offload statistics

Displays configuration information for the MME load rebalancing feature (UE offload), as well as current statistics about any active offloading processes.

This keyword option is only available in Release 14.0 and higher.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for MME services on this system.

Example

The following command displays service statistics for the MME service named *mme1*:

```
show mme-service name mme1
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mme-service db record

Displays the Mobile Management Entity (MME) database records for MME sessions grouped in session instances on this system and filtered with IMSI or GUTI as criteria.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show mme-service db record { all | call-id *call_id* **| guti plmn** *plmn_id* **group-id** *mme_grp_id* **code** *mme_code* **m-tmsi** *mtmsi_value* **| imsi** *imsi_identifier* **}**

all

Displays all database records of a session instance used for MME service.

call-id *call_id*

Displays database records filtered by the call ID specified as an 8-digit hexadecimal number

guti plmn *plmn_id* group-id *mme_grp_id* code *mme_code* m-tmsi *mtmsi_value*

Displays database records filtered by the Globally Unique Temporary Identifier (GUTI). The GUTI is constructed from the GUMMEI and the M-TMSI.

The GUMMEI is constructed from the public land mobile network (PLMN) ID [MMC and MNC] and the MME Group ID (MMEGI). Within the MME, the mobile is identified by the M-TMSI.

A GUTI has: 1) a unique identity for the MME which allocated the GUTI; and 2) the unique identity of the UE within the MME that allocated the GUTI.

The MME Identifier (MMEI) is constructed from an MME Group ID (MMEGI) and an MME Code (MMEC).

imsi *imsi_identifier*

Displays database records filtered by International Mobile Subscriber Identity (IMSI).

imsi_identifier is a 15-character IMSI field which identifies the subscriber's home country and carrier. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

Usage Guidelines Use this command to view database records for all or a particular instance of session manager for MME services on this system with IMSI or GUTI as a filter criteria.

Example

The following command displays the summary database records of a session instance for a subscriber having IMSI as *123455432112345* in the MME service:

```
show mme-service db record imsi 123455432112345
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mme-service db statistics

This command displays the Mobile Management Entity (MME) database statistics for all or specific MME sessions on this system.

Product MME

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show mme-service db statistics [ instance smgr_instance ]
```

instance *smgr_instance*

Displays MME database statistics for a specific instance of a session manager running the MME service.

smgr_instance is an instance ID specified as an integer from 0 through 4294967295. If an instance is not specified, summary statistics are displayed.

Usage Guidelines Use this command to view database statistics for all or a particular instance of session manager for MME services on this system.

Example

The following command displays summary database statistics for the MME service running on a system:

```
show mme-service db statistics
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mme-service enodeb-association

Displays configuration information for an eNodeB association within an MME service.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show mme-service enodeb-association [ summary | full [ wf1 ] | path-info [ wf1 ] ] [ all | enodeb-name` *`enodeb_name`* **`| henbgw | ipsec | mme-service-name`** *`mme_svc_name`* **`| peer-address`** *`peer_ip_address`* **`| peer-id`** *`peer_identifier`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

summary

Displays summarized output for this command.

full

Displays detailed output for this command.

wf1

Displays output in a tabular format.

path-info

Displays S1 path association information of eNodeBs associated with MME services on this system.

all

Displays information of all eNodeBs associated with MME services on this system.

enodeb-name *enodeb_name*

Displays information for the specified eNodeB associated with MME services on this system.

henbgw

Displays information for Home eNodeB Gateways (HeNB-GWs) associated with MME services on this system.

Important

In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

ipsec

Displays information of all IPSec enabled eNodeBs associated with MME services on this system.

mme-service-name *mme_svc_name*

Displays summarized or detailed configuration information for eNodeBs associated with an existing MME service specified as an alphanumeric string of 1 through 63 characters.

peer-address *peer_ip_address*

Displays summarized or detailed configuration information of eNodeBs associated with an existing MME peer IP address configured with an MME service and expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

peer-id *peer_identifier*

Displays summarized or detailed configuration information for eNodeBs associated with a an existing MME peer ID configured with an MME service and specified as an integer from 1 through 4294967295.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information of eNodeBs associated with an MME service on this system.

Example

The following command displays detailed service statistics for associated eNodeBs within the MME service named *ingress*:

```
show mme-service enodeb-association full mme-service-name ingress
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show mme-service id

This command displays the current number of MME-assigned and eNodeB-assigned S1AP session IDs.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show mme-service id summary [service-name *name* **[sessmgr** *instance* **]] | [peer-id** *id* **[sessmgr** *instance* **]] [| { grep** *grep_options* **| more }]**

id summary

Displays the current number of MME-assigned and eNodeB-assigned S1AP session IDs.

service-name *name*

Filters the output of the command by for an existing MME service name specified as an alphanumeric string of 1 through 63 characters.

peer-id *id*

Filters the output of the command by a MME peer identifier specified as an integer from 1 through 4294967295.

sessmgr *instance*

Filters the output of the command by the specified session manager instance as an integer from 1 through 4294967295.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the current number of MME-assigned and eNodeB-assigned S1AP session IDs.

show mme-service session

Displays session information for Mobile Management Entity (MME) service(s) running on a peer or local system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show mme-service session [summary | full | counters] [all | callid *call_identifier* **| imei** *imei_id* **| imsi** *imsi_id* **| ipsec | mme-service** *service_name* **| msisdn** *number* **| pdn-address** *pdn_ip_address* **| s1-peer** *s1_peer_ip_address* **|**

s11-peer *s11_peer_ip_address* **| vlr-name** *vlr_name* **| ue-ecm-state { connected | idle }] [| { grep** *grep_options* **| more }]**

summary

Displays summarized output for this command.

full

Displays detailed output for this command.

counters

Displays all counters for related events and messages for an MME session running on a system.

all

Displays information for all MME sessions running on this system.

callid *call_identifier*

Displays summarized or detailed configuration information for an MME session filtered by a call identifier within an MME service configured on this system.

call_identifier must be an existing call identity in 8-digit hexadecimal format running in an MME service on this system.

imei *imei_id*

Displays summarized or detailed configuration information about MME sessions running and filtered by an International Mobile Equipment Identification (IMEI) number within an MME service configured on this system.

imei_id must be an existing IMEI in an existing MME service on the system. *imei_id* must contain an 8-digit TAC (Type Allocation Code) and a 6-digit SNR (Serial Number).

imsi *imsi_id*

Displays summarized or detailed configuration information about MME sessions running and filtered by an International Mobile Subscriber Identity (IMSI) number within an MME service configured on the system.

imsi_id must be an existing IMSI in an existing MME service on the system. *imsi_id* is a 15-character IMSI field which identifies the subscriber's home country and carrier.

Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

ipsec

Displays information for all IPSec enabled sessions using MME services on the system.

mme-service *service_name*

Displays summarized or detailed configuration information about MME sessions running and filtered by an MME service name configured on the system.

service_name must be a configured MME service on the system, expressed as an alphanumeric string of 1 through 63 characters.

msisdn *number*

Displays summarized or detailed configuration information about MME sessions running and filtered by a Mobile Station International ISDN Number.

number must be a combination of the CC (Country Code) and National (significant) mobile number, not exceeding 15 digits.

pdn-address *pdn_ip_address*

Displays summarized or detailed configuration information about MME sessions running and filtered by the IP address of a connected PDN(s) within an MME service configured on this system.

pdn_ip_address must be a configured IP address of a PDN expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation within an existing MME service on the system.

s1-peer *s1_peer_ip_address*

Displays summarized or detailed configuration information of MME sessions running and filtered by the IP address of a peer connected through an S1 interface within an MME service configured on this system.

s1_peer_ip_address must be a configured IP address of a peer on S1 interface expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation within an existing MME service on this system.

s11-peer *s11_peer_ip_address*

Displays summarized or detailed configuration information of MME sessions running and filtered by IP address of a peer connected through S11 interface with an MME service configured on this system.

s11_peer_ip_address must be a configured IP address of a peer on S11 interface expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation within an existing MME service on this system.

vlr-name *vlr_name*

Displays summarized or detailed configuration information of MME sessions running and filtered by Visitor Location Register (VLR) name.

vlr_name must be an alphanumeric string of 1 through 63 characters.

ue-ecm-state { connected | idle }

Displays summarized or detailed configuration information about MME sessions running and filtered by the UE's EPS Connected Management (ECM) state.

connected: Specifies that summarized or detailed configuration information about MME sessions is to be displayed based on the UE ECM state of "connected".

idle: Specifies that summarized or detailed configuration information about MME sessions is to be displayed based on the UE ECM state of "idle".

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view information for MME sessions within MME services on this system.

Example

The following command displays detailed session statistics for an MME service running on this system:

```
show mme-service session full
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

The following command displays detailed session counters for an MME service running on this system:

```
show mme-service session counters
```

show mme-service statistics

This command displays MME service statistics specified by various criteria.

Product MME

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show mme-service statistics [ dcnr | decor [ decor-profile profile_name ] |
 emm-only | esm-only | handover | mme-service mme_svc_name | paging-profile
 [ profile-name paging_profile_name ] | peer-id peer_identifier | recovered-values
 | s1ap | sctp | tai taidb db_name mcc mcc mnc mnc tac tac  ] + [ verbose ]
[ | { grep grep_options | more } ]
```

dcnr

Displays the dual connectivity NR statistics.

decor [decor-profile *profile_name*]

Displays the Decor statistics for all the configured Decor profile(s).

decor-profile *profile_name*: Displays Decor statistics for the specified Decor profile. *profile_name* must be an alphanumeric string of 1 through 63 characters.

emm-only

Displays only EPS mobility management (EMM) related statistics, or filters EMM statistics for a specific MME service name or a specific eNodeB association peer identifier.

esm-only

Displays only EPS session management (ESM) related statistics, or filters ESM statistics for a specific MME service name or a specific eNodeB association peer identifier.

handover

Displays only handover related statistics (such as Intra-MME, EUTRAN<->EUTRAN via S10, EUTRAN<->UTRAN via GnGp, EUTRAN<->GERAN via GnGp, and EUTRAN<->UTRAN via S3), or filters handover statistics for a specific MME service name or a specific eNodeB association peer identifier.

mme-service *mme_svc_name*

Displays MME service statistics for only the specified MME service name.

paging-profile [profile-name *paging_profile_name*]

Displays the paging profile statistics for all the configured paging-profile(s) one after another.

profile-name *paging_profile_name*: Displays the paging profile statistics for the given profile name. *paging_profile_name* must be an alphanumeric string of 1 through 63 characters.

peer-id *peer_identifier*

Displays MME service statistics for only the specified eNodeB association peer identifier.

recovered-values

Enables the display of recovered counter values if the backup and recovery of statistics has been enabled. This keyword can be combined with the **emm-only**, the **esm-only**, or the **peer-id** options. For details on this feature, refer to the *Backup and Recovery of Key KPI Statistics* feature chapter in the *MME Administration Guide*.

s1ap

Displays only S1-AP related statistics, or filters S1-AP statistics for a specific MME service name or a specific eNodeB association peer identifier..

sctp

Displays only SCTP related statistics, or filters SCTP statistics for a specific MME service name or a specific eNodeB association peer identifier.

tai taidb *db_name* mcc *mcc* mnc *mnc* tac *tac*

Displays only TAI statistics stored for the specified TAI management database name and MCC/MNC/TAC
.

db_name : Specifies the name of the TAI management database as an alphanumeric string of 1 through 64 characters.

mcc: specifies the mobile country code (MCC) portion of a PLMN identifier as an integer from 100 through 999.

mnc: specifies the mobile network code (MNC) portion of a PLMN identifier as a 2- or 3-digit integer from 00 through 999.

tac: specifies the Tracking Area Code portion of the TAI as an integer from 1 through 65535.

Important For the MME to report TAI level statistics, you must first issue the MME Service Configuration Mode command: **statistics collection-mode tai.** Only those MME Services which are configured accordingly will provide TAI based statistics. When the collection-mode is configured to **tai**, the **peer-id** keyword will no longer report valid statistics (All values will be shown as ZERO).

Caution Changing this collection mode will restart the MME service and will clear all statistics at the MME service and eNodeB level.

verbose

Displays comprehensive information for a specific argument or set of arguments.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines This command is used to display the statistical information of MME services based on various filter criteria.

Example

The following command displays all service statistics for all MME services on a system:

```
show mme-service statistics
```

The following command displays the service statistics of all MME services on a system related to S1-AP:

```
show mme-service statistics s1ap
```

The following command displays only EMM related statistics for the only the MME service named **ingress**:

```
show mme-service statistics mme-service ingress emm-only
```

show module

Displays the current status of the Version Priority List (VPL) for one or all plugin modules installed on the system. This command is associated with the dynamic software upgrade process.

Product All

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show module [** *plugin_name* **]**

plugin_name

Filters the output of the VPL by an existing plugin name expressed as an alphanumeric string of 1 through 16 characters.

Usage Guidelines Display the priority, load status, location, installation timestamp and download status of one or all plugin modules. A plugin module is a shared object library that can be dynamically updated or rolled back. Refer to the *System Administration Guide* for additional information on dynamic software updates.

Example

The following command displays the VPL status of all plugin modules currently installed on the system:

show module

show mpls cross-connect

Displays Multiprotocol Label Switching (MPLS) cross-connect information.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show mpls cross-connect [| { grep** *grep_options* **| more }]**

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines This command displays MPLS cross-connect information. MPLS tunnel cross-connects between interfaces and Label-Switched Paths (LSPs) connect two distant interface circuits of the same type by creating MPLS tunnels that use LSPs as the conduit.

Example

The following command displays MPLS cross-connect information:

```
show mpls cross-connect
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mpls ftn

Displays MPLS FEC-to-NHLFE (FTN) table information.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show mpls ftn [vrf** *vrf_name* **] [| { grep** *grep_options* **| more }]**

vrf *vrf_name*

Displays FTN information for the Virtual Routing and Forwarding (VRF) specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines This command displays MPLS FEC (Forward Error Correction)-to-NHLFE (Next-Hop label Forwarding Entry) table information.

Example

The following command displays MPLS FTN information:

```
show mpls ftn
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mpls ilm

Displays MPLS Incoming Label Map (ILM) table information.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show mpls ilm [ fec | label` *`label_value`* **`| verbose ][ | { grep`** *`grep_options`* **`| more } ]`**

fec

Displays Forwarding Equivalency Class (FEC) information.

label *label_value*

Displays MPLS ILM information for the specified label. label_value is an integer from 16 through 1048575.

verbose

Displays detailed information for the MPLS ILM table.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

This command displays MPLS Incoming Label Map (ILM) table information.

Example

The following command displays information for MPLS ILM information:

`show mpls ilm`

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mpls ldp

Displays MPLS Label Distribution Protocol (LDP) information.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show mpls ldp { bindings { ldp-id` *`IPv4_add`* **`| local [`** *`ldp-id`* **`|`** *`local`* **`|`** *`prefix`* **`|`** *`remote`* **`] | prefix`** *`IPv4_addr`* **`| remote } | discovery | neighbor { detail | ldp-id } }`**

bindings

Displays the MPLS LDP label bindings.

ldp-id

Displays label values for a specific peer LDP ID.

local

Displays locally assigned label values.

prefix

Displays label values for a specific prefix.

remote

Displays remotely assigned label values.

discovery

Displays the MPLS LDP discovery information.

neighbor

Displays the MPLS LDP peer information.

detail

Displays the MPLS LDP peer information in details. The displayed information includes, Local LDP ID, Peer LDP ID, Transport address, State (for example, Established), Role (for example, Active), Uptime, Keepalive negotiated hold time, Proposed Local/Peer, Remaining Keepalive hold time, and Address advertised.

Usage Guidelines

This command displays statistical information for an MPLS Label Distribution Protocol configuration. The information includes Prefix, LDP ID, Label, Nexthop, and Egress_if_index for all MPLS LDP Bindings configurations.

Example

The following command displays information about MPLS LDP protocol related configurations:

```
show mpls ldp discovery neighbor ldp-id 10.2.3.4 detail bindings ldp-id
31.32.33.34 prefix 192.168.102.232 local remote
```

The following command displays the MPLS LDP discovery information, including, LDP Peer IDs, Hold time (in seconds), Proposed Local/Peer, and Remaining (time in seconds):

```
show mpls ldp discovery
```

The following command displays the remotely assigned label values in the MPLS LDP binding configuration:

```
show mpls ldp bindings remote
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mpls nexthop-label-forwarding-entry

Displays MPLS Next-Hop Label Forwarding Entry (NHLFE) table information.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show mpls nexthop-label-forwarding-entry [ | { grep grep_options | more } ]
```

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines This command displays MPLS Next-Hop Label Forwarding Entry (NHLFE) table information.

Example

The following command displays MPLS NHLFE information:

```
show mpls nexthop-label-forwarding-entry
```

Important Output descriptions for these commands are available in the *Statistics and Counters Reference*.

show mrme-service

Displays configuration and/or statistical information for MRME services on this system.

Product SaMOG

Privilege Security Administrator, Administrator, Operator, Inspector

Syntax Description

```
show mrme-service { all | name name | statistics { all [ verbose ] |
dns-stats | name name [ dns-stats ] } } [ | { grep grep_options | more } ]
```

all

Displays all MRME services.

name *name*

Displays information for specific MRME service name.

name is a string of size *1* to *63*.

statistics

Displays Node level Statistics for MRME.

verbose

Specifies Detailed statistics.

dns-stats

Specifies the information related to theDNS selection of P-GW.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to displays configuration and/or statistical information for MRME services on this system.

Example

```
show mrme-service all
```

show mrme-service active-session

Displays configuration and statistical information of the data stored in the active session entry (if present) of the specified User Equipment's (UE) MAC address.

Product SaMOG

Privilege Security Administrator, Administrator, Operator, Inspector

Syntax Description

```
show mrme-service active-session mac mac_address [ | { grep grep_options | more } ]
```

mac *mac_address*

Specifies the MAC address.

mac_address must be an alpha-numeric string of 1 to 15 characters and should not be separated by a colon or hyphen.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display the configuration and statistical information of the data stored in the active session entry (if present) of the specified User Equipment's (UE) MAC address.

Example

```
show mrme-service active-session mac 001d33227310
```

show mrme-service imsi-sticky

Displays configuration and statistical information of the IMSI to session manager mapping (if available) in the mapping table of the IPSG manager.

Product SaMOG

Privilege Security Administrator, Administrator, Operator, Inspector

Syntax Description

show mrme-service imsi-sticky imsi *imsi_value* **[| { grep** *grep_options* **| more }]**

imsi *imsi_value*

Specifies the International Mobile Subscriber Identity (IMSI) value.

imsi_value must be an integer from 1 to 15 digits.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display configuration and statistical information of the IMSI to session manager mapping (if available) in the mapping table of the IPSG manager.

Example

```
show mrme-service imsi-sticky imsi 123456789 all
```

show mrme-service mac-sticky

Displays configuration and statistical information of the User Equipment (UE) MAC address to IMSI mapping (if available) in the mapping table of the IPSG manager.

Product

SaMOG

Privilege

Security Administrator, Administrator, Operator, Inspector

Syntax Description

show mrme-service mac-sticky mac *mac_address* **[| { grep** *grep_options* **| more }]**

mac *mac_address*

Specifies the MAC address.

mac_address must be an alpha-numeric string of 1 to 15 characters and should not be separated by a colon or hyphen.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display the configuration and statistical information of the User Equipment (UE) MAC address to IMSI mapping (if available) in the mapping table of the IPSG manager.

Example

```
show mrme-service mac-sticky mac 001d33227310
```

show mseg-config

This command is not supported in this release.

show mseg-service

This command is not supported in this release.

show multicast-sessions

Displays information for multicast sessions defined by the specified keywords.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show multicast-sessions [` *`command_keyword`* **`] [`** *`filter_keywords`* **`] [ | { grep`** *`grep_options`* **`| more }`**

command_keyword

The following keywords are base commands that each have a distinct display output. Only one keyword can entered on the command line.

debug-info { callid *id* | flowid *id* }

Displays internal call troubleshooting information for multicast sessions defined by the specified keywords.

callid *id:* Displays subscriber information for the call specified as an 8-digit hexadecimal number.

flowid *id:* Displays information for a specific BCMCS flow, defined by The flow ID as a hexadecimal number.

full

Displays all available multicast session information. The following filter keywords are valid for this command: active, all, callid, card-num, dormant, flowid, flowid-type, mcast-address, pcf, pdsn-service, grep, more

summary

Only displays a summary of multicast session information. The following commands are valid for this command: active, all, callid, card-num, dormant, flowid, flowid-type, mcast-address, pcf, pdsn-service, grep, more

filter_keywords

The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters are available for all Command Keywords. Multiple Filter Keywords can be entered on a command line.

When multiple Filter Keywords are specified, the output conforms to all of the Filter Keywords specifications.

active

Only displays information for multicast sessions that are currently active.

all

If no keywords are specified before **all**, information for all multicast sessions is displayed. If keywords are specified before **all**, all information is displayed with no further options being allowed.

callid *id*

Displays multicast session information for the call specified by *id.* The call must be specified as an 8-digit hexadecimal number.

card-num *card_num*

The slot number of the processing card by which the subscriber session is processed. *card_num* is a slot number from 1 through 7 or 10 through 16 on the ASR 5000, or 1 through 4 or 7 through 10 on the ASR 5500.

dormant

Shows information for subscriber sessions that are dormant (not transmitting or receiving data).

flowid *id*

Displays information for a specific BCMCS flow, defined by *id.* The flow ID must be a hexadecimal number.

flowid-type [flow | program]

Displays information for multicast sessions according to the type of flow.

flow: Shows all multicast sessions for the flow ID type "flow".

program: Shows all multicast sessions for the flow ID type "program".

mcast-address *ipv4_address*

Show multicast sessions for a specific multicast address. Must be followed by the IP address of an interface, using IPv4 dotted-decimal notation.

pcf *ipv4_address*

Displays information for multicast sessions connected via the packet control function, defined by *ipv4_address*. The address must be specified using IPv4 dotted-decimal notation.

pdsn-service *svc_name*

Displays information for multicast session connected to the packet data service *svc_name.*The packet data service must have been previously configured and expressed as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

Please refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to view information about multicast sessions.

The output of this command may be considered for part of a periodic system auditing program by verifying active and dormant sessions.

Example

The following command displays the all broadcast-multicast sessions active in a context/system:

```
show multicast-sessions all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show network-requested-pdp-context

Displays information for the specified network-requested packet data protocol (PDP) context.

Product GGSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show network-requested-pdp-context imsi** *imsi_value*

imsi *imsi_value*

Specifies that information will be displayed for a particular International Mobile Subscriber Identity (IMSI). *imsi_value* is an integer from 1 to 15 digits.

Usage Guidelines USe this command to display information pertaining to network-requested PDP contexts.

Example

The following command displays network-requested PDP context information for a subscriber with an IMSI of *123456789*:

show network-requested-pdp-context imsi 123456789

show network-service-entity

Displays information regarding the network service entities (NSEs) in the network.

Product SGSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show network-service-entity { consolidated-status | fr-config [peer-nsei** *nsei*] **| ip-config [nsvl { all | instance** *value* **} }**

consolidated-status

Displays Network Service Virtual Connection (NSVC) status information for all network service entities in the network. This keyword is particularly useful for troubleshooting.

fr-config [peer-nsei *nsei*]

Displays network service configurations for NSEs using Frame Relay configurations.

peer-nsei *nsei* limits the display to a specific peer NSE identified as an integer from 0 through 65535.

ip-config [nsvl { all | instance *value* }

Displays network service configurations for NSEs using IP configurations.

Including the **nsvl** keyword limits the display to all or a single (instance 0 to 3) of a network service virtual link.

Usage Guidelines Use this command to display NSE information pertaining to the NSVCs of the NSEs in the networks or NSEs configured for Frame Relay or IP.

Example

The following command displays the status of all the NSVCs for all the NSEs in the network.

```
show network-service-entity consolidated-status
```

show npu arp

Displays an Address Resolution Protocol (ARP) for a specified VPN identifier.

Product

ASR 5000 only

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show npu arp lookup vpnid *identifier* **nexthop** *ip_address* **slot** *slot_number*

identifier

Specifies a valid VPN identifier as an integer from 0 through 2114.

nexthop *ip_address*

Specifies a valid nexthop IP address in IPv4 dotted decimal or IPv6 colon-separated-hexadecimal notation.

slot *slot_number*

Specifies the slot number of the card for which the lookup is being form. *slot* is one of the following integers: 1, 2, 8 or 9.

Usage Guidelines

Use this command to perform an aRP lookup of a valid VPNid.

Example

The following command displays ARP lookup information for VPN 234:

```
show npu arp lookup vpnid 234 nexthop 10.1.1.1 slot 8
```

show npu error-counters

Displays packet error counters.

Product

ASR 5000 only

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show npu error-counters [| { grep *grep_options* **| more }]**

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View network timing protocol information to troubleshooting system clock issues by displaying the associations and status of the local NTP client.

Example

The following displays the NPU information.

```
show npu error-counters
show npu error-counters |grep  qwe
```

show npu tm

Displays queue status and performance statistics from the Traffic Manager (TM) component of an MIO NPU.

Product

ASR 5500 only

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show npu tm { queue *card/cpu/npu* **[mode { both | hex | text }] | statistics** *card/cpu/npu* **[reset] [| { grep** *grep_options* **| more }]**

queue [mode { both | hex | text }]

Displays the TM queuing information for the specified NPU. The **mode** option allows you to specify hexadecimal, ASCII text or both types of display values.

statistics [reset]

Displays TM-related operational statistics. The **reset** option allows you to clear the statistical counters.

card/cpu/npu

Specifies the card slot (5 or 6), CPU number (0), and NPU number (1 through 4).

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display queue status and performance statistics from the Traffic Manager (TM) component of an MIO NPU.

Example

The following command displays cumulative TM statistics for all NPUs associated with CPU 0 on the MIO in slot 5:

```
show npu tm statistics 5/0
```

The following command displays individual statistics for NPU 3 associated with CPU 0 on the MIO in slot 5.

```
show npu tm statistics 5/0/3
```

show npu utilization

Displays NPU utilization information.

Product

ASR 5000, ASR 5500, VPC

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show npu utilization table [| { grep *grep_options* **| more }]**

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Displays NPU manager state table information.

For the VPC, this command displays IFTASK core statistics for each active and standby SF. Statistics are reported for the past five seconds, past five minutes and past 15 minutes.

Example

The following displays the NPU information.

```
show npu utilization table
show npu utilization table | grep  qwe
```

show ntp

Displays the network timing protocol (NTP) associations and status.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ntp { associations | status } [address *ip_address* **] [| { grep** *grep_options* **| more }]**

associations

Displays the current NTP server associations and related statistics.

status

Displays the client permeates configured and the synchronization status.

address *ip_address*

Specifies the IP address of an NTP server/client in the current context in IPv4 dotted-decimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View network timing protocol information to troubleshooting system clock issues by displaying the associations and status of the local NTP client.

Example

The following displays the NTP associations and status, respectively.

```
show ntp associations
show ntp status
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show nw-reachability server

Displays the configuration of network reachability servers for the current context.

Product HA

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

```
show nw-reachability server { all | ipv4-only |ipv6-only | name server_name
 }
```

all

Displays configuration information for all network reachability servers in the current context.

ipv4-only

Displays IPv4 Network Reachability Detection servers.

ipv6-only

Displays IPv6 Network Reachability Detection servers.

name *server_name*

Displays configuration information for an existing network reachability server specified as an alphanumeric string of 1 through 15 characters.

Usage Guidelines Use this command to display configuration information on network reachability servers configured in the current context.

Example

The following command displays information on all network reachability servers in the current context:

```
show nw-reachability server all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show operator-policy

Displays the information configured for an operator policy.

Product

MME

SAEGW

S-GW

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show operator-policy { all | full { all | name *op_policy_name* **} | name** *op_policy_name* **} [| { grep** *grep_options* **| more }]**

all

Displays a list of all operator policies configured on the system.

full { all | name *op_policy_name* }

full:Displays a full set of available information for the specified operator policy (policies).

all: Displays a full set of available information for all operator policies configured on the system.

name *op_policy_name*: Displays a full set of available information for an existing operator policy specified as an alphanumeric string of 1 through 64 characters.

name *op_policy_name*

Displays a full set of available information for an existing operator policy specified as an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for operator policies configured on the system. Operator policies are configured through the Global Configuration Mode and in the Operator Policy Configuration Mode. For more information regarding operator policy commands, refer to the *Operator Policy Configuration Mode Commands* chapter.

Example

The following command displays all available information for an operator policy named *policy-5*:

```
show operator-policy full name policy-5
```

show orbem

Displays information and statistics for the Object Request Broker Element Manager (ORBEM) interface in the current context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show orbem { client { id client_name | table } | event-notif-service filters
 | session { id session_name | table } | status } [ | { grep grep_options |
more } ]
```

client { id *client_name* | table }

Indicates the Common Object Request Broker Architecture (CORBA) client information is to be displayed. The keyword **table** is used to output to the display information on all configured clients. The keyword **id** is used to specify a specific client for which information is to be displayed specified as *client_name*.

client_name must refer to an existing client which is found using the **table** keyword option.

event-notif-service filters

Displays information pertaining to filters configured for the ORB Notification Service.

Important

In 18.0 and later releases, this keyword is obsolete.

session { id *session_name* | table }

Indicates session information is to be displayed. The keyword **table** is used to output to the display information on all configured clients. The keyword **id** is used to specify a specific session for which information is to be displayed specified as *session_name*.

session_name must refer to an existing session which is found using the **table** keyword option.

status

Indicates that the ORBEM server status information is to be displayed.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Display current sessions when ORBEM system response may appear sluggish. This command is also useful in periodic verification of the server status.

Example

The following commands will display the information for all clients.

```
show orbem client table
```

The following commands display the information for the *clientName* and *sessionID*, respectively:

```
show orbem client id clientName
show orbem session id sessionId
```

The following command displays the ORBEM server status:

```
show orbem status
```

The following command displays the information for all sessions:

```
show orbem session table
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show patch progress

Displays the status of the on-going software patch installation.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show patch progress`

Usage Guidelines

Use this command to show the status of an on-going software patch installation.

Important

Software Patch Upgrades are not supported in this release.

show pcc-af service

Displays the statistical and configuration information of configured Policy and Charging Control- Application Function (PCC-AF) services configured in a context.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show pcc-af service [ statistics ] { all | name` *`pcc_af_svc_name`* **`| summary } [ | { grep`** *`grep_options`* **`| more } ]`**

all

all: displays information for all configured PCC-AF services.

name *pcc_af_svc_name*

Displays information only for an existing PCC-AF service specified as an alphanumeric string of 1 through 79 characters

statistics

Displays the statistical information for a specific service or all PCC-AF services configured in a context.

summary

Displays the summarized output of this command.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the statistical and configuration information of configured PCC-AF services configured in a context.

Display can further be filtered for specific PCC-AF service name or summarized output of the command.

Example

The following command displays the information for the PCC-AF service named *pccApp1* in summarized output:

```
show pcc-af service name pccApp1 summary
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-af session

Displays the active/dormant session information about Policy and Charging Control- Application Function (PCC-AF) service instances configured and running on this system based on different filter criteria.

Product

IPCF

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show pcc-af sessions [full | summary] [all] [apn | call-id *call_id* **| ip-address** *pcc_af_ip_address* **| service** *pcc_af_svc_name* **| sipuri** *sip_uri* **]] [| { grep** *grep_options* **| more }]**

full

Displays the full information of specific registered IP Connectivity Access Network (IP-CAN) session(s) on a PCC-AF service instance running on system. Display can be filtered based on given filtering criteria.

summary

Displays summarized information for specific registered IP-CAN session(s) on a PCC-AF service instance running on system. Display can be filtered based on given filtering criteria.

all

Displays summarized or full information for all registered IP-CAN session(s) on a PCC-AF service instance running on system. Display can be filtered based on given filtering criteria.

apn *apn_name*

Displays information for PCC-AF service sessions connected via an existing APN at the Policy and Charging Enforcement Function (PCEF).

ip-address *pcc_af_ip_address*

Filters the display of full or summarized session statistics for IP-CAN session(s) based on the IP address of a registered PCC-AF server on a PCC-AF service instance.

pcc_af_ip_address is an IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

call-id *call_id*

Filters the display of full or summarized session statistics for IP-CAN session(s) based on the registered call ID on a PCC-AF service instance for the IP-CAN session subscriber in 8-digit hexadecimal format.

pcc-af-service *pcc_af_svc_name*

Filters the display of session statistics for a registered IP-CAN session(s) based on an existing PCC-AF service name specified as an alphanumeric string of 1 through 63 characters.

sipuri *sip_uri*

Displays summarized or full information for IP-CAN session(s) based on the SIP-URI on a PCC-AF service instance.

sip_uri is the Session Initiation Protocol (SIP) addressing schema to call another person. It resembles an e-mail address and is written in the SIP URI format as *sip:x@y:Port* format, where *x* = username and *y* = host (domain or IP)

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session statistics of all or specific registered IP-CAN session(s) or in selected part of user session for PCC-AF services configured and running on this system.

Example

The following command displays the summarized session statistics for all registered IP-CAN sessions on the PCC-AF service named *pccAF1*:

```
show pcc-af sessions summary all service pccAF1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-policy service

Displays the statistical and configuration information of configured PCC-Policy services configured in a context.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show pcc-policy service [statistics] { all | name *pcc_plcy_svc_name* **| summary } [| { grep** *grep_options* **| more }]**

all

all: displays information for all configured PCC-Policy services.

name *pcc_plcy_svc_name*

Displays information for an existing PCC-Policy service specified as an alphanumeric string of 1 through 79 characters.

statistics

Displays statistical information for a specific or all PCC-Policy services configured in a context.

summary

Displays summarized output for this command.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the statistical and configuration information of configured PCC-Policy services configured in a context.

Display can further be filtered for specific PCC-Policy service name or summarized output of the command.

Example

The following command displays the information for the PCC-Policy service named *pcc_policy1* in summarized output:

```
show pcc-policy service name pcc_policy1 summary
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-policy session

Displays active/dormant session information about PCC-Policy service instances configured and running on this system based on different filter criteria.

Product

IPCF

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show pcc-policy sessions [ full | summary ] [ all ] [ apn | call-id` *`call_id`* **`| imsi`** *`imsi_id`* **`| ip-address`** *`pcc_pcef_ip_address`* **`| service`** *`pcc_plcy_svc_name`* **`] ] [ | { grep`** *`grep_options`* **`| more } ]`**

full

Displays full information for a specific registered IP Connectivity Access Network (IP-CAN) session(s) on a PCC-Policy service instance running on system. Display can be filtered based on given filtering criteria.

summary

Displays summarized information for a specific registered IP-CAN session(s) on a PCC-Policy service instance running on system. Display can be filtered based on given filtering criteria.

all

Displays summarized or full information for all registered IP-CAN session(s) on a PCC-Policy service instance running on system. Display can be filtered based on given filtering criteria.

apn *apn_name*

Displays information for PCC-Policy service sessions connected via an existing APN on the PCEF.

imsi *imsi_id*

Displays summarized or full information for IP-CAN session(s) based on the International Mobile Subscriber Identity (IMSI) of a subscriber in a PCC-Policy service instance.

imsi_id is the IMSI and must be a 15-character field which identifies the subscriber's home country and carrier.

ip-address *pcc_pcef_ip_address*

Filters the display of full or summarized session statistics for IP-CAN session(s) based on the IP address of the registered PCEF node specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

call-id *call_id*

Filters the display of full or summarized session statistics display for an IP-CAN session(s) based on the registered call ID in a PCC-Policy service instance.

call_id must be an existing call identifier in the IP-CAN session subscriber expressed in 8-digit hexadecimal format.

pcc-policy-service *pcc_plcy_svc_name*

Filters the display of session statistics for registered IP-CAN session(s) based on an existing PCC-Policy service name specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session statistics for all or a specific registered IP-CAN session(s) for PCC-Policy services configured and running on this system.

Example

The following command displays summarized session statistics for all registered IP-CAN sessions on the PCC-Policy service named *pccPolicy1*:

```
show pcc-policy sessions summary all service pccPolicy1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-service

Displays the configuration information for Policy and Charging Control (PCC) services configured in a context.

Product

IPCF

Privilege

Security Administrator Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show pcc-service { summary | all | service-name *pcc_svc_name* **} [| { grep** *grep_options* **| more }]**

all

all: displays information for all configured PCC services.

service-name *pcc_svc_name*

Displays information for an existing PCC service specified as an alphanumeric string of 1 through 79 characters.

summary

Displays the summarized output of this command.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistical and configuration information for configured PCC services in a context.

Display can further be filtered for a specific PCC- service name.

Example

The following command displays the information for the PCC service named *pcc_svc1*:

```
show pcc-service service-name pcc_svc1 summary
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-service session

Displays active/dormant session information about Policy and Charging Control (PCC) service instances configured and running on this system based on different filter criteria.

Product

IPCF

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show pcc-service sessions [full | summary] [all emergency-only] [call-id *call_id* **| instance** *instance_id* **| service-name** *pcc_svc_name* **]] [| { grep** *grep_options* **| more }]**

full

Displays full information for a specific registered IP Connectivity Access Network (IP-CAN) session(s) in a PCC service instance running on system. Display can be filtered based on given filtering criteria.

summary

Displays summarized information for a specific registered IP-CAN session(s) in a PCC service instance running on system. Display can be filtered based on given filtering criteria.

all

Displays summarized or full information for all registered IP-CAN sessions on a PCC service instance running on system. Display can be filtered based on given filtering criteria.

emergency-only

Displays summarized or full information for all IP-CAN sessions on a PCC service instance running on system which are using emergency APN for emergency services. Display can be filtered based on given filtering criteria.

instance *instance_id*

Displays summarized or full information for an IP-CAN session(s) based on the PCC service instance identifier on an IPCF/PCRF node specified as an integer from 1 through 512.

service-name *pcc_svc_name*

Filters the display of session statistics display of registered IP-CAN session(s) based on an existing PCC service name specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view session statistics for all or a specific registered IP-CAN session(s) in PCC services configured and running on this system.

Example

The following command displays summarized session statistics for all registered IP-CAN sessions in the PCC service named *pccsvc1*:

```
show pcc-service sessions summary service-name pccsvc1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-service statistics

Displays the statistical information for Policy and Charging Control (PCC) services configured in a context.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show pcc-service statistics { all | service-name *pcc_svc_name* **[profile-name** *pcc_profile_name* **] } [| { grep** *grep_options* **| more }]**

all

Displays statistical information for all configured PCC services on a system.

service-name *pcc_svc_name*

Displays information for an existing PCC service specified as an alphanumeric string of 1 to 79 characters. It can be further filtered by the PCC profile name used in an IP-CAN session.

profile-name *pcc_profile_name*

Displays information for an existing PCC profile in an IP-CAN session.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the statistical information for PCC services configured in a context.

Display can further be filtered for a specific Profile name used in a session.

Example

The following command displays the information for the PCC service named *pcc_svc1* using PCC profile named *pcc_profile_default*:

```
show pcc-service statistics service-name pcc_svc1 profile-name
pcc_profile_default
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-sp-endpoint

Displays statistical and configuration information for a configured PCC Sp-Endpoint instance in a context.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show pcc-sp-endpoint [statistics] [all | name *sp_endpt_name*] **[| [grep** *grep_options* **| more]] [connection [all | name** *sp_endpt_name*]]

all

Displays statistical information for all configured PCC Sp-Endpoint instances on a system.

name *sp_endpt_name*

Displays information for an existing PCC Sp-Endpoint instance specified as an alphanumeric string of 1 through 79 characters.

|{grep *grep_options* |more}

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

connection

Displays statistics for the configured connection values along with peer selection success and failures.

Usage Guidelines

Use this command to display statistical information and peer name for a configured PCC Sp-Endpoint instance in a context.

Important If the secondary peer is not configured, then N/A is printed in the output.

Display can further be filtered for a specific PCC Sp-Endpoint instance used in a session.

Example

The following command displays statistical information for the PCC Sp-Endpoint instance named *Sp_Intf1*:

```
show pcc-sp-endpoint statistics name Sp_Intf1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pcc-sp-endpoint connection

Displays statistical and configuration information for an Sp interface connection in a PCC Sp-Endpoint instance.

Product IPCF

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show pcc-sp-endpoint connection [ all | name sp_endpt_name [ peer sp_peer_name ] ] [ | { grep grep_options | more } ]
```

all

Displays statistical information for all configured PCC Sp-Endpoint instances on a system.

name *sp_endpt_name*

Displays information for an existing PCC Sp-Endpoint instance specified as an alphanumeric string of 1 through 79 characters. It can further be filtered with an Sp Endpoint peer (SSC/SPR) name used for the IP Connectivity Access Network (IP-CAN) session.

peer *ssc_name*

Displays information only for the PCC Sp-Endpoint instance within an existing Subscriber Service Controller/Subscriber Profile Repository (SSC/SPR) as a peer for an IP-CAN session.

ssc_name is the name of the SSC/SPR node used by the Sp Endpoint interface.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistical information for Sp interface connections in PCC Sp-Endpoint instances.

Display can further be filtered for a specific peer name (SSC/SPR).

Example

The following command displays the Sp interface connection related statistical information for the PCC Sp-Endpoint instance named *Sp_Intf1* using peer name *SSC1*:

```
show pcc-endpoint connection name Sp_Intf1 peer SSC1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pdg-service

Displays configuration information about PDG services configured on the system.

Product

PDG/TTG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show pdg-service { all | name service_name }
```

all

Displays information for all configured Packet Data Gateway/Tunnel Termination Gateway (PDG/TTG) services.

name *service_name*

Displays information only for an existing PDG service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display information for PDG services.

Example

The following command displays available information for all active PDG services:

```
show pdg-service all
```

show pdg-service statistics

Displays statistics for the Packet Data Gateway/Tunnel Termination Gateway (PDG/TTG) since the last **restart** or **clear** command. The output includes the number of each type of Extensible Authentication Protocol (EAP) messages.

Product PDG/TTG

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show pdg-service statistics [name** *service_name* **| peer-address** *ipv4_address* **]**

name *service_name*

Displays statistics for an existing PDG service specified an alphanumeric string of 1 through 63 characters.

peer-address *ipv4_address*

Displays statistics for a specific subscriber with the WLAN IP address specified in IPv4 dotted-decimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display PDG service statistics.

Example

The following command displays statistics for all active PDG services:

```
show pdg-service statistics
```

show pdif-service

Displays configuration information about Packet Data Interworking Function (PDIF) services configured on the system.

Product

PDIF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show pdif service { all [counters] | name *name* **[counters] | statistics [name** *name* **| peer-address** *address* **] } [| { grep** *grep_options* **| more }]**

all [counters]

Displays configuration information and statistical counters for all PDIF services in the system.

name *name* [counters]

Displays configuration information and statistical counters for an existing PDIF service specified as an alphanumeric string of 1 through 63 characters.

statistics [name *name* | peer-address *address*]

name *name*: Displays service statistics for a an existing PDIF service specified as an alphanumeric string of 1 through 63 characters.

peer-address *address*: Displays service statistics for a peer server IP address specified in IPv4 dotted-decimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display configuration information and statistics about PDIF services on the system.

Example

The following example displays configuration information about a PDIF service named *pdif23*:

```
show pdif service name pdif23
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show pdn-connection-count

Displays the current number of PDN connections for each of the Restoration-Priority-Level values received from AAA across S6b interface.

Product

P-GW

SAEGW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show pdn-connection-count restoration-priority-level { priority_level | all }`

restoration-priority-level { *priority_level* | all }

Restoration priority associated with PDN connection.

priority_level: Restoration priority level must be an integer from 1 through 8.

In StarOS 21.0 and later, priority levels 1 through 16 are supported.

all: Displays the number of PDN connections associated with all restoration priorities.

Usage Guidelines

To distinguish between VoLTE enabled IMS PDN connections and non-VoLTE enabled IMS PDN connections, the P-GW supports receiving AVP "Restoration-Priority-Indicator" from AAA server over the S6b interface. The P-GW also provides KPIs based on the AVP value.

Example

The following command displays the number of PDN connections associated with restoration priority level 2:

`show pdn-connection-count restoration-priority-level 2`

show pdsn-service

Displays information for configured packet data services in the current context.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show pdsn-service { all | name *pdsn_name* **} [pcf-status [address** *ip_address* **| filter [all | icmp-monitored | no-calls | summary | up]]] [| { grep** *grep_options* **| more }]**

all | name *pdsn_name*

all: Displays information for all configured packet data services.

name *pdsn_name*: Displays information only for an existing PDSN service specified as an alphanumeric string of 1 through 79 characters.

pcf-status [address *ip_address* | filter [all | icmp-monitored | no-calls | summary | up]]

pcf-status: Displays summary information for all Packet Control Functions (PCFs).

address *ip_address:* Only lists information for the PCF with the IP address specified in IPv4 dotted-decimal notation.

filter: Filters the output so only the specified information is displayed. If a filter is specified with no keywords, summary information for all PCFs is displayed.

- **all**: Displays information for all the PCFs
- **icmp-monitored**: Displays information only for PCFs which are ICMP monitored
- **no-calls**: Displays information only for PCFs which have no active sessions
- **summary**: Displays only a summary of the status of the PCFs
- **up**: Displays information only for PCFs which are alive

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Show the PDSN service information for standard system monitoring or troubleshooting.

Example

The following will display the information for all configured services and *sampleService*, respectively:

```
show pdsn-service all
show pdsn-service name sampleService
```

show pdsnclosedrp-service

Displays information on configured Closed R-P services for the current context.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show pdsn-service { all | name *name* **}**

all | name *name*

all: Displays information for all configured Closed R-P services.

name *name*: Displays information for an existing Closed R-P service specified as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Show the Closed R-P service information for standard system monitoring or troubleshooting.

Example

The following command displays information for the Closed R-P service named *SampleRP* and for all configured services, respectively.

```
show pdsn-service all
show pdsn-service name SampleRP
```

show peer-profile

Displays configuration of the specified peer profile.

Product

GGSN

P-GW

SAEGW

S-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show peer-profile { all | full { all | name *profile_name* **} | name** *profile_name* **} [| { grep** *grep_options* **| more }]**

all

Displays a list of all peer profiles configured on the system, arranged by service type.

full { all | name *profile_name* }

Displays detailed peer profile configuration information.

all: Displays detailed configuration information for all peer profiles configured on the system.

name*profile_name*: Displays detailed configuration information for the specified peer profile.

profile_name is an alphanumeric string of 1 through 64 characters.

name *profile_name*

Lists the specified peer profile, and the service type to which it belongs.

profile_name is an alphanumeric string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display configuration information for the peer profiles created on the system.

Refer to the **peer-profile** command in the *Global Configuration Mode Commands* chapter and the *Peer Profile Configuration Mode Commands* chapter for more information.

Example

The following command displays detailed configuration information for the *pp2* peer profile.

```
show peer-profile full name pp2
```

show pgw-service

Displays configuration information for PDN Gateway (P-GW) services on this system.

Product

P-GW

SAEGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show pgw-service { all | name *service_name* **| statistics { all | name** *service_name* **} [verbose] } [| { grep** *grep_options* **| more }]**

all

Displays configuration information for all P-GW services configured on this system.

name *service_name*

Displays configuration information for an existing P-GW service specified as an alphanumeric string of 1 through 63 characters.

statistics { all | name *service_name* } [verbose]

Displays P-GW service statistics.

all: Displays statistics for all P-GW services on the system.

name *service_name*: Displays statistics for an existing P-GW service specified as an alphanumeric string of 1 through 63 characters.

If **verbose** is also specified, the information is displayed in more detail.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information for P-GW services on this system.

Example

The following command displays service statistics for the P-GW service named *pgw1*:

show pgw-service name pgw1

show plugin

Displays the current configuration of one or all plugin modules installed on the system. This command is associated with the dynamic software upgrade process.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show plugin [*plugin_name* **]**

plugin_name

Filters the output by an existing plugin name expressed as an alphanumeric string of 1 through 16 characters.

Usage Guidelines

Displays the attribute settings, priority and version for one or all plugin modules. A plugin module is a shared object library that can be dynamically updated or rolled back. Refer to the *System Administration Guide* for additional information on dynamic software updates.

Example

The following command displays the configuration status of all plugin modules currently installed on the system:

show plugin

show port

Displays information on configured parameters and operational statistics for physical and logical ports in the system.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show port { datalink counters [*slot/port* **] | info [** *slot/port* **] [vlan** *vlan_id* **] | npu counters [** *slot/port* **[tagged | untagged | vlan** *tag_id* **]] | table | transceiver** *slot/port* **| utilization table [verbose] } [| { grep** *grep_options* **| more }]**
show port info { *slot/port* **} [vlan** *vlan_id* **] [| { grep** *grep_options* **| more }]**
show port dinet

datalink counters *slot/port*

Displays the physical layer information for all data links or only the one specified by the slot/port location of a previously configured port.

info [*slot/port*] [vlan *vlan_id*]

Displays detailed information for all ports within the chassis or only the one specified by slot/port location of a previously configured port.

vlan *vlan_id*: Displays detailed information about all Virtual Local Area Networks (VLANs) in the port/slot. If the optional vlan_id is not specified, this keyword displays port information for all VLANs in the slot/port location.

npu counters [*slot/port* [tagged | untagged | vlan *tag_id*]] | bound | unbound]

Displays the information for Network Processing Unit (NPU) ports. The information for all ports is output or only the one specified by the slot/port location of a previously configured port.

For ASR 5500 MIO ports, this command displays the combined statistics for the specified port and its paired port (virtual pair).

tagged: Display statistics for all tagged packets.

untagged: Display statistics for all untagged packets.

vlan *tag_id*: Display NPU counters for a previously configured VLAN ID.

bound: Displays individual and cumulative NPU port counters for the bound ports within the current context. If the command is invoked in the local context, all of the bound ports for all contexts and cumulative counter values for all contexts are displayed.

unbound: Displays individual and cumulative NPU port counters for all unbound ports within system.

table

Displays information for all physical ports on rear-installed cards with physical interfaces.

transceiver *slot/port*

Displays diagnostic information for all SFP+ transceivers connected to a specified subscriber traffic port on the MIO card.

utilization table [verbose]

Shows average port utilization in Mbps. The output is a table that lists the current utilization average, a 5-minute average, and a 15-minute average, for all enabled ports.

The **verbose** option displays port utilization with kilobyte accuracy using decimal points.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

dinet

Displays the DI-network port statistics.

Usage Guidelines Display port information for troubleshooting of network communications by viewing statistics and configuration information for physical ports.

Example

The following displays detailed information for port 1 in slot 17:

```
show port info 17/1
show port table
```

The following displays information for the data link port 33/1:

```
show port datalink counters 33/1
show port npu counters 33/1
```

The following displays detailed information for port 11 in slot 5:

```
show port info 5/11
show port table
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show power

Displays information about the power on/off status of individual cards and the operating status of installed power filter units.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show power [all | chassis | *card_num*] [| { grep *grep_options* | more }]**

all | chassis | *card_num*]

all: Displays power on/off state for all cards in the chassis.

chassis: Displays the operating status of installed power filter units. This is the default setting.

card_num: Displays the power on/off state for a single card specified an integer from 1 through 48 for the ASR 5000 or 1 through 20 for the ASR 5500.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

View power source information to quickly check the power for all cards within a chassis.

Important

On some platforms, only **show power** is supported with no other keywords or variables.

Example

The following displays power supply status for the chassis:

```
show power
```

The following command displays the power status for all slots:

```
show power all
```

show ppp

Displays the point-to-point protocol (PPP) information, detailed or summarized, for one or all connections by the use of filtering options.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ppp { [counters | full | summary] { all | callid *call_id* **| imsi** *id* **| msid** *ms_id* **| username** *user_name* **} | statistics [pcf-address [** *pcf_ip_addr* **| all] | pdsn-service** *pdsn_name* **] } [| { grep** *grep_options* **| more }]**

counters | full | summary

Filters the output for the level and type of information with the options described below.

counters: Displays PPP statistics.

full: Displays all available information.

summary: Displays only a summary of available information.

all | callid *call_id* | imsi *imsi_id* | msid *ms_id* | username *user_name* }]

all: Displays all available information.

callid *call_id*: Displays PPP information only for the call ID specified as a 4-digit hexadecimal number.

imsi *id*: Displays PPP information only for the subscriber with the specified IMSI (International Mobile Subscriber Identity). *id* is a 15-digit field which identifies the subscriber's home country and carrier.

msid *ms_id*: Displays information for a mobile subscriber ID specified as 7 to 16 digits for an IMSI, MIN, or RMI.

username *user_name*: Displays user PPP information for the specified username.

statistics [pcf-address [*pcf_ip_addr* | all] | pdsn-service *pdsn_name*]

Displays statistics for all packet data services.

pcf-address [*pcf_ip_addr* | **all**]: Displays statistics only for the time the session is connected to the specified PCF (Packet Control Function) or for all PCFs. *pcf_ip_addr* must be specified using IPv4 dotted-decimal notation.

pdsn-service *pdsn_name*: Display statistics only for an existing PDSN service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

View Point-to-Point Protocol information to support troubleshooting subscriber connections by viewing information on PPP connections for a specific subscriber.

Example

The following displays the PPP summary for all connections.

```
show ppp summary all
```

The following outputs the point-to-point detailed information for the user *user1*.

```
show ppp full username user1
```

The following command displays the standard information for the call with ID *FF0E11CD*.

```
show ppp callid ff0e11cd
```

The following command displays the PPP statistics for *pdsn1*.

```
show ppp statistics pdsn-service pdsn1
```

The following command provides summarized information for the PPP statistics.

```
show ppp
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show prepaid 3gpp2

Displays prepaid accounting information for all services or only the service specified.

Product

PDSN

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show prepaid 3gpp2 statistics all [| { grep *grep_options* **| more }]**
show prepaid 3gpp2 statistics { ggsn-service | ha-service | lns-service | pdsn-service | pdsnclosedrp-service } { all | name *service_name* **} [| { grep** *grep_options* **| more }]**
show prepaid 3gpp2 statistics per-service-summary } [| { grep *grep_options* **| more }]**

all

Displays prepaid statistics for all services.

ggsn-service

Displays statistics for GGSN service(s).

ha-service

Displays statistics for HA service(s).

lns-service

Displays statistics for LNS service(s).

pdsn-service

Displays statistics for PDSN service(s).

pdsnclosedrp-service

Displays statistics for PDSN Closed-RP service(s).

{ all | name *service_name* }

all: Displays statistics for all services of the specified type.

name *service_name*: Displays statistics for an existing service specified an alphanumeric string of 1 through 63 characters.

per-service-summary

Displays prepaid statistics per service summary for all services.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Displays Pre-paid statistics for a particular named service or for all services.

Example

To display statistics for a PDSN service named *PDSN1*, enter the following command:

```
show prepaid 3gpp2 statistics pdsn-service name PDSN1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show prepaid wimax

This command displays prepaid WiMAX accounting information for all services or only the service specified.

Product

ASN-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show prepaid wimax statistics { all | asngw-service { all | name service_name
 } | ha-service { all | name service_name } | per-service-summary } [ | {
s grep_options | more } ]
```

all

This keyword displays prepaid statistics for all services.

asngw-service

Displays prepaid statistics for Access Service Network-Gateway (ASN-GW) service(s).

ha-service

Displays prepaid accounting statistics for Home Agent (HA) service(s).

{ all | name *service_name* }

all: Displays statistics for all services of the specified type.

name *service_name*: Displays statistics for an existing service specified as an alphanumeric string of 1 through 63 characters.

per-service-summary

Displays prepaid statistics per service summary for all services.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display prepaid WiMAX accounting statistics for named service or for all services.

Example

The following command displays prepaid WiMAX accounting statistics for an ASN-GW service named *asn1*:

```
show prepaid wimax statistics asngw-service name asn1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show process status

Displays information on process listings in the system.

Product

All

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show process status [ card card_number [ cpu cpu_number] ]
```

card *card_number*

Displays the process listing for the specific card in the system.

cpu *cpu_number*

Displays the process listing for the specific card and CPU in the system.

Usage Guidelines

Displays information on process listings in the system.

Note Only the Security Administrator can run this command.

Example

The following displays the list of processes running on card 1 on cpu 0:

```
show process status card 1 cpu 0
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show profile-id-qci-mapping

Displays QoS Class Identifier-Radio Access Network (QCI-RAN) mapping tables configured on this system.

Product

HSGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show profile-id-qci-mapping table { all | name *table_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information for all QCI-RAN mapping tables configured on this system.

name *table_name*

Displays information for an existing QCI-RAN table specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the contents of a specific QCI-RAN mapping table or all mapping tables configured on this system.

Example

The following command displays the contents of a QCI-RAN mapping table named *table1*:

```
show profile-id-qci-mapping table name table1
```

show ps-network

Important

In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays statistics for the Packet Switched (PS)-network(s) instance configured on a chassis for HNB-GW service sessions.

Product

HNBGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ps-network { all | name ps_name } [ status ] [ | { grep grep_options | more }]
```

all

Displays status counters for all PS (packet switched) networks configured for HNB-GW service sessions on a chassis.

name *ps_name*

Displays status counters for a PS network configured for HNB-GW service specified as an alphanumeric string of 1 through 127 characters that is case sensitive

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

Usage Guidelines

Use this command to display the status of any or all PS-network(s) instance configured on a chassis for HNB-GW service sessions.

Example

The following command displays the output for PS network instance status named *ps_1_hnb*:

```
show ps-network name ps_1_hnb status
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ps-network counters

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

.

Displays the session counter information for a PS Network associated with Home-NodeB Gateway (HNBGW) services configured and running on a system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ps-network counters [name *ps_svc_name* **[sgsn** *sgsn_point_code* **]] [| { grep** *grep_options* **| more }]**

name *ps_svc_name*

Filters the counter display based on an existing HNB-PS Network service name associated with an HNB-GW service running on system. *ps_svc_name* is an alphanumeric string of 1 through 63 characters.

sgsn *sgsn_point_code*

Filters the counter display filtered on the basis of SGSN address provided in the SS7 point code that is connected to a particular HNB-PS Network service. *sgsn_point_code* must be the address of an SGSN in SS7 point code notation.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view the session counter information for HNB-PS Network services configured and SGSNs connected on a system.

Example

The following command displays the counters for the HNB-PS Network service named *hnb_ps_svc1*:

```
show ps-network counters name hnb_ps_svc1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ps-network statistics

Important In Release 20 and later, HNBGW is not supported. This command must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

Displays the Packet Switched session statistics for Home-NodeB Gateway (HNB-GW) services configured and running on this system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ps-network statistics [ name ps_svc_name [ sgsn sgsn_point_code]] [
gtpu-only | ranap-only | sccp-only ] [ | { grep grep_options | more } ]
```

name *ps_svc_name*

Filters the session statistics display based on an existing HNB-PS Network service name that is associated with an HNB-GW service running on this system. *ps_svc_name* is an alphanumeric string of 1 through 63 characters.

sgsn *sgsn_point_code*

Filters the counter display filtered on the basis of SGSN address provided in the SS7 point code that is connected to a particular HNB-PS Network service. *sgsn_point_code* must be the address of an SGSN in SS7 point code notation.

gtpu-only

Filters the session statistics to display only GTP-U traffic for the specified HNB-PS Network service which is configured and associated with an HNB-GW service running on this system.

ranap-only

Filters the session statistics to display only Radio Access Network Application Protocol (RANAP) traffic for an HNB-PS Network service which is configured and associated with an HNB-GW service running on this system.

sccp-only

Filters the session statistics to display only Signaling Connection Control Part (SCCP) traffic for the specified HNB-PS Network service which is configured and associated with an HNB-GW service running on this system.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter of the *Command Line Interface Reference*.

Usage Guidelines

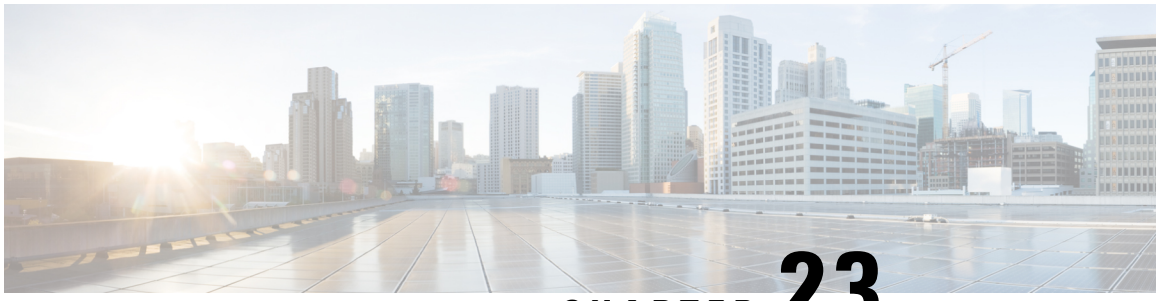
Use this command to view the session statistics for overall session or in selected part of user session for HNB-GW services configured and running on this system.

Example

The following command displays the session statistics for the HNB-PS Network service named *hnb_ps1*:

```
show ps-network statistics name hnbps1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.



CHAPTER 23

Exec Mode show Commands (Q-S)

The Exec Mode is the initial entry point into the command line interface system. Exec mode **show** commands are useful in troubleshooting and basic system monitoring.

Command Modes

This chapter includes the commands **qci-qos-mapping** through **show system uptime**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

show qci-qos-mapping

Displays QoS Class Identifier-Quality of Service (QCI-QoS) mapping tables configured on this system.

Product

ePDG

HSGW

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show qci-qos-mapping table { all | name` *`table_name`* **`} [ | { `***`grep_options`*** **` | more } ]`**

all

Displays information for all QCI-QoS mapping tables configured on this system.

name *table_name*

Displays information for an existing QCI-QoS mapping table specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the contents of a specific QCI-QoS mapping table or all mapping tables configured on this system.

Example

The following command displays the contents of a QCI-QoS mapping table named *table1*:

```
show qci-qos-mapping table name table1
```

show qos ip-dscp-iphb-mapping

Displays mapping QoS information in a packet to internal-qos marking.

Product

ePDG

HSGW

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show qos ip-dscp-iphb-mapping
```

Usage Guidelines

Use this command to display mapping QoS information in a packet to internal-qos marking.

show qos l2-mapping-table

Displays named table for the internal to L2 mapping values, like 802.1p and MPLS.

Product

ePDG

HSGW

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show qos l2-mapping-table { name` *`table_name`* **`| system-default }`**

name *table_name*

Displays information for an existing QoS L2 mapping table.

table_name is an existing table specified as an alphanumeric string of 1 through 80 characters.

system-default

Displays information for the default system internal mapping to L2 values.

Usage Guidelines

Use this command to display named table for the internal to L2 mapping values, like 802.1p and MPLS.

Example

The following command displays the contents of a QOS L2 mapping table named *l2table*:

`show qos l2-mapping-table name l2table`

show qos npu inter-subscriber traffic

This command is only supported on PACs running on ST16 platforms. It has been deprecated for use on ASR 5x00 platforms.

show qos npu stats

Displays Network Processing Unit (NPU) QoS statistics per priority queue for a particular processing card:

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show qos npu stats inter-subscriber traffic slot` *`slot_num`*

slot *slot_num*

Displays statistics for the processing card identified by its slot number as an integer from 1 through 8 and 10 through 16 on the ASR 5000, or 1 through 4 and 7 through 10 on the ASR 5500.

Usage Guidelines

This command displays packet and byte counts per NPU QoS priority queue on a per-processing card basis.

For additional information on the NPU QoS functionality, refer to the *System Administration Guide*.

Important This functionality is not supported for use with the PDSN at this time.

Example

The following command displays NPU QoS priority queue statistics for a processing card installed in chassis slot number 2:

```
show qos npu stats inter-subscriber traffic slot 2
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show radius

Displays and statistic information for RADIUS accounting and/or authentication.

Product

PDSN

HA

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show radius { accounting servers | authentication servers } [ detail ] [
 admin-status { enabled | disabled } ] [ | { grep grep_options | more } ]
[ radius group group_name [ detail ] [ | { grep grep_options | more } ] ]
```

accounting servers

Lists information for configured accounting servers and their current state.

authentication servers

Lists information for configured authentication servers and their current state.

[detail]

Displays historical state information for configured servers of the specified type.

admin-status { enabled | disabled }

Displays information for accounting and/or authentication servers with an administrative status of "enabled" or "disabled".

radius group *group_name*

Displays the authentication/authorization RADIUS server group information for an existing server group specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display the RADIUS server information as part of periodic monitoring of the health of the system.

Example

The following displays the information on configured accounting servers:

```
show radius accounting server
```

The following command displays detailed information for RADIUS accounting servers:

```
show radius accounting servers detail
```

The following command displays detailed information for RADIUS server group *star1* used for authentication:

```
show radius authentication servers radius group star1 detail
```

The following command displays detailed information for RADIUS server group *star1* used for accounting:

```
show radius accounting servers radius group star1 detail
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show radius charging servers

This command displays the RADIUS authentication and accounting servers or server group that are configured for use by charging services.

Product

PDSN

HA

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show radius charging servers [ radius group` *`group_name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

radius group *group_name* all

Displays all RADIUS counter information for an existing server group configured for use by charging services. *group_name* is specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information about RADIUS servers or server group configured for use by Charging Services.

Example

The following command displays RADIUS servers configured for Charging Services:

`show radius charging servers`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show radius client

Displays information about the RADIUS client configured on the system.

Product

PDSN

HA

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show radius client status [ | { grep grep_options | more } ]`

status

Displays a status summary for the RADIUS client.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Configuring the RADIUS protocol on the system enables RADIUS client functionality. This command is displays information pertaining to the status of the client.

Example

The following command displays detailed information pertaining to the system's RADIUS client:

`show radius client status`

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show radius counters

Displays RADIUS server and statistic information for accounting and/or authentication.

Product

PDSN

HA

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show radius counters { all | dynamic-auth | radius group *group_name* **[all | server** *ip_address* **[port** *number* **] | summary [all-contexts [verbose]] } [| { grep** *grep_options* **| more }]**

counters { all | server *ip_address* [port *number*] }

all: Displays statistics for all servers.

server *ip_address*: Displays statistics for the server specified by its IPv4 address.

port *number*: Displays statistics for a port on the server specified as an integer from 0 through 65535.

radius group *group_name* all

Displays all RADIUS counter information for an existing server group specified as an alphanumeric string of 1 through 63 characters.

all: Displays statistics for all servers.

dynamic-auth

Displays Dynamic Authorization counters for configured RADIUS servers.

summary [all-contexts [verbose]]

Displays a summary of RADIUS statistics for all the RADIUS servers configured in a specific context.

all-contexts: Displays a summary of RADIUS statistics for all RADIUS servers configured in all context. If **verbose** is also specified, the information is displayed in more detail.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display the RADIUS server information as part of periodic monitoring of the health of the system.

Example

The following command displays detailed information pertaining to the RADIUS server group *star1* with in current context:

```
show radius counters radius group star1 all
```

The following displays the statistics for the server with IP address *10.2.3.4*, then just port *7777*, followed by **all** services.

```
show radius counters server 10.2.3.4
show radius counters server 10.2.3.4 port 7777
show radius counters all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show rct stats

Displays statistics associated with Recovery Control Task (RCT) events, including migrations, switchovers and shutdowns. RCT statistics are associated with card-to-card session recovery activities.

Product

All products supporting the Session Recovery feature

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

```
show rct stats [verbose] [ | { grep grep_options | more } ]
```

[verbose]

Displays full details about RCT events, current status, time stamps and other associated information. This mode is only available if a session recovery event has occurred on the system. The default mode is to display a brief summary of RCT events.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display RCT statistics in Summary or Detailed (verbose) mode. The Detailed output includes the following information:

- Recovery action taken – Migration, Shutdown, Switchover
- Type of event – Planned or Unplanned
- From card to card – slot numbers
- Start time – YYYY-MMM-DD+hh:mm:sss.sss
- Duration – seconds
- Card failure device (such as CPU*n*)
- Card failure reason
- Card is in usable state or not failed
- Recovery action status – Success or failure reason
- If recovery action failed, failure time stamp
- If recovery action failed, failure task facility name
- If recovery action failed, failure instance number

Example

The following command displays detailed statistics for RCT events:

show rct stats verbose

Important Output descriptions for **show** commands are available in the *Statistics and Counters Reference*. For additional information, see the *System Administration Guide*.

show resources

Displays the resource information by CPU or session.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show resources { cpu | npu | session } [| { grep** *grep_options* **| more }]**

cpu | npu | session

cpu: Displays resource information by CPU.

npu: Displays resource information by network processing unit (NPU).

session: Displays resource information by session.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View resource utilization as part of troubleshooting systems which appear sluggish or are having excessive connection timeouts or other connection issues.

Example

The following display the resource information by CPU and session, respectively.

```
show resources cpu
show resources session
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show rlf-context-statistics

Displays the statistics for all active RLF contexts.

Product

GGSN

P-GW

SaMOG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show rlf-context-statistics { diamproxy [*facility_num* **| [endpoint** *endpoint_name* **[peer-realm** *realm_name* **[peer-host** *host_name* **]]] | sessmgr [gtpc-context-name** *gtpccontext_name* **| instance** *facility_num* **] } [| summary | verbose] [| { grep** *grep_options* **| more }]**

facility_num

Displays the context information for the specified facility. *num* must be an integer from 1 through 16.

endpoint *endpoint_name*

Displays the context information only for the endpoint specified as a string of size ranging from 1 through 63 characters.

realm *realm_name*

Displays the context information only for the realm specified as a string of size ranging from 1 through 127 characters.

peer-host *host_name*

Displays the context information only for the host specified as a string of size ranging from 1 through 63 characters.

gtpc-context-name*gtpccontext_name*

Displays RLF statistics of GTPC services PGW and GGSN

instance *facility_num*

Displays the facility information for specific instance.

summary

Displays summary information.

verbose

Specifies to display detailed (all available) information. If not specified, concise information is displayed.

Displays the instance level stats. When multiple diamproxies are active, an RLF context's instance is created on each diamproxy or session manager for each peer.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display RLF statistics for all active RLF contexts.

An RLF context is created only when –

- A peer is bound to a RLF template.
- The peer is in "OPEN" state.

Failure of any of these conditions will cause the RLF context to be deleted.

Example

The following command displays RLF statistics for all active RLF contexts:

```
show rlf-context-statistics diamproxy
show rlf-context-statistics sessmgr instance 1 gtpc-context-name ingress

show rlf-context-statistics sessmgr gtpc-context-name ingress
```

show rlf-memcache-statistics

Displays the memory used by RLF for processing the messages.

Product

GGSN

P-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show rlf-memcache-statistics { diamproxy *facility_num*| **sessmgr [instance** *facility information for specific instance* **] } [| { grep** *grep_options* **| more }]**

facility_num

Displays the information for the specified facility. *num* must be an integer from 1 through 16.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the memory used by RLF for processing the messages. The output will be displayed only if the memcache is used.

Example

The following commands displays memory cache statistics for DIAMPROXY and session manager facility:

```
show rlf-memcache-statistics diamproxy
show rlf-memcache-statistics sessmgr instance 1
```

show rlf-template

Displays the statistics for all active RLF templates.

Product

GGSN

P-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show rlf-template { all | name *template_name* **} [| { grep** *grep_options* **| more }]**

all

Displays the statistics information for all the configured RLF templates.

name *template_name*

Displays the statistics information for the specified RLF template. *template_name* must be an integer from 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistics for all or specified RLF template(s).

Example

The following command displays statistics for all RLF templates:

show rlf-template all

show rohc counters

Displays Robust Header Compression (ROHC) counters for all active calls.

Product

PDSN

HSGW

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show rohc counters [all | callid *call_id* **| imsi** *imsi_num* **| ip-address** *ip_addr* **| msid** *msid_num* **| username** *user_name* **] [| { grep** *grep_options* **| more }]**

all

Displays all information.

callid *call_id*

Displays the information only for the call ID specified as a 4-byte hexadecimal number.

imsi *imsi_num*

Displays information for the specified IMSI (International Mobile Subscriber Identity). The IMSI is an up to 15-digit field which identifies the subscriber's home country and carrier: 3 digits of Mobile Country Code (MCC), 2 or 3 digits of Mobile Network Code (MNC), followed by the Mobile Subscriber Identification Number MSIN. Example: 123-45-678910234. May also be entered as 12345678910234.

ip-address *ip_addr*

Displays information only for the mobile subscriber IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

msid *msid_num*

Displays information only for a mobile subscriber ID from 7 to 16 digits for an IMSI, MIN, or RMI.

username *user_name*

Displays radio-packet (R-P) interface information only for a specified username.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display ROHC counters for all active calls.

Example

The following command displays ROHC counters for all active calls:

```
show rohc counters all
```

show rohc statistics

Displays statistics and counters for Robust Header Compression (ROHC) IP header compression.

Product

PDSN

HSGW

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show rohc statistics [pdsn-service *pdsnsvc_name* **] [asngw-service** *asngwsvc name* **] [hsgw-service** *hsgwsvc_name* **] [| { grep** *grep_options* **| more }]**

Important Keywords available for this command are license-driven. For example, if a PDSN license is loaded, the **pdsn-service** option is visible.

pdsn-service *pdsnsvc_name*

Displays ROHC statistics and counters for the an existing PDSN service specified as an alphanumeric string of 1 through 63 characters.

asngw-service *asngwsvc_name*

Displays ROHC statistics and counters for an existing ASN-GW service specified as an alphanumeric string of 1 through 63 characters.

hsgw-service *hsgwsvc_name*

Displays ROHC statistics and counters for an existing HSGW service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display ROHC statistics for all services or for a specific ASN-GW, PDSN, or HSGW.

Example

The following command displays ROHC statistics for the PDSN service named pdsn1:

```
show rohc statistics pdsn-service pdsn1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show route-map

Displays entries for all route maps or a specific route map.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show route-map [name *route-map name* **] [| { grep** *grep_options* **| more }]**

name *route-map name*

Displays information for a route-map specified as an alphanumeric string of 1 through 79 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to see the rules configured in all route-maps for the current context.

Example

The following command displays the route-map information for prefix list *Prefix100*:

show route-map Prefix100

Refer to the **match** and **set** command descriptions in the *Route-map Configuration Mode Commands* chapter for descriptions of the various entries listed.

show rp

Displays radio-packet (R-P) interface statistics using the filtering options specified.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show rp [counters | full | summary] { all | callid *call_id* **| msid** *ms_id* **| peer-address** *peer_ip_address* **| username** *user_name* **} [| { grep** *grep_options* **| more }]**

counters | full | summary

Provides an optional modifier to the output for the desired level and type of information.

counters: Displays R-P protocol statistics.

full: Displays all available information.

summary: Displays only a summary of available information.

These options are not available in conjunction with the keywords **statistics** or **service-option statistics**.

all | callid *call_id* | msid *ms_id* | peer-address *peer_ip_address* | username *user_name*

all: Displays all R-P information.

callid *call_id*: Displays only the information for the call ID specified as a 4-digit hexadecimal number.

msid *ms_id*: Displays information only for a mobile subscriber ID specified by 7 to 16 digits for an IMSI, MIN, or RMI.

peer-address *peer_ip_address*: Displays R-P information for the peer IP address of the PCF specified in IPv4 dotted-decimal notation.

username *user_name*: Displays R-P information for the specified username.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the R-P interface statistics for the current context.

Example

The following displays the summary for all connections.

```
show rp summary all
```

The following outputs the R-P interface detailed information for the user *isp1user1*.

```
show rp full username isp1user1
```

The following command displays the standard information for the call with ID *FF0E11CD*.

```
show rp callid ff0e11cd
```

The following displays the statistics summary for the R-P facility.

```
show rp
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show rp service-option

Displays the radio-packet (R-P) service option statistics using the filtering options specified.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show rp service-option statistics [number *svc_option_num* **| pdsn-service** *pdsn_name* **] [| { grep** *grep_options* **| more }]**

number *svc_option_num* | pdsn-service *pdsn_name*

Default: display statistics for all service option numbers and associated packet data services.

number *svc_option_num*: Displays statistics for the specified service option number.

pdsn-service *pdsn_name*: Displays statistics for the specified packet data service.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the R-P service option statistics for the current context.

Example

The following displays the statistics for all service options.

```
show rp service-option statistics
```

The following displays the statistics for service option *5*.

```
show rp service-option statistics number 5
```

The following command displays the statistics for all service options in collected for the packet data service *sampleService*.

```
show rp service-option statistics pdsn-service sampleService
```

show rp statistics

Displays the radio-packet (R-P) protocol statistics using the filtering options specified.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show rp statistics [hsgw-service *hsgw-name* **| pcf-summary [wf1] | pdsn-service** *pdsn_name* **| peer-address { *peer_address* | all }] [include-bcmcs] [verbose] [| { grep** *grep_options* **| more }]**

hsgw-service *hsgw_name*

Specifies an eHRPD Serving Gate Way service followed by the name of an HSGW service specified as an alphanumeric string of 1 through 63 characters.

pcf-summary [wf1]

Displays a session summary of Packet Control Function (PCF) statistics.

The **wf1** option displays PCF statistics in wide-format number 1.

pdsn-service *pdsn_name*

Displays the statistics information for the pdsn-service specified as an alphanumeric string of 1 through 63 characters.

peer-address { *peer_address* | | all }

- *peer_address*: Displays statistics only for the peer specified by its IP address in IPv4 dotted-decimal notation.
- **all**: Displays statistics for all peers.

verbose

Displays more detailed statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the R-P statistics for the current context.

Example

The following displays all collected R-P statistics.

```
show rp statistics
```

The following displays the R-P statistics associated with the peer address *10.2.3.4*.

```
show rp statistics peer-address 10.2.3.4
```

The following command displays the R-P statistics for the packet data service *PCFnet*.

```
show rp statistics pdsn-service PCFnet
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show rsvp counters

Displays Resource Reservation Protocol (RSVP) counters using the filtering options specified.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show rsvp counters [all | callid *call_id* **| msid** *ms_id* **| username** *user_name* **]**

all | callid *call_id* | msid *ms_id* | username *user_name*

all: Displays all RSVP information.

callid *call_id*: Displays information only for the call ID specified as a 4-digit hexadecimal number.

msid *ms_id*: Displays information for a mobile subscriber ID specified a string of 7 to 16 digits for an IMSI, MIN, or RMI.

username *user_name*: Displays RSVP information only for the specified username.

Usage Guidelines

View the RSVP counters for the current context.

Example

The following displays all collected RSVP counters.

```
show rsvp counters all
```

show rsvp statistics

Displays Resource Reservation Protocol (RSVP) statistics using the filtering options specified.

Product

PDSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show rsvp counters [pdsn-service *service* **| sessmgr instance** *instance* **]**

pdsn-service *service* | sessmgr instance *instance*

pdsn-service *service*: Displays statistics for the service specified as an alphanumeric string of 1 through 63 characters.

sessmgr instance *instance*: Displays statistics for the specified session manager instance.

Usage Guidelines

View the RSVP statistics for the current context.

Example

The following displays collected RSVP statistics for a *sampleService*.

show rsvp statistics pdsn-service sampleService

show requirement pac daughtercard

Displays the system-level status indicating whether or not the encryption daughter card (EDC) is required on PACs within chassis.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show requirement pac daughtercard

Usage Guidelines

This command displays whether or not the EDC is required on PACs within the chassis.

Important

This command is not supported on all platforms

Example

show requirement pac daughtercard

When the EDC requirement is enabled, the output of this command matches this example:

```
[local]chicago# show requirement pac daughtercard
The encryption daughtercard is required for all PACs
[local]chicago#
```

When the EDC requirement is disabled, the output of this command matches this example:

```
[local]chicago# show requirement pac daughtercard
The encryption daughtercard is not required for all PACs
[local]chicago#
```

show s102-service

Displays the configuration information for the S102 service(s).

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show s102-service { all | name *s102_service_name* **| statistics { all | name** *s102_service_name* **} }**

all

Displays information for all S102 service configurations.

name *s102_service_name*

Displays configured information for the specified S102 service configuration.

s102_service_name Enter a string of 1 through 63 alphanumeric characters to identify the uniquely named S102 service.

statistics { all | name *s102_service_name* }

Generates statistical output indicating the status and activity of the interface for either all S102 services configured on the MME or for the specific named S102 service.

s102_service_name Enter a string of 1 through 63 alphanumeric characters to identify the uniquely named S102 service.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to verify the parameters set for one or all S102 service configurations.

Example

The following commands displays the configuration for the S102 service named *s102test*:

```
show s102-service name s102test
```

show s4-sgsn statistics

Displays statistics related to S4 functionality on the SGSN.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show s4-sgsn statistics [all | smgr-instance *<instance_number>* **]**

all

Show all S4-SGSN statistics from all session managers.

smgr-instance

Show the statistics for a session manager instance of the SGSN service. <*instance_number*> must be specified as an integer between 1 and 65535.

Important

If no option is specified, then S4-SGSN statistics from all session managers will be added up and the cumulative totals will be shown.

Usage Guidelines

Use this command to display information for S4-SGSN related services.

Example

The following commands display and clear S4-SGSN-related statistics for all services on the system:

```
show s4-sgsn statistics all
clear s4-sgsn statistics all
```

show saegw-service

Displays configuration information and node-level statistics for System Architecture Evolution Gateway (SAEGW) services on this system.

Product

SAEGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show saegw-service { all | name *service_name* **| statistics { all | name** *service_name* **} [function { pgw [interface { GnGp | S2a | S5S8 }] | sgw }] [verbose] } [| { grep** *grep_options* **| more }]**

all

Displays configuration information for all SAEGW services configured on this system.

name *service_name*

Displays configuration information for an existing SAEGW service specified as an alphanumeric string of 1 through 63 characters.

statistics { all | name *service_name* } [function { pgw [interface { GnGp | S2a | S5S8 }] | sgw }] [verbose] }

Displays node-level statistics for SAEGW.

all: Displays consolidated node-level statistics for all SAEGW services on the system.

name *service_name*: Displays node-level statistics for an existing SAEGW service specified as an alphanumeric string of 1 through 63 characters.

function: Displays node-level statistics of one of the following functions:

- **pgw**: Displays node-level statistics of P-GW function within SAEGW.
- **sgw**: Displays node-level statistics of S-GW function within SAEGW.

interface: Displays node-level statistics of P-GW function with respect to one of the following interfaces:

- **GnGp**: Displays node-level statistics of P-GW function with respect to GnGp interface.

- **S2a**: Displays node-level statistics of P-GW function with respect to S2a interface.
- **S5S8**: Displays node-level statistics of P-GW function with respect to S5S8 interface.

If **verbose** is also specified, the information is displayed in more detail.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration information and node-level statistics for SAEGW services on this system.

Example

The following command displays configuration information for the SAEGW service named *saegw1*:

```
show saegw-service name saegw1
```

show samog-service

Displays configuration and/or statistical information for SaMOG services on this system.

Product

SaMOG

Privilege

Security Administrator, Administrator, Operator, Inspector

Syntax Description

```
show samog-service {  all |  name name  | statistics [ name name ] }  [ | {
 grep grep_options | more } ]
```

all

Displays all SaMOG services.

name *name*

Displays information for specific SaMOG service name.

name is a string of size *1* to *63*.

statistics

Displays Node level Statistics for SaMOG.

verbose

Specifies Detailed statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display configuration and/or statistical information for SaMOG services on this system.

Example

```
show samog-service all
```

show sbc-service

Displays information about SBc interface services configured on this system.

Product MME

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show sbc-service { all | cbc-associations { all | sbc-service-name** *sbc_svc_name* **[path-info | summary] } | sbc-service-name** *sbc_svc_name* **} [| { grep** *grep_options* **| more }]**

all

Displays information about all SBc interface services configured on this system.

cbc-associations { all | sbc-service-name *sbc_svc_name*

Displays information about the SBc interface associations with the Cell Broadcast Centers (CBC).

all shows information about all CBC associations.

sbc-service-name *sbc_svc_name* shows information only for CBC associations for the SBc service name specified as an alphanumeric string of 1 through 63 characters.

sbc-service-name *sbc_svc_name*

Displays information only for the SBc service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information about SBc services configured on this system.

Refer to the **show sbc statistics** Exec Mode command to display statistics for SBc interface.

Example

The following command displays information about the CBC associations for the SBc service named *sbc1*

```
show sbc-service cbc-assocations sbc-service-name sbc1
```

show sbc statistics

Displays statistics about SBc interface services configured on this system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sbc statistics { all | peer-id *peer_id* **| sbc-service-name** *sbc_svc_name* **} [verbose | { | grep** *grep_options* **| more }]**

all

Displays statistics for all SBc services configured on this system.

peer-id *peer_id*

Displays statistics for a Cell Broadcast Center (CBC) peer association specified as an integer value from 0 through 4294967295.

Use the **show sbc-service cbc-associations all** command to display the available CBC association peer IDs.

sbc-service-name *sbc_svc_name*

Displays statistics for an SBc service specified as an alphanumeric string of 1 through 63 characters.

verbose

Displays expanded statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistics about SBc services configured on this system.

Example

The following command displays verbose (expanded) statistics for an SBc service named *sbc1*

```
show sbc statistics sbc-service-name sbc1 verbose
```

show sccp-network

Displays SS7 Signaling Connection Control Part (SCCP) network configuration and status information.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show sccp-network { ntwk_index | all } [ status [ all | dpc ] ]
```

ntwk_index

Displays configuration and status information for the SSCP network configuration with the network index specified as an integer from 1 through 12.

all

Displays all available configuration and status information for all SSCP networks.

status all

Displays all status information for specified SCCP networks.

status dpc

Displays status information for the device in the SCCP network identified by the destination point-code (DPC).

Usage Guidelines

Use this command to display global SCCP statistics or to display SCCP statistics for a specified service or network.

Example

The following command displays global SCCP statistics:

```
show sccp-network all
```

The following command displays information for an SCCP network configuration with the network index of *1*:

```
show sccp-network 1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show sccp statistics

Displays SS7 Signaling Connection Control Part (SCCP) statistics for services that use the SCCP protocol.

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show sccp statistics [ iups-service iups_srvc_name | map-service map_srvc_name
 | sccp-network ntwk_index [ dpc dpc [ ssn ssn ] | global-title-translation
 { address-map instance add_map_inst | association instance assoc_inst } [
sessmgr instance sessmgr_inst ] ] [ | { grep grep_options | more } ]
```

iups-service *iups_srvc_name*

Displays SCCP protocol statistics for an existing IuPS service in the current context specified as an alphanumeric string of 1 through 63 characters.

map-service *map_srvc_name*

Displays SCCP protocol statistics for the an existing Mobile Application Part (MAP) service in the current context specified as an alphanumeric string of 1 through 63 characters.

sccp-network *ntwk_index*

Displays SCCP protocol statistics for the SSCP network configuration with a network index specified as an integer from 1 through 12.

The following filters can be added to fine tune the display of SCCP network statistics:

- **dpc** *dpc*: Enter a standard pointcode address to limit the display of SCCP network statistics to those for the identified DPC.

- **ssn** *ssn*: Enter an integer from 1 to 255 to limit the display of SCCP network statistics to those for the identified subsystem number.
- **global-title-translation address-map instance** *add_map_inst*: Enter an integer from 1 to 4096 to limit the display of SCCP network statistics to those for the identified GTT address-map.
- **global-title-translation association instance** *assoc_inst*: Enter an integer from 1 to 16 to limit the display of SCCP network statistics to those for the identified GTT association.
- **sessmgr instance** *sessmgr_inst*: Enter an integer from 1 to 384 to limit the display of SCCP network statistics to those for the identified session manager.

Usage Guidelines

Use this command to display global SCCP statistics or to display SCCP statistics for a specified service or SCCP network.

Example

The following command displays global SCCP statistics:

```
show sccp statistics
```

The following command displays SCCP statistics for the IuPS service named *iups-serv1*:

```
show sccp statistics iups-service iups-serv1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show scef-service statistics

Displays SCEF Service configuration and status information.

Product

MME

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show scef-service statistics { all | name service_name | summary }
```

all

Displays all available configuration and status information for all SCEF Services.

name *service_name*

Displays all status information for a specified SCEF service name.

summary

Displays the summary of the available SCEF service statistics.

Usage Guidelines

Use this command to display SCEF service information and its statistics.

Example

The following command displays all SCEF service statistics:

```
show scef-service statistics all
```

The following command displays information for an SCEF service configuration with the service name *Test*:

```
show scef-service statistics name Test
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show sctp-param-template

Displays configuration information for Stream Control Transmission Protocol (SCTP) parameter templates configured on this system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show sctp-param-template { all | name template_name } [ | { grep grep_options | more } ]
```

all

Displays configuration information for all SCTP parameter templates configured on this system.

name *template_name*

Displays configuration information for an existing SCTP parameter template specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to view configuration information for SCTP parameter templates on this system.

Example

The following command displays configured parameters for an SCTP parameter template named *sctp_pt3*:

```
show sctp-param-template name sctp_pt3
```

show security

Displays information related to the security settings of the system, such as whether this StarOS version is a Trusted build. This command also displays information about the Talos Intelligence Server.

Product All

Privilege Security Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show security category url** *url* **| configuration | server talos-intelligence** *server_name* **[verbose]**

category url *url*

Displays Talos Intelligence categorization information for the specified URL. *url* must be an alphanumeric string from 1 through 512 characters.

configuration

Displays information for StarOS trusted builds. This keyword only provides information if the StarOS build is a trusted build. Refer to the *System Administration Guide* for more details about trusted builds.

server talos-intelligence *server_name* [verbose]

Displays Talos Intelligence server information. *server_name* must be specified as a case-sensitive alphanumeric string from 1 through 31 characters.

verbose

Displays operational status of each database instance.

Usage Guidelines Use this command to display security information, such as whether or not the platform is running a Trusted build.

Important This command can only be executed by a Security Administrator.

Example

The following command displays security-related configuration information for trusted builds:

```
show security configuration
```

show service all

Displays configuration information for all services currently configured on this system.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show service all
```

Usage Guidelines Use this command to view configuration information for all services configured on this system.

Example

The following command displays information about all services configured on this system:

```
show service all
```

show session counters historical

Displays historical information for session-related counters based on data collected in bulk statistics.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show session counters historical { all | arrived | callops | connected | disconnected | failed | handoff | rejected | renewal } [all-intervals | recent-intervals] [cumulative | incremental] [graph | table] [2g | 3g | 3g-ha | 4g | all | ehrpd | wifi] [| { grep *grep_options* **| more }]**

all

Displays data for all counters either as a single, wide table or multiple graphs.

arrived

Displays only data for "total calls arrived" counters. This is based on the "sess-ttlarrived" statistic in the system schema.

callops

Displays data for all call operations. This is a calculated value based on the following formula:

(arrived + rejected + disconnected + failed + handoffs + renewals)

connected

Displays only data for "total calls connected" counters. This is based on the "sess-ttlconnected" statistic in the system schema.

disconnected

Displays only data for "total calls disconnected" counters. This is based on the "sess-ttldisconn" statistic in the system schema.

failed

Displays only data for "total calls failed" counters. This is based on the "sess-ttlfailed" statistic in the system schema.

handoff

Displays only data for "total handoffs" counters. This is based on the "sess-ttlhandoff" statistic in the system schema.

rejected

Displays only data for "total calls rejected" counters. This is based on the "sess-ttlrejected" statistic in the system schema.

renewal

Displays only data for "total renewal" counters. This is based on the "sess-ttlrenewal" statistic in the system schema.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Output Options

The following output options are available for this command:

- **all-intervals**: Displays all available historical information from all samples. This this filter is used by default.
- **cumulative**: Displays total data for all samples up to and including the last one. In this view, values increase over time.
- **graph**: Displays data in graphical form.
- **incremental**: Displays data changes for each specific sample. The data for each sample is the amount of change since the previous sample. This filter is used by default.
- **recent-intervals**: Displays historical information for only recent samples.
- **table**: Displays data in tabular form. This is the default view.

Access Technology Categories

The following options display session counters as categorized by access technology type:

- **all**: Displays session counters for all access technology categories.
- **2g**: Displays session counters for calls using 2G GERAN access technology.
- **3g**: Displays session counters for calls using 3G UTRAN access technology.
- **3g-ha**: Displays session counters for 3G-HA (High Availability) sessions.
- **4g**: Displays session counters for calls using 4G EUTRAN access technology.
- **ehrpd**: Displays session counters for eHRPD (evolved High Rate Packet Data) calls.
- **wifi**: Displays session counters for WiFI calls.

Usage Guidelines

This command provides the ability to track key session-related statistic information over time. This information can be used as part of system performance monitoring and capacity planning.

Important The information provided in the output of this command requires that bulk statistics functionary be enabled on the system. Refer to the *System Administration Guide* for more information on configuring and enabling bulk statistics support.

The output of this command displays historical data collected at various sample intervals. The interval length is 15 minutes and is not user-configurable. Up to 192 samples (two days' worth of data) are maintained.

Important Data collection is "best-effort" over these intervals. Data is preserved on the SMC or MIO card switchovers. As with all counters, certain session failures can cause inaccuracies with counters, including counters which appear to go backwards.

Each sample is identified by a timestamp that displays the approximate time the data was gathered. the timestamp is in the format YYYY:MM:DD:hh:mm:ss.

Data acquired during the sample may be marked with an "S" appended to the end of the timestamp or to the counter value. The "S" indicates that the data is suspect (potentially bad). Occurrences of this result from events like changes to the real time clock, which can cause an interval to be an atypical length. Instances of suspect data should be rare. Additionally, there may be occasions in which a sample may be marked as "invalid". "invalid" identifies bad data, a situation that could result when the polling has not run long enough, or because of an unexpected error retrieving data.

Since baseline values must be obtained prior to collecting interval samples, the first interval of data will not be available until up to twice the interval period.

Example

The following command displays cumulative total calls arrived information for the most recent intervals and displays the output in graphical format:

```
show session counters historical arrived recent-intervals cummulative graph
```

The following command displays historical data for all counters for all intervals and displays the output in tabular format:

```
show session counters historical all
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show session counters pcf-summary

Displays the Packet Control Function (PCF) summary which include the number of calls, call types, and Tx/Rx packets/octets statistics.

Product PDSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show session counters pcf-summary [call-types | data | wf1 [pcf** *pcf_address* **| [| { grep** *grep_options* **| more }]]]**

call-types

Displays the number of calls and the types of calls.

data

Displays the number of successful calls and Tx/Rx packets/octets statistics.

pcf *pcf_address*

Displays the given PCF summary for a particular address.

wf1

Displays the PCF summary in a single very wide line.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display a summary of all PCFs.

Example

```
show session counters pcf-summary
```

show session disconnect-reasons

Displays a list of the reasons for call disconnects and the number of calls disconnected for each reason.

Product All

Privilege Security Administrator, Administrator, Inspector, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show session disconnect-reasons [buckets | gprs-only | pgw-only | sgsn-only | sgw-only | verbose] [| { grep** *grep_options* **| more }]]**

buckets

Displays additional disconnect reasons in pre-configured bucket-intervals.

gprs-only

Only supported on the SGSN.

This keyword limits the display to session disconnect reasons for the SGSN's 2G MM and PDP context disconnects.

pgw-only

Supported on the GGSN, P-GW, and SAEGW only.

Displays cumulative session disconnect reason statistics specific to P-GW/GGSN calls. The following call types fall under this category:

- P-GW Call
- GGSN Call (both standalone GGSN service as well as GGSN service associated with P-GW service)
- SAEGW Call (P-GW-Anchored)
- SAEGW Call (GGSN-Anchored)
- SAEGW Call (Co-located)

sgw-only

Supported on the SAEGW and S-GW only.

Displays cumulative session disconnect reason statistics specific to S-GW calls. S-GW calls include:

- S-GW calls
- SAEGW calls that are S-GW anchored only

sgsn-only

Only supported on the SGSN.

Displays session disconnect reasons for the SGSN's 3G MM and PDP context disconnects.

verbose

List all disconnect reasons even if the values are zero (0).

Important The **verbose** option is not supported for the **buckets** keyword.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display a list of the reasons why calls were disconnected.

Example

To view session disconnect statistics, enter the following command:

```
show session disconnect-reasons
```

To view a list of the disconnect reasons with verbose output, enter the following command:

```
show session disconnect-reasons verbose
```

show session duration

Displays session duration information for the current context filtered by the options specified.

Product All

Privilege Security Administrator, Administrator, Inspector, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show session duration [** *session_filter* **] [| { grep** *grep_options* **| more }]**

session_filter

Specifies the name of the entity whose session duration information is to be filtered and displayed. This options are:

- **apn** *apn_name*: Displays session information for an existing Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters that is case sensitive.
- **asn-peer-address** *ip_address*: Displays session information for the ASN GW peer whose IP address is specified in IPv4 dotted-decimal notation.
- **asngw-service** *service_name*: Displays session information for the specified ASN-GW service.
- **asnpc-peer-address** *ip_address*: Displays session information for the Access Service Network Paging Controller (ASN PC) peer whose IP address is specified in IPv4 dotted-decimal notation.
- **asnpc-service** *service_name*: Displays session information for the specified ASN PC service.
- **dhcp-server** *dhcp_address*: Displays session information for the Dynamic Host Configuration Protocol (DHCP) server specified by its IP address in IPv4 dotted-decimal notation.
- **epdg-service** *service_name*: Displays session information for ePDG service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

- **fa** *fa_address*: Displays session information for the foreign agent (FA) whose IP address is specified in IPv4 dotted-decimal notation.
- **fa-service** *fa_name*: Displays session information for the named foreign agent service.
- **fng-service** *fng_name*: Displays session information for the named Femto Network Gateway service.
- **ggsn-service** *ggsn_name*: Displays session information for an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
- **gprs-only**: Limits the display to the session information for the SGSN's 2G MM and PDP contexts.
- **ha** *ha_address*: Displays session information for the home agent specified by its IP address in IPv4 dotted-decimal notation.
- **ha-service** *ha_name*: Displays session information for the named home agent (HA) service.
- **hnbgw-only**: Displays session information for the HNB-GW service related sessions instances (such as HNB, IuPS, IuCS).

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **hsgw-service** *service_name*: Displays session information for an existing HSGW service specified as an alphanumeric string of 1 through 63 characters.
- **lma-service** *service_name*: Displays session information for an existing Local Mobility Anchor (LMA) service specified as an alphanumeric string of 1 through 63 characters.
- **mag-service** *service_name*: Displays session information for an existing Mobile Access Gateway (MAG) service specified as an alphanumeric string of 1 through 63 characters.
- **mme-service** *service_name*: Displays session information for an existing Mobility Management Entity (MME) service specified as an alphanumeric string of 1 through 63 characters.
- **pcc-service** *service_name*: Displays session information for an existing Policyand Charging Control service specified as an alphanumeric string of 1 through 63 characters.
- **pcf** *pcf_address*: Displays session information for the packet control function specified by its IP address in IPv4 dotted-decimal notation.
- **pdif-service** *service_name*: Displays session information for the named Packet Data Interworking Function service.
- **qci { all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | non-std } ***: Displays the length of time a dedicated bearer is established on the network for a given QCI. More than one QCI value can be specified.
- **pdsn-service** *pdsn_name*: Displays session information for the named packet data service.

Important If no PCF address or PDSN service is specified, the session information for all sessions is displayed.

- **pdsnclosedrp-service** *service_name*: Displays all L2TP tunnels in the specified Closed R-P service.

- **qci** *std_value* **[all] [non-std]** Displays session duration information for a specified or all QoS Class Index (QCI) values. The standard QCI value is an integer from1 through 9.
- **sgsn-address** *sgsn-address*: Displays session information for the SGSN specified by its IP address in IPv4 dotted-decimal notation.
- **sgsn-only**: Limits the display to the session information for the SGSN's 3G MM and PDP contexts.
- **sgw-service** *service_name*: Displays session information for an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.
- **wsg-service** *service_name*: Displays session information for an existing Security Gateway (wsg-service) service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the session information to troubleshoot subscriber problems and for general monitoring for orphaned sessions.

Example

The following commands display the duration for the session connected to the packet control function with address *10.2.3.4*, packet data service *sampleService*, and for all sessions, respectively.

```
show session duration pcf 10.2.3.4
show session duration pdsn-service sampleService
show session duration
```

show session progress

Displays session progress information for the current context filtered by the options specified.

Product

All

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show session progress [apn *apn_name* **| asn-peer-address** *ip_address* **| asngw-service** *service_name* **| asnpc-service** *service_name* **| asnpc-peer-address** *ip_address* **| dhcp-server** *dhcp_address* **| epdg-service** *service_name* **| fa** *fa_address* **| fa-service** *fa_name* **| ggsn-service** *ggsn_name* **| ha** *ha_adress* **| ha-service** *ha_name*

| hsgw-servie *service_name* **| lma-service** *service_name* **| mag-service** *service_name* **| mipv6-service** *service_name* **| mme-address** *mme_address* **| pcc-address** *service_name*| **pcf {** *pcf_address* **pdif-service** *service_name* **| pdsn-service** *pdsn_name service_name* **| pgw-address** *ip_address* **| saegw-service** *service_name* **| samog-service** *service_name* **| sgsn-address** *sgsn_address* **| sgw-service** *service_name* **| wsg-service** *service_name* **] [| { grep** *grep_options* **| more }]**

apn *apn_name*

Displays session information for an existing Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters that is case sensitive.

asn-peer-address *ip_address*

Displays session information for the Access Service Network-Gateway (ASN-GW) peer specified by its IP address in IPv4 dotted-decimal notation.

asngw-service *service_name*

Displays session information for an existing ASN-GW service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

asnpc-service *service_name*

Displays session information for an existing Access Service Network Paging Controller (ASN PC) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

asnpc-peer-address *ip_address*

Displays session information for the ASN PC peer specified by its IP address in iIPv4 dotted-decimal notation.

dhcp-server *dhcp_address*

Displays session information for a Dynamic Host Configuration Protocol (DHCP) server specified by its IP address in IPv4 dotted-decimal notation

epdg-service *service_name*

Displays session information for an existing Evolved Packet Data Gateway (ePDG) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

fa *fa_address*

Displays session information for the foreign agent (FA) whose IP address is specified in IPv4 dotted-decimal notation.

fa-service *fa_name*

Displays session information for an existing FA service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

ggsn-service *ggsn_name*

Displays session information for an existing Gateway GPRS Support Node (GGSN) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

ha *ha_address* | ha-service

Displays session information for the home agent specified by its IP address in IPv4 dotted-decimal notation.

ha-service *ha_name*

Displays session information for an existing Home Agent (HA) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

hsgw-servie *service_name*

Displays session information for an existing HRPD Serving Gateway (HSGW) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

lma-service *service_name*

Displays session information for an existing Local Mobility Anchor (LMA) service specified as an alphanumeric string of 1 through 63 characters.

mag-service *service_name*

Displays session information for an existing Mobile Access Gateway (MAG) service specified as an alphanumeric string of 1 through 63 characters.

mipv6ha-service-service *service_name*

Displays session information for an existing Mobile Internet Protocol version 6 (MIPv6) Home Agent (HA) service specified as an alphanumeric string of 1 through 63 characters.

mme-address *mme_address*

Displays session progress information for the Mobility Management Entity (MME) specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

pcc-service *service_name*

Displays session information for an existing Policy Charging Control (PCC) service specified as an alphanumeric string of 1 through 63 characters.

pcf *pcf_address*

Displays session information for the Packet Control Function (PCF) specified by its IP address in IPv4 dotted-decimal notation.

pdif-service *service_name*

Displays session information for an existing Packet Data Interworking Function (PDIF) service specified as an alphanumeric string of 1 through 63 characters.

pdsn-service *service_name*

Displays session information for an existing Packet Data Serving Node (PDSN) service specified as an alphanumeric string of 1 through 63 characters.

pgw-address *ip_address*

Displays session progress information for the PDN-Gateway (P-GW) specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

saegw-service *service_name*

Displays session information for an existing System Architecture Evolution-Gateway (SAE-GW) service specified as an alphanumeric string of 1 through 63 characters.

samog-service *service_name*

Displays session progress information for an existing S2a Mobility over GTP (SaMOG) service specified as an alphanumeric string of 1 through 63 characters.

sgsn-address *sgsn_address*

Displays session information for the Serving GPRS Support Node (SGSN) specified by its IP address in IPv4 dotted-decimal notation.

sgw-service *service_name*

Displays session progress information for an existing Serving Gateway (S-GW) service specified as an alphanumeric string of 1 through 63 characters.

wsg-service *service_name*

Displays session progress information for an existing Wireless Security Gateway (WSG) service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the session information to troubleshooting subscriber problems and for general monitoring for orphaned sessions.

Example

The following commands display the status information for the session connected to the packet control function with address *10.2.3.4*, packet data service *sampleService*, and for all sessions, respectively.

```
show session progress pcf 10.2.3.4
show session progress pdsn-service sampleService
show session progress
```

Important Output descriptions for this command are available in the *show session* chapter of the *Statistics and Counters Reference*.

show session recovery status

Displays session recovery status information for the current context filtered by the options specified.

Product

All

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show session recovery status [verbose] [| { grep *grep_options* **| more }]**

recovery status

Displays the current status of the system's ability to recover from a hardware or software fault that requires the recovery of home agent-based Mobile IP session(s).

verbose

Includes per-CPU Session Recovery status.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the session information for troubleshooting subscriber problems and for general monitoring for orphaned sessions.

Example

To display the session recovery status information, enter the following command:

```
show session recovery status
```

Adding the optional verbose keyword to this command provides more details.

show session recovery status verbose

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show session setuptime

Displays session setup time information for all sessions or sessions associated with the specified Access Gateway (AGW).

Product

ePDG

PDSN

HNB-GW

SGSN

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show session setuptime [epdg-only [verbose] | hnbgw-only | pcf *pcf_address* **| gprs-only | sgsn-address** *sgsn_address* **| sgsn-only] [| { grep** *grep_options* **| more }]**

[epdg-only [verbose] hnbgw-only | mme-only | pcf pcf_address | gprs-only | sgsn-address *sgsn_address* | sgsn-only]

Displays the call setup times aggregated into basic ranges of time.

- **epdg-only**: Display ePDG Session Statistics. **verbose**: Displays session setup times in verbose mode.
- **hnbgw-only**: Filters and displays the call setup information for HNB-GW calls only.

  Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.
- **pcf** *pcf_address*: displays call setup data for the packet control function whose IP address is specified as *pcf_address*. *pcf_address* must be specified using IPv4 dotted-decimal notation. The call setup times for all PCFs is displayed when no specified PCF is specified.
- **gprs-only**: Displays 2G call setup data for the for the SGSN for the MM and PDP contexts.

- **sgsn-address** *sgsn_address***:** Displays call setup times for the specified SGSN. *sgsn_address* is the IP address of the SGSN and must be expressed in IPv4 dotted-decimal notation. This keyword is used by the GGSN.
- **sgsn-only**: Displays 3G call setup data for the for the SGSN for the MM and PDP contexts.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the session information to troubleshooting subscriber problems and for general monitoring for orphaned sessions.

When no keywords are specified, the information shown is cumulative for all sessions that have been facilitated by the system.

Example

The following command shows setup time statistics for all sessions from the PCF at IP address *192.168.10.3*:

```
show session setuptime pcf 192.168.10.3
```

show session subsystem

Displays session information for system subsystems. If no keywords are specified, information for all subsystems is displayed.

Product

All

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show session subsystem [ full | facility facility [ all | instance id ] ]
[ verbose ] [ | { grep grep_options | more }]
```

[full | facility *facility* [all | instance *id*]]

- **full**: Indicates that a full statistics summary of all subsystems is to be displayed.
- **facility** *facility*: Specifies the facility for which subsystem statistics is to be displayed where *facility* is specified as one of:
  - **a11mgr**: A11 Manager

- **aaamgr**: Accounting and Authentication Manager
- **aaaproxy**: AAA Proxy Manager
- **alcapmgr**: ALCAP Manager
- **asngwmgr**: ASN Gateway Manager
- **asnpcmgr**: ASN Paging/Location-Registry Manager
- **dgmbmgr**: Diameter Gmb Application Manager
- **diamproxy**: Diameter Proxy Application Manager [Release 12.0 and earlier versions only]
- **egtpegmgr**: EGTP Egress Demux Manager
- **egtpinmgr**: EGTP Ingress Demux Manager
- **famgr**: Foreign Agent Manager
- **gtpcmgr**: GTP-C Manager
- **gtpumgr**: GTP-U Demux Manager
- **hamgr**: Home Agent Manager
- **henbgwdemux**: Home eNodeB Gateway demux manager

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgwmgr**: Home eNodeB Gateway Manager

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **hnbmgr**: HNBGW HNB Manager

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **imsimgr**: SGSN IMSI Manager
- **ipsgmgr**: IP Services Gateway Manager
- **l2tpdemux**: L2TP Demux Manager
- **l2tpmgr**: L2TP Manager

- **linkmgr**: SGSN/SS7 Master Manager
- **magmgr**: Mobile Access Gateway Manager
- **megadiammgr**: MegaDiameter Manager
- **mmedemux**: MME Demux Manager
- **mmemgr**: MME Manager
- **mmgr**: SGSN/SS7 Master Manager
- **pdgmgr**: PDG Manager
- **phsgwmgr**: PHS Gateway Manager
- **phspcmgr**: PHS Paging Controller Manager
- **sessmgr**: Session Manager
- **sgtpcmgr**: SGSN GTP-C Manager

- **all | instance** *id*: the keyword **all** indicates all instances of the specified facility are to be displayed whereas the keyword **instance** specifies a specific instance for which information is to be displayed where *id* must be specified as an integer from 0 through 4294967295. If all or instance is not specified summary statistics are displayed.

verbose

Displays everything the **show session subsystem** command displays with the exception that the Setup Time statistics are reported in 100 millisecond increments from 100 ms up to 9600 ms.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

View the session information to troubleshooting subscriber problems and for general monitoring for orphaned sessions.

If this command is entered with no keywords, the information displayed is cumulative for all sessions facilitated by the system.

Example

The following commands display the statistics information summarized for all sessions, then for the *famgr* facility (all sessions), and finally only for the session ID *127589* for the *hamgr* subsystem.

```
show session subsystem full
show session subsystem facility famgr all
show session subsystem facility hamgr instance 127589
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show session trace

Displays status and statistics for the session trace application.

Product

GGSN

MME

P-GW

SAEGW

S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show session trace { statistics | subscriber network-element { ggsn | mme | pgw | sgw } trace-ref` *`value`* **`| tce-address`** *`ip_address`* **`tce-index`** *`num`* **`| tce-summary | trace-summary } [ | { grep`** *`grep_options`* **`| more } ]`**

statistics

Displays summary statistics for the session trace subsystem.

subscriber network-element { ggsn | mme | pgw | sgw } trace-ref *value*

Displays status and statistics for a specified session trace using the network element type; GGSN, MME, P-GW, and S-GW, and a valid trace reference of 12 characters.

tce-address *ip_address* tce-index *num*

Displays status and statistics for an existing Trace Collection Entity (TCE) connection specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

tce-index *num*: Specifies a TCE index of the trace collection entity as an integer from 0 through 7.

tce-summary

Displays a summary of all active TCE connections.

trace-summary

Displays a summary of all active session traces.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display status and statistics for the session trace application.

Example

The following command displays status and statistics for a subscriber session trace on a P-GW with a trace reference of *32223398765*:

```
show session trace subscriber network-element pgw trace-ref 32223398765
```

The following command displays status and statistics for a subscriber session trace on an MME with a trace reference of *32221234567*:

```
show session trace subscriber network-element mme trace-ref 32223398765
```

The following command displays status and statistics for a subscriber session trace on an GGSN with a trace reference of *1203398765*:

```
show session trace subscriber network-element ggsn trace-ref 1203398765
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show session-event-record

Displays session event module statistics and file space usage information.

Product

S-GW

SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show session-event-record { file-space-usage | statistics }
```

file-space-usage

Displays session event module file storage limits and capacities.

statistics

Displays session event module statistics regarding the handling and transfer of event records to an external collection server.

Usage Guidelines

View the session event information to troubleshoot handling and transfer problems and for general monitoring for file storage use.

Example

The following command displays the file storage limit and use for all event modules on the system:

```
show session-event-record file-space-usage
```

show sf

Displays switch fabric task (SFT) information associated with packet processing cards.

Product

All

Privilege

Inspector

Syntax Description

```
show sf stats sft [ historical ]
```

historical

Displays historical information regarding SFT performance.

Usage Guidelines

Use this command to display information and statistics about the switch fabric task.

Example

The following command displays statistics for the SFT:

```
show sf stats sft
```

show sgs-service

Displays information and statistics about Visitor Location Register (VLR) SGs interface services configured on this system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sgs-service { all | name *name* **| offload-status [service-name** *sgs_svc_name* **] | statistics { all | name** *name* **} | vlr-status [service-name** *sgs_svc_name* **] [vlr-name** *name* **] [full [wf1]] [| { grep** *grep_options* **| more }]**

all

Displays information about all SGs interface services configured on this system.

name *name*

Displays information about an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

offload-status *sgs_svc_name*

Displays statistics for all VLRs flagged for offload for an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

statistics { all | name *name* }

Displays statistics for SGs services configured on this system.

all: Displays statistics for all SGs services configured on this system.

name *name*: Displays statistics for an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

vlr-status [service-name *name*] [vlr-name *name*] [full [wf1]]

Displays status information about VLRs configured in SGs services on this system.

service-name *sgs_svc_name*: Displays names and states of VLRs configured in an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

vlr-name *name*: Displays the name and state of an existing VLR configured in SGs services on this system and specified as an alphanumeric string of 1 through 63 characters.

full: Displays additional information about VLRs configured in SGs services on this system. Additional information includes ports, addresses and peer IDs.

wf1: Displays the output in a tabular format.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information and statistics about SGs services configured on this system.

Example

The following command displays statistics for an SGs service named *sgs3*:

show sgs-service name sgs3

The following command displays VLR status information for a configured VLR named *vlr-main*:

show sgs-service vlr-status vlr-name vlr-main

show s4-sgsn statistics

Displays statistics related to S4 functionality on the SGSN.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show s4-sgsn statistics [all | smgr-instance *<instance_number>* **]**

all

Show all S4-SGSN statistics from all session managers.

smgr-instance

Show the statistics for a session manager instance of the SGSN service. <*instance_number*> must be specified as an integer between 1 and 65535.

Important

If no option is specified, then S4-SGSN statistics from all session managers will be added up and the cumulative totals will be shown.

Usage Guidelines

Use this command to display information for S4-SGSN related services.

Example

The following commands display and clear S4-SGSN-related statistics for all services on the system:

```
show s4-sgsn statistics all
clear s4-sgsn statistics all
```

show sgsn fsm-statistics

The output of this command provides information on 3G SGSN (both Gn and S4) application FSM statistics.

Product

SGSN

Privilege

Inspector, Operator, Administrator, Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sgsn fsm statistics { umts-sm | umts-pmm | all }

umts-sm

Displays 3G Session Management Access Side FSM statistics.

umts-pmm

Displays 3G Mobility Management PMM FSM statistics.

all

Displays all SGSN application FSM statistics.

Usage Guidelines

Use this command to track 3G SGSN (both Gn and S4) application FSM statistics. The SGSN application FSM statistics will help collect the FSM usage information to quantify which events / state collisions happen most often in the field.

Example

Enter this command to display all SGSN FSM statistics**show sgsn fsm statistics all**

show sgsn sessmgr

Displays session manager (SessMGR) statistics specific to the SGSN service.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sgsn sessmgr { all | instance *smgr_inst* **}**

all

Displays all SessMGR statistics specific to the system's SGSN services.

instance *smgr_inst*

Displays the statistics for a session manager instance of the SGSN service specified as an integer between 1 and 10000000.

Usage Guidelines

Use this command to display information for SGSN services.

Example

The following command displays SGSN SessMGR statistics for all SGSN services on the system:

```
show sgsn sessmgr all
```

show sgsn-fast-path

Displays information related to SGSN fast-path.

Note This command is not supported by SGSN from software release 16.2 onwards as the NPU FastPath feature is not supported by SGSN from the 16.2 release.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show sgsn-fast-path statistics [ all | smgr-instance smgr_inst ] [ | { grep
 grep_options | more } ]
```

all

Displays fast-path statistics for all session managers.

smgr-instance *smgr_inst*

For releases prior to 14.0, this keyword displays the fast-path statistics for a session manager instance specified as an integer between 1 and 65535.

For releases 14.0 and higher, this keyword displays the fast-path statistics for a session manager instance specified as an integer between 1 and 384.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display statistics for SGSN fast-path configurations.

Example

The following command displays fast-path statistics for all SGSN session managers:

```
show sgsn sessmgr all
```

show sgsn-map-app

Displays collected statistics for the SGSN Mobile Application Part (MAP).

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description **show sgsn-map-app statistics [| { grep** *grep_options* **| more }]**

all

Displays collected statistics for the SGSN MAP application.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display statistics for the SGSN MAP application.

Example

The following command displays SGSN MAP statistics:

```
show sgsn-map-app statistics
```

show sgsn-mode

Displays the SGSN global configuration.

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show sgsn-mode[| { grep** *grep_options* **| more }]**

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines Use this command to display the configuration created with the commands in the SGSN Global Configuration mode.

Example

The following command displays the SGSN global configuration:

```
show sgsn-mode
```

show sgsn-operator-policy

This command has been deprecated. Refer to the **show operator-policy** command.

show sgsn-pool

Displays collected pooling statistics for either GPRS services or SGSN services.

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **show sgsn-pool statistics { gprs-service** *srvc_name* **| sgsn-service** *srvc_name*} **{ nri-value** *nri_value* **| peer-non-broadcast-lac** *lac* **rac** *rac* **| target-load-in-progress [smgr-instance** *smgr_instance* **| target-nri** *target_nri*

] | target-offloaded-to-peer [target-nri *target_nri* **] } [| { grep** *grep_options* **| more }]**

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the collected statistics for pooling in either GPRS or SGSN services. The outputs can be filtered to focus the statistics displayed.

Example

The following command displays the:

```
show sgsn-pool statistics sgsn-service sgsn1 nri-value 3
```

show sgsn-service

Displays information about the configured SGSN services in the current context.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sgsn-servie { all | name *srvc_name* **}**

all

Displays information for all SGSN services in the current context.

name *srvc_name*

Displays information for an existing SGSN service specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to display information for SGSN services.

Example

The following command displays information for all SGSN services in the current context:

```
show sgsn-service all
```

The following command displays information for an SGSN service in the current context that is named *sgsn1*:

```
show sgsn-service name sgsn1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show sgtp-service

Displays information about the configured GPRS Tunnelling Protocol (SGTP) services in the current context, including GTP-C and GTP-U operational configuration.

Product

SGSN

PDG/TTG

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sgtp-service all [gtpu-table] |{ ggsn-table [smgr-instance*smgr_instance* **] | mbms-bearers | name** *srvc_name* **[gtpu-table] | }sgsn-table**

all [gtpu-table]

Displays configuration information for all of the SGTP services defined for the current context.

gtpu-table: Limits the output to GTPU information for all SGTP services.

ggsn-table [smgr-instance *srvc_name*]

Displays GGSN information configured for the SGTP service(s) in the current context.

smgr-instance *srvc_name* enter an integer from 1 through 384 to limit the GGSN output to information for a specific session manager.

mbms-bearers

This keyword is specific to the SGSN and is not yet supported.

name *srvc_name* [gtpu-table]

Displays information for the specified SGTP service in the current context. *srvc_name* must be an alphanumeric string of 1 through 63 characters that identifies a configured SGTP service.

gtpu-table: Limits the output to GTPU information for a specific SGTP service.

sgsn-table

Displays SGSN information configured for the SGTP service(s) in the current context.

Usage Guidelines

Use this command to control the display of SGTP services information.

Example

The following command displays information for all SGTP services in the current context:

```
show sgtp-service all
```

The following command displays the GGSN information in SGTP services in the current context:

```
show sgtp-service ggsn-table
```

The following command displays the SGSN information in SGTP services in the current context:

```
show sgtp-service sgsn-table
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show sgtpc statistics

Displays all statistics, for SGSN GPRS Tunnelling Protocol (SGTP) interface parameters, collected since the last restart or last use of a **clear** command.

Product

SGSN

PDG/TTG

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sgtpc statistics [all | gsn-address *ipv4_address* **| sgtp-service** *sgtp_srvc_name* **] [verbose][| { grep** *grep_options* **| more }]**

all

Displays configuration information for all of the SGTP services defined for the current context.

gsn-address *ipv4_address*

Displays statistics for an SGSN specified by its IP address in IPv4 dotted-decimal notation. This must be an existing and active interface.

sgtp-service *sgtp_srvc_name*

Displays statistics for an existing SGTP service specified as an alphanumeric string from 1 through 63 characters.

verbose

Causes the system to displays more detailed level of statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information for SGSN services.

Example

The following command displays statistics for the SGTP service named *sgtp1*:

```
show sgtpc statistics sgtp-service sgtp1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show sgtpu statistics

Displays all transmission and reception statistics for pre-defined and active GTP-U interfaces collected since the last restart or last use of a **clear** command.

Product

SGSN

PDG/TTG

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sgtpu statistics [ggsn-address *ipv4_address* **| gprs-service** *gprs_srvc_name* **nsei** *nse_id* **| iups-bind-address** *ipv4_address* **| iups-service** *iups_srvc_name*|

recovered-values | rnc-address *ipv4_address* **| sgtp-service** *sgtp_srvc_name* **][| { grep** *grep_options* **| more }]**

ggsn-address *ipv4_address*

Displays statistics for the GGSN specified by its IP address in IPv4 dotted-decimal notation.

gprs-service *gprs_srvc_name* nsei *nse_id*

Displays NSEI-based GTPU statistics associated with an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

nsei *nse_id*: Specifies a GPRS NSEI as an integer from 0 through 65535.

iups-bind-address *ipv4_address*

Displays SGSN GPRS Tunnelling Protocol (SGTP) statistics for an Iu GTPU interface specified by its IP address in IPv4 dotted-decimal notation.

iups-service *iups_srvc_name*

Displays statistics for an existing IuPS service specified as an alphanumeric string of 1 through 63 characters.

recovered-values

Only displays recovered values for key KPI counters that were backed-up.

rnc-address *ipv4_address*

Displays statistics for a Radio Network Controller (RNC) identified by its IP address in IPv4 dotted-decimal notation.

sgtp-service *sgtp_srvc_name*

Displays statistics for an existing SGTP service specified as an alphanumeric string of 1 through 63 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display statistics for the SGTPU interface.

Example

The following command displays GPTP-U statistics for the traffic between an SGSN and a connected RNC:

```
show sgtpu statistics rnc-address 123.1.2.3
```

show sgw-service

Displays configuration settings and/or service statistics for Serving Gateway (S-GW) services on this system.

Product

S-GW

SAEGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show sgw-service { all | name *service_name* **| statistics { all | name** *service_name* **[rac** *rac* **| tac** *tac* **| apn** *apn_name* **] } } [| { grep** *grep_options* **| more }]**

all

Displays configuration information for all S-GW services configured on this system.

name *service_name*

Displays configuration information for an existing S-GW service c specified as an alphanumeric string of 1 through 63 characters.

statistics { all | name *service_name* }

all: Displays statistics for all S-GW services on this system or for a specified service.

name *service_name*: Displays statistics for an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.

rac *rac*

Specifies the Routing Area Code per 3GPP standards in TS 29.274. This will provide statistics for the SGW service associated with this **rac**.

This entry must be an integer from 0 to 65535.

There is no default setting.

tac *tac*

Specifies the Tracking Area Code per 3GPP standards in TS 29.274. This will provide statistics for the SGW service that is associated with this **tac**.

This entry must be an integer from 0 to 65535.

There is no default setting.

apn *apn_name*

Specifies a configured APN name that is associated with the specified SGW service.

This entry must be an alphanumeric string of 1 to 62 characters. This will provide statistics for the SGW service associated with this **apn**.

There is no default setting.

| { grep *grep_options* | more }

Indicates the output of the command is to be piped (sent) to the command specified.

A command to send output to must be specified.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configuration settings and/or service statistics for S-GW services on this system.

Example

The following command displays service statistics for the S-GW service named *sgw1*:

```
show sgw-service statistics name sgw1
```

show sls-service

Displays information and statistics about SLs interface services configured on this system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show sls-service { all | name svc_name | peers [ all | esmlc-id esmlc-id ]
| statistics [ name svc_name [ sls | sctp ] ] [ sls | sctp ] [ esmlc-id esmlc-id
 ] } [ | { grep grep_options | more } ]
```

all

Displays information about all SLs interface services configured on this system.

name *svc_name*

Displays information about an existing SLs service specified as an alphanumeric string of 1 through 63 characters.

peers [all | esmlc-id *esmlc-id*]

Displays configuration information of the E-SMLC peers that are connected to the SLs service.

all: Displays statistics for all E-SMLC peers.

esmlc-id *esmlc-id*: Displays statistics for an existing E-SMLC peer specified as an integer value from 0 through 255.

statistics [name *svc_name* [sls | sctp]] [sls | sctp] [esmlc-id *esmlc-id*]

Displays all statistics for SLs services configured on this system.

name *name*: Displays all statistics for an existing SLs service specified as an alphanumeric string of 1 through 63 characters.

sls: Filters output to show only SLs interface related statistics.

sctp: Filters output to show only SCTP related statistics.

esmlc-id *esmlc-id*: Displays all statistics for an existing E-SMLC peer specified as an integer value from 0 through 255.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information and statistics about SLs services configured on this system.

Example

The following command displays all statistics for an SLs service named *sls1*

```
show sls-service name sls1
```

show sms statistics

Displays traffic statistics for the Short Message Service (SMS).

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show sms statistics [ gprs-only | name map_srvc | recovered-values |
sgsn-only ] [ verbose ] [ | { grep grep_options | more } ]
```

gprs-only

Displays only GPRS access type SMS statistics.

name *map_srvc*

Displays statistics for an existing MAP service specified as an alphanumeric string of 1 through 63 characters.

recovered-values

Only displays recovered values for key KPI counters that were backed-up.

sgsn-only

Displays only UMTS access type SMS statistics.

verbose

Causes the system to displays more detailed level of statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display traffic statistics for the SMS services.

Example

Use the following command to display SMS statistics for 3G traffic:

```
show sms statistics sgsn-only
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show sndcp statistics

Displays statistics for the packet traffic going through the Subnetwork Dependent Convergence Protocol (SNDCP) layer.

Product

SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show sndcp statistics [gprs-service *srvc_name* **] [verbose] [| { grep** *grep_options* **| more }]**

gprs-service *srvc_name*

Displays statistics for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

verbose

Displays a more detailed level of statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display SNDCP traffic statistics. Include the **gprs-service** keyword to filter the output to statistics for only one GPRS service.

Example

Use the following command to display all SNDCP layer traffic statistics:

```
show sndcp statistics verbose
```

Use the following command to display SNDCP layer traffic statistics for the *test1* GPRS service:

```
show sndcp statistics gprs-service test1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show snmp

Displays information on the Simple Network Management Protocol (SNMP) servers and interfaces.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show snmp { accesses | communities | notifies | server | transports | trap { history [url | varbind | verbose] | statistics [verbose | wide] } [| { grep *grep_options* **| more }]**

accesses

Displays SNMP server usage statistics.

communities

Displays SNMP community strings.

notifies

Displays SNMP event trap and notification statistics.

server

Displays SNMP server configuration information.

transports

Displays trap destination configuration information.

trap { history [url | varbind | verbose] | statistics [verbose | wide] }

history: Displays SNMP event trap history. **trap history** Displays up to 5,000 time-stamped trap records stored in a buffer. The buffer may be cleared by entering the **clear snmp history** command.

statistics: Displays SNMP event trap and notification statistics.

url *pathname*: Redirects output to a file.

varbind: Displays varbind-based output which is easier to parse, but harder for an operator to read.

verbose: Displays rows for every defined trap, even if never generated.

wide: Displays trap statistical data in excess of 80 columns.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display SNMP information as part of system verification and troubleshooting.

Example

The following commands display the usage statistics, community string information, event trap and notification data, server information, and trap destination configuration, respectively.

```
show snmp communities
show snmp transport
```

```
show snmp server
show snmp accesses
show snmp notifies
show snmp trap history
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show software authenticity

Displays information regarding the authenticity of the software.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show software authenticity { file` *`url`* **`[ validate ] | keys | running } [ | { grep`** *`grep_options`* **`| more } ]`**

file *url* [validate]

Displays authenticity information for a specified file.

url specifies the pathname for the file for which authentication information will be displayed as one of the following:

For the ASR 5500:

`[file:]{/flash | /usb1 | /hd-raid | /sftp}[/directory]/` *`filename`*

`tftp://`*`host`***`[:`***`port`***`][/`***`directory`***`]/`***`filename`**

`ftp://[`*`username`***`[:`***`password`***`]@]`***`host`***`[:`***`port`***`][/`***`directory`***`]/`***`filename`**

`sftp://[`*`username`***`[:`***`password`***`]@]`***`host`***`[:`***`port`***`][/`***`directory`***`]/`***`filename`**

`http://[`*`username`***`[:`***`password`***`]@]`***`host`***`[:`***`port`***`][/`***`directory`***`]/`***`filename`**

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

file *url* [validate]

Displays authenticity information for starfile images on flash or over the network. The **validate** option performs digital signature validation of the image.

keys

Displays public StarOS key information for each of the key storage regions (Primary, Backup), as well as Rollover key information.

running

Displays information about the chain of trust for all running software images: StarOS, CFE (bootstrap), BIOS/UEFI (Unified Extensible Firmware Interface) and the microloader.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Displays information regarding the authenticity of the software.

Example

The following commands display authenticity information for currently running BIOS, CFE and StarOS:

```
show software authenticity running
```

show srp

Displays the Service Redundancy Protocol (SRP) information.

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show srp { audit-statistics [ all | instance number ] [ message-level |
session-level ] | call-loss statistics | checkpoint { info | statistics
[ active | debug-info | standby ] [ verbose ] } | details |info | monitor
 [ all | authentication-probe | bfd | bgp | diameter ] | statistics } |
[ grep grep_options | more ]
```

audit-statistics [all | instance *number*] [message-level | session-level]

Displays statistics of external audit.

all: Displays information for all Session Managers.

instance *number*: Displays information for an instance number of Session Manager.specified as an integer from 1 through 4294967295.

message-level: Displays message-level statistics.

session-level: Displays session-level statistics.

call-loss statistics

Displays history of lost calls during switchover.

checkpoint { info | statistics [active | standby] [verbose]

The **info** keyword displays a list of micro-checkpoints by CMD ID, name along with associated status information.

The **statistics** keyword displays check pointing statistics on session redundancy data (session managers, current call recovery records, etc.).

active: Displays information for the active chassis.

standby: Displays information for the standby chassis.

verbose: Displays cumulative information for all session managers in tabular output.

details

Displays detailed information and statistics required by TAC personnel for ICSR/SRP troubleshooting.

info

Displays Service Redundancy Protocol information (context, chassis state, peer, connection state, etc.).

monitor [all | authentication-probe | bfd | bgp | diameter]

Displays SRP monitor information.

all: Displays monitor information for all types (authentication-probe, bgp, and diameter).

authentication-probe: Displays authentication probe monitor information.

bfd: Displays BFD monitor information.

bgp: Displays BGP monitor information.

diameter: Displays Diameter monitor information.

statistics

Displays SRP statistics (hello messages sent, configuration validation, resource messages, switchovers, etc.).

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

The output of this command may be considered as part of a periodic system auditing program by verifying the Service Redundancy Protocol performance. For more information, refer to the *Interchassis Session Recovery* appendix of the *System Administration Guide* and the *Service Redundancy Protocol Configuration Mode* chapter of this guide.

Example

The following commands display Service Redundancy Protocol information:

```
show srp audit-statistics
show srp call-loss statistics
show srp checkpoint statistics
show srp info
show srp monitor
show srp statistics
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ss7-routing-domain

This command displays the configuration information for the defined Signalling System #7 (SS7) routing domains. Since SS7 routing domains encompass a large number of operational parameters, this command enables you to narrow your displays to specific protocol parameters on a specific link.

Product

SGSN

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ss7-routing-domain { all | ss7rd_id { m3ua | mtp2 | mtp3 | qsaal |
routes [ adjacent ] | sctp asp { all | instance asp_id } | sscf } }
show ss7-routing-domain ss7rd_id m3ua { statistics { gen | peer-server {
all | id peer-server_id peer-server-process { all | instance psp_instance } }
 } | status { address-translation-table | destination-point-code { all |
 ss7_dpc } | gen | peer-server peer-server_id [ peer-server-process instance
 psp_id | verbose ] }
```

show ss7-routing-domain 1 sscf { statistics linkset { all | id *linkset_id* **link { all | id** *link_id* **} } | status linkset { all | id** *linkset_id* **link { all | id** *link_id* **[verbose] } } }**

ss7-routing-domain { all | *ss7rd_id* }

all: Displays information for all SS7 routing domains.

ss7rd_id: Displays information for the SS7 routing domain ID specified as an integer from 1 through 12.

m3ua

Displays statistics and status information for the SS7 MTP3 User Adaptation Layer (M3UA) in the specified SS7 routing domain.

mtp2

Displays statistics and status information for the SS7 Message Transfer Part-2 (MTP2) in the specified SS7 routing domain.

mtp3

Displays statistics and status information for the SS7 Message Transfer Part-3 (MTP3) in the specified SS7 routing domain.

qsaal

Displays statistics and status information for the Service Specific Connection-Oriented Protocol (SSCOP) sub-layer of the Quasi Signaling Application Adaptation Layer (QSAAL) in the specified SS7 routing domain.

routes [adjacent]

Displays the destination point code (DPC) routing table.

adjacent: If this keyword is used with the **routes** keyword, access is provided to the statistics and status information for configured adjacent point codes.

sctp asp { all | instance *asp_id* }

Provides access to the status or statistics for the Stream Control Transmission Protocol (SCTP) application server processes (ASP) in the specified SS7 routing domain for all or a specified SCTP ASP instance.

- **all**: Displays the information for all SCTP application server process instances for a specific SS7 routing domain.
- **instance** *asp_id*: Displays the information for an SCTP application server process instance specified as an integer from 1 through 4.

sscf

Displays statistics and status information for the Service Specific Coordination Function (SSCF [q.2140]) in the specified SS7 routing domain.

peer-server [all | id *peer-server_id*]

Filters the information for the specific protocol in the SS7 routing domain for all or a specific peer server ID.

- **all**: Displays the information for all peer servers for a specific protocol.
- **id** *peer-server_id*: Indicates the specific linkset identifier as an integer from 1 through 49.

peer-server-process [all | instance *instance_id*]

Filters the information for the specific protocol in the SS7 routing domain for all or a specific instance of peer-server process.

- **all**: Displays the information for all peer server process instances for a specific protocol.
- **instance** *instance_id*: Specifies a peer server process instance as an integer from 1 through 4.

destination-point-code [all | *dest_point_code*]

Filters the information for the specific protocol in the SS7 routing domain for all or a specific DPC.

- **all**: Displays the information for all DPCs in the SS7 routing domain.
- *dest_point_code*: Specifies a DPC in the SS7 routing domain.

gen

Displays general information for the specific protocol in the specified SS7 routing domain.

verbose

Enables the display of maximum information for a protocol.

linkset [all | id *linkset_id*]

Filters the information for the specific protocol in SS7 routing domain for all or a specific link set.

- **all**: Displays the information for all linkset for a specific protocol.
- **id** *linkset_id*: Specifies a linkset identifier as an integer from 1 through 49.

link [all | id *link_id*]

Filters the information for a specified protocol in the SS7 routing domain for all or a specific link set.

- **all**: Displays the information for all links for a specific protocol.
- **id** *link_id*: Specifies a linkset identifier as be an integer from 1 through 16.

Usage Guidelines

Use this command to display the SS7 routing domain and different layer protocol information for SGSN service.

Example

Displays the information/statistics for all SCTP application server processes of peer server ID 17 and peer server process instance 1 in SS7 routing domain 12:

```
show ss7-routing-domain 12 sctp asp all status peer-server id 17
peer-server-process instance 1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show ssh

Displays the secure shell (SSH) host or client authentication public key information.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show ssh { client | key } [ type { v1-rsa | v2-rsa | v2-dsa } ]
```

type { v1-rsa | v2-dsa | v2-rsa }

Specifies the type of SSH key information to display. If type is not specified, information for all types is displayed.

v1-rsa: SSH v1 RSA host key only (obsolete)

v2-dsa: SSH v2 DSA host key only

v2-rsa: SSH v2 RSA host or client key only

Usage Guidelines

Displays the secure shell host or client key information to verify installed keys.

Example

The following command displays information for all SSH v1 and SSH v2 host keys:

```
show ssh key
```

The following command shows information for SSH client v2 RSA host keys:

```
show ssh client key type v2-rsa
```

show ssl cipher-suite

Displays information related to Secure Sockets Layer (SSL) cipher suites since the last restart or **clear** command. A cipher suite contains the cryptographic algorithms supported by the client.

Product

SCM (P-CSCF, A-BG)

SecGW

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ssl cipher-suite [name *name* **] [| { grep** *grep_options* **| more }]**

name *name*

Displays information related to the SSL cipher suite specified as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information related to SSL cipher suites.

Example

The following command displays information for the SSL cipher suite *ssl_cipher_suite_1*:

show ssl cipher-suite name ssl_cipher_suite_1

show ssl connection

Displays information pertaining to Secure Sockets Layer (SSL) connections on the Proxy Call Session Control Function (P-CSCF).

Product

SCM (P-CSCF, A-BG)

SecGW

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ssl connection [ list | summary [ service-name` *`name`* **`] ] [ name`** *`name`* **`] [ | { grep`** *`grep_options`* **`| more } ]`**

list

Lists the SSL connections on the P-CSCF.

summary

Displays state and statistical information for the SSL connections on the P-CSCF.

service-name *name*

Lists the SSL connections on the P-CSCF for the specified P-CSCF service, or displays state and statistical information for the SSL connections on the P-CSCF for the specified P-CSCF service.

name must be an alphanumeric string of 1 through 63 characters.

name *name*

Displays state and statistical information for the SSL connection specified as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command in Exec Mode to display information and statistics pertaining to SSL connections.

If the **summary** keyword is not used, detailed information is displayed.

Example

The following command displays SSL connection information for the P-CSCF service *pcscf_tls_1*:

`show ssl connection list service-name pcscf_tls_1`

show ssl map

Displays information related to configured Secure Sockets Layer (SSL) maps/templates since the last restart or **clear** command.

Product

SCM (P-CSCF, A-BG)

SecGW

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show ssl map [map-type ssl-subscriber-template] [name *name* **] [| { grep** *grep_options* **| more }]**

map-type ssl-subscriber-template

Displays information related to configured SSL maps/templates for the SSL map/template type ssl-subscriber-template.

name *name*

Displays information related to configured SSL maps/templates for the map/template name specified as n alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display information related to configured SSL maps/templates.

Example

The following command displays information related to configured SSL maps/templates for the SSL map/template *ssl_template_1*:

```
show ssl map name ssl_template_1
```

show ssl statistics

Displays statistics for Secure Sockets Layer (SSL) since the last restart or **clear** command.

Product

SCM (P-CSCF, A-BG)

SecGW

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show ssl statistics [service-name *name* **] [| { grep** *grep_options* **| more }]**

service-name *name*

Displays SSL statistics for the Proxy Call Session Control Function (P-CSCF) service. specified as an alphanumeric string of 1 through 127 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display SSL statistics.

Example

The following command displays SSL statistics for all P-CSCF services:

```
show ssl statistics
```

show subscribers

Displays information for subscriber sessions that are defined by specified keywords. Command keywords are base commands that display distinctive types of data. Filter keywords are a superset of command keywords that modify or filter the output of the base commands.

Important Not all filter keywords are available for all command keywords. CLI Help displays available filter keywords based on: the platform type (ASR 5000 or ASR 5500), the products that are licensed to run on the platform, and the preceding command keyword and subsequent filter keywords.

Product

All

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show subscribers [*command_keyword* **] [** *filter_keywords* **] [| { grep** *grep_options* **| more }]**

command_keyword

The following keywords are base commands that each have a distinct display output. Only one command keyword can be entered on the command line.

aaa-configuration

Displays Authentication Authorization and Accounting (AAA) configuration information for subscriber sessions defined by the specified filter keywords. The following filter keywords are valid with this command:

```
active, active-charging -service, all, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service,  hnbgw-only, hsgw-service, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-address, l3-tunnel-remote-address, lac, lac-service, lma-service, lns,
lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service,
mme-address, mme-service, msid, nemo-only network-requested, network-type, pcf, pdg-service,
 pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data,
 s1u-state, s5-proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
 tx-data, username, verbose, grep, more
```

access-flows { accounting | dynamic | pre-provisioned | static }

Shows the ip-flows for the subscribers defined by the specified filter keywords.

- **accounting**: displays the accounting type of access flows for a subscriber.
- **dynamic**: displays the dynamic type of access flows for a subscriber.
- **pre-provisioned**: displays the pre-provisioned type of access flows for a WiMAX subscriber.
- **static**: displays the static type of access flows for a subscriber.

The following filter keywords are valid with this command:

```
active, active-charging-service, all, apn, asn-peer-address, asngw-service, asnpc-service,
 callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant,
 epdg-address, epdg-service, fa, fa-service, flow-type, ggsn-service, gprs-service,
gsm-traffic-class, ha, ha-ipsec-only, ha-service, henbgw-access-service, hnbgw-only,
hsgw-service, idle-time, imsi, ip-address, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-address, l3-tunnel-remote-address, lac, lac-service, lma-service, lns,
lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mme-address,
mme-service, msid, msisdn, network-requested, network-type, pcf, pdg-service, pdif-service,
 pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, rulebase, rx-data,
session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, tpo, tx-data,
username, verbose, grep, more
```

access-type { lxcdma | ehrpd | lte | undetemrined | wcdma | wifi | wired }

Displays active subscribers using a specific type of UE.

- **1xcdma**: 1XCDMA – Wireless CDMA 1x high speed internet service
- **ehrpd**: eHRPD – Enhanced High Rate Packet Data
- **evdo**: EvDO – EVolution-Data Optimized
- **lte**: LTE – Long Term Evolution
- **undetermined**
- **wcdma**: WCDMA – Wideband Code Division Multiple Access

- **wifi**: WiFi – Wireless local area network
- **wired**

The following filter keywords are valid with this command:

```
access-type, bearer-establishment, bng-service, callid, card-num, configured-idle-timeout,
 domain, ebi, enodeb-address, fa, firewall, fw-and-nat, gtp-version, gtpu-bind-address,
gtpu-service, ha, hnbgw-service, idle-time, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
profile-id, profile-name, qci, rx-data, s1u-state, security-type, session-time-left,
sgw-address, smgr-instance, tx-data, ue-type, username, grep, more
```

active

Displays active subscribers. When no Filter Keywords are specified, the output is a summary of all active subscribers. When Filter Keywords are specified, the percentage is displayed as graphs in which one is displayed using a high sampling rate, a 10-second interval between samples, and a low sampling rate, a 15-minute interval between samples.

The following filter keywords are valid with this command:

```
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hsgw-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr,
 lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service,
mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested, pcf, pdg-service,
 pdif-service, pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rx-data, s1u-state, session-time-left, sgsn-address, sgsn-service,
smgr-instance, sgw-address, sgw-service, tpo, tx-data, username, grep, more
```

active-charging-service *acs_service*

Displays information for subscribers being processed by the active charging service specified as an alphanumeric string of 1 through 15 characters.

The following filter keywords are valid with this command:

```
active-charging-service, bandwidth-policy, bearer-establishment, bng-service, callid,
card-num, cbb-policy, configured-idle-timeout, connected-time, ebi, enodeb-address,
epdg-address, epdg-service,  fa, firewall, fw-and-nat, gtp-version, gtpu-bind-address,
gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-pool, ipv6-address,
ipv6-prefix, l3-tunnel-local-address, l3-tunnel-remote-address, long-duration-time-left,
mag-service, mipv6ha-service, msid, nat, network-type, profile-id, profile-name, qci,
rulebase, rx-data, s1u-state, s5-proto, session-time-left, sgw-address, smgr-instance,
tx-data, username, grep, more
```

activity

Displays subscriber link activity percentage. When no Filter Keywords are specified, the output is a summary of all subscriber activity. When Filter Keywords are specified, the link activity percentage is displayed as graphs in which one is displayed using a high sampling rate, a 10-second interval between samples, and a low sampling rate, a 15-minute interval between samples.

The following filter keywords are valid with this command:

```
active, all, apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment,
bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time,
dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
```

```
firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtp-version,
 gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service,
hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service,
 lma-service, lns, lns-service, long-duration-time-left, mag-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, pcf, pdg-service, pdif-service,
 pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, profile-id, profile-name, qci,
 rx-data, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
smgr-instance, tpo, tx-data, username, grep, more
```

all *ip_address*

Displays all current subscribers who have either active or dormant sessions.

apn *apn_string*

Displays subscribers currently facilitated by the Access Point name (APN) configured on the SGSN or GGSN.

The following filter keywords are valid with this command:

```
active-charging-service, apn, bandwidth-policy, bearer-establishment, bng-service, callid,
 card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server,
dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall,
fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
 gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-address,
l3-tunnel-remote-address, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, nat, nemo-only
network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name,
qci, rulename <rule_name>, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
sgsn-service, sgw-address, smgr-instance, without-dynamic-rule, without-override-control,
tx-data, username, verbose, grep, more
```

asn-peer-address *ip_address*

Displays information for subscribers on an ASN-GW trusted peer.

ip_address is the IP address of the ASN-GW peer server expressed in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
asn-peer-address, asngw-service, bearer-establishment, bng-service, callid, card-num,
configured-idle-timeout, connected-time, ebi, enodeb-address, fa, fa-service, firewall,
full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-address, l3-tunnel-remote-address, long-duration-time-left, mipv6ha-service,
 msid, nat, network-type, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto,
session-time-left, sgw-address, smgr-instance, tx-data, username, grep, more
```

asngw-only *service_name*

Displays ASN-GW specific context information for the session.

The following filter keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, asn-peer-address, asngw-service,
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
 counters, data-rate, dormant, ebi, enodeb-address, fa, fa-service, firewall, full,
fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-address, l3-tunnel-remote-address, long-duration-time-left, mipv6ha-service,
 msid, nat, network-type, policy, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto,
```

```
session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username,
wf1, grep, more
```

asngw-service *service_name*

Displays counters for subscribers accessing the ASN-GW service.

service_name must be an existing service and be from 1 to 63 alphanumeric characters.

The following filter keywords are valid with this command:

```
asn-peer-address, asngw-service, bearer-establishment, bng-service, callid, card-num,
configured-idle-timeout, connected-time, ebi, enodeb-address, fa, fa-service, firewall,
full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-address, l3-tunnel-remote-address, long-duration-time-left, mipv6ha-service,
 msid, nat, network-type, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto,
session-time-left, sgw-address, smgr-instance, tx-data, username, grep, more
```

asnpc-service *service_name*

Displays counters for subscribers accessing the ASN Paging Controller and Location Registry service.

service_name must be an existing Access Service Network Paging Controller (ASN PC) service and be from 1 to 63 alphanumeric characters.

The following filter keywords are valid with this command:

```
all, counters all, full, summary, grep, more
```

bandwidth-policy *policy_name*

Show information for subscribers associated with the specified Active Charging bandwidth policy. Must be followed by the name of an existing bandwidth policy specified as an alphanumeric string of 1 trough 63 characters.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, bandwidth-policy, bearer-establishment, bng-service,
 callid, card-num, cbb-policy, configured-idle-timeout, connected-time, domain, ebi,
enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version,
gtpu-bind-address, gtpu-service, ha, hnbgw-service, hsgw-service, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lma-service, long-duration-time-left, mag-service, mipv6ha-service,
 msid, nat, network-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state,
security-type, session-time-left, sgw-address, smgr-instance, tx-data, ue-type, username,
grep, more
```

bearer-establishment { direct-tunnel | normal | pending }

Selects Bearer Establishment type defined by the specified filter keywords.

- **direct-tunnel**: Select subscribers having direct tunnel established with the Radio Network Controller (RNC).
- **normal**: Select subscribers having bearer established with SGSN.
- **pending**: Select subscribers for whom bearer is not fully established.

The following filter keywords are valid with this command:

```
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
callid, card-num, ccoa-only, configured-idle-timeout, connected-time, css-delivery-sequence,
 css-service, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service,
hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service,
 lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only,
 mipv6ha-service, mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested,
 network-type, pcf, pdg-service, pdif-service, pdsn-service, pdsnclosedrp-service,
pgw-address, plmn-type, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
sgsn-service, sgw-address, sgw-service, smgr-instance, tx-data, username, grep, more
```

bng-service *srvc_name*

Displays current configuration the specified Broadband Network Gateway (BNG) service. The following filter keywords are valid with this command:

```
active, all, apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment,
bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time,
dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtp-version,
 gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service,
hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service,
 lma-service, lns, lns-service, long-duration-time-left, mag-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, pcf, pdg-service, pdif-service,
 pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, profile-id, profile-name, qci,
 rx-data, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
smgr-instance, tpo, tx-data, username, grep, more
```

callid *id*

Displays subscriber information for the call ID specified as an 8-byte hexadecimal number.

The following filter keywords are valid with this command:

```
adc, apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
 callid, card-num, ccoa-only, configured-idle-timeout, connected-time, css-delivery-sequence,
 css-service, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service,
hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service,
 lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only,
 mipv6ha-service, mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested,
 network-type, pcf, pdg-service, pdif-service, pdsn-service, pdsnclosedrp-service,
pgw-address, plmn-type, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
sgsn-service, sgw-address, sgw-service, smgr-instance, tx-data, username, grep, more
```

card-num *card_num*

The slot number of the processing card by which the subscriber session is processed. The slot number is an integer from 1 through 7 and 10 through 16 on the ASR 5000, or 1 through 4 and 7 through 10 on the ASR 5500.

The following filter keywords are valid with this command:

```
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
callid, card-num, ccoa-only, configured-idle-timeout, connected-time, cpu-num,
css-delivery-sequence, css-service, dhcp-server, ebi, enodeb-address, epdg-address,
epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
```

```
ha-service, henbgw-access-service, hsgw-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service,
 pdif-service, pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
smgr-instance, tx-data, username, grep, more
```

cbb-policy *policy_name*

Show information for subscribers associated with the specified Active Charging Content Based Billing (CBB) policy. Must be followed by the name of an existing Active Charging CBB policy specified as an alphanumeric string of 1 trough 63 characters.

The following filter keywords are valid with this command:

```
active, active-charging -service, all, apn, bandwidth-policy, bearer-establishment,
bng-service, callid, card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time,
 dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-only, hsgw-service, idle-time,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-address, l3-tunnel-remote-address, lac, lac-service, lma-service, lns,
lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service,
msid, nemo-only network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id,
 profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
sgsn-service, tx-data, username, verbose, grep, more
```

ccoa-only

Displays current configuration for all MIP-HA subscribers that registered with a collocated COA only. The following filter keywords are valid with this command:

```
access-type, active-charging-service, bandwidth-policy, bearer-establishment, bng-service,
 callid, card-num, cbb-policy, configured-idle-timeout, connected-time, domain, ebi,
enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version,
gtpu-bind-address, gtpu-service, ha, hnbgw-service, idle-time, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pcc-service, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, smgr-instance,
tpo, tx-data, username, grep, more
```

configuration { all | username *name* }

Displays current configuration for all subscribers or a specified subscriber.

configured-idle-timeout [< | > | greater-than | less-than] *value*

Shows the idle timeout that is configured for the specified subscriber. A value of 0 (zero) indicates that the subscribers idle timeout is disabled.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.

- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

congestion_mgmt { not-required | required }

Shows the current subscribers for which congestion management is **not-required** or **required**. The following filter keywords are valid with this command:

```
active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy,
configured-idle-timeout, congestion_mgmt, connected-time, ebi, enodeb-address, epdg-address,
  epdg-service, fa, fa-service, firewall, fw-and-nat, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-service, henbgw-access-service,
hsgw-service, idle-time, ims-auth-service, imsi, interface-type, ip-address, ip-alloc-method,
 ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac-service,
 lma-service, lns, lns-service, long-duration-time-left, mag-service, mipv6ha-service,
mme-address, mme-service, msid, nat, network-type, pcp, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, saegw-service, session-time-left,
 sgw-address, sgw-service, smgr-instance, tpo, tx-data, username, wsg-service
```

connected-time [< | > | greater-than | less-than] *value*

Shows how long the subscriber has been connected.

- <: Filters output so that only information less than the specified value is displayed.
- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

counters

Shows the counters associated with the subscriber. The following filter keywords are valid with this command:

```
access-type, active, active-charging-service, all, apn, asn-peer-address, asngw-service,
asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num,
cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dns-proxy,
domain, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall,
 fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
 gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service, hnbgw-service,
hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service,
 lma-service, lns, lns-service, long-duration-time-left, mag-service, mipv6ha-service,
mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pdsnclosedrp-service, pgw-address,
 plmn-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
smgr-instance, tpo, tx-data, ue-type, username, grep, more
```

css-delivery-sequence

Important This is a restricted keyword. In StarOS 9.0 and later, this keyword is obsoleted.

css-service *csssvc_name*

Important This is a restricted keyword. In StarOS 9.0 and later releases, this keyword is obsolete.

data-rate

Displays subscriber throughput data. **This keyword is best used for individual subscriber output.**

The following filter keywords are valid with this command:

```
access-type, active, active-charging-service, all, apn, asn-peer-address, asngw-service,
asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num,
cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, dormant,
 ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat,
ggsn-service, gprs-service, graph, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service, high, hnbgw-service,
hsgw-only, hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method,
 ip-pool, pv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac,
lac-service, lma-service, lns, lns-service, long-duration-time-left, low, mag-service,
mipv6ha-service, mme-address, mme-service, msid, msisdn, network-requested, network-type,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pdsnclosedrp-service, pgw-address,
 plmn-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
smgr-instance, summary, tpo, tx-data, ue-type, username, verbose, grep, more
```

debug-info { callid *id* | msid *id* | username *name* }

Displays internal call troubleshooting information for subscriber sessions defined by the specified keywords.

- **callid** *id*: Displays subscriber information for the call specified by *id*. The call ID must be specified as an 8-digit hexadecimal number.
- **msid** *id*: Displays information for the mobile user identified by *id*. *id* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.
- **username** *name*: Displays information for connections for the subscriber identified by *name*. The user must have been previously configured. *name* must be a sequence of characters and/or wildcard characters ('$' and '*') from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes ('). For example; '$'.

dhcp-server *ipv4_address*

Displays subscribers based on a specific DHCP server where their IP address was allocated. Must be followed by IP address of the server, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, epdg-address, epdg-service, fa, fa-service, firewall,
fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service,
 ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service,
 lns, lns-service, long-duration-time-left, msid, msisdn, nat, nemo-only, network-requested,
 pcf, pdsn-service, pdsnclosedrp-service, plmn-type, profile-id, profile-name, qci, rx-data,
 s1u-state, session-time-left, sgsn-address, sgsn-service, smgr-instance, tpo, tx-data,
username, grep, more
```

domain *name*

Displays all subscribers with an Address-of-Record (AoR) from the specified domain. *name* is an alphanumeric string of 1 through 79 characters.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, all, apn, asn-peer-address, asngw-service,
asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num,
cbb-policy, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
 fa, firewall, fw-and-nat, ggsn-service, graph, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, hnbgw-service, hsgw-only, hsgw-service, idle-time,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid,
 network-type, pcc-service, profile-id, profile-name, qci, rulebase, rx-data, s1u-state,
s5-proto, security-type, session-time-left, sgw-address, smgr-instance, summary, tpo,
tx-data, ue-type, username, grep, more
```

dormant *number*

Displays all dormant subscribers, those registered but not transmitting/receiving data.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service,
pcf, pdg-service, pdif-service, pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type,
 profile-id, profile-name, qci, rulebase, rx-data, s1u-state, security-type,
session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance,
tpo, tx-data, ue-type, username, grep, more
```

ebi *number*

Displays subscribers based on an EPS bearer identity. *number* specifies the EBI number and must be an integer value from 5 to 15.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, epdg-address,
epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
```

```
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mipv6ha-service, mme-address, mme-service, msid,
msisdn, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service,
pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase,
 rx-data, s1u-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-address,
 sgw-service, smgr-instance, tx-data, ue-type, username, grep, more
```

enodeb-address *ip_address*

Displays subscribers based on the eNodeB to which they are attached. *ip_address* must be a valid IP address of an existing eNodeB specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mme-address, mme-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdsn-service,
 pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto,
security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance,
tx-data, ue-type, username, grep, more
```

epdg-address *ipv4_ipv6_address*

Displays subscribers connected to the specified ePDG peer specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service, idle-time, imei,
ims-auth-service, imsi, interface-type, ip-address, ip-alloc-method, ip-pool, ipv6-address,
 ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service,
 long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service,
msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service, pdif-service,
 pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
s5-proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
smgr-instance, tpo, tx-data, username, wsg-service, grep, more
```

fa *ipv4_address*

Displays subscribers for a specified Peer Foreign Agent. Must be followed by the IP address of a Remote FA, in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
```

```
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mipv6ha-service, mme-address, mme-service, msid,
msisdn, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service,
pdif-service, pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

epdg-only

Displays epdg-specific context information for the session.

The following filter keywords are valid with this command:

```
all, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate, full,
 gtp-version, gtpu-bind-address, gtpu-service, idle-time, ip-address, ipv6-prefix,
long-duration-time-left, network-type, qci, rx-data, session-time-left, smgr-instance,
summary, tft, tx-data, username, grep, more
```

epdg-service *srvc_name*

Displays subscribers for a specified Evolved Packet Data Gateway service. Must be followed by ePDG service name expressed as an alphanumerical string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
all, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate,
epdg-address, epdg-service, full, gtp-version, gtpu-bind-address, gtpu-service, idle-time,
 ip-address, ipv6-prefix, long-duration-time-left, network-type, qci, rx-data,
session-time-left, smgr-instance, summary, tft, tx-data, username, grep, more
```

fa-only

Displays FA-specific context information for the session.

The following filter keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, asn-peer-address, asngw-service,
asnpc-service, bearer-establishment, callid, card-num, configured-idle-timeout,
connected-time, counters, data-rate, dhcp-server, dormant, ebi, enodeb-address, epdg-address,
 epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gsm-traffic-class,
 gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time,
imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
 l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, long-duration-time-left,
mag-service, mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only,
network-requested, network-type, pcf, pdif-service, pdsn-service, pgw-address, plmn-type,
policy, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left,
sgw-address, sgw-service, smgr-instance, subscription, summary, tft, tx-data, username,
wf1, grep, more
```

fa-service *srvc_name*

Displays subscribers for a specified Foreign Agent service. Must be followed by FA service name expressed as an alphanumerical string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, asn-peer-address, asngw-service,
asnpc-service, bearer-establishment, bng-service, callid, card-num, ccoa-only, configuration,
 configured-idle-timeout, connected-time, counters, data-rate, debug-info, dhcp-server,
dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-only, fa-service, firewall,
 full, fw-and-nat, ggsn-only, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
 gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service, idle-time, imei,
```

```
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-only, lac-service, lns, lns-only,
long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-only, mipv6ha-service,
msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdif-service,
pdsn-service, pgw-address, plmn-type, policy, profile-id, profile-name, qci, rx-data,
s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance,
 subscription, summary, tft, tx-data, username, wf1, grep, more
```

firewall { not-required | required }

Displays information for subscribers based on whether or not firewall processing is required.

The following filter keywords are valid with this command:

```
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hsgw-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv4, ipv6, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mme-address, mme-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service,
pdsnclosedrp-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data,
s1u-state, s5-proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
 smgr-instance, tpo, tx-data, username, grep, more
```

fng-only

Displays Femto Network Gateway (FNG) context information for the session.

The following filter keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, bearer-establishment, bng-service,
 callid, card-num, configured-idle-timeout, connected-time, counters, data-rate, dormant,
ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fng-service,
full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, henbgw-access-service,
 idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address,
ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left,
mipv6ha-service, msid, nat, network-type, pdif-service, policy, profile-id, profile-name,
qci, rx-data, s1u-state, s5-proto, session-time-left, sgw-address, smgr-instance,
subscription, summary, tft, tx-data, username, wf1, grep, more
```

fng-service *srvc_name*

Displays information for subscribers accessing the specified FNG service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
 ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fng-service,
full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, henbgw-access-service,
 idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address,
ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left,
mipv6ha-service, msid, nat, network-type, pdif-service, profile-id, profile-name, qci,
rx-data, session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data,
 username, grep, more
```

full

Shows all available subscriber information. The following filter keywords are valid with this command:

```
access-type, active, active-charging-service, all, apn, asn-peer-address, asngw-service,
asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num,
cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, dormant,
 ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat,
ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service,
 ha, ha-ipsec-only, ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time,
 imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address,
ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service,
 long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, network-requested, network-type, pcc-service, pcf, pdg-service,
pdif-service, pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, s1u-state, s1-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

fw-and-nat policy *fw_nat_policy*

Important This option is customer-specific and is only available in StarOS 8.1.

Displays information for subscribers using an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 15 characters.

ggsn-only

Displays only GGSN-specific subscriber context information.

The following filter keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, apn, bearer-establishment,
bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, counters,
 data-rate, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa,
fa-service, firewall, full, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class,
gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time,
imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
 l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-only,
 long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcf, pdsn-service, plmn-type, policy, profile-id,
profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address,
 smgr-instance, subscription, summary, tft, tx-data, username, wf1, grep, more
```

ggsn-service *srvc_name*

Displays only subscribers for a specified GGSN service. Must be followed by the GGSN service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa,
 fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ip-address,
 ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

gsm-traffic-class { background | conversational | interactive }

Displays subscribers associate with the specified 3GPP QoS traffic class.

The following filter keywords are valid with this keyword:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

gprs-only

This keyword is specific to the SGSN and only displays 2G SGSN subscriber information.

The following filter keywords are valid with this keyword:

```
aaa-configuration, active, active-charging-service, activity, all, apn, callid, card-num,
configured-idle-timeout, connected-time, counters, data-rate, full, ggsn-address,
gprs-service, gsm-traffic-class, idle-time, imsi, msid, msisdn, partial, plmn-type,
profile-name, rx-data, session-time-left, summary, tx-data, wide-format, grep, more
```

gprs-service *srvc_name*

Enter the name of the configured 2G GPRS service to display subscriber information specific to the named GPRS service for the SGSN.

srvc_name must be an alphanumeric string of 1 through 63 characters that identifies a configured GPRS service.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa,
 fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ip-address,
 ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

gsm-traffic-class { background | conversational | interactive | streaming }

Displays information for subscriber traffic that matches the specified 3GPP traffic class.

- **background**: 3GPP QoS background class.
- **conversational**: 3GPP QoS conversational class.
- **interactive**: 3GPP QoS interactive class. Must be followed by a traffic priority.
- **streaming**: 3GPP QoS streaming class.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei,
ims-auth-service, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service,
long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name,
qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address, sgsn-service, sgw-address,
 smgr-instance, tx-data, username, grep, more
```

gtp-version { 0 | 1 }

Displays the specific GTP version number. Must be followed by one of the supported GTP versions (0 or 1).

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, configured-idle-timeout,
connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat,
 gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha,
henbgw-access-service, hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mag-service, mipv6ha-service, msid, msisdn,
 nat, network-type, nri, nsei, pdg-service, pdif-service, plmn-type, profile-id, profile-name,
 qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-service, sgw-address,
smgr-instance, tx-data, username, grep, more
```

gtpu-bind-address *ipv4_address*

Displays the subscribers associated with the specified GTPU service bind address. Must be followed by an IPv4 address in dotted decimal notation.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service,
pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep,
more
```

gtpu-service *svc_name*

Displays the subscribers associated with an existing GTPU service specified as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
```

```
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service,
pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep,
more
```

ha *ipv4_address*

Displays the subscribers associated with the specified Peer Home Agent. Must be followed by the IP address of a Remote HA in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-services, mip-udp-tunnel-only, mipv6ha-service, mme-address,
 mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service,
pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep,
more
```

ha-ipsec-only

Displays MIPHA subscribers with subscriber IPSec tunnel only.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

ha-service *svc_name*

Displays the subscribers associated with an existing Home Agent service specified as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
```

```
s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
grep, more
```

henbgw-access-service*svc_name*

Displays specific configured HENBGW access service information. This must be followed by HENBGW access service name.

The following filters/keywords are valid with this command:

```
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, congestion_mgmt,
 connected-time, ebi, enodeb-address, epdg-address, fa, fa-service, firewall, fng-service,
 fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, henbgw-access-service,
hnbgw-service,  idle-time, ims-auth-service, imsi, interface-type, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pcp, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left,
smgr-instance, tx-data, username, grep, more
```

henbgw-only

Displays specific HENBGW information for the session.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, bearer-establishment, bng-service,
 callid, card-num, configured-idle-timeout, congestion_mgmt, connected-time, counters,
data-rate, dormant, ebi, enodeb-address, epdg-address, fa, fa-service, firewall, fng-service,
 full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, henbgw-access-service,
 hnbgw-service, idle-time, ims-auth-service, imsi, interface-type, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pcp, policy, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left,
 smgr-instance, subscription, summary, tft, tx-data, username, wf1, grep, more
```

hnbgw-only

Displays HNB-GW subscriber session information.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, access-type, active, active-charging-service, activity,
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy,
configured-idle-timeout, connected-time, counters, data-rate, domain, ebi, enodeb-address,
 epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address,
 gtpu-service, ha, henbgw-access-service, hnbgw-service, idle-time, ims-auth-service, imsi,
 ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pcc-service, policy, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
 security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, smgr-instance,
 subscription, summary, tpo, tx-data, ue-type, username, wf1, grep, more
```

hnbgw-service *svc_name*

Displays subscriber information based on the HNB-GW service name.

svc_name must be an existing HNB-GW service expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:

```
access-type, active-charging-service, bandwidth-policy, bearer-establishment, bng-service,
 callid, card-num, cbb-policy, configured-idle-timeout, connected-time, domain, ebi,
enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version,
```

```
gtpu-bind-address, gtpu-service, ha, henbgw-access-service, hnbgw-service, idle-time,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid,
 nat, network-type, pcc-service, profile-id, profile-name, qci, rulebase, rx-data, s1u-state,
 s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address,
smgr-instance, tpo, tx-data, ue-type, username, grep, more
```

hsgw-only

Displays HSGW subscriber session information.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, active, active-charging-only, all, bandwidth-policy,
bearer-establishment, bng-service, callid, card-num, cbb-policy, configured-idle-timeout,
connected-time, counters, data-rate, dormant, ebi, enodeb-address, epdg-address, epdg-service,
 fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha,
hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr,
long-duration-time-left, mag-service, mipv6ha-service, msid, nat, network-type, pgw-address,
 policy, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username,
 wf1, grep, more
```

hsgw-service *svc_name*: Displays subscriber information based on the HSGW service name. *svc_name* must be an existing HSGW service expressed as an alphanumeric string of 1 through 63 characters.

hsgw-service *svc_name*

Displays subscriber information based on the HSGW service name. *svc_name* must be an existing HSGW service expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:

```
active-charging-service, bandwidth-policy, bearer-establishment, bng-service, callid,
card-num, cbb-policy, configured-idle-timeout, connected-time, ebi, enodeb-address,
epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version, gtpu-bind-address,
gtpu-service, ha, hsgw-service, idle-time, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mag-service, mipv6ha-service, msid, nat,
network-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
session-time-left, sgw-address, smgr-instance, tx-data, username, grep, more
```

idle-time

Displays current configuration for all subscribers within the specified idle-time interval.

- <: Filters output so that only information less than the specified value is displayed.
- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service
```

imei *imei_number*

Displays subscribers having the specified International Mobile Equipment Identity (IMEI/IMEISV) Number. Must be followed by IMEI number.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service,
long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service,
msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type,
 profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
 sgw-address, smgr-instance, tx-data, username, grep, more
```

ims_auth-service *svc_name*

Displays subscriber information based on the IMS authentication service name. *svc_name* must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:

```
access-type, active-charging-service, asn-peer-address, asngw-service, asnpc-service,
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, gprs-service, gtp-version,
 gtpu-bind-address, gtpu-service, ha, ha-ipsec, ha-service, henbgw-access-service,
hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method,
 ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac,
lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service,
mip-up-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdsn-service,
 pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state,
s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address,
sgw-service, smgr-instance, tpo, tx-data, ue-type, username, grep, more
```

imsi *imsi*

Displays information specific to one subscriber or group of subscribers. Enter 1 to 15 digits to identify a specific subscriber's IMSI (International Mobile Subscriber Identity).

The following filters/keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-services, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

interface-type { S2aGTP | S2bGTP | S5S8GTP }

Specifies subscrber type as either **S2a** (eHRPD), **S2b** (ePDG) or **S5/S8** (PMIPv6/GTP).

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 congestion_mgmt, connected-time, dhcp-server, ebi, enodeb-address, epdg-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, idle-time, imei, ims-auth-service, imsi, interface-type,
 ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcf, pcp, pdsn-service, plmn-type, profile-id, profile-name,
 qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address,
smgr-instance, tx-data, username, wsg-service, grep, more
```

ip-address *ipv4_address*

Displays the subscribers associated with the specified IPv4 address. Must be followed by the IP address in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

ip-alloc-method {aaa-assigned | dhcp [relay-agent | proxy-client] | dynamic-pool | l2tp-lns-assigned | mip-ha-assigned | ms-provided-static | not-ms-provided-static | static pool }

Displays the specific IP Allocation Method. Must be followed by one of the IP Allocation Methods:

- **aaa-assigned**: Selects subscribers whose IP addresses were assigned by AAA.
- **dhcp**: Selects subscribers whose IP addresses were assigned by DHCP.
  - **relay-agent**: Selects subscribers whose IP addresses were assigned by the DHCP Relay Agent
  - **proxy-client**: Selects subscribers whose IP addresses were assigned by the DHCP Proxy Client
- **dynamic-pool**: Selects subscribers whose IP addresses were assigned from a dynamic IP address pool.
- **l2tp-lns-assigned**: Selects subscribers whose IP addresses were assigned by the Layer 2 Tunneling Protocol (LT2P) Network Server.
- **mip-ha-assigned**: Selects subscribers whose IP addresses were assigned by the Mobile IP Home Agent.
- **ms-provided-static**: Selects subscribers whose IP addresses were provided by the Mobile Station.

- **not-ms-provided-static**: Selects subscribers whose IP addresses were not provided by the Mobile Station.
- **static-pool**: Selects subscribers whose IP addresses were assigned from a static IP address pool.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, relay-agent, rulebase, rx-data, s1u-state, s5-proto, security-type,
session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance,
tpo, tx-data, ue-type, username, grep, more
```

ip-pool *ip_pool_name*

Displays subscriber information based on the IP pool name. *ip_pool_name* must be an existing IP pool name expressed as an alphanumeric string of 1 through 31 characters.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

ipcf-only

Displays Intelligent Policy Control Function (IPCF) subscriber session information.

ipsg-only

Displays IP Services Gateway (IPSG) subscriber session information.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service
```

ipv6-address *ipv6_address*

Displays the subscribers associated with the specified IPv6 address. Must be followed by the IP address in IPv8 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

```
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi,
enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat,
ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service,
 ha, ha-ipsec-only, ha-service, hsgw-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service,
 pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data,
 s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address, sgw-service,
smgr-instance, tx-data, username, grep, more
```

ipv6-prefix *ipv6_prefix*

Displays the subscribers associated with the specified IPv6 address prefix. Must be followed by an IPv6 address prefix in the format xx:xx:xx::/len

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

l3-tunnel-local-addr *ipv4_address*

Displays subscriber information based on the layer 3 tunneling interface. Must be followed by an IP address of the local interface, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

l3-tunnel-remote-addr *ipv4_address*

Displays subscriber information based on the layer 3 tunneling interface. Must be followed by an IP address of the remote interface, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

lac *ipv4_address*

Displays subscriber information based on the Peer L2TP Access Concentrator (LAC). Must be followed by the IP address of a Remote LAC in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

lac-only

Displays subscriber information based on the L2TP Access Concentrator (LAC) context information for the session.

lac-service *svc_name*

Displays subscriber information based on an existing LAC service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, local-tunnel-id,
long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name,
qci, remote-tunnel-id, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
sgw-address, smgr-instance, tx-data, username, grep, more
```

lma-only

Displays Local Mobility Anchor (LMA) specific context information for the session.

lma-service *svc_name*

Displays subscriber information based on the LMA service name. *svc_name* must be an existing LMA service expressed as an alphanumeric string of 1 through 63 characters.

lns *ipv4_address*

Displays subscriber information based on the L2TP Network Server (LNS)). Must be followed by the IP address of an LNS in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

lns-only

Displays LNS specific information only.

lns-service *svc_name*

Displays subscriber information based on an existing L2TP Network Server (LNS) service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
 ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version,
gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns-service, local-tunnel-id,
long-duration-time-left,mipv6ha-service, msid, nat, network-type, profile-id, profile-name,
 qci, remote-tunnel-id, rx-data, s1u-state, s5-proto, session-time-left, sgw-address,
smgr-instance, tx-data, username, grep, more
```

long-duration-time-left [< | > | greater-than | less-than] *value*

Shows how much time is left for the maximum duration of a specified subscriber session.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

mag-only

Displays Mobile Access Gateway (MAG) subscriber session information.

mag-service *svc_name*: Displays subscriber information based on the Mobile Access Gateway (MAG) service name. *svc_name* must be an existing MAG service expressed as an alphanumeric string of 1 through 63 characters.

mag-service *svc_name*

Displays subscriber information based on the Mobile Access Gateway (MAG) service name. *svc_name* must be an existing MAG service expressed as an alphanumeric string of 1 through 63 characters.

mip-udp-tunnel-only

Displays Mobile IP Home Agent (MIP-HA) subscriber information for subscribers that negotiated MIP-UDP tunnels.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

mipv6ha-only

Displays MIP-HA-IPv6 context information for the session.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, access-type, active, active-charging-service, activity,
all, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy,
bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
configured-idle-timeout, connected-time, counters, data-rate, dhcp-server, domain, dormant,
 ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat,
 ggsn-address, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service,
 ha, ha-ipsec-only, ha-service, hnbgw-service, hsgw-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mipv6ha-service, mme-address, mme-service, msid,
nat, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service,
pgw-address, policy, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
 security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service,
smgr-instance, subscription, summary, tft, tpo, tx-data, ue-type, username, wf1, grep, more
```

mipv6ha-service *svc_name*

Displays subscriber information based on an existing MIP Home Agent IPv6 service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
```

```
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address,
 ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service,
pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

mme-address

Displays subscriber information based on the Mobility Management Entity (MME) IP address. *ip_address* must be an existing MME IP address and be entered in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

```
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
 ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version,
gtpu-bind-address, gtpu-service, ha, idle-time, imei, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, mme-address, mme-service,
 msid, msisdn, nat, network-type, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto,
 session-time-left, sgw-address, smgr-instance, tx-data, username, grep, more
```

mme-only

Displays MME subscriber session information.

mme-service *svc_name*: Displays subscriber information based on the MME service name. *svc_name* must be an existing MME service expressed as an alphanumeric string of 1 through 63 characters.

mme-address *ip_address*: Displays subscriber information based on the MMM IP address. *ip_address* must be an existing MME IP address entered in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

```
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
 ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version,
gtpu-bind-address, gtpu-service, ha, idle-time, imei, ims-auth-service, imsi, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, mme-address, mme-service,
 msid, msisdn, nat, network-type, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto,
 session-time-left, sgw-address, smgr-instance, tx-data, username, grep, more
```

mseg-only

Important This keyword is not supported in this release.

mseg-service *mseg_service_name*

Important This keyword is not supported in this release.

msid *msid*

For this SGSN-specific keyword, enter the MSID (Mobile Station IDentifier) to display information specific to one subscriber's equipment by entering the MSID.

The following filter keywords are valid with this command:

```
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi,
enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat,
ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service,
 ha, ha-ipsec-only, ha-service, hsgw-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service,
 pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data,
 s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address, sgw-service,
smgr-instance, tx-data, username, grep, more
```

msisdn *msisdn*

For this SGSN-specific keyword, enter the MSISDN (Mobile Station ISDN number - unique SIM phone number) to display information specific to one subscriber's equipment by entering the MSISDN.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service,
long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service,
msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type,
 profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
 sgw-address, smgr-instance, tx-data, username, grep, more
```

nat { not-required | required }

Displays information for subscribers based on whether or not Network Address Translation (NAT) processing is required.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service,
 bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
 configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address,
 ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, multiple-ips-per-nat-realm, nat, nat-ip, nat-realm, nemo-only,
```

```
network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdsn-service,
 pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state,
s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address,
sgw-service, smgr-instance, tpo, tx-data, ue-type, usage-time, username, grep, more
```

nemo-only

Displays information on MIP-HA subscribers that are mobile routers (Network Mobility).

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

network-requested

Selects the currently active subscribers whose sessions were initiated by a GGSN network requested to create a PDP context.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, apn, bandwidth-policy, bearer-establishment,
bng-service, callid, card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time,
 dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-service, idle-time, ims-auth-service,
imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mip-up-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested,
network-type, nsapi, pcc-service, pcf, pdsn-service, plmn-type, profile-id, profile-name,
qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left, sgsn-address,
 sgsn-service, sgw-address, smgr-instance, tpo, tx-data, ue-type, username, grep, more
```

network-type { gre | ipip | ipsec | ipv4 | ipv4-pmipv6 | ipv4v6 | ipv4v6-pmipv6 | ipv6 | ipv6-pmipv6 | l2tp | mobile-ip | proxy-mobile-ip }

Selects the currently active subscribers based on network service access type.

- **gre**: Generic Routing Encapsulation
- **ipip**: IP-in-IP
- **ipsec**: IPSec
- **ipv4**: IPv4 only
- **ipv4-pmipv6**: IPv4 and/or Proxy Mobile IPv6 (PMIP)
- **ipv4v6**: IPv4 and/or IPv6
- **ipv4v6-pmipv6**: IPv4, IPv6 and/or Proxy Mobile IPv6
- **ipv6**: IPv6 only
- **ipv6-pmipv6**: IPv6 and/or Proxy Mobile IPv6 (PMIP)

- **l2tp**: Layer 2 Tunneling Protocol
- **mobile-ip**: Mobile IP (MIP)
- **proxy-modile-ip**: Proxy Mobile IPv6 (PMIP)

The following filter keywords are valid with this command:

```
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service,
callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi,
enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat,
ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service,
 ha, ha-ipsec-only, ha-service, hsgw-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service,
 pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data,
 s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address, sgw-service,
smgr-instance, tx-data, username, grep, more
```

pcc-service *name*

Displays statistics for users associated with an existing Policy and Charging Control (PCC) service name expressed as an alphanumeric string of 1 through 63 characters.

pcf [< | > | less-than | greater-than] *ipv4_address* [< | > | less-than | greater-than] *ipv4_address*]

Displays information for subscribers connected via the packet control function (PCF) with a specific or range of IP addresses. The address must be specified using IPv4 dotted-decimal notation.

- <: Filters output so that only information less than the specified IPv4 address value is displayed.
- >: Filters output so that only information greater than the specified IPv4 address value is displayed.
- **less-than**: Filters output so that only information less than the specified IPv4 address value is displayed.
- **greater-than**: Filters output so that only information greater than the specified IPv4 address value is displayed.

Note: It is possible to define a limited range of IP addresses by using the less-than and greater-than options to define minimum and maximum values.

The following filter keywords are valid with this command:

```
<, apn, bearer-establishment, bng-service, callid, card-num, ccoa-only,
configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address,
epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class,
gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time,
imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
 l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, less than, lns, lns-service,
 long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name,
qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address,
smgr-instance, tx-data, username, grep, more
```

pdg-only

Displays a summary of PDG subscriber statistics.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, apn, bearer-establishment,
bng-service, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate,
 dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat,
 gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pdg-service, policy, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto,
session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username,
 wf1, grep, more
```

pdg-service *name*

Displays statistics for users associated with an existing Packet Data Gateway (PDG) service name expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:

```
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
 ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fng-service, fw-and-nat,
gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pdg-service, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left,
 sgw-address, smgr-instance, tx-data, username, grep, more
```

pdif-only

Displays a summary of Packet Data Interworking Function (PDIF) subscriber statistics.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, apn, bearer-establishment,
bng-service, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate,
 dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall,
fng-service, full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time,
 ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid,
 nat, network-type, pdif-service, policy, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgw-address, smgr-instance, subscription, summary, tft,
tx-data, username, wf1, grep, more
```

pdif-service *name*

Displays connection statistics for users associated with a specific PDIF service name.

The following filters/keywords are valid with this command:

```
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
 ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fng-service,
fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service,
 imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
 pdif-service, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left,
 sgw-address, smgr-instance, tx-data, username, grep, more
```

pdsn-only

Displays a summary of Packet Data Serving Node (PDSN) subscriber statistics.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, active, activity, all, apn, bandwidth-policy,
bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
```

```
connected-time, counters, data-rate, dhcp-server, dormant, ebi, enodeb-address, epdg-address,
 epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gsm-traffic-class,
 gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time,
imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
 l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service,
long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, nat, nemo-only,
network-requested, network-type, pcf, pdsn-service, plmn-type, policy, profile-id,
profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address,
sgsn-service, sgw-address, smgr-instance, subscription, summary, tft, tpo, tx-data, username,
 wf1, grep, more
```

pdsn-service *name*

Displays statistics for users associated with an existing PDSN service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
mag-address,  mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only,
network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name,
qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address,
smgr-instance, tx-data, username, grep, more
```

pgw-address *ip_address*

Displays information about the subscribers connected to the specified P-GW.

ip_address must be specified by its IP address using dotted-decimal notation for IPv4 or colon separated notation for IPv6.

The following filters/keywords are valid with this command:

```
active-charging-service, apn, bandwidth-policy, bearer-establishment, bng-service, callid,
 card-num, cbb-policy, configured-idle-timeout, connected-time, ebi, enodeb-address,
epdg-address, epdg-service, fa, firewall fw-and-nat, gtp-version, gtpu-bind-address,
gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac-service,
lma-service, lns, long-duration-time-left, mag-service, mipv6ha-service, msid, nat,
network-type, pgw-address, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase,
 rx-data, s1u-state, s5-proto, saegw-service, session-time-left, sgw-address, sgw-service,
 smgr-instance, tx-data, username
```

pgw-only

Displays PDN-Gateway (P-GW) subscriber session information.

The following filters/keywords are valid with this command:

```
all, apn, callid, card-num, ebi, epdg-address , full, imsi, interface-type, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, network-type, pgw-service, plmn-type,
 profile-name, qci, sgw-address, smgr-instance, summary
```

- **epdg-address** *ip_address*: Displays subscriber information based on the ePDG IP address. *ip_address* must be an existing ePDG IP address.
- **interface-type**: Interface type of subscriber.

S2aGTP: Interface type S2a GTP.

S2bGTP: Interface type S2b GTP.

S5S8GTP: Interface type S5/S8 GTP.

- **pgw-service** *svc_name*: Displays subscriber information based on the P-GW service name. *svc_name* must be an existing P-GW service expressed as an alphanumeric string of 1 through 63 characters.
- **qci** *number*: Displays subscriber session information based on the QoS Class Identifier (QCI) value assigned to the subscriber. *number* must be an integer value from 0 to 9.
- **sgw-address** *ip_address*: Displays subscriber information based on the S-GW IP address. *ip_address* must be an existing S-GW IP address.

plmn-type [home | roaming | visiting }

Displays subscriber information based on the type of Public Land Mobile Network (PLMN).

- **home**: For GGSN/PGW, shows all the subscribers of charging type HOME.
- **roaming**: For GGSN/PGW, shows all the subscribers of charging type ROAMING.
- **visiting**: For GGSN/PGW, shows all the subscribers of charging type VISITING.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
 connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
 firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei,
ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only,
 network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name,
qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address,
smgr-instance, tx-data, username, grep, more
```

policy

Displays the current policies associated with the subscriber session.

The following filter keywords are valid with this command:

```
access-type, active-charging-service, all, apn, asn-peer-address, asngw-service,
asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num,
cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, dormant,
 ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat,
ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service,
 ha, ha-ipsec-only, ha-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service,
imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
 l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
 profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
 username, grep, more
```

profile-id *id_number*

Displays subscriber session information based on the profile-id granted for the flow. *id_number* must be an integer from 0 to 4294967295.

profile-name *name*

Displays subscriber session information based on an existing policy profile name expressed as an alphanumeric string of 1 through 63 characters.

qci *number*

Displays subscriber session information based on the QoS Class Identifier (QCI) value assigned to the subscriber. *number* must be an integer value from 0 to 9.

rulebase *name*

Displays subscriber session information based on the named Active Charging System rulebase. *name* must be an alphanumeric string of 1 through 63 characters.

rulename *rule_name*

Displays subscribers associated with the specific charging rule name. The *rule_name* options are: predefined, static, and dynamic rules..

rx-data [< | > | greater-than | less-than] *value*

The number of bytes received by the specified subscriber.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 18446744073709551615.

s1u-state { active | idle | idle-active }

Displays session information based on the subscriber's S1-U state. The S1-U interface is the interface from the eNodeB to the S-GW.

- **active**: Displays session information for subscribers with an S1-U state set to active.
- **idle**: Displays session information for subscribers with an S1-U state set to idle.
- **idle-active**: Displays session information for subscribers with an S1-U state set to idle-active.

s5-proto { gtp | pmip }

Displays subscriber session information based on the S5 interface protocol used. This interface provides user plane tunneling and tunnel management between S-GW and P-GW. Choose either GPRS Tunneling Protocol (GTP) or Proxy Mobile IPv6 (PMIP).

saegw-only

Displays System Architecture Evolution Gateway (SAEGW) subscriber session information.

The following filters/keywords are valid with this command:

```
aaa-configuration, access-flows, active, active-charging-service, activity, all, apn,
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, co-located,
 configured-idle-timeout, connected-time, counters, data-rate, dormant, ebi, enodeb-address,
 epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address,
 gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac-service,
lma-service, lns, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pgw-address, pgw-anchored, plmn-type, policy, profile-id, profile-name, qci, rulebase,
rx-data, s1u-state, s5-proto, saegw-service, session-time-left, sgw-address, sgw-anchored,
 smgr-instance, subscription, summary, tft, tx-data, username, wf1
```

- **co-located**: Shows only co-located subscribers which have both S-GW and P-GW functions.
- **pgw-anchored**: Shows only PGW-anchored subscribers.
- **saegw-service** *svc_name*: Displays subscriber information based on the SAEGW service name. *svc_name* must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.
- **sgw-anchored** : Shows only SGW-anchored subscribers.

saegw-service *svc_name*

Displays subscriber information based on the SAEGW service name.

svc_name must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:

```
active-charging-service, apn, bandwidth-policy, bearer-establishment, bng-service, callid,
 card-num, cbb-policy, configured-idle-timeout, connected-time, ebi, enodeb-address,
epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version, gtpu-bind-address,
gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool,
 ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac-service,
lma-service, lns, long-duration-time-left, mipv6ha-service, msid, nat, network-type,
pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto,
 saegw-service, session-time-left, sgw-address, smgr-instance, tx-data, username
```

security-type { ipsec | tls }

Displays subscriber information based on the specified type of security.

- **ipsec**: IPSec
- **tls**: Transport Layer Security

session-time-left [< | > | greather-than | less] *value*

How much session time is left for the specified subscriber.

- <: Filters output so that only information less than the specified value is displayed.

- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

sgsn-address *ipv4_address*

This SGSN-only keyword displays only subscriber context information for the specified interface. Must be followed by the IP address of the interface, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

```
apn, callid, card-num, connected-time, idle-time, gprs-service, gsm-traffic-class,
gtp-version, imsi, msid, msisdn, nri, nsei, sgsn-service, smgr-instance
```

sgsn-only

This SGSN-only keyword displays only 3G SGSN-specific subscriber context information.

The following filter keywords are valid with this command:

```
aaa-configuration, active, active-charging-service, activity, all, apn, callid, card-num,
configured-idle-timeout, connected-time, counters, data-rate, fa, full, ggsn-address,
gsm-traffic-class, idle-time, imei, imsi, msid, partial, plmn-type, profile-name, rnc,
rx-data, session-time-left, sgsn-service, summary, tx-data, wide-format, grep, more
```

sgsn-service *service_name*

For this SGSN-only keyword, enter the name of the configured 3G SGSN service to display subscriber information specific to the named SGSN service.

The following filter keywords are valid with this command:

```
apn, bearer-establishment, bng-service, callid, card-num, configured-idle-timeout,
connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat,
 gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time,
 imei, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid,
 msisdn, nat, network-type, nri, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state,
 s5-proto, session-time-left, sgsn-service, sgw-address, smgr-instance, tx-data, username,
 grep, more
```

sgw-address *ip_address*

For this MME-only keyword, enter the IP address of the peer S-GW to display information about the subscribers connected to the specified S-GW. *ip_address* must be specified by its IP address using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgw-only

Displays S-GW subscriber session information.

The following filters/keywords are valid with this command:

```
all, full, summary
```

- **sgw-service** *svc_name*: Displays subscriber information based on en existing S-GW service specified as an alphanumeric string of 1 through 63 characters.
- **pgw-address** *ip_address*: Displays subscriber information based on an existing P-GW specified by its IP address in IPv4 dotted-decimal notation.

sgw-service *svc_name*

Displays subscriber information based on an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service,
```

smgr-instance *instance_id*

Displays subscription information associated with the Session Manager identifier express as an integer from 1 through 4294967295.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service,
```

subscription { aor *address* | callid *id* | full }

Displays subscription information for defined subscribers, based on defined parameters.

- **aor** *address*: Clears session(s) by Address of Record.
- **callid** *id*: Specifies a Call Identification Number as an 8-digit hexadecimal number.
- **full**: Displays all available information.

summary

Displays only a summary of the subscriber information. The following filter keywords are valid with this command:

```
access-type, active, active-charging-service, activity, all, asn-peer-address, asngw-service,
 asnpc-service, apn, bandwidth-policy, bearer-establishment, callid, card-num, cbb-policy,
 configured-idle-timeout, connected-time, dhcp-server, domain, dormant, ebi, enodeb-address,
 epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
 gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-service,
hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method,
 ip-pool, ipv6-address, ipv6-prefix, lac, lac-service, lma-service, lns, lns-service,
long-duration-time-left, mag-services, mme-address, mme-service, mseg-service, msid, msisdn,
 nat, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service,
pdsn-service, pdsnclosedrp-service, pgw-address, plmn-type, profile-id, qci, rulebase,
rulename <rule_name>,  rx-data, s1u-state, s5-proto, security-type, session-time-left,
sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username,
without-dynamic-rule, without-override-control, grep, more
```

tft

Displays the current Traffic Flow Template (TFT) associated with the subscriber session.

The following filter keywords are valid with this command:

```
active, all, apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment,
bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time,
dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version,
gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hsgw-service, idle-time,
imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
 l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
 long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service,
 pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data,
 s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address, sgw-service,
smgr-instance, tx-data, username, grep, more
```

tx-data [< | > | greater-than | less-than] *value*

The number of bytes transmitted by the specified subscriber.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 18446744073709551615.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service,
```

ue-type { ims | non-ims }

Displays information for the subscribers based on User Equipment type.

- **ims**: IP Multimedia Subsystem
- **non-ims**: UE other than IMS

The following filter keywords are valid with this command:

```
access-type, active-charging-service, bandwidth-policy, bearer-establishment, callid,
card-num, cbb-policy, configured-idle-timeout, connected-time, domain, ebi, enodeb-address,
 epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, gprs-service, gtp-version,
 gtpu-bind-address, gtpu-service, ha, hnbgw-service, idle-time, ims-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, msid, nat, network-type, pcc-service,
profile-id, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
 sgw-address, smgr-instance, tx-data, ue-type, username, grep, more
```

username *name*

Displays information for connections for the subscriber identified by *name*. The user must have been previously configured. *name* must be a sequence of characters and/or wildcard characters ('$' and '*') from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

The following filter keywords are valid with this command:

```
epdg-address, epdg-service,
```

wf1

Displays subscriber information in wide format number 1. Wide format number 1 includes the following information for each listed subscriber session:

- Access Type
- Access Technology
- Call State
- Link Status
- Network Type
- Call ID
- MSID
- Username
- IP Address
- Time-Idle
- Access Peer Address
- Service Address
- Network Peer Address
- Connect Time

The following filter keywords are valid with this command:

```
epdg-address, epdg-service,
```

without-dynamic-rule

Displays subscribers without any dynamic rule associated with them.

without-override-control

Displays subscribers without any override control rule associated with them.

filter_keywords

The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters are available for all Command Keywords. Multiple Filter Keywords can be entered on a command line.

When multiple Filter Keywords are specified, the output conforms to all of the Filter Keywords specifications.

For example; if you enter the following command:

show subscribers counters ip-pool pool1 card-num 1

Counters for all subscriber sessions that were assigned an IP address from the IP pool named pool1 and also are being processed by the processing card in slot 1 is displayed. Information for all other subscribers is not displayed.

active

Only display information for those subscribers who currently have active sessions.

active-charging-service *acs_service*

Displays information for subscribers being processed by the active charging service specified as an alphanumeric string of 1 through 15 characters.

activity

Displays subscriber link activity percentage.

all

If no keywords are specified before **all**, information for all subscribers is displayed. If keywords are specified before **all**, all information is displayed with no further options being allowed.

apn *name*

Displays subscribers currently facilitated by the access point name (APN) configured on the SGSN or GGSN.

asngw-only

Displays counters for subscribers accessing the ASN-GW service only.

asnpc-only

Displays counters for subscribers accessing the ASN Paging Controller and Location Registry service only.

bandwidth-policy *policy_name*

Displays information for subscribers associated with the specified Active Charging bandwidth policy.

bearer-establishment { direct-tunnel | normal | pending } *id*

Displays subscriber information for selected bearer establishment type.

bng-service *srvc_name*

Displays the current configuration for the specified Broadband Network Gateway (BNG) service.

callid *id*

Displays subscriber information for the call ID specified as an 8-byte hexadecimal number.

card-num *card_num*

The slot number of the processing card by which the subscriber session is processed. The slot number is an integer from 1 through 7 and 10 through 16 on the ASR 5000, or 1 through 4 and 7 through 10 on the ASR 5500.

cbb-policy *policy_name*

Displays information for subscribers associated with the specified Active Charging Content Based Billing (CBB) policy.

ccoa-only

Displays the subscribers that registered a MIP with CoA directly with the HA.

This option is only valid when a MIPHA session license is enabled.

configuration { all | username *name* }

Displays current configuration for all subscribers or a specified subscriber.

configured-idle-timeout [< | > | greater-than | less-than] *value*

Shows the idle timeout that is configured for the specified subscriber. A value of 0 (zero) indicates that the subscribers idle timeout is disabled.

<: Filters output so that only information less than the specified value is displayed.

>: Filters output so that only information greater than the specified value is displayed.

greater-than: Filters output so that only information greater than the specified value is displayed.

less-than: Filters output so that only information less than the specified value is displayed.

value: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

connected-time [< | > | greater-than | less-than] *value*

Shows how long the subscriber has been connected. <: Filters output so that only information less than the specified value is displayed.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

counters *keyword*

Displays the specified counter for the subscribers.

cpu-num *number*

Displays information for calls processed through the specified CPU number.

dhcp-server *address*

Displays subscribers currently accessing the system that have been provided an IP address by the DHCP server specified by its address. GGSN only.

dns-proxy

Displays all subscribers associated with a DNS proxy.

domain *name*

Displays all subscribers with an Address-of-Record (AoR) from the specified domain. *name* is an alphanumeric string of 1 through 79 characters.

dormant

Shows information for subscriber sessions that are dormant (not transmitting or receiving data).

dormant

Shows information for subscriber sessions that are dormant (not transmitting or receiving data).

ebi *number*

Displays subscribers based on an EPS bearer identity number.

enodeb-address *ip_address*

Displays subscribers based on the eNodeB to which they are attached.

epdg-address *ip_address*

Displays information of subscribers connected to the specified ePDG address in IPv4 dotted-decimal notation or IPv6 (::) notation.

epdg-service *service_name*

Displays information of subscribers of ePDG service specified as an alphanumeric string of 1 through 63 characters.

fa *address*

Displays information for subscribers connected to the foreign agent specified by its IP address in IPv4 dotted-decimal notation.

fa-only

Only display FA-specific context information.

fa-service *name*

Displays information for subscribers connected to the named foreign agent (FA) service.

firewall { not-required | required }

Displays information for the specified subscribers:

- **not-required**: Subscribers for whom firewall processing is not required.
- **required**: Subscribers for whom firewall processing is required.

firewall-policy *fw_policy_name*

This keyword is obsolete.

full

Displays all available information for subscribers.

fw-and-nat policy *fw_nat_policy*

Important This option is customer-specific and is only available in StarOS 8.1.

Displays information for subscribers using an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 15 characters.

ggsn-address *ip_address*

Displays information for subscribers connected to an existing GGSN specified by its IP address in IPv4 doted-decimal notation. SGSN only

ggsn-preservation-mode

Displays information for subscribers connected to the GGSN service with preservation mode enabled. GGSN only.

ggsn-service *name*

Displays information for subscribers connected to the named GGSN service. This keyword is for GGSN only.

gprs-only

Displays only 2G SGSN subscribers content. SGSN only.

gprs-service *srvc_name*

Displays subscriber information for the named 2G GPRS service. SGSN only.

gsm-traffic-class { background | conversational | interactive | streaming }

Displays information for subscriber traffic that matches the specified 3GPP traffic class.

- **background**: 3GPP QoS background class.
- **conversational**: 3GPP QoS conversational class.

- **interactive**: 3GPP QoS interactive class. Must be followed by a traffic priority.
- **streaming**: 3GPP QoS streaming class.

ha *address*

Displays information for subscribers connected to the home agent specified by its IP address in IPv4 dotted-decimal notation.

ha-ipsec-only

Only displays information for subscriber sessions that are using IP-Security (IPSec).

ha-only

Only displays HA-specific context information.

ha-service *name*

Displays information for subscribers connected to the named home agent service.

hnbgw-only

Displays counters for subscribers accessing the Home evolved NodeB Gateway (HNB-GW) service only.

idle-time [< | > | greater-than | less-than] *value*

Displays how long the subscriber session has been idle or display subscriber sessions that meet the idle time criteria specified.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

imei *imei_number*

Displays information for subscribers having the specified International Mobile Equipment Identity (IMEI/IMEISV) number.

ims-auth-service *service_name*

Displays information for subscribers for an existing IMS Authorization Service name.

imsi *id*

Displays the subscriber with the specified ID. The IMSI (International Mobile Subscriber Identity) ID is a 15-character string which identifies the subscriber's home country and carrier. Wildcard characters $ and *

are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

ip-address [< | > | greater-than | less-than] *address*

Displays information for subscribers connected to the specified *address*.

- <: Filters output so that only information for subscribers with an IP address lower than the specified address is displayed.
- >: Filters output so that only information for subscribers with an IP address higher than the specified address is displayed.
- **greater-than**: Filters output so that only information for subscribers with an IP address higher than the specified address is displayed.
- **less-than**: Filters output so that only information for subscribers with an IP address lower than the specified address is displayed.
- *address*: The address must be specified using IPv4 dotted-decimal notation. Used in conjunction with <, >, greater-than, less-than. If the IP address is specified without a qualifier, only subscribers with the specified IP address have their information displayed.

ip-alloc-method {aaa-assigned | dhcp [relay-agent | proxy-client] | dynamic-pool | l2tp-lns-assigned | mip-ha-assigned | ms-provided-static | not-ms-provided-static | static pool }

Displays the specific IP Allocation Method. Must be followed by one of the IP Allocation Methods:

- **aaa-assigned**: Selects subscribers whose IP addresses were assigned by AAA.
- **dhcp**: Selects subscribers whose IP addresses were assigned by DHCP.
  - **relay-agent**: Selects subscribers whose IP addresses were assigned by the DHCP Relay Agent
  - **proxy-client**: Selects subscribers whose IP addresses were assigned by the DHCP Proxy Client
- **dynamic-pool**: Selects subscribers whose IP addresses were assigned from a dynamic IP address pool.
- **l2tp-lns-assigned**: Selects subscribers whose IP addresses were assigned by the Layer 2 Tunneling Protocol (LT2P) Network Server.
- **mip-ha-assigned**: Selects subscribers whose IP addresses were assigned by the Mobile IP Home Agent.
- **ms-provided-static**: Selects subscribers whose IP addresses were provided by the Mobile Station.
- **not-ms-provided-static**: Selects subscribers whose IP addresses were not provided by the Mobile Station.
- **static-pool**: Selects subscribers whose IP addresses were assigned from a static IP address pool.

ip-pool *name*

Displays information for subscribers assigned addresses from an existing IP address pool or IP pool group. *name* will be an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation based on the call line setup for the specified pool.

ipv4

Displays information for subscribers with an IPv4 Firewall enabled/disabled.

ipv6

Displays information for subscribers with an IPv6 Firewall enabled/disabled.

ipv6-address *address*

Displays information for subscribers connected to the specified IPv6 address.

ipv6-prefix *prefix*

Displays information for subscribers connected to the specified IPv6 address prefix.

l3-tunnel-local-addr *ip_address*

A layer 3 tunneling interface specified by its IP address in IPv4 dotted-decimal notation.

l3-tunnel-remote-addr *ip_address*

A layer 3 tunneling peer specified by its IP address in IPv4 dotted-decimal notation.

lac *address*

Displays information for calls to the peer L2TP Access Concentrator (LAC) specified by its IP address.

lac-only

Displays LAC specific information only.

lac-service *name* [local-tunnel-id id | remote-tunnel-id *id*]

Displays information for calls associated with the LAC service specified as an alphanumeric string of 1 through 63 characters.

- **local-tunnel-id** *id*: Specifies a local tunnel from which to clear calls as an integer from 1 through 65535.
- **remote-tunnel-id** *id*: Specifies a remote tunnel from which to clear calls as an integer from 1 through 65535.

lns *address*

Displays information for calls to the peer L2TP Network Server (LNS) specified by its IP address.

lns-only

Displays LNS specific information only.

lns-service *name* [local-tunnel-id *id* | remote-tunnel-id *id*]

Displays information for calls associated with the LNS service specified as an alphanumeric string of 1 through 63 characters.

- **local-tunnel-id** *id*: Indicates a specific local tunnel from which to clear calls. *id* must be an integer from 1 through 65535.
- **remote-tunnel-id** *id*: Indicates a specific remote tunnel from which to clear calls. *id* must be an integer from 1 through 65535.

local-tunnel-id *identifier*

Displays information for a local tunnel identifier specified as an integer from 1 to 65535.

long-duration-time-left [< | > | greater-than | less-than] *value*

Shows how much time is left for the maximum duration of a specified subscriber session.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

mag-only

Displays Mobile Access Gateway (MAG) subscriber session information.

mag-service *svc_name*

Displays subscriber information based on the Mobile Access Gateway (MAG) service name. *svc_name* must be an existing MAG service expressed as an alphanumeric string of 1 through 63 characters.

mip-udp-tunnel-only

Displays the subscribers that negotiated MIP-UDP tunneling with the HA.

This option is only valid when MIP NAT Traversal license is enabled.

mipv6ha-only

Displays MIPV6HA-specific context information for the session.

mipv6ha-service *service_name*

Displays specific configured MIPV6 Home Agent service. *service_name* must have been previously defined.

msid *id*

Displays information for the mobile user identified by *id*. *id* must be from 7 to 16 hexadecimal digits specified as an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example: '$'.

In case of **enforce imsi-min equivalence** is enabled on the chassis and MIN or IMSI numbers supplied, this filter will show subscribers with a corresponding MSID (MIN or IMSI) whose lower 10 digits matches to lower 10 digits of the supplied MSID.

show subscribers msid *ABCD0123456789* or

show subscribers msid *0123456789*

will show any subscriber with a MSID that match the lower 10 digits of MSID supplied, for example, 0123456789.

msisdn *msisdn*

Displays information for the mobile user identified by the Mobile Subscriber ISDN Number (MSISDN).

msisdn must be 7 to 16 digits; specified as an IMSI, MIN, or RMI.

nat { not-required | required }

Displays information for the specified subscribers.

- **not-required**: Subscribers for whom Network Address Translation (NAT) processing is not required.
- **required**: Subscribers for whom NAT processing is required.

nat-ip *nat_ip_address*] }

Displays information for the subscribers for whom NAT processing is enabled and are using the specified NAT IP address. *nat_ip_address* specifies the NAT IP address and must be in IPv4 dotted-decimal notation. **The nat-ip keyword is only available in StarOS 8.3 and later releases.**

nat-realm *nat_realm*

Displays information for the subscribers for whom NAT processing is enabled and are using the specified NAT realm. *nat_realm* specifies the NAT realm name and must be a string from 1 through 63 characters.

network-requested

Display information for currently active subscribers whose sessions were initiated by the GGSN network requested create PDP context procedure.

network-type { gre | ipip | ipsec | ipv4 | ipv4-pmipv6 | ipv4v6 | ipv4v6-pmipv6 | ipv6 | ipv6-pmipv6 | l2tp | mobile-ip | proxy-mobile-ip }

Selects the currently active subscribers based on network service access type.

- **gre: Generic Routing Encapsulation**
- **ipip**: IP-in-IP
- **ipsec**: IPSec
- **ipv4**: IPv4 only
- **ipv4-pmipv6**: IPv4 and/or Proxy Mobile IPv6 (PMIP)
- **ipv4v6**: IPv4 and/or IPv6

- **ipv4v6-pmipv6**: IPv4, IPv6 and/or Proxy Mobile IPv6
- **ipv6**: IPv6 only
- **ipv6-pmipv6**: IPv6 and/or Proxy Mobile IPv6 (PMIP)
- **l2tp**: Layer 2 Tunneling Protocol
- **mobile-ip**: Mobile IP (MIP)
- **proxy-modile-ip**: Proxy Mobile IPv6 (PMIP)

nri *nri_value*

This SGSN-specific filter uses the configured network resource identifier (NRI) to identify a specific SGSN in a pool to fine-tuned the subscriber information to be displayed.

nri_value: enter an integer from 0 through 63

This filter can be used in combination with further refining filters.

nsapi *nsap_id*

Displays session information for the mobile user identified by Network Service Access Point Identifier (NSAPI) between MS and SGSN. NSAPI is also used as part of the tunnel identifier between GPRS Support Nodes (GSNs). The user identity IMSI and the application identifier (NSAPI) are integrated into the Tunnel IDentifier (GTPv0) (TID) or Tunnel Endpoint Identifier (GTPv1) (TEID) that uniquely identifies the subscriber's sublink between the GSNs (SGSN and GGSN). The NSAPI is an integer value within the PDP context header.

nsap_id must be an integer from 5 through 15.

partial qos { negotiated | requested }

This filter is specific to the SGSN.

Is limits the display of information to requested or negotiated QoS information for the subscriber.

This filter can be used in combination with further defining filters: active, active-charging-service, all, apn, callid, card-num, configured-idle-timeout, connected-time, ggsn-address, gprs-service, gsm-traffic-class, idle-time, imsi, msid, msisdn, negotiated, plmn-type, requested, rx-data, session-time-left, tx-data

pcc-service *name*

Displays statistics for users associated with an existing Policy and Charging Control (PCC) service name expressed as an alphanumeric string of 1 through 63 characters.

pcf [< | > | less-than | greater-than] *ipv4_address* [< | > | less-than | greater-than] *ipv4_address*]

Displays information for subscribers connected via the packet control function with a specific or range of IP addresses. The address must be specified using IPv4 dotted-decimal notation.

- <: Filters output so that only information less than the specified IPv4 address value is displayed.
- >: Filters output so that only information greater than the specified IPv4 address value is displayed.
- **less-than**: Filters output so that only information less than the specified IPv4 address value is displayed.

- **greater-than**: Filters output so that only information greater than the specified IPv4 address value is displayed.

Note: It is possible to define a limited range of IP addresses by using the less-than and greater-than options to define minimum and maximum values.

pdsn-only

Show PDSN specific information only.

pdsn-service *name*

Displays information for subscribers connected to the packet data service *name*. The packet data service must have been previously configured.

pdsnclosedrp-service *service_name*

Displays information for subscribers connected to the Closed R-P service *service_name*. The Closed R-P service must have been previously configured.

plmn-type

Displays subscriber type (HOME, VISITING, or ROAMING).

This keyword is for the GGSN or the SGSN only.

policy

Displays the current policies associated with the subscriber session.

profile-id *id_number*

Displays subscriber session information based on the profile-id granted for the flow. *id_number* must be an integer from 0 to 4294967295.

profile-name *profile_name*

Displays the subscribers filtered with PCC profile named *profile_name* in particular IP-CAN session.

qci *number*

Displays subscriber session information based on the QoS Class Identifier (QCI) value assigned to the subscriber. *number* must be an integer value from 0 to 9.

relay-agent

Selects subscribers whose IP Addresses were assigned by the DHCP Relay Agent.

remote-tunnel-id *identifier*

Displays information for a remote tunnel identifier specified as an integer from 1 to 65535.

rnc id *rnc_id* mcc *mcc_num* mnc *mnc_num*

Displays information for subscribers connected to the SGSN via a specific RNC (radio network controller) identified by the RNC ID, the MCC (mobile country code), and the MNC (mobile network code). SGSN only

rulebase *name*

Selects subscribers associated with the specified Active Charging rulebase.

rx-data [< | > | greater-than | less-than] *value*

The number of bytes received by the specified subscriber.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 18446744073709551615.

saegw-only

Displays System Architecture Evolution Gateway (SAEGW) subscriber session information only.

saegw-service *svc_name*

Displays subscriber information based on the SAEGW service name.

svc_name must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

security-type { ipsec | tls }

Displays subscriber information based on the specified type of security.

- **ipsec**: IPSec
- **tls**: Transport Layer Security

session-time-left [< | > | greather-than | less] *value*

How much session time is left for the specified subscriber.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 4294967295.

smgr-instance *number*

Specific sessmgr instance. *number* must be in the range of 1 to 4294967295.

sgsn-address *address*

Shows information for subscribers whose PDP contexts are currently being facilitated by the SGSN specified by address. This command is for GGSN only.

sgsn-service *srvc_name*

Shows subscriber information for a specified 3G SGSN service. *srvc_name* must be an alphanumeric string of 1 through 63 characters that identifies a configured SGSN service.

This command is for SGSN only.

subscription { aor *address* | callid *id* | full }

Displays subscription information for defined subscribers, based on defined parameters.

- **aor** *address*: Clears session(s) by Address of Record.
- **callid** *id*: Specifies a Call Identification Number as an 8-digit hexadecimal number.
- **full**: Displays all available information.

tft

Displays the current Traffic Flow Template (TFT) associated with the subscriber session.

tpo { not-required | required }

Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

Displays information for specified subscribers.

tx-data [< | > | greater-than | less-than] *value*

The number of bytes transmitted by the specified subscriber.

- <: Filters output so that only information less than the specified value is displayed.
- >: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- *value*: Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching *value* is displayed. If *value* is not specified all data is displayed. *value* must be an integer from 0 through 18446744073709551615.

ue-type { ims | non-ims }

Displays information for the subscribers based on User Equipment type.

- **ims**: IP Multimedia Subsystem
- **non-ims**: UE other than IMS

username *name*

Displays information for connections for the subscriber identified by *name*. The user must have been previously configured. *name* must be a sequence of characters and/or wildcard characters ('$' and '*') from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

verbose

Display detailed information.

wide-format

Display detailed information in a wider screen format.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view information about subscriber sessions.

The output of this command may be considered for part of a periodic system auditing program by verifying active and dormant subscribers.

The Command Keywords may be used standalone to display detailed information or you may use one or more of the various Filter Keywords to reduce the amount of information displayed.

Caution Executing this command may negatively impact performance if multiple instances are executed while the system is under heavy load and simultaneously facilitating multiple CLI sessions.

Example

The following command displays information for all subscriber sessions:

```
show subscribers all
```

The following command displays information for all ggsn-only subscriber sessions:

```
show subscribers ggsn-only all
```

The following command displays information for all subscriber sessions in wide format 1:

```
show subscribers wf1 all
show subscribers aaa-configuration
show subscribers counters username isp1user1
```

The following command displays information for subscriber in GGSN service:

```
show subscribers ggsn-only all
show subscribers ggsn-only full
```

The following command displays information for all subscriber with SGSN session having partial QoS requests:

```
show subscribers sgsn-only partial qos requested
```

The following command displays information for all subscriber with MME session connected to MME service having IP address as *10.1.1.1*:

```
show subscribers mme-only mme-address 10.1.1.1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show subscribers samog-only

Displays SaMOG specific context information for the session.

Product

SaMOG

Privilege

Inspector

Syntax Description

```
show subscribers samog-only [  [ all ] [ callid call_id  ]  [ card-num
card_num  ]   [ connected-time [ < | > | greater-than | less-than ]
connected_time  ] [ full ]  [ idle-time [ < | > | greater-than | less-than
] idle_time  ]  [ ip-address [ < | > | greater-than | less-than ] ipv4_adress
  ]  [ ipv6-prefix ipv6_prefix  ] [ network-type { gre | ipip | ipsec | ipv4
 | ipv4-pmipv6 | ipv4v6 | ipv4v6-pmipv6 | ipv6 | ipv6-pmipv6 | l2tp |
mobile-ip | proxy-mobile-ip }  ]   [ session-time-left [ < | > |
greater-than | less-than ] session_time_left  ] [ smgr-instancesmgr_instance  ]
  [ summary ]  [ username user_name  ]  [ | { grep grep_options | more } ]  ]
```

idle-time [< | > | greater-than | less-than] *idle_time*

Displays how long the subscriber has been idle.

> and **greater-than** Specifies greater than. This must be followed by *idle_time*, an integer ranging from *0*and *4294967295*.

< and **less-than** Specifies less than. This must be followed by *idle_time*, an integer ranging from *0*and *4294967295*.

ipv6-prefix *ipv6_prefix*

Displays the subscribers associated with the specified IPv6 address prefix. Must be followed by an IPv6 address prefix in the format xx:xx:xx::/len

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

show subscribers wsg-service

Displays information for specific configured WSG service. This command must be followed by the WSG service name.

Product

SecGW (WSG)

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show subscribers wsg-service` *`service_name`* **`[ | { grep`** *`grep_options`* **`| more } ]`**

service_name

Specifies the name of the WSG service as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to displays information about selected WSG calls and services.

Example

The following command displays counter information for wsg-service wsg01:

show subscribers wsg-service wsg01 *arg1*

show super-charger

Lists subscribers with valid super-charger configuration. When super-charger is enabled for a subscriber, the SGSN handles 2G or 3G connections controlled by an operator policy and changes hand-off and location update procedures to reduce signaling traffic management (3GPP, TS.23.116).

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show super-charger { imsi imsi | all }`**

imsi

Defines a specific subscriber's international mobile subscriber identity (IMSI) number.

imsi is a string of up to 15 digits that includes the MCC (mobile country code), the MNC (mobile network code) and the MSIN (mobile station identification number),

all

Instructs the SGSN to display super charger subscription information for all subscribers.

Usage Guidelines Use this command to determine if a single subscriber, identified by the IMSI, has a super charger configuration. Also, this command can display the list of all subscribers with a super charger configuration. If a subscriber has super charger as part of the configuration, subscriber data is backed up (using the IMSI Manager) after the subscriber detaches and the purge timer expires.

Example

The following command displays the super charger configuration information for the subscriber identified by the IMSI 90121882144672.

`show super-charger imsi 90121882144672`

show supplementary-service statistics

Displays the statistics for Supplementary Service Information.

Product SGSN

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description **`show supplementary-service statistics`**

Usage Guidelines Use this command to display the Supplementary Service Information.

Example

The following command displays the Supplementary Service Information:

show supplementary-service statistics

show support collection

Displays information about when and where the Support Data Collector (SDC) stores its Support Data Record (SDR) files.

Product

All

Privilege

All

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show support collection [definitions] [| { grep *grep_options* **| more }]**

definitions

Displays the list of default support record section definitions. This is the list of all valid record section definitions. The display also indicates whether the record section is enabled or disabled by default.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the status of SDR collection, collection times, SDR file names and sizes, as well as the date/time the files were written. If SDR collection has occurred this command displays the pathname where the files have been stored.

With the **definitions** option this command lists existing record sections and their associated CLI commands.

For additional information, refer to the descriptions of the **support collection** and **support record** commands in the *Global Configuration Mode (L - S) Commands* chapter. Also see the *System Administration Guide*.

Example

The following command displays the SDR collection information.

show support collection

show support details

Displays a comprehensive list of system information that is useful for troubleshooting purposes. In most cases, the output of this command is requested by the Technical Assistance Center (TAC). A single instance of the output of this command is known as an SSD.

Important To improve output performance when executing the **show cli history** command, this command displays the **config** command but not the individual CLI commands within the config file.

Product

All

Privilege

All

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show support details [force] [to file *url*] **[compress] [icsr] [no-bulkstats] [vpn-npu]**
[-noconfirm] [| { grep *grep_options* **| more }]**

force

Overrides an currently running **show support details** command.

Important To avoid a possible file collision with the output of a currently running SSD, use a different target URL file (*force_url*) for the forced SSD.

to file *url*

Specifies the location where a .tar file with the support detail information should be created. *url* may refer to a local or a remote file and must be entered using the following format:

For the ASR 5000:

[file:] { /flash | /pcmcia1 | /hd } [/*directory* **] /***file_name* **[compress]**

tftp:// { *host* **[** *:port#* **] } [/***directory* **] /***file_name*
[ftp: | sftp:] // [*username***[** *:password* **] @] {** *host* **} [** *:port#* **] [/***directory* **] /***file_name*

For the ASR 5500:

[file:] { /flash | /usb1 | /hd } [/*directory* **] /***file_name* **[compress]**
tftp:// { *host* **[** *:port#* **] } [/***directory* **] /***file_name*
[ftp: | sftp:] // [*username***[** *:password* **] @] {** *host* **} [** *:port#* **] [/***directory* **] /***file_name*

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

If the filename is not specified with a .tar extension, it is automatically appended to the filename when the file is created and a message is generated.

The .tar file includes:

- **support_summary** - An ASCII text file that contains the support detail information.
- **information.minicores.tar** - A tar file that contains any minicore files found on the system. Minicore files contain memory core dumps that are captured during some events. These core dumps provide specific memory locations and other information about the event. This information is useful to the technical support team in identifying where and when an event occurred along with its probably cause.

icsr

Captures only ICSR-specific information needed for debugging. This keyword reduces the **show support details** (SSD) capture time when debugging ICSR timing issues between the Active and Standby chassis, facilitating quicker resolution of the problem.

See the *Statistics and Counters Reference* for a list of the **show** commands output in the mini SSD for this keyword.

no-bulkstats

When the SSD archive is being created in the temporary storage, the bulk statistics samples might occupy a large amount of the storage space. As a result, the SSD archive creation might fail. During such scenarios, use this keyword to exculde the bulkstats samples from the SSD archive.

Also see the **bulkstats ssd-samples** command under the *Global Configuration Mode* chapter for information on enabling bulkstats sample collection in the SSD archive.

compress

Generates a compressed .tar.gz file for the output of the command.

vpn-npu

Captures only VPN and NPU-specific information needed for debugging. This keyword reduces the SSD capture time and facilitates quicker resolution of the problem. This keyword can be used for any of the other options supported by the **show support details** command.

-noconfirm

Specifies that the command must execute without any prompts and confirmation from the user.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to obtain extensive system information for use in troubleshooting. This command does the work of multiple separate commands, which saves time and ensures that all of the information needed is collected and displayed in the same order every time.

In addition to the information provided, the **show support details** command includes information that is not otherwise accessible to users but that is helpful in the swift resolution of issues.

Example

The following command displays the system information on your console.

```
show support details
```

The following command displays the information on your console and also writes it to the local device (pcmcia1 in this case) and includes the mini core dumps, using the filename *r-p_problem.tar*:

```
show support details to file /pcmcia1/r-p_problem.tar
```

The following command displays the information on your console and also writes it to /flash, placing the file in the **ssd** directory and includes the mini core dumps, using the filename *re_problem.tar*:

```
show support details to file /flash/ssd/re_problem.tar
```

show support record

Displays the output of one or more Support Data Records (SDRs) previously saved by the Support Data Collector (SDC). SDRs are displayed in the order of lowest record-id to highest record-id.

Product

All

Privilege

All

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show support record *record-id* **[to** *record-id* **] [section** *section_name* **] [| { grep** *grep_options* **| more }]**

record-id

Specifies a record-id as an integer from 0 through 65536.

Each SDR is identified by a time index called the record-id. For example, the most recent record is always record-id 0 (filename = sdr.0.gz). The next older record is record-id 1 (filename = sdr.1.gz), and so on.

When a new record is collected it is given a record-id of 0. The previously most recent record is renamed to record-id 1, and so on. The display includes the record-id along with the collection time-stamp.

to *record-id*

Specifies a the end point of a range of record-ids as an integer from 0 through 65536.

section *section_name*

Specifies the name of an existing record section as an alphanumerical string of 1 through 64 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the output of one or more SDRs. This information is a useful troubleshooting tool when data is compared chronologically across several SDRs. For additional information refer to the *System Administration Guide*.

Example

The following command displays the SDRs from 2 through 4:

```
show support record 2 to 4
```

show system ssh key status

Displays the fingerprint of the current internal SSH key in use, the source of where the key was found, and the SSH status of all online VMs.

Product

VPC-DI

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

`show system ssh key status [ | { grep` *`grep_options`* **`| more } ]`

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command displays information about the SSH keys used for internal communication between all component VMs in a VPC-DI system, such as for remote command execution and file transfers.

show system uptime

Displays the amount of time the system has been operational since its last down time (maintenance or otherwise).

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show system uptime [| { grep *grep_options* **| more }]**

uptime

Displays system up time in days (D), hours (H) and minutes (M).

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display the system up time to check for the possibility of anomalous behavior related to shorter or longer up times.

Example

The following command displays basic system basic information and up time.

show system uptime

show sx peers

Displays the Sx peer monitor related parameters.

Product

CUPS

Privilege

All

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show sx peers { full address` *`peer-ip-address`* **`| wide }`**

full address *peer_ip_address*

Displays the monitor related information for the specified Sx peer (for example, VPN context name, group name, and state).

peer_ip_address is the IP address of the Sx peer.

wide

Displays “Monitor State” with the default state being “U” for UP, “D” for Down, and “N” for Not Applicable.

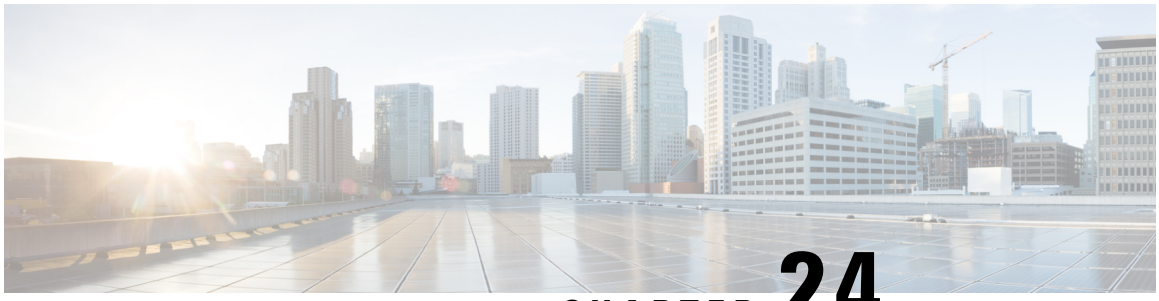
Usage Guidelines

Use this command to display the information about the Sx peer devices and the peer connections.

Example

The following command displays the details on peer connections:

`show sx peers wide`



CHAPTER 24

Exec Mode show Commands (T-Z)

The Exec Mode is the initial entry point into the command line interface system. Exec mode **show** commands are useful in troubleshooting and basic system monitoring.

Command Modes

This chapter includes the commands **show tacacs** through **show version**.

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

show tacacs

Displays information about all active Terminal Access Controller Access-Control System Plus (TACACS+) sessions.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show tacacs [client | priv-lvl | session { all | id *session_id* **| idle | statistics } | summary] [| { grep** *grep_options* **| more }]**

show tacacs

This command provides the following TACACS+ information:

- Individual active session number with the following additional session-specific information:
  - login user name
  - login tty
  - time of login
  - login server priority
  - current session state
  - current privilege level
  - remote client application (if applicable)
  - remote client ip address (if applicable)
  - last server reply status
- Total number of TACACS+ sessions

[client | priv-lvl | session | summary]

Optional filters are available for the output of the **show tacacs** command:

- **client** – Display information about the TACACS+ client.
- **priv-lvl** – Display TACACS+ priv-level authorization attributes for StarOS administrative levels. Only supported in StarOS Release 17.3 and higher.
- **session** – Display information about the TACACS+ sessions.
  - **all** – Displays all TACACS+ sessions with session id, idle threshold, idle time, and application type.
  - **id** *session_id* – Session ID to be displayed. *session_id* must be an integer from 1 to 128.
  - **idle** – Lists all idle TACACS+ sessions in the order of most idle sessions.
  - **statistics** – Display statistics about the TACACS+ sessions.
- **summary** – Display summary information about the TACACS+ sessions.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view detailed session information for all active TACACS+ sessions.

Important

This command is available on version 11.0 and later systems.

Example

```
show tacacs
```

show task

Displays information about system tasks.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show task { info | memory | resources | table } [card *card_num* **] [facility** *facility* **{ all | instance** *id* **}] [process** *process_name* **all] [max] [| { grep** *grep_options* **| more }]**

{ info | memory | resources | table }

Specifies the type of information to be displayed and scope of tasks to include in output.

info: Displays detailed task information.

memory: Displays detailed task memory usage information.

resources: Displays resource allocation and usage information for all tasks.

table: Displays identification information in tabular format for all tasks.

Note

In Release 21.1, the Active Health Monitor (AHM) functionality is added to the Resource Manager (RMMGR) to aid in the monitoring of specific processes and proactively collect required debug information at runtime without manual intervention.

When a process enters the “warn” or “over” state for a memory limit, CPU limit, or both, the RMMGR triggers a logging mechanism that proactively collects the memory heap/CPU profiler information, writes it into a file and stores it locally.

The files that are stored locally on the CPU of each individual processing card are then transferred to HD-RAID in the preconfigured directory location.

card *card_num*

Default: all powered on cards.

Specifies a single card for which task information is to be displayed where *card_num* must be an integer from 1 to 48 for the ASR 5000 and 1 to 20 for the ASR 5500.

facility *facility* { all | instance *id* max }

Default: all facilities.

Specifies the list of facilities for which task information may be displayed. A specific instance of the facility may be displayed as specified by ID or all instances may be displayed. The value of *id* must be an integer from 0 to 10000000. *facility* must be one of:

- **a11mgr**: A11 Interface Manager facility
- **aaamgr**: AAA Manager Facility
- **aaaproxy**: AAA Proxy manager Facility
- **acsctrl**: Active Charging Service (ACS) Controller Facility [Release 11.0 and earlier versions only]
- **acsmgr**: Active Charging Service (ACS) Manager Facility
- **afctrl**: Fabric Manager [ASR 5500 only]
- **afmgr**: Fabric Manager [ASR 5500 only]
- **alcapmgr**: ALCAP Manager
- **asngwmgr**: ASN Gateway Manager
- **asnpcrmgr**: ASN Paging/Location-Registry (ASN-PC) Manager
- **bfd**: Bidirectional Forwarding Detection
- **bgp**: Border Gateway Protocol (BGP) Facility
- **bngmgr**: BNG Manager
- **bulkstat**: Bulk Statistics Manager Facility
- **callhome**: Call Home Controller
- **cdrmod**: Charging Detail Record Module
- **cli**: Command Line Interface Facility
- **connproxy**: Proxy for connections from same card or chassis
- **cspctrl**: Card Slot Port controller Facility
- **cssctrl**: Content Service Steering Controller
- **dcardctrl**: IPSec Daughter-card Controller Logging Facility
- **dcardmgr**: IPSec Daughter-card Manager Logging Facility
- **dgmbmgr**: Diameter Gmb Application Manager
- **dhmgr**: Distributed Host Manager

- **diamproxy**: Diameter Proxy
- **drvctrl**: Driver Controller Facility
- **egtpegmgr**: EGTP Egress Demux Manager
- **egtpinmgr**: EGTP Ingress Demux Manager
- **evlogd**: Event Log Daemon Facility
- **famgr**: Foreign Agent Manager Facility
- **gtpcmgr**: GTP-C Protocol Logging facility (GGSN product only)
- **gtpumgr**: GTP-U Demux Manager
- **h248prt**: H.248 Protocol Task [Release 11.0 and earlier versions only]
- **hamgr**: Home Agent Manager Facility
- **hatcpu**: High Availability Task CPU Facility
- **hatsystem**: High Availability Task Facility
- **hdctrl**: HD Controller
- **henbgwdemux**: Home eNodeB Gateway demux manager

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **henbgwmgr**: Home eNodeB Gateway Manager

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This keyword must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

- **hnbmgr**: HNBGW HNB Manager

Important In Release 20 and later, HNBGW is not supported. This keyword must not be used for HNBGW in Release 20 and later. For more information, contact your Cisco account representative.

- **hwctrl**: Hardware Monitor Controller
- **hwmgr**: Hardware Monitor Manager
- **imsimgr**: SGSN IMSI Manager
- **ipsecctrl**: IP Security Controller Facility

- **ipsecmgr**: IP Security Manager Facility
- **ipsgmgr**: IP Services Gateway Facility
- **kvctrl**: KV Controller
- **kvmgr**: KV Manager
- **l2tpdemux**: L2TP Demultiplexor (LNS) Facility
- **l2tpmgr**: L2TP Manager Facility
- **lagmgr**: Link Aggregation Group (LAG) Manager
- **linkmgr**: SGSN/SS7 Link Manager
- **magmgr**: Mobile Access Gateway Manager
- **megadiammgr**: MegaDiameter Manager
- **mmedemux**: MME Demux Manager logging facility
- **mmemgr**: MME Manager logging facility
- **mmgr**: SGSN/SS7 Master Manager
- **mpls_sig**: Multiprotocol Label Switching
- **mptest**: Migration Performance Test on Packet Accelerator Card
- **netwstrg**: Network Storage Manager [Release 11.0 and earlier versions only]
- **npuctrl**: Network Processor Unit Control Facility
- **npudrv**: Network Processor Unit Driver Facility [ASR 5500 only]
- **npumgr**: Network Processor Unit Manager Facility
- **npusim**: Network Processor Unit Simulator [ASR 5500 only]
- **nputst**: Network Processor Unit Tester
- **nsctrl**: Charging Service Controller [Release 11.0 and earlier versions only]
- **nsmgr**: Charging Service Process Manager [Release 11.0 and earlier versions only]
- **orbns**: Object Request Broker Notification Server Facility
- **orbs**: Object Request Broker System Facility
- **ospf**: Open Shortest Path First Facility
- **ospfv3**: Open Shortest Path First (OSPFv3)
- **pdgmgr**: PDG Manager
- **phsgwmgr**: PHS Gateway manager
- **phspcmgr**: PHS Paging Controller manager
- **rct**: Recovery Control Task Facility
- **rdt**: Redirect Task Facility

- **rip**: Routing Information Protocol Facility
- **rmctrl**: Resource Manager Controller Facility
- **rmmgr**: Resource Manager Facility
- **sct**: Shared Configuration Task Facility
- **sessctrl**: Session Controller Facility
- **sessmgr**: Session Manager Facility
- **sesstrc**: Session Trace Collection task
- **sft**: Switch Fabric Monitoring Task
- **sgtpcmgr**: SGSN GTPC Manager
- **sipcdprt**: SIP Call Distributor Task [Release 11.0 and earlier versions only]
- **sitmain**: System Initialization Task Main Facility
- **sitparent**: Card based system initialization facility that applies to the MIO card.
- **snmp**: SNMP Protocol Facility
- **srdb**: Static Rating Database
- **testctrl**: Test Controller
- **testmgr**: Test Manager
- **threshold**: Threshold Server Facility
- **vpnctrl**: Virtual Private Network Controller Facility
- **vpnmgr**: VPN Manager Facility
- **zebos**: ZEBOS™ OSPF Message Facility

all: Displays information for all instances of the specified facility.

instance *id*: Displays information for the facility instance that is specified as an integer from 0 to 10000000.

process *process_name* all

Display information for all instances of the specified process. must be one of the following process names:

- **ftpd**: File Transfer Protocol Daemon
- **inetd**: Internet Superserver Daemon
- **nsproc**: NetSpira Packet Processor
- **ntpd**: Network Time Protocol Daemon
- **orbnsd**: Object Request Broker Notification Server
- **ping**: Ping
- **pvmd-wrapper**: NetSpira Messenger Daemon

- **pvmgs**: NetSpira Messenger Daemon
- **rlogin**: Remote Login
- **sftp-server**: Secure File Transfer Protocol Server
- **sitreap**: System Initialization Task Cleanup Process
- **sn_resolve**: DNS Resolver Process
- **ssh**: Secure Shell
- **sshd**: Secure Shell Daemon
- **telnet**: Telnet
- **telnetd**: Telnet daemon
- **tftpd**: Trivial File Transfer Protocol Daemon
- **traceroute**: Traceroute

max

Default: current usage levels are displayed.

Displays the maximum usage levels for tasks as opposed to the current usage levels.

max is valid only along with the **resources** keyword.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Displays task information as part of a system troubleshooting for unexpected behavior.

Important This command is not supported on all platforms.

Note The following conditions may cause Shared Configuration Task (SCT) CPU spikes:

- Frequent CLI session initiation that includes both failed and successful session may cause SCT CPU spike.

  It is therefore recommended to use an alternate to CLI, such as bulkstats if there is a requirement to view the statistics. Also, avoid exiting CLI sessions and using scripts that initiate CLI sessions.

- "show" commands like "show configuration".

  It is recommended to use the monitoring commands sparingly and only on need-basis.

- Configuration monitoring can drive high CPU usage and also spike the SCT CPU. Note that higher the configuration, higher the CPU usage.

  It is recommended to monitor the configuration only when required.

- SDR configuration and periodicity. Periodic data collection adds load to the SCT and to the entire CPU. Therefore, ensure that the SDR is optimally configured. Use the CLI "show configuration collection definition" to check which CLI collections are enabled, review the configuration, and configure only required items.

Example

The following commands provide some examples of the combinations of options that may be used to display task information.

```
show task info facility hatspc all
show task info facility hatspc instance 456
show task resources facility zebos all
show task table facility ospf
show task table card 8 facility cli all
show task table card 5 facility cli all
show task resources facility rip all max
```

show tcap statistics

This command displays the collected traffic statistics that have passed through the SS7 Transaction Capabilities Application Part (TCAP) layer.

Product SGSN

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

`[local]`*`host_name`*`#`

Syntax Description

show tcap statistics [camel-service [all | name *camel_srvc* **] | map-service [all | name** *map_srvc* **]] [| { grep** *grep_options* **| more }]**

camel-service [all | name *camel_srvc*]

Displays TCAP statistics for either all Customized Applications for Mobile networks Enhanced Logic (CAMEL) services or only for the named CAMEL service.

map-service [all | name *mapl_srvc*]

Displays TCAP statistics for either all Mobile Application Part (MAP) services or only for the named MAP service.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to display the collected TCAP statistics for MAP or CAMEL services.

Example

The following command displays the collected statistics for a MAP service named *MAP-Tewk*.

show tcap statistics map-service name MAP-Tewk

show temperature

Displays the current temperature on all installed cards. Also displays the temperature of upper and lower fan trays. Temperature readings are acquired from sensors located on theses components.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show temperature [verbose] [| { grep *grep_options* **| more }]**

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

verbose

Indicates that the output is to contain detailed information.

Usage Guidelines

Verify current temperature of components in chassis.

Example

```
show temperature
show tempterature verbose
```

show terminal

Displays the current terminal settings for number of lines in length and number of characters in width.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show terminal [ | { grep` *`grep_options`* **`| more } ]`**

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to verify current terminal settings in case the output displayed appears to have line breaks/wraps in unexpected places.

Example

```
show terminal
```

show threshold

Displays thresholding information for the system.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show threshold [default]

[default]

Used to display the system's thresholding default values.

Usage Guidelines

Use this command to display information on threshold value configuration and activity.

Example

The following command displays configuration information pertaining to threshold values configured on the system:

show threshold

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.

show transaction-rate

Displays transaction-rate (per sec) for given services.

Product

ePDG

PGW

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

show transaction-rate { epdg-service | pgw-service | saegw-service [all | name *srvc_name* **] } [| { grep** *grep_options* **| more }]**

epdg-service

Displays transaction-rate (per sec) for all or given epdg services.

pgw-service

Displays transaction-rate (per sec) for all or given pgw services.

saegw-service

Displays transaction-rate (per sec) for all or given SAE-GW services.

all

Displays consolidated transaction-rate (per sec) for all epdg / pgw services configured on this system.

name *srvc_name*

Displays node level transaction-rate (per sec) for given epdg / pgw service as an alphanumeric string of 1 through 63 characters.

[| { grep *grep_options* | more }]

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Syntax Description

Use this command to display the transaction-rate (per sec) for given services configured on this system.

Example

The following command displays the transaction-rate (per sec) for given epdg service by name *epserv1* configured on this system:

```
transaction-rate epdg-service name epserv1
```

show url-blacklisting database

Displays URL Blacklisting static database configurations.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show url-blacklisting database [all | url *url* **| facility acsmgr { all | instance** *instance* **}] [| { grep** *grep_options* **| more }]**

all

Displays configurations of all URL Blacklisting databases present in the default or override directory.

facility acsmgr { all | instance *instance* }

Displays configurations of URL Blacklisting database configuration per facility/ACSMgr instance.

all: Displays URL Blacklisting database configuration of all ACSMgrs.

instance *instance*: Displays URL Blacklisting database configuration for the instance number of the database specified as an integer from 1 through 10000000.

url *url*

Displays configurations of the URL Blacklisting database specified in the database's URL expressed as an alphanumeric string of 1 through 512 characters.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Use this command to view configurations associated with in-memory and on-flash Blacklisting database. The **show url-blacklisting database** command displays the active database that is loaded, and is the one set by either the default or override CLI commands.

Example

The following command displays configurations of all the databases present in default or override directory, indicating one as Active and rest as Not Loaded:

```
show url-blacklisting database all
```

The following command displays configurations of the */flash/bl/optblk.bin* database:

```
show url-blacklisting database url /flash/bl/optblk.bin
```

The following command displays database configuration for the ACSMgr instance *1*:

```
show url-blacklisting database facility acsmgr instance 1
```

Important Output descriptions for commands are available in the *Statistics and Counters Reference*.

show version

Displays the version information for the current system image or for a remote image.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show version [*url* **] [all | verbose] [| { grep** *grep_options* **| more }]**

url

Specifies the location of a configuration file for which to display version information. The *url* may refer to a local or a remote file and must be entered in the following format:

For the ASR 5000:

[file:] { /flash | /pcmcia1 | /hd } [/*directory* **] /***file_name*
tftp:// { *host* **[** *:port#* **] } [/***directory* **] /***file_name*
[http: | ftp: | sftp:] // [*username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **] /***file_name*

For the ASR 5500:

[file:] { /flash | /usb1 | /hd } [/*directory* **] /***file_name*
tftp:// { *host* **[** *:port#* **] } [/***directory* **] /***file_name*
[http: | ftp: | sftp:] // [*username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **] /***file_name*

For VPC:

[file:] { /flash | /usb1 | /usb2 /cdrom1 } [/*directory* **] /***file_name*
tftp:// { *host* **[** *:port#* **] } [/***directory* **] /***file_name*
[http: | ftp: | sftp:] // [*username* **[** *:password* **] @] {** *host* **} [** *:port#* **] [** */directory* **] /***file_name*

Important Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

all | verbose

all: displays all image information.

verbose: displays detailed information.

The **verbose** keyword may not be used in conjunction with a URL specification.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

Display the version information to verify the image versions loaded in preparation for maintenance, upgrades, etc.

You can display additional release build information by running the Exec mode **show build** command.

Example

The following commands display the version information with the basic level of output and the detailed level, respectively.

```
show version
show version verbose
```

show wsg-application

Displays wsg-application information.

Product

SecGW (WSG)

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show wsg-application (all | name | *application_name* **[counter] [| { grep** *grep_options* **| more }] | statistics [all] [name] [| { grep** *grep options* **| more }] }**

all

Displays information for all configured application

name *application_name*

Displays specific application. Must be followed by application name which is a string of size 1 through 63.

counter

Displays information for all configured application.

statistics

Displays information for all configured application.

[| { grep *grep options* | more }] }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent. For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display wsg-application information.

Example

The following example displays information for all configured application:

```
show wsg-application statistics
```

show wsg-lookup

Displays the current priority settings of subnet components for site-to-site tunnels in WSG services.

Product

SecGW (WSG)

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show wsg-lookup
```

Usage Guidelines

Use this command to display current WSG lookup priority settings,

Examples

```
show wsg-lookup
```

show wsg-service

Displays information about WSG service calls and configured services.

Product

SecGW (WSG)

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show wsg-service (all | name | *srvc_name* | statistics [name *srvc_name* | peer-address *ip_address*] [| { grep *grep_options* | more }]

all

Displays information for all configured services.

name *srvc_name*

Displays information for the specified service name.

| statistics [name *srvc_name* | peer-address *ip_address*

Displays information collected for the WSG service since the last VPC-VSM reload or clear command

You can display information for all WSG services (default), for named service or for a specific peer IP address. The peer *ip_address* can be specified in IPv4 dotted decimal or IPv5 colon-separated hexadecimal notation.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines

This command displays information about all or a specified WSG service.

Example

The following command displays information about all WSG services:

```
show wsg-service all
```

show x2gw-service

Important In Release 20, 21.0 and 21.1, HeNBGW is not supported. This command must not be used for HeNBGW in these releases. For more information, contact your Cisco account representative.

This command is used to display the X2GW service related information.

Product

HeNBGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

show x2gw-service { all | enb-association [all] | statistics [sctp | x2ap] }[| { grep *grep_options* **| more }]**

all

Displays all the X2GW services.

enb-association

Displays the information about (H)ENB associations.

statistics

Displays the X2GW service statistics.

| { grep *grep_options* | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

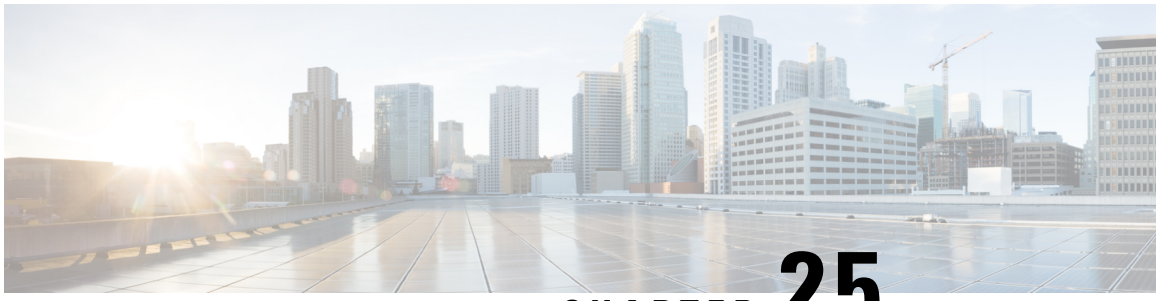
Usage Guidelines

Use this command to display the X2GW service related information.

Example

The following command displays the X2GW service statistics.

show x2gw-service statistics



CHAPTER 25

FA Service Configuration Mode Commands

The Foreign Agent Service Configuration Mode is used to create and manage the Foreign Agent (FA) services associated with the current context.

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

advertise

Configures agent advertisement parameters within the FA service.

Product

PDSN

GGSN

ASN-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
advertise {adv-delay seconds | adv-lifetime time | adv-interval { seconds |
msec num } | num-adv-sent number | prefix-length-extn | reg-lifetime reg_time
 }
no advertise { prefix-length-extn | reg-lifetime }
default advertise adv-delay
```

no

Disables prefix-length-extn.

no advertise reg-lifetime

Specifies that there is no limit to the registration lifetime that the FA service will allow in any Registration Request message from the mobile node.

default advertise adv-delay

Sets the initial delay for the unsolicited advertisement to the default value of 1000 ms.

advertise adv-delay *seconds*

Default: 1000

Sets the initial delay for the unsolicited advertisement.

seconds is the advertisement delay in milliseconds and must be an integer from 10 through 5000.

Important This command is available for WiMAX CMIP calls only.

adv-lifetime *time*

Default: 9000

Specifies the FA agent advertisement lifetime.

The agent advertisement lifetime is the amount of time that an FA agent advertisement remains valid in the absence of further advertisements.

time is measured in seconds and can be configured to an integer from 1 through 65535.

adv-interval { *seconds* | msec *num* }

Default: 5 seconds

Specifies the amount of time between agent advertisements.

seconds is the time in seconds and can be an integer from 1 through1800.

msec *num*: Configures agent advertisement Interval in milliseconds. *num* can be an integer from 100 through 1800000.

num-adv-sent *number*

Default: 5

Specifies the number of unanswered agent advertisements that the FA service sends upon PPP establishment before rejecting the session.

number can be an integer from 1 through 65535.

prefix-length-extn

Default: Disabled

When enabled, the FA includes the FA-service address in the Router Address field of the Agent Advertisement and appends a Prefix Length Extension in Agent Advertisements with a prefix length of 32.

reg-lifetime *reg_time*

Default: 600

Specifies the longest registration lifetime that the FA service will allow in any Registration Request message from the mobile node.

reg_time is measured in seconds and can be configured to an integer from 1 through 65534.

Usage Guidelines Use to tailor FA advertisements to meet your network needs and/or conditions.

Example

The following command configures the FA advertisement interval at 10 seconds, the advertise lifetime to *20000* seconds, and the maximum number of unanswered advertisements that will be set to *3*.

```
advertise adv-interval 10 adv-lifetime 20000 num-adv-sent 3
```

authentication aaa

This configuration enables or disables the authentication parameters for the FA service to override dynamic keys from AAA with static keys to support MIP registration with an HA that does not support dynamic keys.

Product

FA

ASN-GW

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
[ no | default ] authentication aaa-distributed-mip-keys override
```

no

Disable the override of dynamic keys from AAA.

default

By default the override behavior is disabled and the system uses dynamic keys from AAA after successful EAP authentication. If EAP authentication fails, the system uses static keys by default.

Usage Guidelines

Specify how the system will perform authentication of registration request messages. By default dynamic MN-HA and FA-HA keys from AAA after successful EAP authentication used by a PMIP client in WiMAX calls for MIP registration with HA. This configuration in FA service overrides the dynamic keys from AAA with static keys to support MIP registration with an HA that does not support dynamic keys.

Example

The following command configures the FA service to override use of AAA MIP keys and force the use of statically configured FA-HA SPI/key for WiMAX calls.

```
authentication aaa-distributed-mip-keys override
```

authentication mn-aaa

Specifies how the system handles authentication for mobile node re-registrations.

Product

PDSN

ASN-GW

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

authentication mn-aaa { always | ignore-after-handoff | init-reg | init-reg-except-handoff | renew-and-dereg-noauth | renew-reg-noauth } [optimize-retries]

always

Specifies that the FA service performs authentication each time a mobile node registers. This is the default setting.

ignore-after-handoff

MN-AAA authentication is not done at the FA for a handoff Access Gateway (AGW).

init-reg

MN-AAA and MN-FAC extensions are required only in initialization RRQ.

init-reg-except-handoff

MN-AAA and MN-FAC extensions are not required in initialization RRQ after inter-Access Gateway (AGW) handoff.

renew-and-dereg-noauth

Specifies that the FA service does not perform authentication for mobile node re-registration or deregistration authorization requests. Initial registration is handled normally.

renew-reg-noauth

Specifies that the FA service does not perform authentication for mobile node re-registrations. Initial registration and de-registration are handled normally.

optimize-retries

Optimizes the number of Authentication retries sent to the AAA server.

When an authentication request is pending for a MIP call at the AGW, if a retry RRQ is received from the mobile node, the AGW discards the old RRQ and keeps the most recent RRQ. Subsequently when the authentication succeeds, the AGW forwards the most recent RRQ to the HA. If the authentication fails, the AGW replies to the MN using the most recent RRQ.

Usage Guidelines

Use this command to determine how the FA service handles mobile node re-registrations.

The system is shipped from the factory with the mobile AAA authentication set to always.

Example

The following command configures the configures the FA service to perform mobile node authentication for every re-registration:

```
authentication mn-aaa always
```

The following command specifies that the FA service does not perform authentication for mobile node re-registrations:

```
authentication mn-aaa renew-reg-noauth
```

authentication mn-ha

Configures whether the FA service looks for a Mobile Network-Home Agent (MN-HA) authentication extension in the RRP (registration reply).

Product

PDSN

ASN-GW

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
authentication mn-ha { allow-noauth | always }
```

allow-noauth

Allows a reply that does not contain the auth extension.

always

A reply should always contain the auth extension to be accepted.

This is the default setting.

Usage Guidelines

Use this command to determine whether or not the FA service requires the MN-HA auth extension in the RRP.

The system is shipped from the factory with this set to always.

Example

The following command configures the FA service to require a reply to contain the authentication extension to be accepted.:

```
authentication mn-ha always
```

bind

Binds the FA service to a logical IP interface serving as the Pi interface and specifies the maximum number of subscribers that can access this service over the interface.

Product

PDSN

ASN-GW

GGSN

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
bind address address [ max-subscribers count ]
no bind address
```

address

Specifies the IP address (address) of the interface configured as the Pi interface. *address* is specified in IPv4 dotted-decimal notation.

max-subscribers *max#*

Default: 500000

Specifies the maximum number of subscribers that can access this service on this interface.

count can be configured to an integer from 0 through 500000.

Important The maximum number of subscribers supported is dependant on the license key installed and the number of active packet processing cards installed in the system. Refer to the license key command for additional information.

Usage Guidelines

Associate or tie the FA service to a specific logical IP address. The logical IP address or interface takes on the characteristics of an Pi interface. Only one interface can be bound to a service. The interface should be configured prior to issuing this command.

This command also sets a limit as to the number of simultaneous subscribers sessions that can be facilitated by the service/interface at any given time.

When configuring the **max-subscribers** option, be sure to consider the following:

- The total number of interfaces you will configure for use as Pi interfaces
- The maximum number of subscriber sessions that all of these interfaces may handle during peak busy hours
- The average bandwidth for each of the sessions
- The type of physical port (10/100Base-T or 1000Base-Tx) that these interfaces will be bound to

Taking these factors into account and distributing your subscriber session across all available interfaces will allow you to configure your interfaces to optimally handle sessions without degraded performance.

Use the **no bind address** command to delete a previously configured binding.

Example

The following command would bind the logical IP interface with the address of *192.168.3.1* to the FA service and specifies that a maximum of *600* simultaneous subscriber sessions can be facilitated by the interface/service at any given time.

```
bind address 192.168.3.1 max-subscribers 600
```

The following command disables a binding that was previously configured:

```
no bind address
```

challenge-window

Defines the number of recently sent challenge values that are considered valid by the FA.

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Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

challenge-window *number*

number

Default: 2

The number of recently sent challenge values that are considered valid. *number* must be an integer from 1 through 5.

Usage Guidelines

Use this command to set the number of recently sent challenge values that are considered valid by the FA.

Example

Set the challenge window to *3*:

challenge-window 3

default subscriber

Specifies the name of a subscriber profile configured within the same context as the FA service from which to base the handling of all other subscriber sessions handled by the FA service.

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Privilege

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Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

[no] default subscriber *profile_name*

profile_name

Specifies the name of the configured subscriber profile. *profile_name* is an alphanumeric string of 1 through 63 characters that is case sensitive.

Usage Guidelines

Each subscriber profile specifies "rules" such as permissions, PPP settings, and timeout values.

By default, the FA service will use the information configured for the subscriber named default within the same context. This command allows for multiple FA services within the same context to apply different "rules" to sessions they process. Each set of rules can be configured under a different subscriber name which is pointed to by this command.

Use the **no default subscriber** *profile_name* command to delete the configured default subscriber.

Example

To configure the FA service to apply the rules configured for a subscriber named *user1* to every other subscriber session it processes, enter the following command:

```
default subscriber user1
```

dynamic-ha-assignment

This command configures various dynamic HA assignment parameters.

Product

HA

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
[ default | no ] dynamic-ha-assignment [ aaa-override mn-supplied-ha-addr
 | allow-failover ]
```

default

Feature is disabled by default.

no

Removes the feature and returns it to the default setting of disabled.

aaa-override mn-supplied-ha-addr

Enables the system to override the mobile node supplied HA IP address with the AAA provided HA address.

allow-failover

Enables/disables a failover retry for dynamic HA assignment from the AAA server.

Usage Guidelines

Use this command to override the mobile node supplied HA IP address with the AAA supplied HA address.

Use this command to enable or disable the failover feature that allows the system to receive and use a newer HA address from the AAA server in cases where the original HA address is not responding.

A AAA server may assign different HA addresses each time a retransmitted MIP RRQ is authenticated during the MIP session setup. When this configuration is enabled, if the FA gets a new HA address from AAA during setup, it discards the previous HA address and start using the new address. This allows the FA session to connect to an available HA during setup.

Example

The following command enables the failover feature that allows the system to receive and use a newer HA address from the AAA server:

```
dynamic-ha-assignment allow-failover
```

dynamic-mip-key-update

When enabled, the FA service processes MIP_Key_Update_Request from the AAA server and allows dynamic MIP key updates (DMUs).

Default: Disabled

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Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
[ no ] dynamic-mip-key-update
```

no

The FA service rejects MIP_Key_Update_Request from the AAA server, not allowing dynamic MIP key updating to occur and terminates the call.

Usage Guidelines

Use this command to enable or disable the DMU feature in the FA service.

Example

To enable DMU and allow dynamic updates of MIP keys, enter the following command:

```
dynamic-mip-key-update
```

encapsulation allow gre

Enables or disables the use of generic routing encapsulation (GRE) when establishing a Mobile IP (MIP) session. When enabled, if requested by a Mobile Node (MN), the FA requests the HA to use GRE encapsulation when establishing the MIP session. When disabled, the FA does not set the GRE bit in Agent Advertisements to the MN.

Default: GRE is enabled.

Product

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Privilege

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Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
[ no ] encapsulation allow gre
```

Usage Guidelines

Use to disable or re-enable the use of GRE encapsulation for MIP sessions.

Example

To re-enable GRE encapsulation for MIP sessions, enter the following command:

```
encapsulation allow gre
```

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

```
end
```

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description **exit**

Usage Guidelines Use this command to return to the parent configuration mode.

fa-ha-spi

Configures the security parameter index (SPI) between the FA service and the HA.

Product PDSN

ASN-GW

GGSN

PDIF

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
fa-ha-spi remote-address { ha_ip_address | ip_addr_mask_combo } spi-number number
 { encrypted secret enc_secret | secret } [ description string |
hash-algorithm { hmac-md5 | md5 | rfc2002-md5 } | monitor-ha |
replay-protection { timestamp | nonce } | timestamp-tolerance tolerance ]
 no fa-ha-spi remote-address { ha_ip_address | ip_addr_mask_combo } spi-number
number
```

remote-address { *ha_ip_address* | *ip_addr_mask_combo* }

ha_ip_address: Specifies the IP address of the HA in IPv4 dotted-decimal notation.

ip_addr_mask_combo: Specifies the IP address of the HA including network mask bits. *ip_addr_mask_combo* must be specified IPv4 dotted-decimal notation with CIDR subnet mask bits (x.x.x.x/xx).

spi-number *number*

Specifies the Security Parameter Index (SPI) which indicates a security context between the FA and the HA in accordance with RFC 2002.

number can be configured to an integer from 256 through 4294967295.

encrypted secret *enc_secret* | secret *secret*

Configures the shared-secret between the FA service and the HA. The secret can be either encrypted or non-encrypted.

- **encrypted secret** *enc_secret* : Specifies the encrypted shared key (enc_secret) between the FA service and the HA. *enc_secret* must be an alphanumeric string of 1 through 254 characters that is case sensitive.

Important The **encrypted** keyword is intended only for use by the system while saving configuration scripts. The system displays the **encrypted** keyword in the configuration file as a flag that the variable following the **secret** keyword is the encrypted version of the plain text secret key. Only the encrypted secret key is saved as part of the configuration file.

- **secret** *secret*: Specifies the shared key (secret) between the FA service and the HA. *secret* must be an alphanumeric string of 1 through 127 characters that is case sensitive.

description *string*

This is a description for the SPI. *string* must be an alphanumeric string of 1 through 31 characters.

hash-algorithm { hmac-md5 | md5 | rfc2002-md5 }

Default: hmac-md5

Specifies the hash-algorithm used between the FA service and the HA.

- **hmac-md5**: Configures the hash-algorithm to implement HMAC-MD5 per RFC 2002bis.
- **md5**: Configures the hash-algorithm to implement MD5 per RFC 1321.
- **rfc2002-md5**: Configures the hash-algorithm to implement keyed-MD5 per RFC 2002.

monitor-ha

Default: disabled

Enables the HA monitor feature for this HA address.

To set the behavior of the HA monitor feature, refer to the **ha-monitor** command in this chapter. To disable this command (if enabled) for this HA address, re-enter the entire **fa-ha-spi** command without the **monitor-ha** keyword.

replay-protection { timestamp | nonce }

Default: timestamp

Specifies the replay-protection scheme that should be implemented by the FA service for this SPI.

- **nonce**: Configures replay protection to be implemented using NONCE per RFC 2002. Nonce is an arbitrary number used only once to sign a cryptographic communication.
- **timestamp**: Configures replay protection to be implemented using timestamps per RFC 2002.

Important This keyword should only be used in conjunction with Proxy Mobile IP support.

timestamp-tolerance *tolerance*

Default: 60

Specifies the allowable difference (tolerance) in timestamps that is acceptable. If the difference is exceeded, then the session will be rejected. If this is set to 0, then timestamp tolerance checking is disabled at the receiving end.

tolerance is measured in seconds and can be configured to an integer value from 0 through 65535.

Important This keyword should only be used in conjunction with Proxy Mobile IP support.

+

More than one of the above keywords can be entered within a single command.

Usage Guidelines

An SPI is a security mechanism configured and shared by the FA service and the HA. Please refer to RFC 2002 for additional information.

Though it is possible for FAs and HAs to communicate without SPIs being configured, the use of them is recommended for security purposes. It is also recommended that a "default" SPI with a remote address of 0.0.0.0/0 be configured on both the HA and FA to prevent hackers from spoofing addresses.

Important The SPI configuration on the HA must match the SPI configuration for the FA service on the system in order for the two devices to communicate properly.

A maximum of 2,048 SPIs can be configured per FA service.

Use the **no** version of this command to delete a previously configured SPI.

Example

The following command configures the FA service to use an SPI of *512* when communicating with an HA with the IP address *192.168.0.2*. The key that would be shared between the HA and the FA service is *q397F65*. When communicating with this HA, the FA service will also be configured to use the *rfc2002-md5* hash-algorithm.

```
fa-ha-spi remote-address 192.168.0.2 spi-number 512 secret q397F65
hash-algorithm rfc2002-md5
```

The following command deletes the configured SPI of *400* for an HA with an IP address of *172.100.3.200*:

```
no fa-ha-spi remote-address 172.100.3.200 spi-number 400
```

gre

Configures Generic Routing Encapsulation (GRE) parameters.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
gre { checksum | checksum-verify | reorder-timeout timeout | sequence-mode
 { none | reorder } | sequence-numbers }
no gre { checksum | checksum-verify | sequence-numbers }
```

no

Disables the specified functionality.

checksum

Default: disabled

Enables the introduction of the checksum field in outgoing GRE packets.

checksum-verify

Default: disabled

Enables verification of the GRE checksum (if present) in incoming GRE packets.

reorder-timeout *timeout*

Default: 100

Configures maximum number of milliseconds to wait before processing reordered out-of-sequence GRE packets. *timeout* must be an integer from 0 through 5000.

sequence-mode { none | reorder }

Default: none

Configures how incoming out-of-sequence GRE packets should be handled.

none: Disables reordering of incoming out-of-sequence GRE packets.

reorder: Enables reordering of incoming out-of-sequence GRE packets.

sequence-numbers

Default: Disabled.

Enables insertion or removal of GRE sequence numbers in GRE packets.

Usage Guidelines Use this command to configure how the FA service handles GRE packets.

Example

To set maximum number of milliseconds to wait before processing reordered out-of-sequence GRE packets to *500* milliseconds, enter the following command:

```
gre reorder-timeout 500
```

To enable the reordering of incoming out of sequence GRE packets, enter the following command:

```
gre sequence-mode reorder
```

ha-monitor

Configures the behavior of the HA monitor feature.

Product PDSN

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FA

HA

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
[ default ] ha-monitor [ interval sec | max-inactivity-time sec | num-retry num ]
no ha-monitor
```

default

Restores the system default setting(s) for the command/keyword(s). This command is disabled by default.

no

Disables the HA monitoring feature for this FA service.

interval *sec*

Default: 30

Configures the time interval before the next monitoring request message is sent to the HA.

sec must be an integer from 1 through 36000.

max-inactivity-time *sec*

Default: 60

Specifies the maximum amount of time the system will wait without receiving MIP control traffic from a HA before the HA monitoring mechanism is triggered.

sec must be an integer from 30 through 600.

num-retry *num*

Default: 5

Configures the number of time the system will attempt to send HA monitor requests before determining the HA is down and a trap is initiated.

num must be an integer from 0 through 10.

Usage Guidelines

Use this command to set parameters for the HA monitor feature. This feature allows the AGW/FA to monitor HAs with which it has MIP sessions. The monitoring feature is triggered when the AGW/FA does not receive any MIP traffic from a HA for a configured amount of time (**max-inactivity-time**). The AGW/FA starts sending special MIP RRQ monitor messages and waits for RRP monitor message responses from the HA. The RRQ monitor messages are addressed to the HA service address. The source address of the monitor-request messages is the FA service's IP address.

The actions taken during monitoring are comprised of the following:

- If no monitor response is received during the interval time (**interval**), the AGW retransmits the monitor message a configured number of times (**num-retry**).
- If no response is received after retransmitting for the number configured in **num-retry**, the HA is considered down. The AGW/FA sends a trap (HAUnreachable) to the management station. Monitoring of this HA is stopped until a MIP control message is received from the particular HA and when the AGW/FA sends a trap (HAreachable) to the management station and starts monitoring the HA again.
- When an HA receives the RRQ from an FA, it verifies the message and identifies it as a monitor message based on a special reserved NAI (in the message) and a Monitor HA CVSE in the RRQ. The HA responds with an RRP with Reply code 0x00 (accepted) and includes the Monitor HA CVSE. When the FA receives the RRP from the HA, it updates the activity for the peer HA to maintain the "up" state.

Important This command only sets the behavior of the HA monitor feature. To enable the HA monitor feature for each HA address, refer to the **fa-ha-spi** command in this chapter. Up to 256 HAs can be monitored per system.

Example

The following commands set the HA monitor message interval to *45* seconds, the HA inactivity time to *60* seconds, and the number of HA monitor retries to *6*:

```
ha-monitor interval 45
ha-monitor max-inactivity-time 60
ha-monitor num-retry 6
```

idle-timeout-mode

Controls whether Mobile IP data and control packets or only Mobile IP data resets the session idle timer.

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

`idle-timeout-mode { aggressive | normal }`

aggressive

Only Mobile IP data resets the session idle timer.

normal

Both Mobile IP data and control packets reset the session idle timer.

Usage Guidelines

Use this command to control how the session idle timer is reset.

Example

The following command specifies that only Mobile IP data can reset the session idle timer:

`idle-timeout-mode aggressive`

ignore-mip-key-data

When this command is enabled, if the Dynamic Mobile IP Key Update (DMU) is not enabled and the mobile node (MN) sends a MIP_Key_Data CVSE, the FA ignores the MIP_Key_Data extension and the call is continued like a regular Mobile IP (MIP) call.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

[no] ignore-mip-key-data

no

Disable ignoring of MIP key data.

Usage Guidelines

When DMU is not enabled, use this command to ignore MIP key data sent by the MN and allow the call to continue normally.

Example

To enable the FA to ignore MIP key data sent by the MN, enter the following command:

ignore-mip-key-data

ignore-stale-challenge

Enables the system to accept RRQs with previously used challenges. This feature is disabled by default.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

[no] ignore-stale-challenge

no

Disables this feature. If an RRQ is received with a previously used challenge and there are RRQs pending on the same session, accept the RRQ if it has a new Identification in the retransmitted RRQ. All other RRQs received with previously used challenge are rejected with the Stale Challenge (106) error code.

Usage Guidelines

Use this command to allow the FA to accept stale challenges regardless of the ID field or if other RRQs are pending.

Example

To enable this functionality in the FA service, enter the following command;

```
ignore-stale-challenge
```

To disable this functionality, enter the following command;

```
no ignore-stale-challenge
```

ip local-port

Configures the local User Datagram Protocol (UDP) port for the Pi interfaces' IP socket on which to listen for Mobile IP Registration messages.

Product

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Privilege

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Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

ip local-port *port#*

port#

Specifies the UDP port number.

port# can be an integer from 1 through 65535.

Usage Guidelines

Specify the UDP port that should be used for communications between the FA service and the HA.

The system defaults to using local port 434.

Example

The following command specifies a UDP port of *3950* for FA-to-HA communication on the Pi interface:

```
ip local-port 3950
```

isakmp

Configures support for IPSec within the FA-service.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

isakmp {peer-ha *ha_address* **{ crypto map** *map_name* **[[encrypted] secret** *secret* **] } | default { crypto map** *map_name* **[[encrypted] secret** *secret* **] } }**
no isakmp { peer-ha *peer_ip_address* **| default }**

no

Deletes the reference to the crypto map for the specified HA, or deletes the reference for the default crypto map.

peer-ha *ha_address* { crypto map *map_name* [[encrypted] secret *preshared_secret*] }

Configures a crypto map for a peer HA.

- *ha_address*: The IP address of the HA with which the FA service will establish an IPSec SA. The address must be expressed in IPv4 dotted-decimal format.
- **crypto map** *map_name*: The name of a crypto map configured in the same context that defines the IPSec tunnel properties. *map_name* is the name of the crypto map expressed as an alphanumeric string of 1 through 127 characters.
- **encrypted**: This keyword is intended only for use by the system while saving configuration scripts. The system displays the **encrypted** keyword in the configuration file as a flag that the variable following the **secret** keyword is the encrypted version of the plain text secret key. Only the encrypted secret key is saved as part of the configuration file.
- **secret** *secret*: The pre-shared secret that will be used during the IKE negotiation. *preshared_secret* is the secret expressed as an alphanumeric string of 1 through 127 characters.

default { crypto map *map_name* [[encrypted] secret *secret*] }

Specifies the default crypto map to use when there is no matching crypto map configured for an HA address.

- **crypto map** *map_name*: The name of a crypto map configured in the same context that defines the IPSec tunnel properties. *map_name* is the name of the crypto map expressed as an alphanumeric string of 1 through 127 characters.

- **encrypted**: This keyword is intended only for use by the system while saving configuration scripts. The system displays the **encrypted** keyword in the configuration file as a flag that the variable following the **secret** keyword is the encrypted version of the plain text secret key. Only the encrypted secret key is saved as part of the configuration file.
- **secret** *secret*: The pre-shared secret that will be used during the IKE negotiation. *preshared_secret* is the secret expressed as an alphanumeric string of 1 through 127 characters.

Usage Guidelines

Use this command to configure the FA-service's per-HA IPSec parameters. These dictate how the FA service is to establish an IPSec SA with the specified HA.

Important For maximum security, the above command should be executed for every possible HA with which the FA service communicates.

A default crypto map can also be configured using the default keyword. The default crypto map is used in the event that the AAA server returns an HA address that is not configured as an isakmp peer-ha.

Important For maximum security, the default crypto map should be configured in addition to peer-ha crypto maps instead of being used to provide IPSec SAs to all HAs.

Note that once an IPSec tunnel is established between the FA and HA for a particular subscriber, all new Mobile IP sessions using the same FA and HA are passed over the tunnel regardless of whether or not IPSec is supported for the new subscriber sessions. Data for existing Mobile IP sessions is unaffected.

Example

The following command creates a reference for an HA with the IP address *10.2.3.4* to a crypto map named *map1*:

```
isakmp peer-ha 10.2.3.4 crypto map map1
```

The following command deletes the crypto map reference for the HA with the IP address *10.2.3.4*.

```
no isakmp peer-ha 10.2.3.4
```

limit-reg-lifetime

Enable the current default behavior of limiting the Mobile IP (MIP) lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts. When disabled, this command allows a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

[no | default] limit-reg-lifetime

no

Allows a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts.

default

Enables the default behavior of limiting the MIP lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts.

Usage Guidelines

Use the no keyword with this command to allow a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts.

Use the base command or the keyword to reset the FA service to the default behavior of limiting the MIP lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts.

Example

Configure the FA service to allow a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts by entering the following command:

no limit-reg-lifetime

Configure the FA service to the default behavior of limiting the MIP lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts by entering either of the following commands:

```
default limit-reg-lifetime
limit-reg-lifetime
```

max-challenge-len

For mobile subscribers, the FA generates a random number and sends it to the mobile node as part of the mobile authentication extension (Mobile-Foreign Authentication extension) as described in RFC 3012. This command sets the maximum length of the FA challenge in bytes.

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Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

max-challenge-len *length*

length

Default: 16

The maximum length, in bytes, of the FA challenge. This value must be an integer from 4 through 32.

Usage Guidelines

Change the maximum allowed length of the randomly generated FA challenge its default of 16.

Example

Use the following command to change the maximum length of the FA challenge to 18 bytes:

max-challenge-len 18

mn-aaa-removal-indication

Enables the FA to remove the Mobile Network-Final Assembly Code (MN-FAC) and MN-AAA extensions from RRQs. This is disabled by default.

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Privilege

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Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

[no] mn-aaa-removal-indication

no

Disable the removal of the MN-FAC and MN-AAA extensions from RRQs.

Usage Guidelines

Enable this feature if there is no need to authenticate the subscriber at HA using MN-AAA extension.

Example

The following command enables the FA service to remove MN-FAC and MN-AAA extensions from RRQs:

mn-aaa-removal-indication

multiple-reg

Specifies the number of simultaneous Mobile IP sessions that will be supported for over a single PPP session.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

multiple-reg *number*

number

number can be configured to an integer from 1 through 3.

Usage Guidelines

Use to support multiple registrations per subscriber.

The system defaults to a setting of "1" for multiple simultaneous MIP sessions.

Important The system will only support multiple Mobile IP sessions per subscriber if the subscriber's mobile node has a static IP address. The system will only allow a single Mobile IP session for mobile nodes that receive a dynamically assigned IP address. In addition, because only a single Mobile IP or proxy-Mobile IP session is supported for IP PDP contexts, this parameter must remain at its default configuration.

Example

The following command configures the number of supported simultaneous registrations for subscribers using this FA service to *3*.

multiple-reg 3

optimize tunnel-reassembly

Configures FA to HA optimization for tunnel reassembly.

Product

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Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
[ no ] optimize tunnel-reassembly
```

Usage Guidelines

Enabling this functionality fragments large packets prior to encapsulation for easier processing. Tunnel reassembly optimization is disabled by default.

Important You should not use this command without first consulting Cisco Systems Technical Support. This command applies to very specific scenarios where packet reassembly is not supported at the far end of the tunnel. There are cases where the destination network may either discard the data, or be unable to reassemble the packets.

Important This functionality works best when the FA service is communicating with an HA service running in a system. However, an FA service running in the system communicating with an HA from a different manufacturer will operate correctly even if this parameter is enabled.

Use the **no** version of this command to disable tunnel optimization if it was previously enabled.

Example

The following command enables tunnel reassembly optimization:

```
optimize tunnel-reassembly
```

private-address allow-no-reverse-tunnel

This command enables the FA to allow calls with private addresses and no reverse tunneling.

Product

PDSN

ASN-GW

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

[no] private-address allow-no-reverse-tunnel

no

Disables the functionality. This is the default setting.

Usage Guidelines

Use this command to let the FA allow sessions with private addresses that do not have the reverse tunnel bit set.

Example

To enable sessions with private addresses and no reverse tunneling, enter the following command:

private-address allow-no-reverse-tunnel

proxy-mip

Configures parameters pertaining to Proxy Mobile IP support.

Product

PDSN

ASN-GW

GGSN

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fa-service)#`

Syntax Description

proxy-mip { allow | ha-failover [max-attempts *max_attempts* **|**
num-attempts-before-switching *num_attempts* **| timeout seconds]|**
max-retransmissions number | renew-percent-time *renew-time* **|**
retransmission-timeout *time* **}**

```
no proxy-mip {allow | ha-failover }
default proxy-mip { allow | ha-failover | max-retransmissions |
renew-percent-time | retransmission-timeout }
```

no

Disables FA service support for Proxy Mobile IP or HA failover for Proxy Mobile IP.

default

Restores the specified option to the default setting as described below.

allow

Default: Disabled

Enables FA service support for Proxy Mobile IP.

ha-failover [max-attempts *max_attempts* | num-attempts-before-switching *num_attempts* | timeout *seconds*]

Default: Disabled

Enables HA failover for the Proxy Mobile IP feature.

- **max-attempts** *max_attempts* - Configures the maximum number of retransmissions of Proxy MIP control messages. *max_attempts* must be an integer from 1 through 10. Default is 4
- **num-attempts-before-switching** *num_attempts* - Configures the total number of RRQ attempts (including retransmissions) before failing over to the alternate HA. *num_attempts* must be an integer from 1 through 5. Default is 2.
- **timeout** *seconds* - Configures the retransmission timeout (in seconds) of Proxy MIP control messages when failover happens. *seconds* must be an integer from 1 through 50. Default is 2

max-retransmissions *number*

Default: 5

Configures the maximum number re-try attempts that the FA service is allowed to make when sending Proxy Mobile IP Registration Requests to the HA.

number is the maximum number of retries and can be configured to an integer from 1 through 4294967295.

renew-percent-time *renew-time*

Default: 75

Configures the amount of time that must pass prior to the FA sending a Proxy Mobile IP Registration Renewal Request.

renew-time is entered as a percentage of the advertisement registration lifetime configured for the FA service. (Refer to the **advertise** command in this chapter). *renew-time* can be configured to an integer from 1 through 100.

The following equation can be used to calculate *renew-time*:

renew-time = (duration / lifetime) * 100

duration = The desired amount of time that can pass prior to the FA sending a Proxy Mobile IP Registration Renewal Request

lifetime = The advertisement registration lifetime configured for the FA service.

duration / lifetime

retransmission-timeout *time*

Default: 3

Configures the maximum amount of time allowed by the FA for a response from the HA before re-sending a Proxy Mobile IP Registration Request message.

time is measured in seconds and can be configured to an integer from 1 through 100.

Usage Guidelines

The **proxy-mip** command and its keywords configure the FA services support for Proxy Mobile IP.

When enabled though the session license and feature use key, the system supports Proxy Mobile IP to provide a mobility solution for subscribers with mobile nodes (MNs) capable of supporting only Simple IP.

In addition to the parameters configured via this command, the HA-FA SPI(s) must also be modified to support Proxy Mobile IP. Refer to the **fa-ha-spi** command for more information.

Example

The following command configures the FA service to wait up to *5* seconds for an HA to respond prior to re-sending an a Mobile IP Registration Request message:

```
proxy-mip retransmission-timeout 5
```

If the advertisement registration lifetime configured for the FA service is 900 seconds and you want the system to send a Proxy Mobile IP Registration Renewal Request message after 500 seconds, then the following command must be executed:

```
proxy-mip renew-percent-time 50
```

Note that 50 = (450 / 900) 100.

reg-timeout

Configures the FA registration reply timeout.

Product

PDSN

ASN-GW

GGSN

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

reg-timeout *time*

time

Default: 45

time is measured in seconds and can be configured to an integer from 1 through 65535.

Usage Guidelines

Configure the amount of time that the FA service will wait for a Registration Reply from an HA before the call is rejected with a reply code of 78H (registration Timeout).

Example

The following command configures a registration timeout of 10.

reg-timeout 10

reverse-tunnel

Enables the use of reverse tunneling for a Mobile IP (MIP) sessions when requested by the mobile node (MN).

Product

PDSN

ASN-GW

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

[no] reverse-tunnel

no

Indicates the reverse tunnel option is to be disabled. When omitted, the reverse tunnel option is enabled.

Usage Guidelines

Reverse tunneling involves tunneling datagrams originated by the MN to the HA via the FA service.

When an MN arrives at a foreign network, it listens for agent advertisements and selects an FA that supports reverse tunnels. The MN requests this service when it registers through the selected FA. At this time, the MN may also specify a delivery technique such as Direct or the Encapsulating Delivery Style.

The advantages of using reverse-tunneling:

- All datagrams from the mobile node seem to originate from its home network
- The FA can keep track of the HA that the mobile node is registered to and tunnel all datagrams from the mobile node to its HA

Use the **no** option of this command to disable reverse tunneling. If reverse tunneling is disabled, and the mobile node does not request it, then triangular routing is used.

The system defaults to reverse tunnel enabled.

Important If reverse tunneling is disabled on the system and an MN requests it, the call will be rejected with a reply code of 74H (reverse-tunneling unavailable).

Example

The following command disables reverse-tunneling support for the FA service:

```
no reverse-tunnel
```

revocation

Enables the MIP revocation feature and configures revocation parameters.

Product

PDSN

ASN-GW

GGSN

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > **context** *context_name* > **fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

```
revocation { enable | max-retransmission number | negotiate-i-bit |
retransmission-timeout secs | trigger internal-failure }
no revocation enable | trigger internal-failure | negotiate-i-bit
```

no

Completely disables registration revocation on the FA.

Disables sending revocation messages to the HA when a session is affected by an internal task failure.

enable

Enables the MIP registration revocation feature on the FA. When enabled, if revocation is negotiated with an HA, and a MIP binding is terminated, the FA can send a Revocation message to the HA. This feature is disabled by default.

max-retransmission *number*

Default: 3

Specifies the maximum number of retransmissions of a Revocation message before the revocation fails. *number* must be an integer from 0 through 10.

negotiate-i-bit

Default: disabled

Enables the FA to negotiate the i-bit via PRQ/RRP messages and processes the i-bit revocation messages.

retransmission-timeout *secs*

Default: 3

Specifies the number of seconds to wait for a Revocation Acknowledgement from the HA before retransmitting the Revocation message. *secs* must be an integer from 1 through 10.

trigger internal-failure

Default: disabled

Enable sending a revocation message to the HA for all sessions that are affected by an internal task failure.

Usage Guidelines

Use this command to enable or disable the MIP revocation feature on the FA or to change settings for this feature. Both the HA and the FA must have Registration Revocation enabled and FA/HA authorization must be in use for Registration Revocation to be negotiated successfully.

Example

The following command enables Registration Revocation on the FA:

```
revocation enable
```

The following command sets the maximum number of retries for a Revocation message to 6:

```
revocation max-retransmission 6
```

The following command sets the timeout between retransmissions to 10:

```
revocation retransmission-timeout 10
```

threshold reg-reply-error

Set an alarm or alert based on the number of registration reply errors per FA service.

Product

PDSN

ASN-GW

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context *context_name* **> fa-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

Syntax Description

threshold reg-reply-error *high_thresh* **[clear** *low_thresh* **]**
no threshold reg-reply-error

no

Deletes the alert or alarm.

high_thresh

Default: 0

The high threshold number of registration reply errors that must be met or exceeded within the polling interval to generate an alert or alarm. *high_thresh* can be an integer from 0 through 100000.

Important You must enter a value between 1 and 100000 to trigger an alert/alarm.

clear *low_thresh*

Default:0

The low threshold number of registration reply errors that must be met or exceeded within the polling interval to clear an alert or alarm. *low_thresh* can be an integer from 0 through 100000.

Important This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Important You must enter a value between 1 and 100000 to trigger an alert/alarm.

Usage Guidelines

Use this command to set an alert or an alarm when the number of registration reply errors is equal to or greater than a specified number of calls per second.

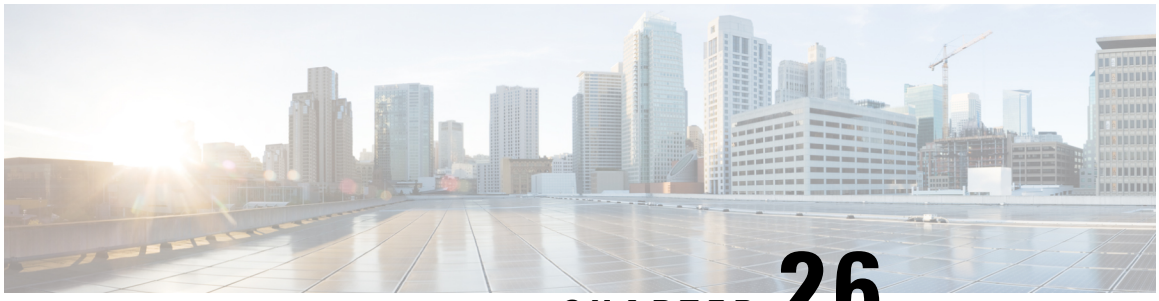
Alerts or alarms are triggered for the number of registration reply errors on the following rules:

- **Enter condition**: Actual number of registration reply errors > High Threshold
- **Clear condition**: Actual number of registration reply errors £ Low Threshold

Example

The following command configures a registration reply error threshold of *1000* and a low threshold of *500* for a system using the Alarm thresholding model:

```
threshold reg-reply-error 1000 clear 500
```



CHAPTER 26

FNG Service Configuration Mode Commands

Command Modes

The FNG Service Configuration Mode is used to configure the properties required for the Femto Network Gateway (FNG) to interface with the Femto Access Points (FAPs) in the network.

Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fng-service)#
```

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

aaa aggregation

Sets the system attributes for A12 aggregation for the FNG service.

Product

FNG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fng-service)#
```

Syntax Description

```
aaa aggregation { interface type a12| destination address ipv4_address |
a12-group { context name [ aaa-group name ] | aaa-group name [ context name ]
 } }
no aaa aggregation interface type a12
no a12 destination address ipv4_address
no aaa aggregation a12-group { context name [ aaa-group name ] | aaa-group
 name [ context name ] }
```

aaa aggregation interface type *a12*

Enables A12 aggregation functionality for the FNG service.

aaa aggregation interface a12 destination address *ipv4_address*

Adds a destination address for an AN-AAA server for A12 aggregation. A maximum of ten destination addresses can be configured.

aaa aggregation a12-group { context *name* [aaa-group *name*] | aaa-group [context *name*] }

Defines the AAA context and AAA group to be used for A12 aggregation.

If the context name and AAA group are not specified, the FNG defaults to the FNG service context and the default AAA group in that context. If the AAA group is specified but the context is not specified, the FNG uses the FNG service context and the AAA group in that context. If the AAA group is not specified and the context is specified, the FNG uses the default AAA group in that context.

no aaa aggregation interface type *a12*

Disables A12 aggregation functionality for the FNG service.

no aaa aggregation a12-destination address *ipv4_address*

Deletes the specified destination address for an AN-AAA server.

no aaa aggregation a12-group { context *name* [aaa-group *name*] | aaa-group [context *name*] }

Deletes the specified AAA context and AAA group to be used for A12 aggregation.

Usage Guidelines

Sets the system attributes for AAA aggregation in the FNG service.

Example

The following command enables the A12 functionality for the FNG service:

```
aggregation interface type a12
```

aaa authentication

Specifies the AAA group to use for FAP authentication.

Product FNG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fng-service)#
```

Syntax Description

aaa authentication { context-name *name* **aaa-group** *name* **| context-name** *name* **aaa-group** *name* **}**
no aaa authentication

no aaa authentication

Removes any existing authentication configuration.

context-name *name* aaa-group *name*

Specifies the context name and the AAA group name configured in the context for FAP authentication.

context-name *name*: Specifies the context where the AAA server group is defined as an alphanumeric string of 1 through 79 characters.

aaa-group *name*: Specifies the name of the AAA group to be used for authentication as an alphanumeric string of 1 through 63 characters.

Usage Guidelines Use this command to specify that during IPSec session establishment using IKEv2 setup, the FNG will use Radius AAA for FAP authentication.

Example

Use the following to configure device authentication for an AAA group named *aaa-10* in the FNG context named *fng1*:

```
aaa authentication context-name fng1 aaa-group aaa-10
```

bind

Binds the FNG service IP address to a crypto template and specifies the maximum number of sessions the FNG service supports.

Product FNG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fng-service)#
```

Syntax Description

bind address *ipv4_address* **{ crypto-template** *string* **}[max-sessions** *number* **]**
no bind

no bind

Removes a previously configured binding.

address *ipv4_address*

Specifies the IPv4 address of the FNG service.

crypto-template *string*

Specifies the name of the crypto template to be bound to the FNG service.

string is any value from 0 - 127 alpha and/or numeric characters.

max-sessions *number*

Specifies the maximum number of sessions to be supported by the FNG service as an integer from 0 through 1000000. Default: 1000000

If the max-sessions value is changed on an existing system, the new value takes effect immediately if it is higher than the current value. If the new value is lower than the current value, existing sessions remain established, but no new sessions are permitted until usage falls below the newly-configured value.

Usage Guidelines

Binds the IP address used as the connection point for establishing the IKEv2 sessions to a crypto template. It can also define the maximum number of sessions the FNG can support.

Example

The following command binds an FNG service with an IP address of *10.2.3.4* to the crypto template named *T1* and sets the maximum number of sessions to *500000*:

```
bind address 10.2.3.4 crypto-template T1 max-sessions 500000
```

default

Sets or restores the default condition for the selected parameter.

Product

FNG

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fng-service)#
```

Syntax Description

default { { aaa attribute 3gpp2-service-option } | duplicate-session-detection | ip source-violation { drop-limit | period } | setup-timeout | subscriber *name* **}**

aaa attribute 3gpp2-service-option

Sets or restores the default value of 4095.

duplicate-session-detection

Sets or restores the default option for duplicate session detection to be fapid-based.

ip source-violation (drop-limit | period }

Sets or restores the IP source violation detection defaults, as follows:

drop-limit: Sets or restores the maximum number of IP source violations within the detection period before dropping the call to the default value of 10.

period: Sets or restores the detection period for IP source violations to the default value of 120 seconds.

setup-timeout

Sets or restores the maximum time allowed for session setup to the default value of 60 seconds.

subscriber *name*

Sets or restores the name of the default subscriber.

name is a string of 1-127 characters.

username mac-address-stripping

The default behavior is to disable stripping the MAC address from the username.

Usage Guidelines

Configures the default settings for a given parameter.

Example

Use the following command to set the maximum time allowed for session setup to the default value of 60 seconds:

```
default setup-timeout
```

duplicate-session-detection

Configures the FNG to detect duplicate call sessions based on Femtocell Access Point (FAP) ID and to clear old call information.

This feature is disabled by default.

Product

FNG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fng-service)#
```

Syntax Description

```
duplicate-session-detection { fapid-based }
no duplicate-session-detection
default duplicate-session-detection
```

fapid-based

Sets the FNG to detect duplicate call sessions based on the FAP ID.

no duplicate-session-detection

Disables duplicate session detection.

default duplicate-session-detection

Sets or restores the default option for duplicate session detection to be fapid-based.

Usage Guidelines By default, duplicate session detection is disabled.Use this command to enable this feature. It applies only to calls established after the feature has been enabled.

The following command enables duplicate session detection based on FAP ID:

```
duplicate-session-detection fapid-based
```

end

Exits the current configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
end
```

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `exit`

Usage Guidelines Use this command to return to the parent configuration mode.

ip source-violation

Sets the parameters for IP source validation. Source validation is useful if packet spoofing is suspected or for verifying packet routing and labeling within the network.

Source validation requires the source address of received packets to match the IP address assigned to the subscriber (either statically or dynamically) during the session.

Product FNG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-fng-service)#`

Syntax Description

ip source-violation { clear-on-valid-packet | drop-limit *num* **| period** *secs* **}**
no ip source-violation clear-on-valid-packet

clear-on-valid-packet

Configures the service to reset the drop-limit counters upon receipt of a properly addressed packet. Default: disabled

drop-limit *num*

Sets the maximum number of allowed IP source violations within the detection period before dropping a call as an integer from 1 through 1000000. Default: 10

period *secs*

Sets the detection period (in seconds) for IP source violations as an integer from 1 through 1000000. Default: 120

Usage Guidelines This function allows the operator to configure the network to prevent problems such as when a user gets handed back and forth between two gateways a number of times during a handoff scenario.

When a subscriber packet is received with a source IP address violation, the system increments the IP source violation drop-limit counter and starts the timer for the IP source violation period. Every subsequent packet received with a bad source address during the IP source violation period causes the drop-limit counter to increment.

For example, if the drop-limit is set to 10, after 10 source violations, the call is dropped. The detection period timer continues to count throughout this process.

Example

The following command sets the drop limit to *15* and leaves the other values at their default values:

```
ip source-violation drop-limit 15
```

setup-timeout

Specifies the maximum time allowed to set up a session in seconds.

Product

FNG

Privilege

Security-Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context *context_name* **> fng-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fng-service)#
```

Syntax Description

setup-timeout *integer*
default setup-timeout

setup-timeout *integer*

Sets the session setup timer (in seconds) as an integer from 2 through 300. Default: 60

default

Sets or restores the default session setup timer value to 60 seconds.

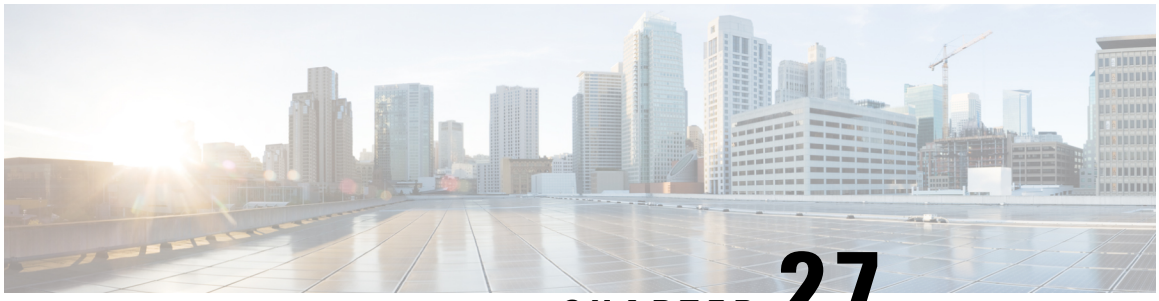
Usage Guidelines

The FNG clears both the user session and tunnels if a call does not initiate successfully before the session setup timer expires.

Example

The following command sets the session setup timeout value to the default value of 60 seconds:

```
default setup-timeout
```



CHAPTER 27

FTP Configuration Mode Commands

The FTP Configuration Mode is used to manage the FTP server options for the current context.

Command Modes

Exec > Global Configuration > Context Configuration > FTP Configuration

configure > context *context_name* **> server ftpd**

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ftpd)#
```

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

Caution

For maximum system security, you should not enable FTP functionality. SFTP is the recommended file transfer protocol. In release 20.0 and higher Trusted StarOS builds, FTP is not supported.

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.

max servers

Configures the maximum number of FTP servers that can be started within any 60 second interval. If this limit is reached, the system waits two minutes before trying to start any more servers.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FTP Configuration

configure > context *context_name* **> server ftpd**

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ftpd)#
```

Syntax Description

max servers *count*

count

Default: 40

Specifies the maximum number of servers that can be spawned in any 60-second interval. *count* must be an integer from 1 through 100.

Usage Guidelines

Set the number of servers to tune the system response as a heavily loaded system may need more servers to support the incoming requests.

The converse would be true as well in that a system can benefit by reducing the number of servers such that FTP services do not cause excessive system impact to other services.

Example

```
max servers 50
```

timeout

Configures the client idle timeout before an FTP session is automatically closed.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FTP Configuration

configure > context *context_name* **> server ftpd**

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-ftpd)#
```

Syntax Description

timeout *seconds*

seconds

Default: 900

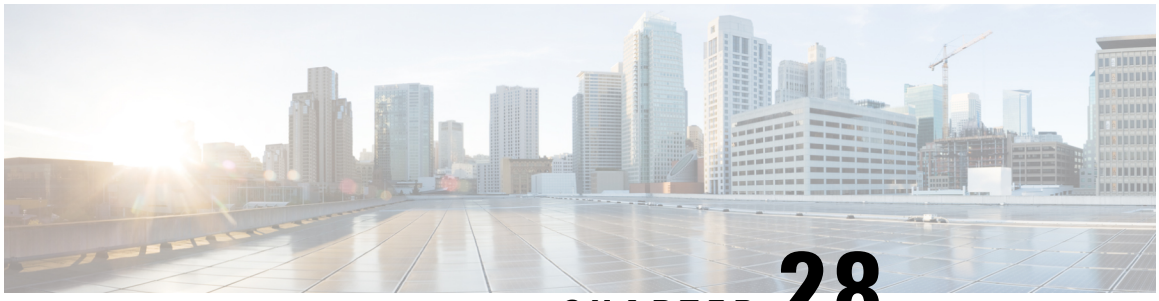
Specifies the number of seconds of inactivity before an FTP session is automatically closed. *seconds* must be an integer from 10 through 86400.

Usage Guidelines

Adjust the session timeout to fine tune the system. FTP session resources can be released sooner to support additional requests by adjusting the timeout to a smaller value.

Example

```
timeout 300
```



CHAPTER 28

Firewall-and-NAT Action Configuration Mode Commands

Command Modes

The Firewall-and-NAT Action Configuration Mode enables configuring Stateful Firewall (FW) and Network Address Translation (NAT) actions.

Exec > ACS Configuration > Firewall-and-NAT Action Configuration

active-charging service *service_name* **> fw-and-nat action** *action_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-action)#
```

Important This configuration mode is only available in release 11.0 and later releases. This configuration mode must be used to configure Action-based Stateful Firewall and NAT features.

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

end

Exits the current configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `end`

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.

flow check-point

This command checkpoints all the flows matching the Firewall-and NAT action.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Action Configuration

active-charging service *service_name* **> fw-and-nat action** *action_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-fw-and-nat-action)#`

Syntax Description

flow check-point [data-usage *data_usage* **[and | or] | time-duration** *duration* **[and | or]]**
{ default | no } flow check-point

default

Configures the default Firewall action.

no

Deletes the Firewall action configuration.

data-usage *data_usage*

Specifies the data usage in bytes.

data_usage must be an integer from 1 through 4294967295.

The maximum limit for data-usage is 4 GB.

time-duration *duration*

Specifies the time duration in seconds.

duration must be an integer from 1 through 86400.

The maximum limit for time-duration is 24 hours.

and | or

This option allows to configure only **data-usage** or **time-duration**, or a combination of **data-usage** and **time-duration**.

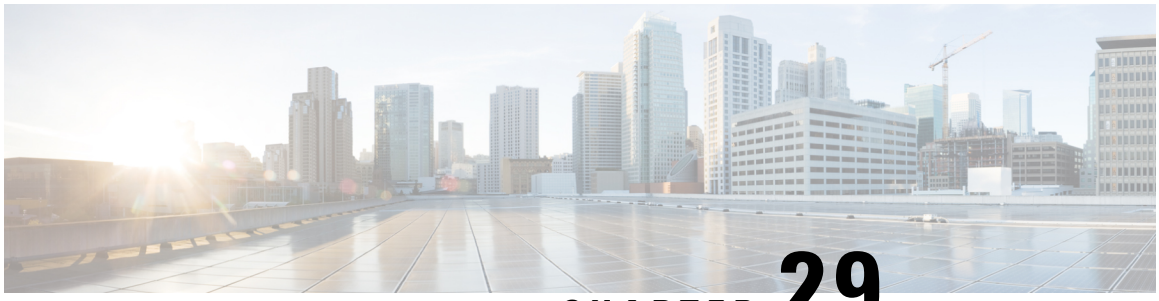
Usage Guidelines

Use this command to enable/disable the check-pointing of NATed flows and control the type of flows that need to be check pointed based on specified criteria. Check pointing is done only for TCP and UDP flows.

Example

The following command checkpoints flows with data-usage set to *5000* bytes and time duration set to *300* seconds:

```
flow check-point data-usage 5000 and time-duration 300
```



CHAPTER 29

Firewall-and-NAT Policy Configuration Mode Commands

Command Modes

The Firewall-and-NAT Policy Configuration Mode enables configuring Stateful Firewall (FW) and Network Address Translation (NAT) policies.

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Important This configuration mode is only available in 8.1, 9.0, and later releases. This configuration mode must be used to configure Policy-based Stateful Firewall and NAT features.

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

access-rule

This command creates and configures an access rule.

Product

PSF

NAT

SaMOG

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* > **fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

access-rule { no-ruledef-matches { downlink | uplink } action { deny [charging-action *charging_action* **] | permit [bypass-nat | nat-realm** *nat_realm* **[fw-and-nat-action** *name* **]] } | priority** *priority* **{ [dynamic-only | static-and-dynamic] access-ruledef** *ruledef_name* **{ deny [charging-action** *charging_action* **] | permit [[bypass-nat | nat-realm** *nat_realm* **[fw-and-nat-action** *name* **]] | trigger open-port { port_number | range** *start_port* **to** *end_port* **} direction { both | reverse | same }] } } }**
default access-rule no-ruledef-matches { downlink | uplink } action
no access-rule priority *priority*

default

Configures the default setting.

Default: Uplink direction: **permit**; Downlink direction: **deny**

no

Removes the access rule specified by the priority.

no-ruledef-matches

Configures action on packets with no ruledef match.

downlink

Specifies to act on downlink packets with no ruledef match.

uplink

Specifies to act on uplink packets with no ruledef match.

action

Specifies action to take on downlink/uplink packets with no ruledef match.

deny

Specifies to deny packets.

permit

Specifies to permit packets and allow the creation of data flows.

charging-action *charging_action*

Specifies the charging action. Optionally, a charging action can be configured for deny action. If a packet matches the deny rule, action is taken as configured in the charging action. If a charging action is specified, the content-ID and billing-action configured in the charging action are used. Also, the flow may be terminated (instead of just discarding the packet), if so configured in the specified charging action.

charging_action must be an alphanumeric string of 1 through 63 characters.

bypass-nat

Important In 9.0 and later releases, this keyword is NAT license dependent.

Specifies to bypass NAT.

nat-realm *nat_realm*

Important In 9.0 and later releases, this keyword is NAT license dependent.

Specifies the NAT realm to be used to perform NAT on subscriber packets matching the access ruledef. If the NAT realm is not specified, NAT will be bypassed. That is, NAT will not be performed on subscriber packets that are matching a ruledef with no NAT realm name configured in it.

nat_realm must be an alphanumeric string of 1 through 31 characters.

priority *priority*

Specifies priority of an access ruledef in the Firewall-and-NAT policy.

priority must be an integer from 1 through 65535 that is unique for each access ruledef in the Firewall-and-NAT policy.

[dynamic-only | static-and-dynamic] access-ruledef *ruledef_name*

Specifies the access ruledef name. Optionally, the ruledef type can also be specified.

- **dynamic-only**: Dynamic Ruledef—Predefined ruledef that can be enabled/disabled by the policy server, and is disabled by default.
- **static-and-dynamic**: Static and Dynamic Ruledef—Predefined ruledef that can be enabled/disabled by the policy server, and is enabled by default.
- **access-ruledef** *ruledef_name*: Specifies the access ruledef name. *ruledef_name* must be an alphanumeric string of 1 through 63 characters.

trigger open-port { *port_number* | range *start_port* to *end_port* } direction { both | reverse | same }

Important In 9.0 and later releases, this keyword is Stateful Firewall license dependent.

Optionally a port trigger can be specified to be used for this rule to limit the range of auxiliary data connections (a single or range of port numbers) for protocols having control and data connections (like FTP). The trigger port will be the destination port of an association which matches a rule.

- *port_number*: Specifies the auxiliary port number to open for traffic, and must be an integer from 1 through 65535.
- **range** *start_port* **to** *end_port*: Specifies the range of port numbers to open for subscriber traffic.
  - *start_port* must be an integer from 1 through 65535.
  - *end_port* must be an integer from 1 through 65535, and must be greater than *start_port*.
- **direction { both | reverse | same }**: Specifies the direction from which the auxiliary connection is initiated. This direction can be same as the direction of control connection, or the reverse of the control connection direction, or in both directions.
  - *both*: Provides the trigger to open port for traffic in either direction of the control connection.

- *reverse*: Provides the trigger to open port for traffic in the reverse direction of the control connection (from where the connection is initiated).
- *same*: Provides the trigger to open port for traffic in the same direction of the control connection (from where the connection is initiated).

Usage Guidelines

Use this command to add access ruledefs to the Firewall-and-NAT policy and configure the priority and actions for rule matching.

The policy specifies the rules to be applied on calls. The ruledefs in the policy have priorities, based on which priority matching is done.

For Stateful Firewall, the port trigger configuration is optional, and can be configured only if a rule action is permit. When a rule is matched and the rule action is permit, if the trigger is configured, the appropriate check is made. The trigger port will be the destination port of an association that matches the rule. Multiple triggers can be defined for the same port number to permit multiple auxiliary ports for subscriber traffic.

When a rule is matched and if the rule action is deny, the action taken depends on what is configured in the specified charging action. If the flow exists, flow statistics are updated and action is taken as configured in the charging action:

- If the billing action is configured as Event Data Record (EDR) enabled, an EDR is generated.
- If the content ID is configured, UDR information is updated.
- If the flow action is configured as "terminate-flow", the flow is terminated instead of just discarding the packet.

If the billing action, content ID, and flow action are not configured, no action is taken on the dropped packets.

Important For Stateful Firewall, only the terminate-flow action is applicable if configured in the specified charging action.

Allowing/dropping of packets is determined in the following sequence:

- Check is done to see if the packet matches any pinholes. If yes, no rule matching is done and the packet is allowed.
- Access ruledef matching is done. If a rule matches, the packet is allowed or dropped as per the **access-rule priority** configuration.
- If no access ruledef matches, the packet is allowed or dropped as per the **access-rule no-ruledef-matches** configuration.

For a packet dropped due to access ruledef match or no match (first packet of a flow), the charging action applied is the one configured in the **access-rule priority** or the **access-rule no-ruledef-matches** command respectively.

For action on packets dropped due to any error condition after data session is created, the charging action must be configured in the **flow any-error charging-action** command in the ACS Rulebase Configuration Mode.

The GGSN can dynamically activate or deactivate dynamic ruledefs for a subscriber based on the rule name received from a policy server. At rule match, if a rule in the policy is a dynamic rule, and if the rule is enabled

for the particular subscriber, rule matching is done for the rule. If the rule is disabled for the particular subscriber, rule matching is not done for the rule.

Example

For Stateful Firewall, the following command assigns a priority of *10* to the access ruledef *test_rule*, adds it to the policy, and permits port trigger to be used for the rule to open ports in the range of *1000* to *2000* in either direction of the control connection:

```
access-rule priority 1 access-ruledef test_rule permit trigger open-port
 range 1000 to 2000 direction both
```

end

Exits the current configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `end`

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description `exit`

Usage Guidelines Use this command to return to the parent configuration mode.

firewall dos-protection

This command configures Stateful Firewall protection for subscribers from Denial-of-Service (DoS) attacks.

Important In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

[no] firewall dos-protection { all | flooding { icmp | tcp-syn | udp } | ftp-bounce | ip-sweep { icmp | tcp-syn | udp } | ip-unaligned-timestamp | ipv6-dst-options [invalid-options | unknown-options] | ipv6-extension-hdrs [limit *extension_limit* **] | ipv6-frag-hdr nested-fragmentation | ipv6-hop-by-hop [invalid-options | jumbo-payload | router-alert | unknown-options] | mime-flood | port-scan | source-router | tcp-window-containment | teardrop | winnuke }**
default firewall dos-protection

no

Disables Stateful Firewall protection for subscribers against the specified Denial of Service (DoS) attack(s).

default

Disables Stateful Firewall protection for subscribers against all DoS attacks.

all

Enables Stateful Firewall protection for subscribers against all DoS attacks supported by the Stateful Firewall service.

The IPv6 extension headers will be enabled only if the **firewall validate-ip-options** command is enabled in the Firewall-and-NAT policy configuration.

flooding { icmp | tcp-syn | udp }

Enables protection against the specified flooding attack:

- **icmp**: Enables protection against ICMP Flood attack.
- **tcp-syn**: Enables protection against TCP Syn Flood attack.
- **udp**: Enables protection against UDP Flood attack.

ftp-bounce

Enables protection against FTP Bounce attacks.

ip-sweep { icmp | tcp-syn | udp }

Enables protection against IP Sweep attacks in the downlink direction.

- **icmp**: Enables protection against ICMP IP Sweep attack.

- **tcp-syn**: Enables protection against TCP Syn IP Sweep attack.
- **udp**: Enables protection against UDP IP Sweep attack.

IP Sweep attacks are also detected in the uplink direction. The **firewall dos-protection ip-sweep** command must be configured in the ACS Configuration mode. The configuration values for packet limit and sampling interval are common for both uplink and downlink.

ip-unaligned-timestamp

Enables protection against IP Unaligned Timestamp attacks.

ipv6-dst-options [invalid-options | unknown-options]

Drops IPv6 packets containing the IPv6 destination options header.

The following options are specified in the Destination Options extension header:

- The Tunnel Encapsulation Limit (option type: 0x04) is a destination option defined in RFC 2473.
- The Home Address option (option type: 0xC9) is part of Mobile IP processing defined in RFC 3775. This option is only valid as a Destination Option.
- The NSAP Address option (option type: 0xC3) is assigned as a Destination Option by RFC 1888 and deprecated (reclassified as historic) by RFC 4048.
- **invalid-options**: Drops IPv6 packets containing invalid IPv6 destination options.

  The following values are invalid in a Destination Options extension header option type field. Packets with these options in a Destination Options header will be dropped.

  - Value 0xC2, Jumbo Payload
  - Value 0x05, Router Alert
  - Value 0x06, Quick start
  - Value 0x07, CALIPSO

- **unknown-options**: Drops IPv6 packets containing unknown IPv6 destination options.

ipv6-extension-hdrs [limit *extension_limit*]

Default: 8

Limits the number of IPv6 extension headers in an IPv6 packet. An IPv6 packet can contain zero or more extension headers.

Firewall will not fully parse packets with unknown extension headers as the extension header format is unspecified. Under such cases, the transport protocol will be considered as **unknown**. Packets with invalid length field in the extension headers and packets with next header 0x01 (ICMPv4) will be dropped. IPv6 uses ICMPv6 of type 0x3A.

extension_limit must be an integer from 0 through 4294967295.

ipv6-frag-hdr nested-fragmentation

Drops IPv6 packets containing nested fragmentation (reassembled packets containing a fragment header).

IPv6 fragmentation is done only by the source node. An IPv6 fragment packet must have only one fragment header. Firewall will drop packets with more than one fragment header. The Reassembled packet containing a fragment header will be dropped by Firewall. As per RFC 2460, the fragment length (except for last fragment) must be a multiple of 8 octets. If not, such fragments are dropped.

ipv6-hop-by-hop [invalid-options | jumbo-payload | router-alert | unknown-options]

Drops IPv6 packets containing the hop-by-hop extension header.

The Hop-by-Hop Options extension header, if present, must be the first header to follow the IPv6 main header. This is indicated by a value of 0x00 in the next header field in the main header. The length must be expressed as a multiple of 8 octets (excluding the first 8 octets). If not, such packets will be dropped.

- **invalid-options**: Drops IPv6 packets containing invalid IPv6 hop-by-hop options.

  The following values are invalid in a Hop-by-Hop extension header option type field. Packets with these options in a hop-by-hop header will be dropped.

  - Value 0x04, Tunnel Encapsulation limit
  - Value 0xC9, Home Address Destination option
  - Value 0xC3, NSAP Address option

  The options are present in TLV (Type Length Value) format. If the length specified is invalid, then such packets will be dropped.

- **jumbo-payload**: Drops IPv6 packets with jumbo payload hop-by-hop options.

  The Jumbo Payload option (RFC 2675) has the option type value 0xC2 and is only valid as a Hop-by-Hop option. This option allows the creation of very large IP packets (packets larger than 65K bytes). If this option is allowed, the following validity checks will be done.

  - The IP payload length must be 0x00 when the Jumbo Payload option is present.
  - The Jumbo Payload option must be used only when the length is greater than 65,535; the two most significant bytes of the Jumbo length cannot be 0x00.
  - The Jumbo Payload option cannot be used in conjunction with a Fragmentation extension header.

  If any of the above checks fail, then the IPv6 packet will be dropped. The Option Type field must have 4n+2 alignment.

- **router-alert**: Drops IPv6 packets with router alert hop-by-hop options.

  The Router Alert (RFC 2711) option is used to signal the routers that a closer inspection of the packet is warranted. Denial of service (DoS) attacks can occur if an attacker sends large number of packets with this option. Only one option of this type must be present, regardless of value, per Hop-by-Hop header with 2n + 0 alignment.

- **unknown-options**: Drops IPv6 packets containing unknown IPv6 hop-by-hop options.

mime-flood

Enables protection against HTTP Multiple Internet Mail Extension (MIME) header flooding attacks.

port-scan

Enables protection against Port Scan attacks.

tcp-window-containment

Enables protection against TCP sequence number out-of-range attacks.

source-router

Enables protection against IPv4/IPv6 Source Route IP Option attacks.

This command can be used to filter IPv4/IPv6 packets containing Routing header of Type 0 (source routing). In this release, only type 0 filtering is supported.

teardrop

Enables protection against IPv4/IPv6 Teardrop attacks.

winnuke

Enables protection against WIN-NUKE attacks.

Usage Guidelines

Use this command to enable Stateful Firewall protection from different types of DoS attacks. This command can be used multiple times for different DoS attacks.

Important DoS attacks are detected only in the downlink direction.

Example

The following command enables protection from all supported DoS attacks:

```
firewall dos-protection all
```

firewall flooding

This command configures Stateful Firewall protection from Packet Flooding attacks.

Important In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall flooding { protocol { icmp | tcp-syn | udp } packet limit packets
 | sampling-interval interval }
default firewall flooding { protocol { icmp | tcp-syn | udp } packet limit
 | sampling-interval }
```

default

Configures the default setting for the specified configuration.

protocol { icmp | tcp-syn | udp }

Specifies the transport protocol:

- **icmp**: Configuration for ICMP protocol.
- **tcp-syn**: Configuration for TCP-SYN packet limit.
- **udp**: Configuration for UDP protocol.

packet limit *packets*

Specifies the maximum number of specified packets a subscriber can receive during a sampling interval.

packets must be an integer from 1 through 4294967295.

Default: 1000 packets per sampling interval for all protocols.

sampling-interval *interval*

Specifies the flooding sampling interval, in seconds.

interval must be an integer from 1 through 60.

Default: 1 second

The maximum sampling-interval configurable is 60 seconds.

Usage Guidelines

Use this command to configure the maximum number of ICMP, TCP-SYN, / UDP packets allowed to prevent the packet flooding attacks to the host.

Example

The following command ensures a subscriber will not receive more than *1000* ICMP packets per sampling interval:

```
firewall flooding protocol icmp packet limit 1000
```

The following command ensures a subscriber will not receive more than *1000* UDP packets per sampling interval on different 5-tuples. That is, if an attacker is sending lot of UDP packets on different ports or using different spoofed IP addresses, those packets will be limited to 1000 packets per sampling interval. This way only "suspected" malicious packets are limited and not "legitimate" packets.

```
firewall flooding protocol udp packet limit 1000
```

The following command ensures a subscriber will not receive more than *1000* TCP-Syn packets per sampling interval:

```
firewall flooding protocol tcp-syn packet limit 1000
```

The following command specifies a flooding sampling interval of *1* second:

```
firewall flooding sampling-interval 1
```

firewall icmp-checksum-error

This command configures Stateful Firewall action on packets with ICMP/ICMPv6 Checksum errors.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall icmp-checksum-error { drop | permit }
default firewall icmp-checksum-error
```

default

Configures the default setting.

Default: **drop**

drop

Drops packets with ICMP/ICMPv6 Checksum errors.

permit

Permits packets with ICMP/ICMPv6 Checksum errors.

Usage Guidelines

Use this command to configure Stateful Firewall action on packets with ICMP/ICMPv6 Checksum errors. This command also applies to ICMP/ICMPv6 packets with Inner IP Checksum error.

For NAT-only calls, packets with ICMP/ICMPv6 errors are dropped, and other packets are allowed.

Example

The following command configures Stateful Firewall to drop packets with ICMP/ICMPv6 Checksum errors:

```
firewall icmp-checksum-error drop
```

firewall icmp-destination-unreachable-message-threshold

This command configures a threshold on the number of ICMP/ICMPv6 error messages sent by the subscriber for a particular data flow.

Important In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

firewall icmp-destination-unreachable-message-threshold *messages* **then-block-server**
{ default | no } firewall icmp-destination-unreachable-message-threshold

default

Configures the default setting.

Default: No limit

no

Removes the previous configuration.

messages

Specifies the threshold on the number of ICMP/ICMPv6 error messages sent by the subscriber for a particular data flow. *messages* must be an integer from 1 through 100.

Usage Guidelines

Use this command to configure a threshold on the number of ICMP/ICMPv6 error messages sent by the subscriber for a particular data flow. After the threshold is reached, it is assumed that the server is not reacting properly to the error messages, and further downlink traffic to the subscriber on the unwanted flow is blocked.

Some servers that run QChat ignore the ICMP/ICMPv6 error messages (Destination Port Unreachable and Host Unreachable) from the mobiles. So the mobiles continue to receive unwanted UDP traffic from the QChat servers, and their batteries get exhausted quickly.

Example

The following command configures a threshold of *10* ICMP/ICMPv6 error messages:

```
firewall icmp-destination-unreachable-message-threshold 10
then-block-server
```

firewall icmp-echo-id-zero

This command configures Stateful Firewall action on echo packets with ICMP/ICMPv6 ID zero.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall icmp-echo-id-zero { drop | permit }
default firewall icmp-echo-id-zero
```

default

Configures the default setting.

Default: **permit**

drop

Drops packets with ICMP/ICMPv6 ID zero.

permit

Permits packets with ICMP/ICMPv6 ID zero.

Usage Guidelines

Use this command to configure Stateful Firewall action on echo packets with ICMP/ICMPv6 ID zero.

Example

The following command configures Stateful Firewall to drop packets with ICMP/ICMPv6 ID zero:

```
firewall icmp-echo-id-zero drop
```

firewall icmp-fsm

This command enables/disables Stateful Firewall's ICMP/ICMPv6 Finite State Machine (FSM).

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-fw-and-nat-policy)#`

Syntax Description

`[ default | no ] firewall icmp-fsm`

default

Configures the default setting.

Default: Enabled. Same as **firewall icmp-fsm**.

no

Disables Stateful Firewall ICMP/ICMPv6 FSM checks.

Usage Guidelines

Use this command to enable/disable Stateful Firewall ICMP/ICMPv6 FSM checks. When Stateful Firewall and ICMP/ICMPv6 FSM are enabled, ICMP/ICMPv6 reply messages for which there is no saved ICMP/ICMPv6 request message are discarded. ICMP/ICMPv6 error messages (i.e., messages containing an embedded message) for which there is no saved flow for the embedded message are discarded.

Example

The following command disables Stateful Firewall's ICMP/ICMPv6 FSM checks:

`no firewall icmp-fsm`

firewall ip-reassembly-failure

This command configures Stateful Firewall action on IPv4/IPv6 packets involved in IP Reassembly Failure scenarios.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall ip-reassembly-failure { drop | permit }
default firewall ip-reassembly-failure
```

default

Configures the default setting.

Default: **permit**

drop

Drops IPv4/IPv6 packets involved in IP reassembly failure scenarios.

permit

Permits IPv4/IPv6 packets involved in IP reassembly failure scenarios.

Usage Guidelines

Use this command to configure Stateful Firewall action on IPv4/IPv6 packets involved in IP reassembly failure scenarios such as missing fragments, overlapping offset, etc.

For NAT-only calls, packets involved in IP reassembly failure scenarios are dropped.

Example

The following command specifies to drop IPv4/IPv6 packets involved in IP reassembly failure scenarios:

```
firewall ip-reassembly-failure drop
```

firewall malformed-packets

This command configures Stateful Firewall action on malformed packets. In release 12.0, this command supports ICMPv6 and IPv6 packets.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall malformed-packets { drop | permit }
default firewall malformed-packets
```

default

Configures the default setting.

Default: **permit**

drop

Drops malformed packets.

permit

Permits malformed packets.

Usage Guidelines

Use this command to configure Stateful Firewall action on malformed packets.

For NAT-only calls, malformed packets are always permitted.

Example

The following command specifies Stateful Firewall to drop malformed packets:

```
firewall malformed-packets drop
```

firewall max-ip-packet-size

This command configures the maximum IPv4/IPv6 packet size (after IP reassembly) allowed over Stateful Firewall.

Important In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

firewall max-ip-packet-size *packet_size* **protocol { icmp | non-icmp }**
default firewall max-ip-packet-size protocol { icmp | non-icmp }

default

Configures the default setting.

Default: 65535 bytes (for both ICMP/ICMPv6 and non-ICMP/ICMPv6)

packet_size

Specifies the maximum packet size allowed by firewall. Any IPv6 packet with payload size greater than the configured value will be dropped.

packet_size must be an integer from 30000 through 65535.

protocol { icmp | non-icmp }

Specifies the transport protocol:

- **icmp**: Configuration for ICMP/ICMPv6 protocol.
- **non-icmp**: Configuration for protocols other than ICMP/ICMPv6.

Usage Guidelines

Use this command to configure the maximum IPv4/IPv6 packet size allowed for ICMP/ICMPv6 and non-ICMP/ICMPv6 packets to prevent packet flooding attacks to the host. Packets exceeding the configured size will be dropped for "Jolt" and "Ping-Of-Death" attacks.

Example

The following command allows a maximum packet size of *60000* for ICMP/ICMPv6 protocol:

```
firewall max-ip-packet-size 60000 protocol icmp
```

firewall mime-flood

This command configures Stateful Firewall protection from MIME Flood attacks.

Important

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

firewall mime-flood { http-headers-limit *max_limit* **| max-http-header-field-size** *max_size* **}**

```
default firewall mime-flood { http-headers-limit |
max-http-header-field-size }
```

default

Configures the default setting for the specified parameter.

http-headers-limit *max_limit*

Specifies the maximum number of headers allowed in an HTTP packet. If the number of HTTP headers in a page received is more than the specified limit, the request will be denied.

max_limit must be an integer from 1 through 256.

Default: 16

max-http-header-field-size *max_size*

Specifies the maximum header field size allowed in the HTTP header, in bytes. If the size of HTTP header in the received page is more than the specified number of bytes, the request will be denied.

max_size must be an integer from 1 through 8192.

Default: 4096 bytes

Usage Guidelines

Use this command to configure the maximum number of headers allowed in an HTTP packet, and the maximum header field size allowed in the HTTP header to prevent MIME flooding attacks.

This command is only effective if Stateful Firewall DoS protection for MIME flood attacks has been enabled using the **firewall dos-protection mime-flood** command, and the **route** command has been configured to send HTTP packets to the HTTP analyzer.

Example

The following command sets the maximum number of headers allowed in an HTTP packet to *100*:

```
firewall mime-flood http-headers-limit 100
```

The following command sets the maximum header field size allowed in the HTTP header to *1000* bytes:

```
firewall mime-flood max-http-header-field-size 1000
```

firewall policy

This command enables/disables Stateful Firewall support in a Firewall-and-NAT policy.

Important

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

In 11.0 and earlier releases:

```
firewall policy firewall-required
no firewall policy
```

In 12.0 and later releases:

```
firewall policy { ipv4-and-ipv6 | ipv4-only | ipv6-only }
{ default | no } firewall policy
```

default

Disables IPv4 and IPv6 Stateful Firewall support in the Firewall-and-NAT policy.

no

Disables IPv4 and IPv6 Stateful Firewall support in the Firewall-and-NAT policy.

firewall-required

Enables Stateful Firewall support in the Firewall-and-NAT policy.

Important This keyword is available only in 11.0 and earlier releases.

ipv4-and-ipv6

Enables both IPv4 and IPv6 Stateful Firewall support in the Firewall-and-NAT policy.

ipv4-only

Enables IPv4 Stateful Firewall and disables IPv6 Stateful Firewall in the Firewall-and-NAT policy.

ipv6-only

Enables IPv6 Stateful Firewall and disables IPv4 Stateful Firewall support in the Firewall-and-NAT policy.

Usage Guidelines

Use this command to enable/disable IPv4 and/or IPv6 Stateful Firewall support for all subscribers using a Firewall-and-NAT policy.

Example

The following command enables IPv4 and IPv6 Stateful Firewall support in a Firewall-and-NAT policy:

```
firewall policy ipv4-and-ipv6
```

The following command disables Stateful Firewall support in a Firewall-and-NAT policy:

```
no firewall policy
```

firewall tcp-checksum-error

This command configures Stateful Firewall action on packets with TCP Checksum error.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall tcp-checksum-error { drop | permit }
default firewall tcp-checksum-error
```

default

Configures the default setting.

Default: **drop**

drop

Drops packets with TCP Checksum errors.

permit

Permits packets with TCP Checksum errors.

Usage Guidelines

Use this command to configure Stateful Firewall action on packets with TCP Checksum error.

For NAT-only calls, packets with TCP Checksum errors are permitted.

Example

The following command specifies Stateful Firewall to drop packets with TCP Checksum errors:

```
firewall tcp-checksum-error drop
```

firewall tcp-first-packet-non-syn

This command configures Stateful Firewall action on TCP flows starting with a non-SYN packet.

Important In release 9.0, this command is deprecated. This configuration is available as the **firewall tcp-fsm [first-packet-non-syn { drop | permit | send-reset }]** command.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall tcp-first-packet-non-syn { drop | reset }
default firewall tcp-first-packet-non-syn
```

default

Configures the default setting.

Default: **drop**

drop

Drops the non-SYN packet.

reset

Sends reset.

Usage Guidelines

Use this command to configure Stateful Firewall action on TCP flows starting with a non-SYN packet.

Example

For flows starting with a non-SYN packet, the following command specifies Stateful Firewall to drop the non-SYN packet:

```
firewall tcp-first-packet-non-syn drop
```

firewall tcp-fsm

This command enables/disables Stateful Firewall's TCP Finite State Machine (FSM).

Product PSF

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description **firewall tcp-fsm [first-packet-non-syn { drop | permit | send-reset }] { default | no } firewall tcp-fsm**

default

Configures the default setting.

Default: **drop**

no

Disables Stateful Firewall's TCP FSM.

first-packet-non-syn { drop | permit | send-reset }

Specifies Stateful Firewall action on TCP flows starting with a non-SYN packet:

- **drop**: Specifies to drop the packet.
- **permit**: Specifies to permit the packet.
- **send-reset**: Specifies to drop the packet and send TCP RST.

Default: **drop**

Usage Guidelines Use this command to enable/disable Stateful Firewall's TCP FSM checks. When Stateful Firewall and TCP FSM are enabled, state of the TCP session is checked to decide whether to forward TCP packets.

Example

The following command enables TCP FSM, and configures action to take on TCP flows starting with a non-SYN packet to drop the packet:

```
firewall tcp-fsm first-packet-non-syn drop
```

firewall tcp-idle-timeout-action

This command configures action on TCP idle timeout expiry.

Important In release 9.0 and later this command is also available to NAT.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

firewall tcp-idle-timeout-action { drop | reset }
{ default | no } firewall tcp-idle-timeout-action

default

Configures the default setting.

Default: **reset**

no

Configures the TCP idle timeout expiry action to reset.

drop

Drops the session on TCP idle timeout expiry.

reset

Resends TCP RST on TCP idle timeout expiry. When configured to reset, the session is dropped, and the system can avoid packets arriving for the idle flow from getting dropped.

Usage Guidelines

Use this command to configure action to take on TCP idle timeout expiry.

Example

The following command configures action to take on TCP idle timeout expiry to drop:

firewall tcp-idle-timeout-action drop

firewall tcp-options-error

This command configures Stateful Firewall action on packets with TCP Option errors.

Product

PSF

Privileges

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-fw-and-nat-policy)#`

Syntax Description

`firewall tcp-options-error { drop | permit }`
`default firewall tcp-options-error`

default

Configures the default setting.

Default: **permit**

drop

Drops packets with TCP Option errors.

permit

Permits packets with TCP Option errors.

Usage Guidelines

Use this command to configure Stateful Firewall action on packets with TCP Option errors.

Example

The following command configures Stateful Firewall to drop packets with TCP Option errors:

`firewall tcp-options-error drop`

firewall tcp-partial-connection-timeout

This command configures action on idle timeout for partially open TCP connections.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-fw-and-nat-policy)#`

Syntax Description

`firewall tcp-partial-connection-timeout` *`timeout`*
`{ default | no } firewall tcp-partial-connection-timeout`

default

Configures the default setting.

no

Disables the idle timeout for partially open TCP connections.

timeout

Specifies the timeout in seconds.

timeout must be an integer from 0 through 86400.

Default: 30 seconds

Usage Guidelines Use this command to configure idle timeout for TCP connections that are yet to be established (partially open) in the case of Firewall enabled calls.

Example

The following command sets the idle timeout setting to *30* seconds:

```
firewall tcp-partial-connection-timeout 30
```

firewall tcp-reset-message-threshold

This command configures a threshold on the number of TCP reset messages sent by the subscriber for a particular data flow. After this threshold is reached, further downlink traffic to the subscriber on the unwanted flow is blocked.

Product PSF

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* > **fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description **firewall tcp-reset-message-threshold** *messages* **then-block-server**
{ default | no } firewall tcp-reset-message-threshold

default

Configures the default setting.

Default: Disabled

no

Disables the configuration.

messages

Specifies the threshold on the number of TCP reset messages sent by the subscriber for a particular data flow.

messages must be an integer from 1 through 100.

Usage Guidelines

Use this command to configure a threshold on the number of TCP reset messages (TCP RST+ACK) sent by the subscriber for a particular data flow. After the threshold is reached, assuming the server is not reacting properly to the reset messages further downlink traffic to the subscriber on the unwanted flow is blocked. This configuration enables QCHAT noise suppression for TCP.

Example

The following command sets the threshold on the number of TCP reset messages to *10*:

```
firewall tcp-reset-message-threshold 10 then-block-server
```

firewall tcp-syn-flood-intercept

This command configures TCP SYN intercept parameters for protection against TCP SYN flooding attacks.

Important In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall tcp-syn-flood-intercept { mode { none | watch [ aggressive ] }
| watch-timeout intercept_watch_timeout }
default firewall tcp-syn-flood-intercept { mode | watch-timeout }
```

default

Configures the default settings for SYN Flood DoS protection.

mode { none | watch [aggressive] }

Specifies the TCP SYN flood intercept mode:

- **none**: Disables the TCP SYN Flood Intercept feature.
- **watch**: Configures TCP SYN flood intercept feature in watch mode. The Stateful Firewall passively watches to see if TCP connections become established within a configurable interval. If connections are not established within the timeout period, the Stateful Firewall clears the half-open connections by sending RST to TCP client and server. The default watch-timeout for connection establishment is 30 seconds.
- **aggressive**: Configures TCP SYN flood Intercept or Watch feature for aggressive behavior. Each new connection request causes the oldest incomplete connection to be deleted. When operating in watch mode, the watch timeout is reduced by half. If the watch-timeout is 30 seconds, under aggressive conditions it becomes 15 seconds. When operating in intercept mode, the retransmit timeout is reduced by half (i.e. if the timeout is 60 seconds, it is reduced to 30 seconds). Thus the amount of time waiting for connections to be established is reduced by half (i.e. it is reduced to 150 seconds from 300 seconds under aggressive conditions).

Default: **none**

watch-timeout *intercept_watch_timeout*

Specifies the TCP intercept watch timeout, in seconds.

intercept_watch_timeout must be an integer from 5 through 30.

Default: 30

Usage Guidelines

This TCP intercept functionality provides protection against TCP SYN Flooding attacks. This command enables and configures TCP intercept parameters to prevent TCP SYN flooding attacks by intercepting and validating TCP connection requests for DoS protection mechanism configured with the **dos-protection** command.

The system captures TCP SYN requests and responds with TCP SYN-ACKs. If a connection initiator completes the handshake with a TCP ACK, the TCP connection request is considered as valid by system and system forwards the initial TCP SYN to the valid target which triggers the target to send a TCP SYN-ACK. Now system intercepts with TCP SYN-ACK and sends the TCP ACK to complete the TCP handshake. Any TCP packet received before the handshake completion will be discarded.

Example

The following command sets the intercept watch timeout setting to *15* seconds:

```
firewall tcp-syn-flood-intercept watch-timeout 15
```

firewall tcp-syn-with-ecn-cwr

This command configures Stateful Firewall action on TCP SYN packets with either ECN or CWR flag set.

Product

PSF

Privileges

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

firewall tcp-syn-with-ecn-cwr { drop | permit }
default firewall tcp-syn-with-ecn-cwr

default

Configures the default setting.

Default: **permit**

drop

Drops TCP SYN packets with either ECN or CWR flag set.

permit

Permits TCP SYN packets with either ECN or CWR flag set.

Usage Guidelines

Use this command to configure Stateful Firewall action on receiving a TCP SYN packet with either ECN or CWR flag set.

Example

The following command configures Stateful Firewall to drop TCP SYN packets with ECN / CWR flag set:

firewall tcp-syn-with-ecn-cwr drop

firewall udp-checksum-error

This command configures Stateful Firewall action on packets with UDP Checksum error.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
firewall udp-checksum-error { drop | permit }
default firewall udp-checksum-error
```

default

Configures the default setting.

Default: **drop**

drop

Drops packets with UDP Checksum error.

permit

Permits packets with UDP Checksum error.

Usage Guidelines

Use this command to configure Stateful Firewall action on packets with UDP Checksum error.

For NAT-only calls, packets with UDP Checksum error are permitted.

Example

The following command specifies to drop packets with UDP Checksum error:

```
firewall udp-checksum-error drop
```

firewall validate-ip-options

This command enables / disables the Stateful Firewall validation of IP options for errors.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* > **fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
[ default | no ] firewall validate-ip-options
```

default

Configures the default setting.

Default: Disabled. Same as **no firewall validate-ip-options**

no

Disables validation of IP options.

Usage Guidelines

Use this command to enable / disable Stateful Firewall validation of IP options. When enabled, Stateful Firewall will drop packets with IP option errors.

For NAT calls, validation of IP Options is disabled.

Example

The following command enables validation of IP options:

```
firewall validate-ip-options
```

nat binding-record

This command configures the generation of NAT Binding Records.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
nat binding-record edr-format edr_format [ port-chunk-allocation ] [
port-chunk-release ]
{ default | no } nat binding-record
```

default

Configures the default setting.

Default: **port-chunk-release**

no

Disables generating NAT Binding Records.

edr-format *edr_format*

Specifies the Event Data Record (EDR) format name.

edr_format must be an alphanumeric string of 1 through 63 characters.

port-chunk-allocation

Specifies generating NAT Binding Records when a port-chunk is allocated.

port-chunk-release

Specifies generating NAT Binding Record when a port-chunk is released.

Usage Guidelines Use this command to configure the generation of NAT Binding Records.

Example

The following command configures an EDR format named *test123* and specifies generating NAT Binding Records when a port chunk is allocated:

```
nat binding-record edr-format test123 port-chunk-allocation
```

nat check-point-info

This command enables or disables the checkpointing of basic NAT, H323 and SIP ALG recovery. ICSR recovery can also be enabled or disabled for basic NAT and SIP flows.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

`[ default | no ] nat check-point-info { basic [ icsr-also | limit-flows` *`limit`* **`] | h323-alg | sip-alg [ icsr-also ] }`**

default

Configures this command with its default setting.

Default: Disabled

no

Disables the basic NAT recovery and stand-alone H323 ALG and SIP ALG recovery. Also disables ICSR recovery for SIP ALG.

basic [icsr-also | limit-flows *limit*]

Configures the basic flow checkpointing information.

- **icsr-also**: Enables checkpointing for ICSR.
- **limit-flows**: Limits the specified flows for basic NAT checkpointing. *limit* must be an integer from 1 through 100.

  Default: 100

h323-alg

Enables checkpointing of H323 ALG.

sip-alg [icsr-also]

Enables checkpointing of SIP ALG.

- **icsr-also**: Enables checkpointing for ICSR.

Usage Guidelines Use this command to enable or disable the checkpointing of basic NAT, standalone H323 and SIP ALG recovery. ICSR recovery can also be enabled or disabled for basic NAT and SIP flows. The maximum basic flows that can be checkpointed is also configured. By default, 100 flows can be recovered in a standalone chassis and ICSR setup.

Example

The following command enables basic NAT recovery and ICSR recovery with flows limited to *10*:

```
nat check-point info basic limit-flows 10 icsr-also
```

nat icsr-flow-recovery

This command enables/disables the NAT ICSR Flow checkpointing support for subscribers in a Firewall-and-NAT policy. This command is deprecated in StarOS 14.0 and later releases, and is replaced by the **nat check-point-info** command.

Product NAT

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description **`[ default | no ] nat icsr-flow-recovery`**

default

Configures the default setting.

Default: Disabled. Same as **no icsr-flow-recovery**.

no

Disables the NAT ICSR Flow checkpointing.

Usage Guidelines Use this command to enable/disable all NAT ICSR Flow checkpointing for subscribers using this policy.

Example

The following command enables NAT ICSR Flow checkpointing:

```
nat icsr-flow-recovery
```

nat max-chunk-per-realm

This command enables or disables the allocation of multiple NAT IP addresses for the same N:1 NAT realm for a subscriber.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

nat max-chunk-per-realm { multiple-ip | single-ip }
{ default | no } nat max-chunk-per-realm

default

Configures the default setting.

Default: **nat max-chunk-per-realm single-ip**

no

Disables the allocation of multiple NAT IP addresses for the same NAT realm for a subscriber.

multiple-ip

Enables the feature, that is, allows allocation of multiple IP addresses per NAT realm.

single-ip

Allows allocation of only one IP address per NAT realm. If the port chunks get exhausted, packets will be dropped. This is the default behavior.

Usage Guidelines

Use this command to enable or disable the allocation of multiple NAT IP addresses for the same N:1 NAT realm for a subscriber. This enhancement is applicable only for N:1 NAT realms and not for 1:1 NAT realms.

nat pkts-drop

This command is used to configure the EDR format in which records for dropped NAT packets will be saved and the time interval for EDR generation.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

nat pkts-drop { edr-format *edr_format_name* **| timeout** *timeout_value* **}**
{ default | no } nat pkts-drop { edr-format | timeout }

default

Configures the default setting.

Default: Disables the configuration. Same as **no nat pkts-drop { edr-format | timeout }** command.

no

Disables the configured EDR format in which records for dropped NAT packets will be saved and the time interval for EDR generation.

edr-format *edr_format_name*

Specifies the Event Data Record (EDR) format name.

edr_format_name must be an alphanumeric string of 1 through 63 characters.

timeout *timeout_value*

Specifies the NAT packet drop EDR timeout in seconds.

timeout_value must be an integer from 1 through 86400.

Usage Guidelines

Use this command to configure the EDR format in which records for dropped NAT packets will be saved and the time interval for EDR generation.

Example

The following command configures an EDR format named *test1* and specifies a packet drop timeout of *200* seconds:

```
nat pkts-drop edr-format test1 timeout 200
```

nat policy

This command enables/disables Network Address Translation (NAT) support in a Firewall-and-NAT policy.

Important In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

In 12.1 and earlier releases:

nat policy nat-required [default-nat-realm *nat_realm_name* **[fw-and-nat-action** *action_name* **]]**
no nat policy

In 12.2 and later releases:

nat policy [ipv4-and-ipv6 | ipv4-only | ipv6-only] [default-nat-realm *nat_realm_name* **[fw-and-nat-action** *action_name* **]]**
no nat policy

no

Disables both NAT44 and NAT64 support in the Firewall-and-NAT policy.

nat-required

Enables NAT support in the Firewall-and-NAT policy.

Important This keyword is available only in 12.1 and earlier releases, and is supported in release 12.2 for backward compatibility. The **nat policy nat-required** command enables only NAT44.

ipv4-and-ipv6

Enables NAT processing for both IPv4 and IPv6 in the Firewall-and-NAT policy.

ipv4-only

Enables NAT processing for IPv4 in the Firewall-and-NAT policy.

ipv6-only

Enables NAT processing for IPv6 in the Firewall-and-NAT policy.

default-nat-realm *nat_realm_name*

Specifies the default NAT realm for the Firewall-and-NAT policy.

nat_realm_name must be the name of an existing NAT realm, and must be an alphanumeric string of 1 through 31 characters.

fw-and-nat-action *action_name*

Specifies the Firewall-and-NAT action name.

action_name must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to enable/disable IPv4 and/or IPv6 NAT support for all subscribers using a Firewall-and-NAT policy.

In release 8.1, to enable NAT support for a subscriber, Stateful Firewall must also be enabled for that subscriber. See the **firewall policy** CLI command.

Once NAT is enabled for a subscriber, the NAT IP address to be used is chosen from the NAT realms specified in the rules. See the **access-rule** CLI command.

You can enable/disable NAT at any time, however the changed NAT status will not be applied to active calls. The new NAT status will only be applied to new calls.

Example

The following command enables NAT support in a Firewall-and-NAT policy:

```
nat policy nat-required
```

The following command disables NAT support in a Firewall-and-NAT policy:

```
no nat policy
```

The following command enables IPv4 and IPv6 NAT support in a Firewall-and-NAT policy:

```
nat policy ipv4-and-ipv6
```

nat private-ip-flow-timeout

This command configures the Private IP NPU flow timeout setting.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

nat private-ip-flow-timeout *timeout*
{ default | no } nat private-ip-flow-timeout

default

Configures the default setting.

Default: 180 seconds

no

Disables the Private IP NPU flow timeout configuration.

When disabled, the flow is installed at call setup and will be removed only when the subscriber disconnects.

timeout

Specifies the Private IP NPU flow timeout period in seconds.

timeout must be an integer from 180 through 86400.

Usage Guidelines

Use this command to configure the Private IP NPU flow timeout setting.

For NAT-enabled calls, by default, the downlink private IP NPU flow will not be installed at call setup for a subscriber session. The flow will only be installed on demand. When there is no traffic on the private flow, the private IP flow will be removed after the configurable timeout period.

Example

The following command configures the Private IP NPU flow timeout setting to *36000* seconds:

nat private-ip-flow-timeout 36000

nat suppress-aaa-update

This command suppresses sending NAT Bind Update (NBU) to the AAA server when PPP disconnect happens.

Important This command is customer-specific. For more information please contact your local service representative.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service *service_name* **> fw-and-nat policy** *policy_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

Syntax Description

```
nat suppress-aaa-update call-termination
default nat suppress-aaa-update
```

default

Configures the default setting.

Default: No suppression of AAA updates.

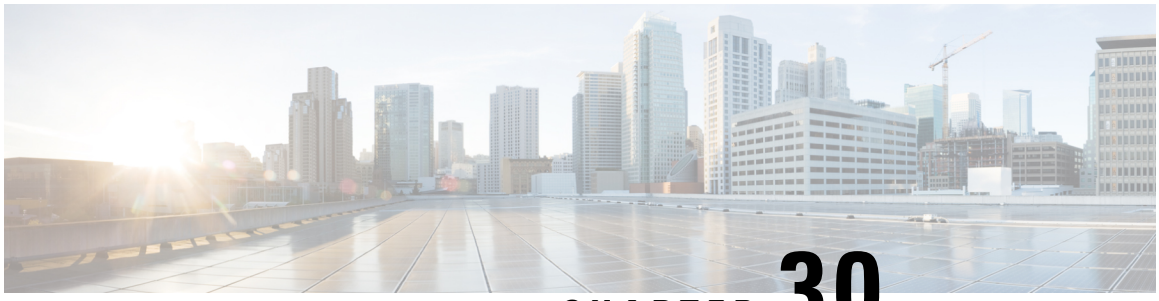
Usage Guidelines

Use this command to suppress sending of NBU to the AAA server when PPP disconnect happens, as these NBUs would be cleared at the AAA after receiving the accounting-stop. This enables to minimize the number of messages between the chassis and AAA server. When not configured, NBU are sent to the AAA server whenever a port chunk is allocated, de-allocated, or the call is cleared (PPP disconnect).

Example

The following command suppresses the sending of NBU to the AAA server:

```
nat suppress-aaa-update call-termination
```



CHAPTER 30

Firewall-and-NAT Access Ruledef Configuration Mode Commands

The Firewall-and-NAT Access Ruledef Configuration Mode is used to configure and manage Access rule definitions used by the Stateful Firewall (FW) and Network Address Translation (NAT) in-line services.

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

bearer 3gpp apn

This command configures an access ruledef to analyze user traffic based on APN bearer.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-acs-fw-ruledef)#`

Syntax Description

`[ no ] bearer 3gpp apn [ case-sensitive ]` *`operator value`*

no

Removes previously configured bearer ruledef.

case-sensitive

This keyword makes the rule case sensitive.

By default, ruledefs are not case sensitive.

Default: Disabled

operator

Specifies how to logically match the APN name.

operator must be one of the following:

- **!=**: Does not equal

- **!contains**: Does not contain
- **!ends-with**: Does not end with
- **!starts-with**: Does not start with
- =: Equals
- **contains**: Contains
- **ends-with**: Ends with
- **starts-with**: Starts with

value

The APN name to match in bearer flow.

value must be an alphanumeric string of 1 through 63 characters that can include punctuation characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on APN name.

Example

The following command creates an access ruledef for analyzing user traffic for an APN named *apn12*:

```
bearer 3gpp apn = apn12
```

bearer 3gpp imsi

This command configures an access ruledef to analyze user traffic based on International Mobile Station Identification (IMSI) number in bearer flow.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] bearer 3gpp imsi { *operator msid* | { !range | range } imsi-pool *imsi_pool* }

no

Removes previously configured bearer ruledef.

operator

Specifies how to logically match the MSID.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

msid

Specifies the Mobile Station Identifier.

{ !range | range } imsi-pool *imsi_pool*

{ !range | range }: Specifies the range criteria:

- **!range**: Not in the range of
- **range**: In the range of

imsi-pool *imsi_pool*: Specifies the IMSI pool name. *imsi_pool* must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines Use this command to specify an access ruledef to analyze user traffic based on IMSI number of mobile station.

Example

The following command creates an access ruledef to analyze user traffic for the IMSI number *9198838330912*:

```
bearer 3gpp imsi = 9198838330912
```

bearer username

This command configures an access ruledef to analyze user traffic based on user name of the bearer flow.

Product PSF

NAT

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description **[no] bearer username [case-sensitive]** *operator value*

no

Removes previously configured bearer ruledef.

case-sensitive

This keyword makes the rule case sensitive.

By default, ruledefs are not case sensitive.

Default: Disabled

operator

Specifies how to logically match the MSID.

operator must be one of the following:

- **!=**: Does not equal
- **!contains**: Does not contain
- **!ends-with**: Does not end with
- **!starts-with**: Does not start with
- **=**: Equals
- **contains**: Contains
- **ends-with**: Ends with
- **starts-with**: Starts with

value

Specifies the user name.

value must be an alphanumeric string of 1 through 127 characters.

Usage Guidelines

Use this command to specify a access ruledef to analyze user traffic based on user name of the bearer flow.

Example

The following command creates an access ruledef for analyzing user traffic for the user name *user12*:

```
bearer username = user12
```

create-log-record

This command enables/disables access ruledef logging.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]host_name(config-acs-fw-ruledef)#`

Syntax Description

[no] create-log-record

no

Disables access ruledef logging.

Usage Guidelines

Use this command to enable/disable access ruledef logging.

Example

The following command enables access ruledef logging:

create-log-record

The following command disables access ruledef logging:

no create-log-record

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.

icmp any-match

This command configures an access ruledef to match any ICMPv4 traffic for the user.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-acs-fw-ruledef)#`

Syntax Description

`[ no ] icmp any-match` *`operator condition`*

no

Removes previously configured ICMPv4 any-match ruledef.

operator

Specifies how to logically match the analyzed state.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

condition

Specifies the condition to be matched for the user traffic.

condition must be one of the following:

- **FALSE**: Specified condition is FALSE.
- **TRUE**: Specified condition is TRUE.

Usage Guidelines

Use this command to specify an access ruledef to match any ICMPv4 traffic of the user.

Example

The following command creates an access ruledef to match any non-ICMPv4 traffic of the user:

```
icmp any-match = FALSE
```

icmp code

This command configures an access ruledef to analyze user traffic based on ICMPv4 code.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] icmp code` *`operator code`*

no

Removes previously configured ICMPv4 code ruledef.

operator

Specifies how to logically match the ICMPv4 code.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

code

Specifies the ICMPv4 code.

code must be an integer from 0 through 255.

Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the ICMPv4 code.

Example

The following command creates an access ruledef for analyzing user traffic using the ICMPv4 code as *23*:

```
icmp code = 23
```

icmp type

This command configures an access ruledef to analyze user traffic based on ICMPv4 type.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] icmp type` *`operator type`*

no

Removes previously configured ICMPv4 type ruledef.

operator

Specifies how to logically match the ICMPv4 type.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

type

Specifies the ICMPv4 type.

type must be an integer from 0 through 255.

For example, 0 for ECHO Reply, 3 for Dest. Unreachable, and 5 for Redirect.

Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the ICMPv4 type.

Example

The following command creates an access ruledef for analyzing user traffic using an ICMPv4 type as *123*:

```
icmp type = 123
```

icmpv6 any-match

This command configures an access ruledef to match any ICMPv6 traffic for the user.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-acs-fw-ruledef)#`

Syntax Description

`[ no ] icmpv6 any-match` *`operator condition`*

no

Removes previously configured ICMPv6 any-match ruledef.

operator

Specifies how to logically match the analyzed state.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

condition

Specifies the condition to be matched for the user traffic.

condition must be one of the following:

- **FALSE**: Specified condition is FALSE.
- **TRUE**: Specified condition is TRUE.

Usage Guidelines

Use this command to specify an access ruledef to match any ICMPv6 traffic of the user.

Example

The following command creates an access ruledef to match any non-ICMPv6 traffic of the user:

```
icmpv6 any-match = FALSE
```

icmpv6 code

This command configures an access ruledef to analyze user traffic based on ICMPv6 code.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] icmpv6 code` *`operator code`*

no

Removes previously configured ICMPv6 code ruledef.

operator

Specifies how to logically match the ICMPv6 code.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

code

Specifies the ICMPv6 code.

code must be an integer from 0 through 255.

Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the ICMPv6 code.

Example

The following command creates an access ruledef for analyzing user traffic using the ICMPv6 code as *23*:

```
icmpv6 code = 23
```

icmpv6 type

This command configures an access ruledef to analyze user traffic based on ICMPv6 type.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-acs-fw-ruledef)#`

Syntax Description

`[ no ] icmpv6 type` *`operator type`*

no

Removes previously configured ICMPv6 type ruledef.

operator

Specifies how to logically match the ICMPv6 type.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

type

Specifies the ICMPv6 type.

type must be an integer from 0 through 255.

For example, 0 for ECHO Reply, 3 for Dest. Unreachable, and 5 for Redirect.

Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the ICMPv6 type.

Example

The following command creates an access ruledef for analyzing user traffic using an ICMPv6 type as *123*:

```
icmpv6 type = 123
```

ip any-match

This command configures an access ruledef to match any IP traffic for the user.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-acs-fw-ruledef)#`

Syntax Description

`[ no ] ip any-match` *`operator condition`*

no

Removes previously configured IP any-match ruledef.

operator

Specifies how to logically match the analyzed state.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

condition

Specifies the condition to be matched for the user traffic.

condition must be one of the following:

- **FALSE**: Specified condition is FALSE.
- **TRUE**: Specified condition is TRUE.

Usage Guidelines

Use this command to specify an access ruledef to match any IP traffic of the user.

Example

The following command creates an access ruledef to match any non-IP traffic of the user:

`ip any-match = FALSE`

ip downlink

This command configures an access ruledef to analyze user traffic based on IP packet flow in downlink direction (to subscriber).

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] ip downlink` *`operator condition`*

no

Removes previously configured IP ruledef.

operator

Specifies how to logically match the packet flow direction.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

condition

Specifies the condition to match.

condition must be one of the following:

- **TRUE**: Analyzed
- **FALSE**: Not analyzed

Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the IP packet flow direction as downlink.

Example

The following command creates access ruledef for analyzing user traffic using an IP packet direction to downlink (to subscriber):

```
ip downlink = TRUE
```

ip dst-address

This command configures an access ruledef to analyze user traffic based on IP destination address.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] ip dst-address { *operator* { *ipv4/ipv6_address* | *ipv4/ipv6_address/mask* } | { !range | range } host-pool *host_pool* }

no

Removes previously configured IP destination address ruledef.

***operator* { *ipv4/ipv6_address* | *ipv4/ipv6_address/mask* }**

operator specifies how to logically match the IP destination address.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

ipv4/ipv6_address: Specifies the IP address of destination node for outgoing traffic. *ipv4/ipv6_address* must be the IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

ipv4/ipv6_address/mask: Specifies the IP address of destination node for outgoing traffic. *ipv4/ipv6_address/mask* must be the IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation. The mask bit is a numeric value which is the number of bits in the subnet mask.

{ !range | range } host-pool *host_pool* }

!range | range: Specifies the range criteria:

- **!range**: Not in the range of
- **range**: In the range of

host-pool *host_pool*: Specifies the host pool name. *host_pool* must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines Use this command to specify an access ruledef to analyze user traffic based on the IP destination address.

Example

The following command creates IP ruledef for analyzing user traffic using an IP destination address of *10.1.1.1*:

```
ip dst-address = 10.1.1.1
```

ip protocol

This command configures an access ruledef to analyze user traffic based on the protocol being transported by IP packets.

Product PSF

NAT

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description **`[ no ] ip protocol { { `***`operator`*** **` { `***`protocol`*** **` | `***`protocol_assignment`*** **` } } | { `***`operator protocol_assignment`*** **` } }`**

no

Removes previously configured IP protocol address ruledef.

operator { *protocol* | *protocol_assignment* }

operator: Specifies how to logically match the IP protocol.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

protocol: Specifies the protocol by name.

protocol must be one of the following:

- ah
- esp

- gre
- icmp
- tcp
- udp

protocol_assignment: Specifies the protocol by assignment number. *protocol_assignment* must be an integer from 0 through 255 (for example, 1 for ICMP, 6 for TCP, and 17 for UDP).

operator protocol_assignment

operator: Specifies how to logically match the IP protocol.

operator must be one of the following:

- <=: Less than or equals
- >=: Greater than or equals

protocol_assignment: Specifies the protocol by assignment number.

protocol_assignment must be an integer from 0 through 255 (for example, 1 for ICMP, 6 for TCP, and 17 for UDP).

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on the IP protocol.

Example

The following command creates IP ruledef for analyzing user traffic using a protocol assignment of *1*:

```
ip protocol = 1
```

ip server-ip-address

This command configures an access ruledef to analyze user traffic based on IP server address.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] ip server-ip-address { *operator* **{** *ipv4/ipv6_address* **|** *ipv4/ipv6_address/mask* **} | { !range | range } host-pool** *host_pool_name* **}**

no

Removes previously configured IP server address.

***operator*{ *ipv4/ipv6_address* | *ipv4/ipv6_address/mask*}**

operator: Specifies how to logically match the IP server address.

operator must be one of the following:

- **!=**: Does not equal
- <=: Less than or equals
- =: Equals
- >=: Greater than or equals

ipv4/ipv6_address: Specifies the server IP address. For uplink packets (subscriber to network), this field matches the destination IP address in the IP header. For downlink packets (network to subscriber), this field matches the source IP address in the IP header. *ipv4/ipv6_address* must be an IP address in IPv4-dotted decimal notation or IPv6 colon-separated hexadecimal notation.

ipv4/ipv6_address/mask: Specifies the server IP address with subnet mask bit. For uplink packets (subscriber to network), this field matches the destination IP address in the IP header. For downlink packets (network to subscriber), this field matches the source IP address in the IP header. *ipv4/ipv6_address/mask* must be an IP address in IPv4 dotted-decimal notation or IPv6 colon-separated hexadecimal notation with subnet mask bit. The mask bit is a numeric value which is the number of bits in the subnet mask.

{ !range | range } host-pool *host_pool_name*

{ !range | range }: Specifies the range criteria.

- **!range**: Not in the range of
- **range**: In the range of

host-pool *host_pool_name*: Specifies name of the host pool. *host_pool_name* must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on IPv4 or IPv6 server address. For uplink packets, this field matches the destination IP address in the IP header. For downlink packets, this field matches the source IP address in the IP header.

Example

The following command creates an IP ruledef for analyzing user traffic using IPv4 server address *10.1.1.1*:

```
ip server-ip-address = 10.1.1.1
```

ip server-ipv6-network-prefix

This command configures an access ruledef to analyze user traffic based on IPv6 server prefix.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] ip server-ipv6-network-prefix *operator ipv6_prefix/prefix_length*

no

Removes previously configured IPv6 server prefix.

operator ipv6_prefix/prefix_length

operator: Specifies how to logically match the IPv6 server prefix.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

ipv6_prefix/prefix_length: Specifies the server's IPv6 address with subnet mask bit. *ipv6_prefix/prefix_length* must be in IPv6 colon-separated-hexadecimal notation with subnet mask bit. The *prefix_length* is the number of bits to match. The configurable prefix length values are 32, 40, 48, 56, 64 and 96.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on IPv6 server prefix. When a first packet for a flow is received, it is matched against a set of rules configured in the Firewall-and-NAT policy. If the incoming IPv6 packet matches a ruledef and configured prefix, then it indicates that NAT64 needs to be applied on the packet. If the packet did not match the prefix configured, then NAT64 will not be applied on the packet. If there is no rule matching the packet or if there is no rule configured, then the incoming IPv6 packet is matched against the well-known prefix. If the well-known prefix matches, then NAT64 is applied on the packet.

Example

The following command creates an IP ruledef to analyze user traffic using the IPv6 server prefix *abcd:dcba* with *32* bits of the server IPv6 address:

```
ip server-ipv6-network-prefix = abcd:dcba::/32
```

ip src-address

This command configures an access ruledef to analyze user traffic based on IP source address.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] ip src-address { *operator* { *ipv4/ipv6_address* | *ipv4/ipv6_address/mask* } | { !range | range } host-pool *host_pool* }

no

Removes previously configured IP destination address ruledef.

***operator* { *ipv4/ipv6_address* | *ipv4/ipv6_address/mask* }**

operator: Specifies how to logically match the IP source address.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

ipv4/ipv6_address: Specifies the IP address using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

ipv4/ipv6_address/mask: Specifies the IP address using IPV4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation with subnet mask bit. The mask bit is a numeric value which is the number of bits in the subnet mask.

{ !range | range } host-pool *host_pool*

!range | **range**: Specifies the range criteria:

- **!range**: Not in the range of
- **range**: In the range of

host-pool *host_pool*: Specifies the host pool name. *host_pool* must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on the IP source address.

Example

The following command creates IP ruledef for analyzing user traffic using an IP source address of *10.1.1.1*:

```
ip src-address = 10.1.1.1
```

ip uplink

This command configures an access ruledef to analyze user traffic based on IP packet flow in the uplink direction (from subscriber).

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] ip uplink *operator condition*

no

Removes previously configured IP uplink match ruledef.

operator

Specifies how to logically match the IP packet flow direction.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

condition

Specifies the condition to match.

condition must be one of the following:

- **TRUE**: Not analyzed
- **FALSE**: Analyzed

Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the IP packet flow direction as uplink.

Example

The following command creates access ruledef for analyzing user traffic using an IP packet direction to uplink (from subscriber):

```
ip uplink = TRUE
```

ip version

This command defines rule expressions to match version number in IP header.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

```
[ no ] ip version = { ipv4 | ipv6 }
```

no

Deletes the specified rule expression.

ipv4

Specifies the rule expression for IP version 4.

ipv6

Specifies the rule expression for IP version 6.

Usage Guidelines

Use this command to define rule expressions to match IPv4/IPv6 version number in IP header.

Example

The following command defines a rule expression to match user traffic for the IP version **ipv6**:

```
ip version = ipv6
```

tcp any-match

This command configures an access ruledef to match any TCP traffic for the user.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-acs-fw-ruledef)#`

Syntax Description

`[ no ] tcp any-match` *`operator condition`*

no

Removes previously configured TCP any-match ruledef.

operator

Specifies how to logically match the analyzed state.

operator must be one of the following:

- **!=**: Does not equal
- **=**: Equals

condition

Specifies the condition to be matched for the user traffic.

condition must be one of the following:

- **FALSE**: Specified condition is FALSE.
- **TRUE**: Specified condition is TRUE.

Usage Guidelines

Use this command to specify an access ruledef to match any TCP traffic of the user.

Example

The following command creates an access ruledef to match any non-TCP traffic of the user:

```
tcp any-match = FALSE
```

tcp client-port

This command configures an access ruledef to analyze user traffic based on client TCP port.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] tcp client-port { `*`operator port_number`*** **` | { !range | range } { `***`start_range`*** **` to `***`end_range`*** **` | port-map `***`port_map`*** **` } }`**

no

Removes the previously configured client TCP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

range | !range

Specifies the range criteria:

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the range of destination TCP ports.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines Use this command to specify an access ruledef to analyze user traffic based on client TCP port.

Example

The following command creates an access ruledef for analyzing user traffic matching client port for TCP as *50*:

```
tcp client-port = 50
```

tcp dst-port

This command configures an access ruledef to analyze user traffic based on destination TCP port.

Product PSF

NAT

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description **[no] tcp dst-port {** *operator port_number* **| { !range | range } {** *start_range* **to** *end_range* **| port-map** *port_map* **} }**

no

Removes the previously configured destination TCP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

range | !range

Specifies the range criteria:

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the range of destination TCP ports.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines Use this command to specify an access ruledef to analyze user traffic based on destination TCP port.

Example

The following command creates an access ruledef for analyzing user traffic matching destination port for TCP as *10*:

```
tcp dst-port = 10
```

tcp either-port

This command configures an access ruledef to analyze user traffic based on either (destination or source) TCP ports.

Product PSF

NAT

Privilege Security Administrator, Administrator

Command Modes Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description **`[ no ] tcp either-port {`** *`operator port_number`* **`| { !range | range } {`** *`start_range`* **`to`** *`end_range`* **`| port-map`** *`port_map`* **`} }`**

no

Removes previously configured TCP either-port (destination or source) ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

range | !range

Specifies the range criteria:

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the port range.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on either TCP port.

Example

The following command creates an access ruledef for analyzing user traffic matching destination or source port for TCP as *10*:

```
tcp either-port = 10
```

tcp server-port

This command configures an access ruledef to analyze user traffic based on server TCP port.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] tcp server-port { *operator port_number* **| { !range | range } {** *start_range* **to** *end_range* **| port-map** *port_map* **} }**

no

Removes the previously configured server TCP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

range | !range

Specifies the range criteria:

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the range of destination TCP ports.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on server TCP port.

Example

The following command creates an access ruledef for analyzing user traffic matching server port for TCP as *100*:

```
tcp server-port = 100
```

tcp src-port

This command configures an access ruledef to analyze user traffic based on source TCP port.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] tcp src-port {` *operator port_number* **`| { !range | range } {`** *start_range* **`to`** *end_range* **`| port-map`** *port_map* **`} }`**

no

Removes previously configured source TCP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 to 65535.

range | !range

Specifies the range criteria:

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the port range.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on source TCP port.

Example

The following command creates an access ruledef for analyzing user traffic matching source port for TCP as *10*:

```
tcp src-port = 10
```

udp any-match

This command configures an access ruledef to match any UDP traffic for the user.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] udp any-match` *`operator condition`*

no

Removes previously configured UDP any-match ruledef.

operator

Specifies how to logically match the analyzed state.

operator must be one of the following:

- **!=**: does not equal
- **=**: equals

condition

Specifies the condition to be matched for the user traffic.

condition must be one of the following:

- **FALSE**: Specified condition is FALSE.
- **TRUE**: Specified condition is TRUE.

Usage Guidelines

Use this command to specify an access ruledef to match any UDP traffic of the user.

Example

The following command creates an access ruledef to match any UDP traffic of the user:

`udp any-match = TRUE`

udp client-port

This command configures an access ruledef to analyze user traffic based on client UDP port.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

`[local]`*`host_name`*`(config-acs-fw-ruledef)#`

Syntax Description

`[ no ] udp client-port {` *`operator port_number`* **`| { !range | range } {`** *`start_range`* **`to`** *`end_range`* **`| port-map`** *`port_map`* **`} }`**

no

Removes previously configured client UDP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- <=: Less than or equals
- =: Equals
- >=: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

!range | range

Specifies the range criteria.

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the port range.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on client UDP port.

Example

The following command creates an access ruledef for analyzing user traffic matching client port for UDP as *10*:

```
udp client-port = 10
```

udp dst-port

This command configures an access ruledef to analyze user traffic based on destination UDP port.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] udp dst-port { *operator port_number* **| { !range | range } {** *start_range* **to** *end_range* **| port-map** *port_map* **} }**

no

Removes previously configured destination UDP ports ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

!range | range

Specifies the range criteria.

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the port range.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on destination UDP port.

Example

The following command creates an access ruledef for analyzing user traffic matching destination port for UDP as *10*:

```
udp dst-port = 10
```

udp either-port

This command configures an access ruledef to analyze user traffic based on either (destination or source) UDP port.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

`[ no ] udp either-port {` *operator port_number* **`| { !range | range } {`** *start_range* **`to`** *end_range* **`| port-map`** *port_map* **`} }`**

no

Removes previously configured either-port (destination or source) UDP ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- <=: Less than or equals

- =: Equals
- >=: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

!range | range

Specifies the range criteria.

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the port range.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on either UDP port.

Example

The following command creates an access ruledef for analyzing user traffic matching destination or source port for UDP as *10*:

```
udp either-port = 10
```

udp server-port

This command configures an access ruledef to analyze user traffic based on server UDP port.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* > **access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] udp server-port { *operator port_number* **| { !range | range } {** *start_range* **to** *end_range* **| port-map** *port_map* **} }**

no

Removes previously configured server UDP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

!range | range

Specifies the range criteria.

- **!range**: Not in the range
- **range**: In the range

start_range to *end_range*

Specifies the starting and ending port numbers for the port range.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on server UDP port.

Example

The following command creates an access ruledef for analyzing user traffic matching server port for UDP as *100*:

```
udp server-port = 100
```

udp src-port

This command configures an access ruledef to analyze user traffic based on source UDP port.

Product

PSF

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service *service_name* **> access-ruledef** *access_ruledef_name*

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

Syntax Description

[no] udp src-port { *operator port_number* **| { !range | range } {** *start_range* **to** *end_range* **| port-map** *port_map* **} }**

no

Removes previously configured source UDP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- **!=**: Does not equal
- **<=**: Less than or equals
- **=**: Equals
- **>=**: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

!range | range

Specifies the range criteria.

- **!range**: Not in the range
- **range**: In the range

start_range* to *end_range

Specifies the starting and ending port numbers for the port range.

start_range must be an integer from 1 through 65535.

end_range must be an integer from 1 through 65535 that is greater than *start_range*.

port-map *port_map*

Specifies name of the port-map for the port range.

port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on source UDP port.

Example

The following command creates an access ruledef for analyzing user traffic matching source port for UDP as *10*:

```
udp src-port = 10
```