Packet Data Serving Node Commands

access-list

To configure the access list mechanism for filtering frames by protocol type or vendor code, use the **access-list** command in global configuration mode. To remove the single specified entry from the access list, use the **no** form of this command.

access-list *access-list-number* {**permit** | **deny**} {*type-code wild-mask* | *address mask*}

no access-list *access-list-number* {**permit** | **deny**} {*type-code wild-mask* | *address mask*}

Syntax Description

access-list-number	Integer that identifies the access list. If the *type-code* and *wild-mask* arguments are included, this integer ranges from 200 to 299, indicating that filtering is by protocol type. If the *address* and *mask* arguments are included, this integer ranges from 700 to 799, indicating that filtering is by vendor code.
permit	Permits the frame.
deny	Denies the frame.
type-code	16-bit hexadecimal number written with a leading 0x; for example, 0x6000. Specify either a Link Service Access Point (LSAP) type code for 802-encapsulated packets or a Subnetwork Access Protocol (SNAP) type code for SNAP-encapsulated packets. (LSAP, sometimes called SAP, refers to the type codes found in the DSAP and SSAP fields of the 802 header.)
wild-mask	16-bit hexadecimal number whose ones bits correspond to bits in the *type-code* argument. The *wild-mask* argument indicates which bits in the *type-code* argument should be ignored when making a comparison. (A mask for a DSAP/SSAP pair should always be 0x0101 because these two bits are used for purposes other than identifying the SAP code.)
address	48-bit Token Ring address written as a dotted triple of four-digit hexadecimal numbers. This field is used for filtering by vendor code.
mask	48-bit Token Ring address written as a dotted triple of four-digit hexadecimal numbers. The ones bits in *mask* are the bits to be ignored in *address*. This field is used for filtering by vendor code. For source address filtering, the mask always should have the high-order bit set. This is because the IEEE 802 standard uses this bit to indicate whether a Routing Information Field (RIF) is present, not as part of the source address.

Defaults

No access list is configured.

Command Modes

Global configuration

Command History

Release	Modification
10.0	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

For a list of type codes, refer to the "Ethernet Type Codes" appendix of this book.

Examples

In the following example, the access list permits only Novell frames (LSAP 0xE0E0) and filters out all other frame types. This set of access lists would be applied to an interface via the **source-bridge input-lsap list** or **source-bridge input-lsap list** command (described later in this chapter).

```
access-list 201 permit 0xE0E0 0x0101
access-list 201 deny 0x0000 0xFFFF
```

Combine the DSAP/LSAP fields into one number to do LSAP filtering; for example, 0xE0E0—not 0xE0. Note that the deny condition specified in the preceding example is not required; access lists have an implicit deny as the last statement. Adding this statement can serve as a useful reminder, however.

The following access list filters out only SNAP type codes assigned to Digital Equipment Corporation (DEC) (0x6000 to 0x6007) and lets all other types pass. This set of access lists would be applied to an interface using the **source-bridge input-type-list** or **source-bridge output-type-list** command (described later in this chapter).

```
access-list 202 deny 0x6000 0x0007
access-list 202 permit 0x0000 0xFFFF
```

Note Use the last item of an access list to specify a default action; for example, to permit everything else or to deny everything else. If nothing else in the access list matches, the default action is to deny access; that is, filter out all other type codes.

Type code access lists will negatively affect system performance by greater than 30 percent. Therefore, we recommend that you keep the lists as short as possible and use wildcard bit masks whenever possible.

Related Commands

Command	Description
access-expression	Defines an access expression.
source-bridge input-address-list	Applies an access list to an interface configured for source-route bridging, and filters source-routed packets received from the router interface based on the source MAC address.
source-bridge input-lsap-list	Filters, on input, FDDI and IEEE 802-encapsulated packets that include the DSAP and SSAP fields in their frame formats.
source-bridge input-type-list	Filters SNAP-encapsulated packets on input.
source-bridge output-address-list	Applies an access list to an interface configured for SRB, and filters source-routed packets sent to the router interface based on the destination MAC address.
source-bridge output-lsap-list	Filters, on output, FDDI and IEEE 802-encapsulated packets that have DSAP and SSAP fields in their frame formats.
source-bridge output-type-list	Filters SNAP-encapsulated frames by type code on output.

cdma pdsn a10 ahdlc engine

To limit the number of Asynchronous High-Level Data Link Control (AHDLC) channel resources provided by the AHDLC engine, use the **cdma pdsn a10 ahdlc engine** command to in global configuration mode. To reset the number of AHDLC channel resources to the default, use the **no** form of this command.

cdma pdsn a10 ahdlc engine *slot* **usable-channels** *usable-channels*

no cdma pdsn a10 ahdlc engine *slot* **usable-channels**

Syntax Description

slot	Slot number of the AHDLC.
usable-channels *usable-channels*	Maximum number of channels that can be opened in the AHDLC engine. Valid values range between 0 and 8000 or 20000. Specifying 0 disables the engine.

Defaults

The default number of usable channels equals the maximum channels supported by the engine; the c-5 images supports 8000 sessions, and all c-6 image support 20000 sessions.

Command Modes

Global configuration

Command History

Release	Modification
12.2(2)XC	This command was introduced.
12.2(8)BY	The maximum number of usable channels was increased to 20000.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

If the value of *usable-channels* is greater than default maximum channels provided by the engine, the command will fail.

If the engine has any active channels, the command will fail.

Examples

The following example limits the number of service channels provided by the AHDLC engine to 1000:

```
cdma pdsn a10 ahdlc engine 0 usable-channels 1000
```

Related Commands

Command	Description
debug cdma pdsn a10 ahdlc	Displays debug messages for the AHDLC engine.
show cdma pdsn a10 ahdlc	Displays information about the AHDLC engine.
show cdma pdsn resource	Displays AHDLC resource information.

cdma pdsn a10 ahdlc trailer

To enable the PDSN so that AHDLC frames are expected to contain trailer byte, use the **cdma pdsn a10 ahdlc trailer** command to in global configuration mode. To disable the PDSN so that AHDLC processing does not expect the AHDLC trailer (0x7e), use the **no** form of this command.

cdma pdsn a10 ahdlc trailer

no cdma pdsn a10 ahdlc trailer

Syntax Description

There are no arguments or keywords for this command.

Defaults

The default behavior is that trailer byte 0x7e is expected in the AHDLC frames.

Command Modes

Global configuration

Command History

Release	Modification
12.3(14)YX	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

When the **no** version of the command is configured, each AHDLC frame is considered a full AHDLC fragment, and the PDSN will start processing the packet.

Examples

The following example disables the PDSN so that AHDLC processing does not expect the AHDLC trailer:

```
Router(config)# no cdma pdsn a10 ahdlc trailer
```

cdma pdsn a10 always-on keepalive

To alter the default always-on service parameters, use the **cdma pdsn a10always-on keepalive** command in global configuration mode. To return to the default values, use the **no** form of this command.

cdma pdsn a10 always-on keepalive {interval *1-65535* **[attempts** *0-255***] | attempts** *0-255***}**

no cdma pdsn a10 always-on keepalive {interval *1-65535* **[attempts** *0-255***] | attempts** *0-255***}**

Syntax Description

interval	The duration in seconds, for which the PDSN waits for the LCP echo response from the peer before sending next LCP echo. The default value is 3seconds.
attempts	The number of times the LCP echo is sent before determining an always-on user is not reachable and tearing down the session after idle timer expiry. The default value is 3. Configuring this value to 0 is similar to ignoring the always-on property for the user.

Defaults

The Always On feature is enabled by default. The default value for **interval** is 3, and the default value for **attempts** is 3.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)XW	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates that the PDSN waits 5 seconds for the LCP echo response from the peer before sending the next LCP echo.

```
router#cdma pdsn a10 always-on keepalive interval 5 attempts 3
```

cdma pdsn a10 gre sequencing

To enable inclusion of Generic Routing Encapsulation (GRE) sequence numbers in the packets sent over the A10 interface, use the **cdma pdsn gre sequencing** command in global configuration mode. To disable the inclusion of GRE sequence number in the packets sent over the A10 interface, use the **no** form of this command.

cdma pdsn a10 gre sequencing

no cdma pdsn a10 gre sequencing

Syntax Description

This command has no arguments or keywords.

Defaults

GRE sequence numbers are included in the packets sent over the A10 interface.

Command Modes

Global configuration

Command History

Release	Modification
12.1(3)XS	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Examples

The following example instructs Cisco PDSN to include per-session GRE sequence numbers in the packets sent over the A10 interface:

```
cdma pdsn a10 gre sequencing
```

Related Commands

Command	Description
debug cdma pdsn a10 gre	Displays debug messages for A10 GRE interface errors.
show cdma pdsn pcf	Displays information about PCFs that have R-P tunnels to the PDSN.
show cdma pdsn	Displays the current status and configuration of the PDSN gateway.

cdma pdsn a10 init-ppp-after-airlink-start airlink-start-timeout

To configure the PDSN so that Point-to-Point Protocol (PPP) negotiation with an MN will start only after the traffic channel is assigned, (inother words, after a Registration Request with airlink-start is received), use the **cdma pdsn a10 init-ppp-after-airlink-start** command in global configuration mode. Use the **no** form of this command to revert to the default behavior.

cdma pdsn a10 init-ppp-after-airlink-start airlink-start-timeout *1-120*

no cdma pdsn a10 init-ppp-after-airlink-start airlink-start-timeout *1-120*

Syntax Description

1-120	Sets the timeout interval before the session is torn down.

Defaults

By default, this CLI is not enabled, therefore, the PDSN will initiate PPP negotiation immediately after a Registration Reply is sent to the initial Registration.Request.

When enabled, the default timeout interval is 10 seconds.

Command Modes

Global configuration

Command History

Release	Modification
12.2(8)ZB4a	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

The PDSN initiates PPP negotiation immediately after a Registration Reply is sent to the initial Registration Request, but the calls (for which the PPP negotiation has started before the traffic channel is assigned to MN) have failed.

When this command is enabled, the PPP negotiation withthe MN will start only after the traffic channel is assigned—after a Registration Request with airlink-start is received. If the airlink start is not received at all, the session will be torn down when timeout occurs.By default, this timeout interval is 10 seconds, or can be configured through the CLI.

The session is not torn down immediately after the timeout, so, in order to minimize the impact on the performance, there is just one timer started to keep track of all the sessions waiting for airlink-start to start PPP.

For example, take the default of 10 seconds. If the timer expires at t1 and a new call comes at t2(t2 >t1), the next run of the timer will be at t1+10. It is likely that the uptime for the call is not more than 10 seconds since t2 > t1. So the call will be checked at the next next run (t1+10+10). That is , the variation is between 1 and 10.

Examples

The following example illustrates the **cdma pdsn a10 init-ppp-after-airlink-start airlink-start-timeout** command:

```
router# cdma pdsn a10 init-ppp-after-airlink-start airlink-start-timeout 20
```

cdma pdsn a10 max-lifetime

To specify the maximum A10 registration lifetime accepted, use the **cdma pdsn a10 max-lifetime** command in global configuration mode. To return to the default length of time, use the **no** form of this command.

cdma pdsn a10 max-lifetime *seconds*

no cdma pdsn a10 max-lifetime

Syntax Description

seconds	Maximum A10 registration lifetime accepted by Cisco PDSN. The range is 1 to 65535 seconds. The default is 1800 seconds.

Defaults

1800 seconds.

Command Modes

Global configuration

Command History

Release	Modification
12.1(3)XS	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Examples

The following example specifies that the A10 interface will be maintained for 1440 seconds:

```
cdma pdsn a10 max-lifetime 1440
```

Related Commands

Command	Description
cdma pdsn a10 gre sequencing	Enables GRE sequence number checking on packets received over the A10 interface.
debug cdma pdsn a10 gre	Displays debug messages for A10.
show cdma pdsn pcf	Displays information about PCFs that have R-P tunnels to the PDSN.
show cdma pdsn	Displays the current status and configuration of the PDSN gateway.

cdma pdsn a11 dormant ppp-idle-timeout send-termreq

To specify that for dormant sessions, on ppp idle timeout, ppp termreq will be sent, use the **cdma pdsn all dormant ppp-idle-timeout send-termreq** command in global configuration mode. To disble this feature, use the **no** form of this command.

cdma pdsn all dormant ppp-idle-timeout send-termreq

no cdma pdsn all dormant ppp-idle-timeout send-termreq

Syntax Description

There are no keywords or variable for this command.

Defaults

There are no default values.

Command Modes

Global configuration

Command History

Release	Modification
12.2(8)ZB	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

Disabling this behaviour will avoid traffic channel allocation for cleaning up ppp sessions at the mobile.

Examples

router# cdma pdsn a11 dormant ppp-idle-timeout send-termreq

cdma pdsn a11 dormant sdb-indication gre-flags

To configure the PDSN so that all packets that are set with the specific group-number will be flagged for SDB usage between the PCF and the PDSN, use the **cdma pdsn a11 dormant sdb-indication gre-flags** command in global configuration mode. To disable this feature, use the no form of the command.

cdma pdsn a11 dormant sdb-indication gre-flags *group-number*

no cdma pdsn a11 dormant sdb-indication gre-flags *group-number*

Syntax Description

Command	Description
group-number	Specifies the classified match criteria.

Defaults

There are no default values.

Command Modes

Global configuration

Command History

Release	Modification
12.3(11)YF	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

The B bit (SDB indication) would be set for packets matching the sdb-indication group-number.

Examples

The following example illustrates the **cdma pdsn a11 dormant sdb-indication gre-flags** command:

```
router# cdma pdsn a11 dormant sdb-indication gre-flags 12
```

cdma pdsn a11 dormant sdb-indication match-qos-group

To configure the PDSN to use SDBs to deliver PPP control packets for Always-On sessions, where the session is dormant, use the **cdma pdsn a11 dormant sdb-indication match-qos-group** command in global configuration mode. Use the **no** form of this command to disable this feature.

cdma pdsn a11 dormant sdb-indication match-qos-group *group-number* **ppp-ctrl-pkts**

no cdma pdsn a11 dormant sdb-indication match-qos-group *group-number* **ppp-ctrl-pkts**

Syntax Description

Command	Description
group-number	Specifies the classified match criteria.

Defaults

There are no default values.

Command Modes

Global configuration

Command History

Release	Modification
12.3(11)YF2	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

While data packets can be sent towards the mobile using SDBs, SDBs can also be used to deliver PPP control packets. This method can be particularly helpful for Always-On sessions, where the session is dormant. With Always On configured, the PDSN sends out LCP echo requests (and waits for LCP echo replies) to keep the session alive. As a result, when such a session goes dormant, a data channel needs to be set up to deliver these LCP echo requests to the MN. The other option is to use SDBs to deliver the LCP echo requests without setting up a data channel.

Examples

The following example illustrates the **cdma pdsn a11 dormant sdb-indication match-qos-group** command:

```
router(config)# cdma pdsn a11 dormant sdb-indication match-qos-group 14 ppp-ctrl-pkts
```

cdma pdsn a11 mandate presence airlink-setup

To mandate that the initial RRQ should have Airlink-Setup in Acct CVSE from PCF, use the **cdma pdsn all mandate presence airlink-setup** command in global configuration mode. To disable this feature, use the **no** form of this command.

cdma pdsn a11 mandate presence airlink-setup

no cdma pdsn a11 mandate presence airlink-setup

Syntax Description

This command has no keywords or variables.

Defaults

There are no default values.

Command Modes

Global configuration

Command History

Release	Modification
12.2(8)ZB1	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

Issuing this command mandates that the initial RRQ should have Airlink-Setup in Acct CVSE from PCF. As a result, if this Airlink setup is not present in the RRQ, the session is not created, and a RRP with error code “86H - Poorly formed request” is returned.

If you do not configure this command, or disable it, then sessions can be opened even with no accounting CVSE being present in the initial RRQ.

Examples

router# cdma pdsn a11 mandate presence airlink-setup

cdma pdsn a11 receive de-reg send-termreq

To enable the PDSN to send an LCP TermReq to the Mobile Node when it receives a A11 de-registration message from the PCF, use the **cdma pdsn a11 receive de-reg send-termreq** command in global configuration mode. To disable this feature, use the **no** form of the command.

cdma pdsn a11 receive de-reg send-termreq

no cdma pdsn a11 receive de-reg send-termreq

Syntax Description

There are no arguments or keywords for this command.

Defaults

There are no default values.

Command Modes

Global configuration

Command History

Release	Modification
12.3(11)YF	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example enables the PDSN to send an LCP TermReq to the Mobile Node when it receives a A11 de-registration message from the PCF:

```
router (config)# cdma pdsn a11 receive de-reg send-termreq
```

cdma pdsn a11 reject airlink-start active

To enable the PDSN to send RRP (with error code “86H-Poorly formed request”) when the RRQ is received with airlink-start in the Acct CVSE from PCF for an active session, use the **cdma pdsn a11 reject airlink-start active** command in global configuration mode. To disable this function, use the **no** form of the command.

cdma pdsn a11 reject airlink-start active

no cdma pdsn a11 reject airlink-start active

Syntax Description

This command has no arguments or keywords.

Defaults

No default values.

Command Modes

Global configuration

Command History

Release	Modification
12.3(11)YR	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates the **cdma pdsn a11 reject airlink-start active** command:

```
Router(config)# cdma pdsn a11 reject airlink-start active
```

cdma pdsn a11 reject airlink-stop dormant

To enable the PDSN to send RRP (with error code "86H-Poorly formed request") when the RRQ is received with airlink-stop in the Acct CVSE from PCF for a dormant session, use the **cdma pdsn a11 reject airlink-stop dormant** command in global configuration mode. To disable this function, use the **no** form of the command.

cdma pdsn a11 reject airlink-stop dormant

no cdma pdsn a11 reject airlink-stop dormant

Syntax Description

This command has no arguments or keywords.

Defaults

No default values.

Command Modes

Global configuration

Command History

Release	Modification
12.3(11)YR	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates the **cdma pdsn a11 reject airlink-stop dormant** command:

```
Router(config)# cdma pdsn a11 reject airlink-stop dormant
```

cdma pdsn a11 session-update

To enable the A11 Session update feature on the PDSN, and to send an A11 session update for either the Always On, or RNPDIT (or both) attributes that are downloaded from the AAA during the authentication phase, use the **cdma pdsn a11 session-update** command in global configuration. Use the **no** form of the command to disable this feature.

cdma pdsn a11 session-update {[always-on] *1-10* **[rn-pdit]** *0-9***}**

no cdma pdsn a11 session-update {[always-on] [rn-pdit] *1-10***}**

Syntax Description

Command	Description
always-on	Sends an A11 session update for the Always On attribute that is downloaded from the AAA during the authentication phase.
rn-pdit	Sends an A11 session update for the RN-PDIT attribute that is downloaded from the AAA during the authentication phase.
1-10	Sets the timeout value for re-transmission of the A11 session update message to the PCF. The default timeout value is 3 seconds.
0-9	Sets the retransmit limit for the A11 session update if A11 session update Ack is not received from the PCF. Default re-transmission value is 3.

Defaults

The default timeout value is 3 seconds. The default retransmit number is 3.

Command Modes

Global configuration

Command History

Release	Modification
12.3(11)YF	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example enables both the **always-on** and **rn-pdit** attributes:

```
Router(config)#cdma pdsn a11 session-update ?
  always-on   Send Always-on indicator in A11 Session-Update
 rn-pdit    Send RN-PDIT in A11 Session-Update
```

cdma pdsn accounting local-timezone

To specify the local time stamp for PDSN accounting events, use the **cdma pdsn accounting local-timezone** command in global configuration mode. To return to the default Universal Time (UTC), use the **no** form of this command.

cdma pdsn accounting local-timezone

no cdma pdsn accounting local-timezone

Syntax Description

This command has no arguments or keywords.

Defaults

UTC time, a standard based on GMT, is enabled.

Command Modes

Global configuration

Command History

Release	Modification
12.1(5)XS	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

You must use the ***clock timezone hours-offset*** **[*minutes-offset*]** global configuration command to reflect the difference between local time and UTC time.

Examples

The following example sets the local time in Korea:

```
clock timezone KOREA 9
cdma pdsn accounting local-timezone
```

Related Commands

Command	Description
clock timezone	Specifies the hours and minutes (optional) difference between the local time zone and UTC.
cdma pdsn accounting send start-stop	Causes the PDSN to send: • An Accounting Stop record when it receives an active stop airlink record (dormant state) • An Accounting Start record when it receives an active start airlink record (active state)

cdma pdsn accounting prepaid

To enable the Prepaid billing feature on PDSN, use the **cdma pdsn accounting prepaid** command in global configuration mode. To disable this feature, use the **no** form of the command.

cdma pdsn accounting prepaid [volume | duration]

no cdma pdsn accounting prepaid [volume | duration]

Syntax Description

Command	Description
volume	Specifies that quota metering on the PDSN will be volume-based.
duration	Specifies that quota metering on the PDSN will be duration-based.

Defaults

There are no default values for this command.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)XW	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

Prepaid quota metering on the PDSN can be configured as volume-based only by enabling the **volume** keyword, or duration-based only by enabling the **duration** keyword. If no option is provided, both volume-based and duration-based metering are enabled on the PDSN, but only one can be effective at a time for one prepaid flow.

Note The Radius Disconnect feature should be enabled the on PDSN for Prepaid service. Use the **cdma pdsn radius disconnect** command to enable the radius disconnect (POD) feature.

Examples

The following example illustrates how to enable volume-based billing on the PDSN using the **cdma pdsn accounting prepaid** command:

```
router# cdma pdsn accounting prepaid volume
```

cdma pdsn accounting prepaid threshold

To set the box-level threshold for all volume-based or duration-based prepaid flows on the PDSN, use the **cdma pdsn accounting prepaid threshold** command in global configuration mode. To disable this feature, use the **no** form of the command.

cdma pdsn accounting prepaid threshold [volume | duration] *value*

no cdma pdsn accounting prepaid threshold [volume | duration] *value*

Syntax Description

Command	Description
volume	Specifies that the threshold value will apply to volume-based accounting. The values are 10-100, and they specify the Volume Threshold percentage
duration	Specifies that the threshold value will apply to duration-based accounting. The values are 10-100, and they specify the Duration Threshold percentage
value	Indicates the percentage of allocated quota that is the threshold value for the quota. Different threshold values can be set for volume-based and duration-based Prepaid service. **Note** The threshold values returned in the Access Accept message for the user will override this value.

Defaults

There are no default values for this command.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)XW	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates how to set the threshold for volume-based billing on the PDSN using the **cdma pdsn accounting prepaid threshold** command:

```
router# cdma pdsn accounting prepaid volume 80
router# cdma pdsn accounting prepaid duration 75
```

cdma pdsn accounting send cdma-ip-tech

To configure specific values for the F11 attribute for proxy Mobile IP and VPDN services, use the **cdma pdsn accounting send cdma-ip-tech** command in global configuration mode. To deconfigure those values, use the **no** form of this command.

cdma pdsn accounting send cdma-ip-tech [**proxy-mobile-ip** | **vpdn**]

no cdma pdsn accounting send cdma-ip-tech [**proxy-mobile-ip** | **vpdn**]

Syntax Description

Command	Description
proxy-mobile-ip	Sets the IP-Tech proxy-mobile-ip number. Values are 3-65535.
vpdn	Sets the IP-Tech vpdn number. Values are 3-65535.

Defaults

No default behavior or values.

Command Modes

Global configuration.

Command History

Release	Modification
12.1XC	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Examples

```
pdsn(config)#cdma pdsn accounting send cdma-ip-tech proxy-mobile-ip 3
pdsn(config)#cdma pdsn accounting send cdma-ip-tech vpdn 4
```

cdma pdsn accounting send ipv6-flows

To to control the number of flows and UDR records used for IPv4/IPv6 simultaneous sessions, use the **cdma pdsn accounting send ipv6-flows** command in global configuration mode. Use the **no** form of this command to disable this function.

cdma pdsn accounting send ipv6-flows *number*

no cdma pdsn accounting send ipv6-flows *number*

Syntax Description

Command	Description
number	Number of flows. The default value is 1, denoting a shared flow. The range of values is 1-2.

Defaults

The default value of flows is 1, denoting a shared flow.

Command Modes

Global configuration

Command History

Release	Modification
12.3(14)XY	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

The session will default to 1 flow for a simultaneous IPv4/IPv6 session, but 2 flows can be configured for a simultaneous session.

Examples

The following example illustrates the **cdma pdsn accounting send ipv6-flows** command:

```
router(config)# cdma pdsn accounting send ipv6-flows 2
```

cdma pdsn accounting send start-stop

To cause the PDSN to send accounting records when the call transitions between active and dormant states, use the **cdma pdsn accounting send start-stop** command in global configuration mode. To stop sending accounting records, use the **no** form of this command.

cdma pdsn accounting send {start-stop | cdma-ip-tech}

no cdma pdsn accounting send {start-stop | cdma-ip-tech}

Syntax Description

Command	Description
start-stop	Informs the PDSN when to begin sending accounting records and when to stop sending them.
cdma-ip-tech	Accounting records are generated with special IP-Tech number.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
12.2(2)XC	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

When this feature is enabled, the PDSN will send:

- An Accounting Stop record when it receives an active stop airlink record (dormant state).
- An Accounting Start record when it receives an active start airlink record (active state).

Examples

The following example starts sending PDSN accounting events:

```
cdma pdsn accounting send start-stop
```

Related Commands

Command	Description
cdma pdsn accounting local-timezone	Specifies the timestamp for PDSN accounting events.
cdma pdsn accounting time-of-day	Sets the accounting information for a specific time of day.
aaa accounting network pdsn start-stop group radius	Enables AAA accounting of requested services for billing or security purposes when you use RADIUS.

cdma pdsn accounting time-of-day

To set the accounting information for specified times during the day, use the **cdma pdsn accounting time-of-day** command in global configuration mode. To disable the specification, use the **no** form of this command.

cdma pdsn accounting time-of-day *hh:mm:ss*

no cdma pdsn accounting time-of-day

Syntax Description

hh:mm:ss	Hour:minutes:seconds.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
12.1(5)XS	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

This command is used to facilitate billing when a user is charged different prices based upon the time of the day. Up to ten different accounting triggers can be configured.

Examples

The following example sets an accounting trigger for 13:30:20:

```
cdma pdsn accounting time-of-day 13:30:30
```

Related Commands

Command	Description
clock set	Sets the system clock.
debug cdma pdsn accounting time-of-day	Displays debug information for the command.
show clock	Displays the system clock.
cdma pdsn accounting send start-stop	Causes the PDSN to send: • An Accounting Stop record when it receives an active stop airlink record (dormant state) • An Accounting Start record when it receives an active start airlink record (active state)

cdma pdsn age-idle-users

To configure the aging of idle users, use the **cdma pdsn age-idle-users** command. To stop aging out idle users, use the **no** form of this command.

cdma pdsn age-idle-users [minimum-age *value]*

no cdma pdsn age-idle-users

Syntax Description

minimum-age *value*	(Optional) The minimum number of seconds a user should be idle before they are a candidate for being aged out. Possible values are 1 through 65535.

Defaults

By default, no idle users are aged out.

Command Modes

Global configuration

Command History

Release	Modification
12.2(2)XC	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

If no value is specified, the user that has been idle the longest will be aged out. If an age is specified and the user that has been idle the longest has not been idle for the specified value, then no users are aged out.

Examples

The following example sets a minimum age out value of 5 seconds:

```
cdma pdsn age-idle-users minimum-age 5
```

cdma pdsn attribute send

To configure the attributes to be sent in an access-request or accounting request, use the **cdma pdsn attribute send** command in global configuration mode. To disable this feature and return to the default settings, use the **no** form of this command.

cdma pdsn attribute send {**a1** {**fa-chap** | **mip-rrq**} | **a2** {**auth-req** | **fa-chap** | **mip-rrq**} **c5** {**acct-reqs**} | **f11** {**auth-req** | **fa-chap**} | **f15** {**acct-reqs**} | **f16** {**acct-reqs**} | **f5** {**auth-req** | **fa-chap**} | **g1** {**acct-start**} | **g2** {**acct-start**} | **g17** | **esn-optional** | **is835a**}

no cdma pdsn attribute send {**a1** {**fa-chap** | **mip-rrq**} | **a2** {**auth-req** | **fa-chap** | **mip-rrq**} **c5** {**acct-reqs**} | **f11** {**auth-req** | **fa-chap**} | **f15** {**acct-reqs**} | **f16** {**acct-reqs**} | **f5** {**auth-req** | **fa-chap**} | **g1** {**acct-start**} | **g2** {**acct-start**} | **g17** | **esn-optional** | **is835a**}

Syntax Description

a1	Attribute Calling Station ID
a2	Attribute ESN, Electronic Serial Number
c5	Attribute c5, Service Reference ID
f11 auth-req	Auth-req Send f11 (IP Technology) in access request during pap/chap
f11 fa-chap	fa-chap Send f11 (IP Technology) in FA-CHAP
f15	Attribute f15, always-on
f16	Attribute f16, Forward PDCH RC
f5 auth-req	auth-req Send f5 (Service Option) in access request during pap/chap
f5 fa-chap	fa-chap Send f5 (Service Option) in FA-CHAP
g1	Attribute Input Octets
g2	Attribute Output Octets
g17	Attribute for last-user-activity in accounting stop and interim accounting records.
esn-optional	Send ESN in accounting records only when sent by PCF.
is835a	acct-start Send attributes in accounting start as per is835a.
fa-chap	Send *attribute* in fa-chap
mip-rrq	Send *attribute* in mobile ip RRQ
acct-reqs	Send *attribute* in start/stop/interim records for non always-on users
auth-req	Send *attribute* in access request during pap/chap
acct-start	Send *attribute* in accounting start

Defaults

No default values

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)XW	This command was introduced.
12.3(14)YX	The **F11** attributes were introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

Use this command to enable the optional attributes to be sent in access and accounting requests.

When attributes which have multiple options (for example, **a1**, which can be sent in **fa-chap** as well as **mip-rrq**), the configuration can be done in the following way as well,

```
cdma pdsn attribute send a1 fa-chap mip-rrq,
```

similarly

```
cdma pdsn attribute send a1 auth-req mip-rrq fa-chap
```

Examples

The following example enables the **cdma pdsn attribute send** command:

```
cdma pdsn attribute send a1 fa-chap
```

The attribute **a1** will be sent in the access request during FA-CHAP

```
cdma pdsn attribute send a1 auth-req
```

The attribute **a2** will be sent in the access request during PPP PAP/CHAP

cdma pdsn attribute send a3

To include the MEID in Access Request, FA-CHAP, Mobile IP RRQs, use the **cdma pdsn attribute send a3** command in the global configuration mode. To disable this feature, use the **no** form of the command.

cdma pdsn attribute send a3 {auth-req | fa-chap | mip-rrq}

no cdma pdsn attribute send a3 {auth-req | fa-chap | mip-rrq}

Syntax Description

auth-req	Send a3(MEID) in access request during pap/chap.
fa-chap	Send a3(MEID) in FA-CHAP.
mip-rrq	Send a3(MEID) in MobileIP RRQ.

Defaults

No default values

Command Modes

Global configuration

Command History

Release	Modification
12.3(14)YX1	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates how to include the MEID in FA-CHAP:

```
router#cdma pdsn attribute send a3 fa-chap
```

cdma pdsn attribute send meid-optional

To include the MEID in the Accounting Requests and access requests, in FA-CHAP requests and MOIP-requests, use the **cdma pdsn attribute send meid-optional** command in global configuration mode. To disable this feature, use the **no** form of the command.

cdma pdsn attribute send meid-optional

no cdma pdsn attribute send meid-optional

Syntax Description

There are no arguments of keywords for this command.

Defaults

No default values

Command Modes

Global configuration

Command History

Release	Modification
12.3(14)YX1	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Usage Guidelines

If the MN is not equipped to send the MEID, it will not be included in the RRQ. In such circumstances, a blank string will be included in the Accounting Requests, and the access requests, FA-CHAP and MOIP-rrqs.

If the **cdma pdsn attribute send meid-optional** command is configured, the MEID is included in the Accounting Requests and access requests, in FA-CHAP requests and MOIP- requests, only if it is included in the RRQ.

Examples

The following example illustrates the **cdma pdsn attribute send meid-optional** command:

```
router#cdma pdsn attribute send meid-optional
```

cdma pdsn cluster controller

To configure the PDSN to operate as a cluster controller, and to configure various parameters on the cluster controller, use the **cdma pdsn cluster controller** command. To disable certain cluster controller parameters, use the **no** form of this command.

cdma pdsn cluster controller [interface *interface-name* **|** ***timeout*** *seconds [****window*** *number]* **|** ***window*** *number]*

no cdma pdsn cluster controller [interface *interface-name* **|** ***timeout*** *seconds [****window*** *number]* **|** ***window*** *number]*

Syntax Description

interface	Interface name on which the cluster controller has IP connectivity to the cluster members.
timeout	The time the cluster controller waits to seek a member when there is no reply from that cluster member. The range is between 10 and 300 seconds, and the default value is 300 seconds.
window number	The number of sequential seek messages sent to a cluster member before it is presumed offline.

Defaults

The timeout default value is 300 seconds.

Command Modes

Global configuration

Command History

Release	Modification
12.2(2)XC	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Examples

The following example enables the cdma cluster controller:

```
cdma pdsn cluster controller interface FastEthernet1/0
```

cdma pdsn cluster controller closed-rp

To configure the VPDN group to be used to establish the L2TP tunnels between the controller and members for the Closed-RP Controller-Member clustering, use the **cdma pdsn cluster controller closed-rp** command in global configuration mode on the PDSN cluster controller. To remove this configuration, use the **no** form of the command.

cdma pdsn cluster controller closed-rp *vpdn-group*

no cdma pdsn cluster controller closed-rp *vpdn-group*

Syntax Description

vpdn-group	VPDN group to be used for establishment of the controller-member VPDN tunnels.

Defaults

No default behavior or values.

Command Modes

Global Configuration

Command History

Release	Modification
12.3(14)YX	**This command was introduced.**
12.4(15)T	This command was integrated into Cisco IOS Release 12.4(15)T.

Usage Guidelines

The VPDN group to be used for controller-member L2TP tunnels must be present in the running configuration before this command is configured.

Examples

The following example illustrates the **cdma pdsn cluster controller closed-rp** command:

cdma pdsn cluster controller closed-rp *vpdn-group*

cdma pdsn cluster controller member periodic-update

To enable the periodic process to flush the dangling Session Records on the controller, use the **cdma pdsn cluster controller member periodic-update** command in Global configuration mode. Use the **no** form of the command to disable this process.

cdma pdsn cluster controller member periodic-update

no cdma pdsn cluster controller member periodic-update

Syntax Description

There are no arguments or keywords for this command.

Defaults

There are no default values.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)ZB1	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates how to enable the **cdma pdsn cluster controller member periodic-update** command:

```
router(config)# cdma pdsn cluster controller member periodic-update
```

cdma pdsn cluster controller session-high

To generate an alarm when the controller reaches the upper threshold of the maximum number of sessions it can handle, use the **cdma pdsn cluster member session-high** command. To disable this feature, use the **no** form of this command.

cdma pdsn cluster controller session-high ***1-1000000***

no cdma pdsn cluster controller session-high ***1-1000000***

Syntax Description

1-1000000	The threshold of the maximum number of sessions the controller can handle.

Defaults

The range is 1-1000000. The configured value should be more than the lower threshold value. The default value is 200000.

Command Modes

Global configuration

Command History

Release	Modification
12.2(8)ZB1	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

You should take into account the number of members in the cluster when you configure the high threshold. For example, if there are only 2 members in the cluster, the high threshold should be less than 40000.

Examples

The following example illustrates the **cdma pdsn cluster contoller session-high** command:

```
Received SNMPv1 Trap:
Community: public
Enterprise: cCdmaPdsnMIBNotifPrefix
Agent-addr: 9.15.72.15
Enterprise Specific trap.
Enterprise Specific trap: 8
Time Ticks: 9333960
cCdmaServiceAffectedLevel.0 = major(3)
cCdmaClusterSessHighThreshold.0 = 50
```

cdma pdsn cluster controller session-low

To generate an alarm when the controller reaches the lower threshold of the sessions (hint to NOC that the system is being under utilized), use the **cdma pdsn cluster member session-low** command. To disable this feature, use the **no** form of this command.

cdma pdsn cluster controller session-low ***1-1000000***

no cdma pdsn cluster controller session-low ***1-1000000***

Syntax Description

1-1000000	The threshold of the maximum number of sessions the controller can handle.

Defaults

The range is 0-999999. The configured value should be less than the upper threshold value. The default value is 190000.

Command Modes

Global configuration

Command History

Release	Modification
12.2(8)ZB1	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

You should take into account the number of members in the cluster when you configure the low threshold.

Examples

The following example illustrates the **cdma pdsn cluster contoller session-low** command:

```
Received SNMPv1 Trap:
Community: public
Enterprise: cCdmaPdsnMIBNotifPrefix
Agent-addr: 9.15.72.15
Enterprise Specific trap.
Enterprise Specific trap: 9
Time Ticks: 9330691
cCdmaServiceAffectedLevel.0 = major(3)
cCdmaClusterSessLowThreshold.0 = 10
```

cdma pdsn cluster member

To configure the PDSN to operate as a cluster member, and to configure various parameters on the cluster member, use the **cdma pdsn cluster member** command. To disable certain cluster controller parameters, use the **no** form of this command.

cdma pdsn cluster member [controller *ipaddr* **|** ***interface*** *interface-name* **|** ***prohibit*** *type* **|** ***timeout*** *seconds [**window** number]* **|** ***window*** *number]*

no cdma pdsn cluster member [controller *ipadd* **| interface** *interface-name* **|** ***timeout*** *seconds [**window** number]* **|** ***window*** *number]*

Syntax Description

controller *ipaddr*	The controller that a specific member is connected to, identified by the controller's IP address.
interface	Interface name on which the cluster controller has IP connectivity to the cluster members.
prohibit	The type of traffic that the member is allowed to handle, or is prohibited from handling. Administratively prohibits member from accepting new data sessions within the cluster framework.
timeout	The time the cluster controller waits to seek a member when there is no reply from that cluster member. The range is between 10 and 600 seconds, and the default value is 300 seconds.
window number	The number of sequential seek messages sent to a cluster member before it is presumed offline.

Defaults

The default timeout value for the cluster member is 300 seconds.

Command Modes

Global configuration

Command History

Release	Modification
12.2(2)XC	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Usage Guidelines

The **prohibit** field enables a member to administratively rid itself of its load without service interruption. When enabled, the member is no longer given any new data sessions by the controller.

Examples

The following example enables a cdma pdsn cluster member:

```
cdma pdsn cluster member interface FastEthernet1/0
```

cdma pdsn cluster member periodic-update

To enable sending only bulk-update on a member PDSN, use the **cdma pdsn cluster member periodic-update** command in Global configuration mode. To disable this feature, use the **no** form of the command.

cdma pdsn cluster member periodic-update *time*

no cdma pdsn cluster member periodic-update *time*

Syntax Description

time	The time between when the member sends periodic bulk-updates. The time can be between 300 to 3000 msecs.

Defaults

The default value is 1000 ms.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)XW	This command was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates the **cdma pdsn cluster member periodic-update** command:

```
router(config)# cdma pdsn cluster member periodic-update 1000
```

cdma pdsn compliance

To configure PDSN behavior to comply with various standards, use the **cdma pdsn compliance command in global configuration mode. Use the no form of the command to disable this function.**

cdma pdsn compliance [**iosv4.1**] [**sdb**] [**is835a**] [**is835c**]

no cdma pdsn compliance [**iosv4.1**] [**sdb**] [**is835a**] [**is835c**]

Syntax Description

iosv4.1	Configures compliance to 3GPP2-IOS v4.1 features.
sdb	Configures PDSNs to process SDB record sent from PCF as per IOS4.1 Standard.
is835a	Configures IS835A-compliant behavior.
is835c	Configures IS835C-compliant behavior.

Defaults

There are no default values for this command.

Command Modes

Global configuration

Command History

Release	Modification
12.3(11)YF1	This command was introduced.
12.3(11)YF2	The **sdb** keyword was introduced.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Examples

The following example illustrates one instance of the **cdma pdsn compliance** command:

```
router(config)# cdma pdsn compliance is835a
```

cdma pdsn compliance iosv4.1 session-reference

3GPP2 IOS version 4.2 mandates that the Session Reference ID in the A11 Registration Request is always set to 1. To configure the PDSN to interoperate with a PCF that is not compliant with 3GPP2 IOS version 4.2, use the **cdma pdsn compliance iosv4.1 session-reference** command inGlobal configuration mode. To disable this configuration, use the **no** form of this command.

cdma pdsn compliance iosv4.1 session-reference

no cdma pdsn compliance iosv4.1 session-reference

Syntax Description

This command has no arguments or keywords.

Defaults

Session Reference ID set to 1 in the A11 registration Request is on by default.

Command Modes

Global configuration.

Command History

Release	Modification
12.2(8)BY1	This command was introduced.
12.3(4)T	This command was incorporated in Cisco IOS Release 12.3(4)T.

Examples

The following command instructs the PDSN to skip any checks done on the session reference id of incoming Registration Requests to ensure that they are set to 1.

```
router # cdma pdsn compliance iosv4.1 session-reference
```

Related Commands

Command	Description
debug cdma pdsn a11	Displays debug messages for A11 interface errors, events, and packets.