



# Firewall-and-NAT Access Ruledef Configuration Mode Commands

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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).

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## 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.

**bearer username*****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

**end**


---

**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.

<b>Product</b>	PSF NAT
<b>Privilege</b>	Security Administrator, Administrator
<b>Command Modes</b>	Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration <b>active-charging service</b> <i>service_name</i> > <b>access-ruledef</b> <i>access_ruledef_name</i> Entering the above command sequence results in the following prompt: [local]host_name(config-acs-fw-ruledef)#
<b>Syntax Description</b>	<b>[ no ] ip server-ipv6-network-prefix</b> <i>operator ipv6_prefix/prefix_length</i>  <b>no</b> Removes previously configured IPv6 server prefix.  <b>operator ipv6_prefix/prefix_length</b> <i>operator</i> : Specifies how to logically match the IPv6 server prefix. <i>operator</i> must be one of the following: <ul style="list-style-type: none"> <li>• !=: Does not equal</li> <li>• =: Equals</li> </ul> <i>ipv6_prefix/prefix_length</i> : Specifies the server's IPv6 address with subnet mask bit. <i>ipv6_prefix/prefix_length</i> must be in IPv6 colon-separated-hexadecimal notation with subnet mask bit. The <i>prefix_length</i> is the number of bits to match. The configurable prefix length values are 32, 40, 48, 56, 64 and 96.
<b>Usage Guidelines</b>	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.

<b>Product</b>	PSF NAT
<b>Privilege</b>	Security Administrator, Administrator
<b>Command Modes</b>	Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration <b>active-charging service</b> <i>service_name</i> > <b>access-ruledef</b> <i>access_ruledef_name</i> Entering the above command sequence results in the following prompt: [local] <i>host_name</i> (config-acs-fw-ruledef) #
<b>Syntax Description</b>	<pre>[ no ] ip src-address { operator { ipv4/ipv6_address   ipv4/ipv6_address/mask }   { !range   range } host-pool host_pool }</pre> <p><b>no</b> Removes previously configured IP destination address ruledef.</p> <p><b>operator{ ipv4/ipv6_address   ipv4/ipv6_address/mask }</b> <i>operator</i>: Specifies how to logically match the IP source address. <i>operator</i> must be one of the following:</p> <ul style="list-style-type: none"> <li>• !=: Does not equal</li> <li>• &lt;=: Less than or equals</li> <li>• =: Equals</li> <li>• &gt;=: Greater than or equals</li> </ul> <p><i>ipv4/ipv6_address</i>: Specifies the IP address using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.</p> <p><i>ipv4/ipv6_address/mask</i>: 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.</p> <p><b>{ !range   range } host-pool host_pool</b> <b>!range   range</b>: Specifies the range criteria:</p> <ul style="list-style-type: none"> <li>• <b>!range</b>: Not in the range of</li> <li>• <b>range</b>: In the range of</li> </ul> <p><b>host-pool host_pool</b>: Specifies the host pool name. <i>host_pool</i> must be an alphanumeric string of 1 through 63 characters.</p>
<b>Usage Guidelines</b>	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.

<b>Product</b>	PSF NAT
<b>Privilege</b>	Security Administrator, Administrator
<b>Command Modes</b>	Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration <b>active-charging service</b> <i>service_name</i> > <b>access-ruledef</b> <i>access_ruledef_name</i> Entering the above command sequence results in the following prompt: [local] <i>host_name</i> (config-acs-fw-ruledef)#
<b>Syntax Description</b>	[ <b>no</b> ] <b>tcp any-match</b> <i>operator condition</i>  <b>no</b> Removes previously configured TCP any-match ruledef.  <b>operator</b> Specifies how to logically match the analyzed state. <i>operator</i> must be one of the following: <ul style="list-style-type: none"> <li>• <b>! =</b>: Does not equal</li> <li>• <b>=</b>: Equals</li> </ul> <b>condition</b> Specifies the condition to be matched for the user traffic. <i>condition</i> must be one of the following: <ul style="list-style-type: none"> <li>• <b>FALSE</b>: Specified condition is FALSE.</li> <li>• <b>TRUE</b>: Specified condition is TRUE.</li> </ul>
<b>Usage Guidelines</b>	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.

<b>Product</b>	PSF
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<b>Privilege</b>	Security Administrator, Administrator
<b>Command Modes</b>	Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration <b>active-charging service</b> <i>service_name</i> > <b>access-ruledef</b> <i>access_ruledef_name</i> Entering the above command sequence results in the following prompt: <pre>[local]host_name(config-acs-fw-ruledef) #</pre>
<b>Syntax Description</b>	<pre>[ no ] tcp client-port { operator port_number   { !range   range } { start_range to end_range   port-map port_map } }</pre> <p><b>no</b> Removes the previously configured client TCP port ruledef.</p> <p><b>operator</b> Specifies how to logically match the port number. <i>operator</i> must be one of the following:</p> <ul style="list-style-type: none"> <li>• !=: Does not equal</li> <li>• &lt;=: Less than or equals</li> <li>• =: Equals</li> <li>• &gt;=: Greater than or equals</li> </ul> <p><b>port_number</b> Specifies the port number to match. <i>port_number</i> must be an integer from 1 through 65535.</p> <p><b>range   !range</b> Specifies the range criteria:</p> <ul style="list-style-type: none"> <li>• !range: Not in the range</li> <li>• range: In the range</li> </ul> <p><b>start_range to end_range</b> Specifies the starting and ending port numbers for the range of destination TCP ports. <i>start_range</i> must be an integer from 1 through 65535. <i>end_range</i> must be an integer from 1 through 65535 that is greater than <i>start_range</i>.</p> <p><b>port-map port_map</b> Specifies name of the port-map for the port range. <i>port_map</i> must be an alphanumeric string of 1 through 63 characters.</p>



**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.

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### Product

PSF

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### Privilege

Security Administrator, Administrator

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### 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:

- **!<math>=</math>**: Does not equal
- **<math><=</math>**: Less than or equals
- **=**: Equals
- **>=</math>**: 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.

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### Product

PSF  
NAT

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### Privilege

Security Administrator, Administrator

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### 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:

- **!<math>=</math>**: Does not equal
- **<math><=</math>**: Less than or equals
- **=**: Equals
- **>=</math>**: 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
```