

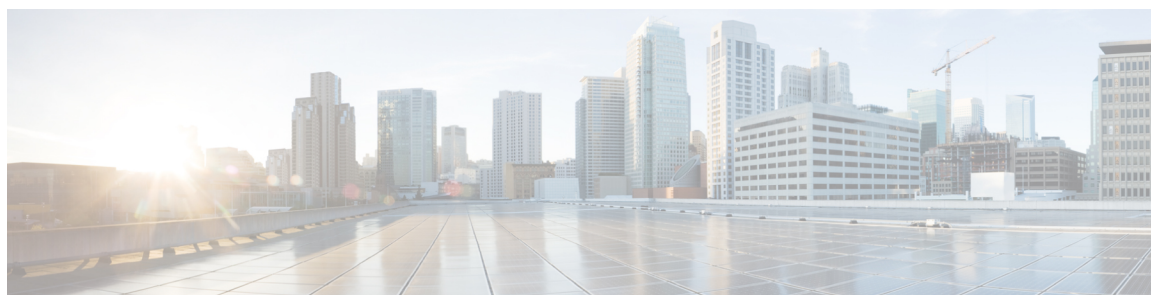


Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Command Reference, Release 4.2.x

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Preface

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Changes to This Document

This table lists the technical changes made to this document since it was first printed.

Revision	Date	Summary
OL-28446-02	May 2013	Republished with documentation updates for Cisco IOS XR Release 4.3.1 features.
OL-28446-01	December 2012	Initial release of this document.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

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BNG AAA Commands

This module describes the Cisco IOS XR software commands used to configure the AAA commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

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accounting aaa list

To configure the subscriber accounting feature, use the **accounting aaa list** command in the dynamic template configuration mode. To disable this feature, use the **no** form of this command.

accounting aaa list {*method_list_name*| **default**} **type session** {**dual-stack-delay** *time*| **periodic-interval** *time*}

no accounting aaa list {*method_list_name*| **default**} **type session** {**dual-stack-delay** *time*| **periodic-interval** *time*}

Syntax Description

<i>method_list_name</i>	Specifies the preconfigured method list name.
default	Specifies the default method list.
type	Specifies the type of accounting performed.
session	Applies the accounting to a session.
dual-stack-delay	Specifies the dual stack set delay wait in seconds.
<i>time</i>	Specifies the value of the dual stack delay time in seconds. The value ranges from 1-30.
periodic-interval	Specifies the periodic accounting interval in minutes.
<i>time</i>	Specifies the value of the periodic accounting interval in minutes. The value ranges from 1-65535.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template** command to enter dynamic template configuration mode.

Task ID

Task ID	Operation
config-services	read, write

Examples

This is an example of configuring **accounting aaa list** command for periodic accounting interval of 456 minutes:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type service s1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# accounting aaa list l1 type session
periodic-interval 456
```

Related Commands

Command	Description
dynamic-template, on page 142	Enables the dynamic template configuration mode.
dynamic-template type ppp, on page 146	Enables the ppp dynamic template type.
dynamic-template type ipsubscriber, on page 144	Enables the ipsubscriber dynamic template type.

aaa accounting subscriber

To create an accounting list for subscriber accounting, use the **aaa accounting subscriber** command in global configuration mode or administration configuration mode. To disable this accounting list for subscriber accounting, use the **no** form of this command.

aaa accounting subscriber *{list_name| default}* **{broadcast group {group_name| radius}| group {group_name| radius}}**

no aaa accounting subscriber *{list_name| default}* **{broadcast group {group_name| radius}| group {group_name| radius}}**

Syntax Description

default	Uses the listed authentication methods that follow this keyword as the default list of methods for authentication.
<i>list-name</i>	Represents the character string for the list name for AAA authentication.
broadcast	Specifies the broadcast accounting for subscriber.
group	Specifies the server-group.
<i>group_name</i>	Specifies the server group name.
radius	Specifies the list of all RADIUS hosts.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read, write

Examples

This is an example of configuring the **aaa accounting subscriber** command for sg1 server group:

```
RP/0/RSP0/CPU0:router(config)# aaa accounting subscriber sub1 broadcast group radius group sg1
```

Related Commands

Command	Description
aaa accounting system rp-failover, on page 7	Creates an accounting list for system events.

aaa accounting system rp-failover

To create an accounting list to send rp-failover or rp-switchover start or stop accounting messages, use the **aaa accounting system rp-failover** command in global configuration mode. To disable the system accounting for rp-failover, use the **no** form of this command.

aaa accounting system rp-failover *{list_name {start-stop| stop-only}| default {start-stop| stop-only}}*

no aaa accounting system rp-failover *{list_name {start-stop| stop-only}| default {start-stop| stop-only}}*

Syntax Description

<i>list_name</i>	Specifies the accounting list name.
default	Specifies the default accounting list.
start-stop	Enables the start and stop records.
stop-only	Enables the stop records only.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read, write

Examples

This is an example of configuring the **aaa accounting system rp-failover** command for default accounting list:

```
RP/0/RSP0/CPU0:router(config)# aaa accounting system rp-failover default start-stop none
```

Related Commands

Command	Description
aaa attribute format , on page 9	Create an AAA attribute format name.

aaa attribute format

To create an AAA attribute format name and to enter the configuration ID format sub mode, use the **aaa attribute format** command in global configuration mode. To disable this AAA attribute format, use the **no** form of this command.

```
aaa attribute format format_name [ circuit-id[plus][ mac-address remote-id ] [separator separator] |
format-string [length length] {string [Identity-Attribute]} | mac-address [plus][ circuit-id | remote-id
][separator separator] | remote-id [plus][ circuit-id | mac-address ][separator separator] |
username-strip {prefix-delimiter| suffix-delimiter} {delimiter} ]
```

```
no aaa attribute format format_name
```

Syntax Description

<i>format_name</i>	Specifies the name of the format.
circuit-id	Specifies the construction of the AAA attribute format name for subscribers based on the circuit-ID.
format-string	Specifies the extended string format of the AAA attribute format name.
<i>string</i>	Specifies the regular ASCII characters that includes conversion specifiers. The value is enclosed in double quotes.
<i>Identity-Attribute</i>	Identifies a session. For more information about the syntax for the router, use the question mark (?) online help function.
length	Specifies the length of the formatted attribute string.
<i>length</i>	Length of the formatted string, in integer. The range is from 1 to 253.
mac-address	Specifies the construction of the AAA attribute format name for subscribers based on the mac-address. The MAC address must be in the form of three 4-digit values (12 digits in dotted decimal notation).
remote-id	Specifies the construction of the AAA attribute format name for subscribers based on the remote-ID.
plus	Specifies the use of additional identifiers.
separator	Specifies the separator to be used between keys.
<i>separator</i>	Separator to be used between keys, default is a semicolon.

username-strip	Configures a network access server (NAS) to strip both suffixes and/or prefixes from the username before forwarding the username to the remote RADIUS server.
prefix-delimiter	Enables prefix stripping and specifies the character that will be recognized as a prefix delimiter.
suffix-delimiter	Enables suffix stripping and specifies the character that will be recognized as a suffix delimiter.
<i>Delimiter</i>	Suffix or prefix delimiter.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.2.1	The support for format-string keyword was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read, write

Examples

This is an example of configuring the **aaa attribute format** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# aaa attribute format form1
RP/0/RSP0/CPU0:router(config-id-format)# format-string "%s%s"
RP/0/RSP0/CPU0:router(config-id-format)# username-strip prefix-delimiter @
```

Related Commands

Command	Description
aaa accounting subscriber, on page 5	Creates an accounting list for subscriber accounting.

aaa authentication subscriber

To create a method list for subscriber authentication, use the **aaa authentication subscriber** command in global configuration mode. To disable this subscriber authentication method, use the **no** form of this command.

aaa authentication subscriber *{list_name| default}* **group** *{server_group_name| radius}*

no aaa authentication subscriber *{list_name| default}* **group** *{server_group_name| radius}*

Syntax Description

default	Uses the listed authentication methods that follow this keyword as the default list of methods for authentication.
<i>list-name</i>	Represents the character string for the list name for AAA authentication.
group	Specifies the server-group.
radius	Specifies the list of all RADIUS hosts.
<i>server_group_name</i>	Specifies the server group name.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read, write

Examples

This is an example of configuring the **aaa authentication subscriber** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# aaa authentication subscriber sub1 group sg1 group sg2
```

Related Commands

Command	Description
aaa authorization subscriber, on page 14	Creates authorization-related configurations

aaa authorization subscriber

To create authorization-related configurations, use the **aaa authorization subscriber** command in global configuration mode. To disable this subscriber authorization method, use the **no** form of this command.

aaa authorization subscriber *{list_name}* **default** **group** *{server_group_name}* **radius**

no aaa authorization subscriber *{list_name}* **default** **group** *{server_group_name}* **radius**

Syntax Description

default	Uses the listed authentication methods that follow this keyword as the default list of methods for authentication.
<i>list-name</i>	Represents the character string for the list name for AAA authorization.
group	Specifies the server-group.
radius	Specifies the list of all RADIUS hosts.
<i>server_group_name</i>	Specifies the server group name.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read, write

Examples

This is an example of configuring the **aaa authorization subscriber** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# aaa authorization subscriber sub1 group sg1 group sg2
```

Related Commands

Command	Description
aaa authentication subscriber, on page 12	Creates a method list for subscriber authentication.

aaa group server radius (BNG)

To configure a group server radius, use the **aaa group server radius** command in global configuration mode. To disable this AAA group server radius, use the **no** form of this command.

aaa group server radius *server_group_name* [**accounting**| **authorization**| **deadtime**| **load-balance**| **server**| **server-private**| **source-interface**| **throttle**| **vrf**]

no aaa group server radius *server_group_name* [**accounting**| **authorization**| **deadtime**| **load-balance**| **server**| **server-private**| **source-interface**| **throttle**| **vrf**]

Syntax Description

<i>server_group_name</i>	Specifies the AAA group server RADIUS name.
accounting	Specifies a RADIUS attribute filter for accounting.
authorization	Specifies a RADIUS attribute filter for authorization.
deadtime	Specifies the time in minutes after which a RADIUS server will be marked up after it has gone dead.
load-balance	Specifies the radius load-balancing options.
server	Specifies the RADIUS server.
server-private	Specifies the RADIUS server.
source-interface	Specifies interface for source address in RADIUS packet.
throttle	Specifies RADIUS throttling options.
vrf	Specifies the VRF to which the server group belongs.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **aaa group server radius** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)#aaa group server radius SG1
RP/0/RSP0/CPU0:router(config-sg-radius)#server 99.1.1.10 auth-port 1812 acct-port 1813
RP/0/RSP0/CPU0:router(config-sg-radius)#throttle access 10 access-timeout 5 accounting 5
```

aaa radius attribute

To configure a format e encode string for particular interface or NAS-Port type and to create an AAA radius attribute format configuration, use the **aaa radius attribute** command in global configuration mode. To disable this AAA Radius attribute, use the **no** form of this command.

aaa radius attribute {called-station-id {format *format_name* type *value*}| calling-station-id {format *format_name* type *value*}| nas-port {format e *format_name* type *value*}| nas-port-id {format e *format_name* type *value*}}

no aaa radius attribute {called-station-id {format *format_name* type *value*}| calling-station-id {format *format_name* type *value*}| nas-port {format e *format_name* type *value*}| nas-port-id {format e *format_name* type *value*}}

Syntax Description

called-station-id	Specifies the AAA nas-port attribute.
calling-station-id	Specifies the AAA nas-port attribute.
nas-port	Specifies the AAA nas-port attribute.
nas-port-id	Specifies the AAA nas-port-id attribute.
format	Specifies the AAA nas-port attribute format.
e	Specifies the AAA format type.
<i>format_name</i>	Specifies a 32 character string representing the format to be used.
type	Specifies the AAA nas-port attribute format.
<i>value</i>	Specifies the Nas-Port-Type value to apply format string on. The nas port value ranges from 0-44.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **aaa radius attribute** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# aaa radius attribute format e red type 40
```

aaa server radius dynamic-author

To configure radius dynamic author server, use the **aaa server radius dynamic-author** command in global configuration mode or administration configuration mode. To disable this subscriber authentication method, use the **no** form of this command.

aaa server radius dynamic-author {**auth-type** {**all**|**any**|**session-key**}|**client** *hostname*|**ignore** {**server-key**|**session-key**}|**port** *port_number*|**server-key** {**0**|**7**|**line_number**}}

no aaa server radius dynamic-author

Syntax Description

auth-type	Represents the COA client authentication type.
all	Represents all the COA client authentication type.
any	Represents any COA client authentication type.
session-key	Specifies that the session-key could be ignored.
client	Represents the COA client configuration.
ignore	Specifies the ignore options.
port	Specifies the COA server port to listen on.
server-key	Sets the shared secret to verify client COA requests.
<i>port_number</i>	Represents the port number and the value ranges from 1000 to 5000.
0	Specifies that the unencrypted key will follow.
7	Specifies that the encrypted key will follow.
<i>line_number</i>	Represents the unencrypted (cleartext) key.

Command Default

No default behavior or values

Command Modes

Global configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.2.1	The support for the keywords, auth-key and ignore {session-key} were removed.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read, write

Examples

```
RP/0/RSP0/CPU0:router(config)# aaa server radius dynamic-author ignore server-key
```

Related Commands

Command	Description
show radius (BNG), on page 48	Displays all trace data for AAA sub-system.
show aaa trace, on page 46	Displays the tunnel-related information.

radius-server attribute

To customize the selected radius attributes, use the **radius-server attribute** command in the global configuration mode. To disable the Radius server attribute, use the **no** form of this command.

radius-server attribute list *list_name* [**attribute** {*list*| **vendor-id** *value*}]

no radius-server attribute list *list_name* [**attribute** {*list*| **vendor-id** *value*}]

Syntax Description

list	Specifies a list of attributes that are used in conjunction with server-groups to accept or reject a list of attributes.
<i>list_name</i>	Specifies the list name.
attribute	Specifies a list of Radius attributes.
<i>list</i>	Specifies the list of comma-delimited Radius attributes.
vendor-id	Specifies the vendor-id of the RADIUS attribute.
<i>value</i>	Specifies the vendor-id value. The value ranges from 0 to 429496729.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
aaa	read, write

Examples

This is an example of configuring the **radius-server attribute** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# radius-server attribute list list1
RP/0/RSP0/CPU0:router(config-attribute-filter)# attribute list_1
RP/0/RSP0/CPU0:router(config-attribute-filter)# radius-server attribute vendor-id 429
```

radius-server dead-criteria

To configure the dead server detection criteria for a configured RADIUS server, use the **radius-server dead-criteria** command in the global configuration mode. To disable the Radius server dead-criteria, use the **no** form of this command.

radius-server dead-criteria {*time value*| *tries number_of_tries*}

no radius-server dead-criteria {*time value*| *tries number_of_tries*}

Syntax Description

time	Specifies the minimum time that must elapse since a response was received from this RADIUS server.
<i>value</i>	Specifies the time in seconds. The value ranges from 1 to 120.
tries	Specifies the minimum number of transmissions (original attempts plus retransmits) to this RADIUS server.
<i>number_of_tries</i>	Specifies the number of tries. The range is from 1 to 100.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
aaa	read, write

Examples

This is an example of configuring the **radius-server dead-criteria** command with 100s time and 34 tries:

```
RP/0/RSP0/CPU0:router(config)#radius-server dead-criteria time 100  
RP/0/RSP0/CPU0:router(config)#radius-server dead-criteria tries 34
```

radius-server deadtime (BNG)

To improve RADIUS response times when some servers are unavailable and cause the unavailable servers to be skipped immediately, use the **radius-server deadtime** command in global configuration mode. To set deadtime to 0, use the **no** form of this command.

radius-server deadtime *value*

no radius-server deadtime *value*

Syntax Description

<i>value</i>	Length of time, in minutes, for which a RADIUS server is skipped over by transaction requests, up to a maximum of 1440 (24 hours). The range is from 1 to 1440. The default value is 0.
--------------	---

Command Default

Dead time is set to 0.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported on BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

A RADIUS server marked as dead is skipped by additional requests for the duration of minutes unless all other servers are marked dead and there is no rollover method.

Task ID

Task ID	Operations
aaa	read, write

Examples

This example specifies five minutes of deadtime for RADIUS servers that fail to respond to authentication requests for the **radius-server deadline** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# radius-server deadline 5
```

radius-server disallow null-username

To drop radius access-requests that has blank or no username, use the **radius-server disallow null-username** command in the global configuration mode. To disable the Radius server disallow null-username, use the **no** form of this command.

radius-server disallow null-username

no radius-server disallow null-username

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Global configuration mode

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	aaa	read, write

Examples This is an example of configuring the **radius-server disallow null-username** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)#radius-server disallow null-username
```

radius-server host (BNG)

To specify a RADIUS server host, use the **radius-server host** command in global configuration mode. To delete the specified RADIUS host, use the **no** form of this command.

radius-server host *ip-address* [**auth-port** *port-number*] [**acct-port** *port-number*] [**timeout** *seconds*] [**retransmit** *retries*] [**key** *string*]

no radius-server host *ip-address* [**auth-port** *port-number*] [**acct-port** *port-number*]

Syntax Description

<i>ip-address</i>	IP address of the RADIUS server host.
auth-port <i>port-number</i>	(Optional) Specifies the User Datagram Protocol (UDP) destination port for authentication requests; the host is not used for authentication if set to 0. If unspecified, the port number defaults to 1645.
acct-port <i>port-number</i>	(Optional) Specifies the UDP destination port for accounting requests; the host is not used for accounting if set to 0. If unspecified, the port number defaults to 1646.
timeout <i>seconds</i>	(Optional) The time interval (in seconds) that the router waits for the RADIUS server to reply before retransmitting. This setting overrides the global value of the radius-server timeout command. If no timeout value is specified, the global value is used. Enter a value in the range from 1 to 1000. Default is 5.
retransmit <i>retries</i>	(Optional) The number of times a RADIUS request is re-sent to a server, if that server is not responding or is responding slowly. This setting overrides the global setting of the radius-server retransmit command. If no retransmit value is specified, the global value is used. Enter a value in the range from 1 to 100. Default is 3.
key <i>string</i>	(Optional) Specifies the authentication and encryption key used between the router and the RADIUS server. This key overrides the global setting of the radius-server key command. If no key string is specified, the global value is used. The key is a text string that must match the encryption key used on the RADIUS server. Always configure the key as the last item in the radius-server host command syntax. This is because the leading spaces are ignored, but spaces within and at the end of the key are used. If you use spaces in the key, do not enclose the key in quotation marks unless the quotation marks themselves are part of the key.

Command Default

No RADIUS host is specified; use global **radius-server** command values.

Command Modes

Global configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported on BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

You can use multiple **radius-server host** commands to specify multiple hosts. The Cisco IOS XR software searches for hosts in the order in which you specify them.

If no host-specific timeout, retransmit, or key values are specified, the global values apply to each host.

Task ID

Task ID	Operations
aaa	read, write

Examples

This example shows how to establish the host with IP address 172.29.39.46 as the RADIUS server, use ports 1612 and 1616 as the authorization and accounting ports, set the timeout value to 6, set the retransmit value to 5, and set "rad123" as the encryption key, matching the key on the RADIUS server:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# radius-server host 172.29.39.46 auth-port 1612 acct-port 1616 timeout 6 retransmit 5 key rad123
```

To use separate servers for accounting and authentication, use the zero port value as appropriate.

Related Commands

Command	Description
aaa accounting subscriber	Creates a method list for accounting.
aaa authentication subscriber	Creates a method list for authentication.
aaa authorization subscriber	Creates a method list for authorization.
radius-server key (BNG), on page 33	Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon.
radius-server retransmit (BNG), on page 37	Specifies how many times Cisco IOS XR software retransmits packets to a server before giving up.

Command	Description
radius-server timeout (BNG) , on page 40	Sets the interval a router waits for a server host to reply.

radius-server ipv4 dscp

To mark the dscp bit for the ipv4 packets, use the **radius-server ipv4 dscp** command in the global configuration mode. To disable the Radius server IPv4 dscp, use the **no** form of this command.

radius-server ipv4 dscp *value*

no radius-server ipv4 dscp *value*

Syntax Description

<i>value</i>	Specifies the differentiated services codepoint value. The value ranges from 1 to 63.
--------------	---

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
aaa	read, write

Examples

This is an example of configuring the **radius-server ipv4 dscp** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)#radius-server ipv4 dscp 34
```

radius-server key (BNG)

To set the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon, use the **radius-server key** command in global configuration mode. To disable the key, use the **no** form of this command.

radius-server key {**0** *clear-text-key* | **7** *encrypted-key* | *clear-text-key*}

no radius-server key

Syntax Description

0 <i>clear-text-key</i>	Specifies an unencrypted (cleartext) shared key.
7 <i>encrypted-key</i>	Specifies a encrypted shared key.
<i>clear-text-key</i>	Specifies an unencrypted (cleartext) shared key.

Command Default

The authentication and encryption key is disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported on BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The key entered must match the key used on the RADIUS server. All leading spaces are ignored, but spaces within and at the end of the key are used. If you use spaces in your key, do not enclose the key in quotation marks unless the quotation marks themselves are part of the key.

Task ID

Task ID	Operations
aaa	read, write

Examples

This example shows how to set the cleartext key to “samplekey”:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# radius-server key 0 samplekey
```

This example shows how to set the encrypted shared key to “anykey”:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# radius-server key 7 anykey
```

radius-server load-balance

To configure the RADIUS load-balancing options, use the **radius-server load-balance** command in the global configuration mode. To disable the Radius server load-balance, use the **no** form of this command.

radius-server load-balance method least-outstanding [*batch-size value*| **ignore-preferred-server**]
no radius-server load-balance method least-outstanding

Syntax Description

method	Specifies the method by which the next host will be picked.
least-outstanding	Picks the server with the least transactions outstanding.
batch-size	Specifies the batch size for the selection of the server.
<i>value</i>	Specifies the batch size value. The value ranges from 1 to 1500. The default is 25.
ignore-preferred-server	Disables the preferred server for this server group.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
aaa	read, write

Examples

This is an example of configuring the **radius-server load-balance** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)#radius-server load-balance method lead-outstanding batch-size  
25  
RP/0/RSP0/CPU0:router(config)#radius-server load-balance method lead-outstanding batch-size  
ignore-preferred-server
```

radius-server retransmit (BNG)

To specify the number of times the Cisco IOS XR software retransmits a packet to a server before giving up, use the **radius-server retransmit** command in global configuration mode. To disable retransmission, use the **no** form of this command.

radius-server retransmit *retries*

no radius-server retransmit

Syntax Description

<i>retries</i>	Maximum number of retransmission attempts. The range is from 1 to 100. Default is 3.
----------------	--

Command Default

The RADIUS servers are retried three times, or until a response is received.

Command Modes

Global configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported on BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The RADIUS client tries all servers, allowing each one to time out before increasing the retransmit count.

Task ID

Task ID	Operations
aaa	read, write

Examples

This example shows how to specify a retransmit counter value of five times:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# radius-server retransmit 5
```

Related Commands

Command	Description
radius-server key (BNG) , on page 33	Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon.

radius-server source-port

To configure the NAS to use a total of 50 ports as the source ports for sending out RADIUS requests, use the **radius-server source-port** command in the global configuration mode. To disable the Radius server source-port, use the **no** form of this command.

radius-server source-port extended

no radius-server source-port extended

Syntax Description

extended	Specifies that the source-port can be extended to 50.
-----------------	---

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Having 200 source ports allows up to 256*200 authentication and accounting requests to be outstanding at one time. During peak call volume, typically when a router first boots or when an interface flaps, the extra source ports allow sessions to recover more quickly on large-scale aggregation platforms.

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
aaa	read, write

Examples

This is an example of configuring the **radius-server source-port** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)#radius-server source-port extended
```

radius-server timeout (BNG)

To set the interval for which a router waits for a server host to reply before timing out, use the **radius-server timeout** command in global configuration mode. To restore the default, use the **no** form of this command.

radius-server timeout *seconds*

no radius-server timeout

Syntax Description

<i>seconds</i>	Number that specifies the timeout interval, in seconds. Range is from 1 to 1000.
----------------	--

Command Default

The default radius-server timeout value is 5 seconds.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported on BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **radius-server timeout** command to set the number of seconds a router waits for a server host to reply before timing out.

Task ID

Task ID	Operations
aaa	read, write

Examples

This example shows how to change the interval timer to 10 seconds:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# radius-server timeout 10
```

radius-server vsa attribute ignore unknown

To specify the unknown vsa ignore configuration for RADIUS server, use the **radius-server vsa attribute ignore unknown** command in the global configuration mode. To disable this feature, use the **no** form of this command.

radius-server vsa attribute ignore unknown

no radius-server vsa attribute ignore unknown

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Global configuration mode

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	aaa	read, write

Examples This is an example of configuring the **radius-server vsa attribute ignore unknown** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)#radius-server vsa attribute ignore unknown
```

radius-server throttle

To configure RADIUS throttling options for access and accounting to flow control the number of access and accounting requests sent to a RADIUS server, use the **radius-server throttle** command in the global configuration mode. To disable the radius server throttle, use the **no** form of this command.

radius-server throttle {*access value* {*access-timeout time*| *accounting value*}| **accounting** *acc_value*}

no radius-server throttle {*access value* {*access-timeout time*| *accounting value*}| **accounting** *acc_value*}

Syntax Description

access	Controls the number of access requests sent to a radius server.
<i>value</i>	Specifies the number of outstanding access requests after which throttling should be performed. The value ranges from 0 to 65535 and the preferred value 100.
access-timeout	Specifies the number of timeouts exceeding which a throttled access request is dropped.
<i>time</i>	Specifies the number of timeouts for a transaction. The default value is 3.
accounting	Controls the number of accounting requests sent to a radius server.
<i>acc_value</i>	Specifies the number of outstanding accounting transactions after which throttling should be performed. The value ranges from 0 to 65535 and the preferred value 100.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read, write

Examples

This is an example of configuring the **radius-server throttle** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# radius-server throttle access 10 access-timeout 5 accounting  
10
```

radius source-interface (BNG)

To force RADIUS to use the IP address of a specified interface or subinterface for all outgoing RADIUS packets, use the **radius source-interface** command in global configuration mode. To prevent only the specified interface from being the default and not from being used for all outgoing RADIUS packets, use the **no** form of this command.

radius source-interface *interface* [**vrf** *vrf_name*]

no radius source-interface *interface*

Syntax Description

<i>interface-name</i>	Name of the interface that RADIUS uses for all of its outgoing packets.
vrf <i>vrf-id</i>	Specifies the name of the assigned VRF.

Command Default

If a specific source interface is not configured, or the interface is down or does not have an IP address configured, the system selects an IP address.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported on BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **radius source-interface** command to set the IP address of the specified interface or subinterface for all outgoing RADIUS packets. This address is used as long as the interface or subinterface is in the up state. In this way, the RADIUS server can use one IP address entry for every network access client instead of maintaining a list of IP addresses.

The specified interface or subinterface must have an IP address associated with it. If the specified interface or subinterface does not have an IP address or is in the down state, then RADIUS reverts to the default. To avoid this, add an IP address to the interface or subinterface or bring the interface to the up state.

The **radius source-interface** command is especially useful in cases in which the router has many interfaces or subinterfaces and you want to ensure that all RADIUS packets from a particular router have the same IP address.

Task ID

Task ID	Operations
aaa	read, write

Examples

This example shows how to make RADIUS use the IP address of subinterface s2 for all outgoing RADIUS packets:

```
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# radius source-interface Loopback 10 vrf vrf-1
```

show aaa trace

To display all trace data for AAA sub-system, use the **show aaa trace** command in the EXEC mode.

show aaa trace [**basic**| **errors**| **file**| **func**| **hexdump**| **job**| **last**| **location**| **reverse**| **stats**| **tailf**| **unique**| **usec**| **verbose**| **wide**| **wrapping**]

Syntax Description

basic	Displays the data for AAA basic events.
errors	Displays the data for AAA client library errors.
file	Displays the specific file.
func	Displays the data for AAA function.
hexdump	Displays the traces in hexadecimal.
job	Displays the job ID.
last	Displays the last n entries.
location	Displays the card location.
reverse	Displays the latest traces first.
stats	Displays the statistics.
tailf	Displays the new traces as they were added.
unique	Displays the unique entries with counts.
verbose	Displays the internal debugging information.
wrapping	Displays the wrapping entries.
	Displays the output modifiers.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read

Examples

This is the sample output of the **show aaa trace** command:

```
RP/0/RSP0/CPU0:router# show aaa trace func
Tue Jan 15 07:59:10.381 UTC
4 wrapping entries (1088 possible, 64 allocated, 0 filtered, 4 total)
Jan 15 06:11:00.958 aaa/func 0/RSP0/CPU0 t5 ENTERING aaa_connect2
Jan 15 06:11:00.962 aaa/func 0/RSP0/CPU0 t5 ENTERING get_unique_context
Jan 15 06:11:00.963 aaa/func 0/RSP0/CPU0 t5 EXITTING get_unique_context
Jan 15 06:11:00.963 aaa/func 0/RSP0/CPU0 t5 EXITTING aaa_connect2
```

show radius (BNG)

To display the tunnel-related information, use the **show radius** command in the EXEC mode.

show radius [**accounting**| **authentication**| **dead-criteria**| **double-dip**| **location**| **server-groups**]

Syntax Description

accounting	Displays the RADIUS accounting data.
authentication	Displays the RADIUS authentication data.
dead-criteria	Displays the RADIUS dead-server detection criteria.
double-dip	Displays the RADIUS double-dip data.
location	Specifies the RADIUS instance location.
server-groups	Displays the RADIUS server group information.
	Displays the output modifiers.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read

Examples

This is the sample output of the **show radius** command:

RP/0/RSP0/CPU0:router#**show radius | file tftp: vrf vrf1 |**
 The show radius output is as follows:

```

Wed Mar  7 19:22:40.392 IST
Global dead time: 0 minute(s)
Number of Servers:2

Server: 10.1.0.3/1645/1646  is UP
  Total Deadtime: 0s Last Deadtime: 0s
  Timeout: 5 sec, Retransmit limit: 3
  Quarantined: No
  Authentication:
    1 requests, 0 pending, 0 retransmits
    1 accepts, 0 rejects, 0 challenges
    0 timeouts, 0 bad responses, 0 bad authenticators
    0 unknown types, 0 dropped, 50 ms latest rtt
    Throttled: 0 transactions, 0 timeout, 0 failures
    Estimated Throttled Access Transactions: 0
    Maximum Throttled Access Transactions: 0

    Automated TEST Stats:
      0 requests, 0 timeouts, 0 response, 0 pending
  Accounting:
    1 requests, 0 pending, 0 retransmits
    1 responses, 0 timeouts, 0 bad responses
    0 bad authenticators, 0 unknown types, 0 dropped
    189 ms latest rtt
    Throttled: 0 transactions, 0 timeout, 0 failures
    Estimated Throttled Accounting Transactions: 0
    Maximum Throttled Accounting Transactions: 0

    Automated TEST Stats:
      0 requests, 0 timeouts, 0 response, 0 pending

Server: 1.1.1.1/1645/1646  is UP
  Total Deadtime: 0s Last Deadtime: 0s
  Timeout: 5 sec, Retransmit limit: 3
  Quarantined: No
  Authentication:
    0 requests, 0 pending, 0 retransmits
    0 accepts, 0 rejects, 0 challenges
    0 timeouts, 0 bad responses, 0 bad authenticators
    0 unknown types, 0 dropped, 0 ms latest rtt
    Throttled: 0 transactions, 0 timeout, 0 failures
    Estimated Throttled Access Transactions: 0
    Maximum Throttled Access Transactions: 0

    Automated TEST Stats:
      0 requests, 0 timeouts, 0 response, 0 pending
  Accounting:
    0 requests, 0 pending, 0 retransmits
    0 responses, 0 timeouts, 0 bad responses
    0 bad authenticators, 0 unknown types, 0 dropped
    0 ms latest rtt
    Throttled: 0 transactions, 0 timeout, 0 failures
    Estimated Throttled Accounting Transactions: 0
    Maximum Throttled Accounting Transactions: 0

    Automated TEST Stats:
      0 requests, 0 timeouts, 0 response, 0 pending

RP/0/RSP0/CPU0:router# show rad server-groups SG1

Server group 'SG1' has 1 server(s)
  VRF (id 0x0)
  Dead time: 0 minute(s) (inherited from global)
  
```

```

Contains 1 server(s)
Server 10.1.0.3/1645/1646
Authentication:
  1 requests, 0 pending, 0 retransmits
  1 accepts, 0 rejects, 0 challenges
  0 timeouts, 0 bad responses, 0 bad authenticators
  0 unknown types, 0 dropped, 50 ms latest rtt
Throttled: 0 transactions, 0 timeout, 0 failures
Estimated Throttled Access Transactions: 0
Maximum Throttled Access Transactions: 0

Automated TEST Stats:
  0 requests, 0 timeouts, 0 response, 0 pending
Accounting:
  1 requests, 0 pending, 0 retransmits
  1 responses, 0 timeouts, 0 bad responses
  0 bad authenticators, 0 unknown types, 0 dropped
  189 ms latest rtt
Throttled: 0 transactions, 0 timeout, 0 failures
Estimated Throttled Accounting Transactions: 0
Maximum Throttled Accounting Transactions: 0

Automated TEST Stats:
  0 requests, 0 timeouts, 0 response, 0 pending

```

This table describes the significant fields shown in the display.

Table 1: show radius Field Descriptions

Field	Description
Server	Server IP address/UDP destination port for authentication requests/UDP destination port for accounting requests.
Timeout	Number of seconds the router waits for a server host to reply before timing out.
Retransmit limit	Number of times the Cisco IOS XR software searches the list of RADIUS server hosts before giving up.
Deadtime	Length of time in minutes for a RADIUS server to remain marked dead.

show radius server-groups detail

To display the detailed summary of the RADIUS server group information, use the **show radius server-groups detail** command in the EXEC mode.

show radius server-groups *server_group_name* **detail**

Syntax Description

<i>server_group_name</i>	Specifies the name of the RADIUS server group.
--------------------------	--

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
aaa	read

Examples

This is sample output of the **show radius server-groups detail** command:

```
RP/0/RSP0/CPU0:router# show radius server-groups SG1 detail
Wed Jan 18 06:04:59.432 EST

Server group 'SG1' has 1 server(s)
  VRF (id 0x0)
    Dead time: 0 minute(s) (inherited from global)
    Contains 1 server(s)
  Server 99.0.0.10/1812/1813
    Authentication:
      100 requests, 0 pending, 0 retransmits
      100 accepts, 0 rejects, 0 challenges
      0 timeouts, 0 bad responses, 0 bad authenticators
      0 unknown types, 0 dropped, 0 ms latest rtt
      Throttled: 0 transactions, 0 timeout, 0 failures
      Estimated Throttled Access Transactions: 0
```

```
Maximum Throttled Access Transactions: 0
```

```
Automated TEST Stats:  
0 requests, 0 timeouts, 0 response, 0 pending
```

This table describes the significant fields shown in the display.

Table 2: show radius Field Descriptions

Field	Description
Server	Server IP address/UDP destination port for authentication requests/UDP destination port for accounting requests.
Deadtime	Length of time in minutes for a RADIUS server to remain marked dead.
Authentication	Specifies the authentication details.
Automated TEST Stats	Specifies the total time taken for sending requests, total timeouts, and the response time.



ACL and ABF Commands

This module describes the Cisco IOS XR software commands used to configure the ACL and ABF commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [ipv4 access-group \(BNG\), page 54](#)
- [ipv4 access-list \(BNG\), page 57](#)

ipv4 access-group (BNG)

To control access to an interface, use the **ipv4 access-group** command in an appropriate configuration mode. To remove the specified access group, use the **no** form of this command.

ipv4 access-group *access-list-name* {**common** *acl-p* {[*acl1* **ingress** [**hardware-count**] [**interface-statistics**]] | **ingress**} | *acl1* {**ingress** | **egress**} [**hardware-count**] [**interface-statistics**]}

no ipv4 access-group *access-list-name* {**common** *acl-p* {[*acl1* **ingress** [**hardware-count**] [**interface-statistics**]] | **ingress**} | *acl1* {**ingress** | **egress**} [**hardware-count**] [**interface-statistics**]}

Syntax Description

<i>access-list-name</i>	The name of the ipv4 access list as specified by the ipv4 access-list command.
common	The name of the common ACL. Common ACL is only supported on the ingress direction.
ingress	Filters on inbound packets.
egress	Filters on outbound packets.
hardware-count	(Optional) Specifies to access a group's hardware counters.
interface-statistics	(Optional) Specifies per-interface statistics in the hardware. Not available for common ACL.

Command Default

The interface does not have an IPv4 access list applied to it.

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.1.1	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **ipv4 access-group** command to control access to an interface. To remove the specified access group, use the **no** form of the command. Use the *access-list-name* argument to specify a particular IPv4 access list.

Use the **ingress** keyword to filter on inbound packets or the **egress** keyword to filter on outbound packets. Use the *hardware-count* argument to enable hardware counters for the access group.

Permitted packets are counted only when hardware counters are enabled using the hardware-count argument. Denied packets are counted whether hardware counters are enabled or not.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

**Note**

Under the dynamic template configuration mode, only the **egress** and **ingress** keywords are displayed.

**Note**

For packet filtering applications using the ipv4/ipv6 access-group command, packet counters are maintained in hardware for each direction. If an access group is used on multiple interfaces in the same direction, then packets are counted for each interface that has the hardware-count argument enabled.

If the access list permits the addresses, the software continues to process the packet. If the access list denies the address, the software discards the packet and returns an Internet Control Message Protocol (ICMP) host unreachable message.

If the specified access list does not exist, all packets are passed.

By default, the unique or per-interface ACL statistics are disabled.

Task ID

Task ID	Operation
acl	read, write
network	read, write
config-services	read, write

Examples

This is an example of the show access-lists command:

```
RP/0/RSP0/CPU0:router# show access-lists

ipv4 access-list acl-common
 10 permit ipv4 host 205.205.205.1 host 200.175.175.1 log-input
 15 deny ipv4 any host 200.175.175.1
 20 permit ipv4 host 205.205.205.1 host 201.175.175.1 log-input
 25 deny ipv4 any host 201.175.175.1
 30 permit ipv4 host 205.205.205.1 host 202.175.175.1 log-input
 35 deny ipv4 any host 202.175.175.1
ipv4 access-list acl-unique1
 10 permit ipv4 host 205.205.205.1 host 203.175.175.1 log-input
```

```
15 deny ipv4 any host 203.175.175.1
20 permit ipv4 any any
ipv4 access-list ssm-acl
10 permit ipv4 232.0.0.0 0.255.255.255 any log
```

This is an example of a configured IPv4 ACL in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ipv4 access-group a1 egress
```

ipv4 access-list (BNG)

To define an IPv4 access list by name, use the **ipv4 access-list** command in global configuration mode. To remove all entries in an IPv4 access list, use the **no** form of this command.

ipv4 access-list *name*

no ipv4 access-list *name*

Syntax Description

<i>name</i>	Name of the access list. Names cannot contain a space or quotation marks.
-------------	---

Command Default

No IPv4 access list is defined.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.3.0	This command was supported in BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **ipv4 access-list** command to configure an IPv4 access list. This command places the router in access list configuration mode, in which the denied or permitted access conditions must be defined with the **deny** or **permit** command.

Use the **resequence access-list ipv4** command if you want to add a **permit**, **deny**, or **remark** statement between consecutive entries in an existing IPv4 access list. Specify the first entry number (the *base*) and the increment by which to separate the entry numbers of the statements. The software renumbers the existing statements, thereby making room to add new statements with the unused entry numbers.

Use the **ipv4 access-group** command to apply the access list to an interface.

Task ID

Task ID	Operations
acl	read, write

Examples

This example shows how to define a standard access list named Internetfilter:

```
RP/0/RSP0/CPU0:router(config)# ipv4 access-list Internetfilter
RP/0/RSP0/CPU0:router(config-ipv4-acl)# 10 permit 192.168.34.0 0.0.0.255
RP/0/RSP0/CPU0:router(config-ipv4-acl)# 20 permit 172.16.0.0 0.0.255.255
RP/0/RSP0/CPU0:router(config-ipv4-acl)# 30 permit 10.0.0.0 0.255.255.255
RP/0/RSP0/CPU0:router(config-ipv4-acl)# 39 remark Block BGP traffic from 172.16 net.
RP/0/RSP0/CPU0:router(config-ipv4-acl)# 40 deny tcp host 172.16.0.0 eq bgp host
192.168.202.203 range 1300 1400
```



Address Pool Service Commands

This chapter describes the Cisco IOS XR software Address Pool Service commands for Broadband Network Gateway (BNG). For details regarding related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [address-range](#), page 60
- [exclude](#), page 62
- [network \(BNG\)](#), page 64
- [pool vrf](#), page 66
- [pool ipv4](#), page 68
- [show pool ipv4 name](#), page 70
- [show pool vrf](#), page 74

address-range

To specify address range for allocation, use the **address-range** command in Pool IPv4 configuration submode. To remove the address range, use the **no** form of this command.

address-range *first_range last_range*

no address-range *first_range last_range*

Syntax Description

<i>first_range</i>	Specifies the first address in range from which the IP addresses can be assigned to clients.
<i>last_range</i>	Specifies the last address in range until which the IP addresses can be assigned to clients.

Command Default

None

Command Modes

Pool IPv4 configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

You should only specify the addresses that are assignable to clients in a particular subnet. The interface and broadcast addresses should not be included in the address-range configuration.

Use the **pool ipv4** command to enter IPv4 pool configuration submode.

Multiple address-ranges are allowed within a pool.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **address-range** command for IPv4 in the global configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pool vrf vrf1 ipv4 pool2
RP/0/RSP0/CPU0:router(config-pool-ipv4)# address-range 11.11.11.11 14.14.14.14
```

Related Commands

Command	Description
pool ipv4, on page 68	Enables distributed address pool service on ipv4.
pool vrf, on page 66	Enables distributed address pool service on vrf.
exclude, on page 62	Specifies a range of IP addresses that distributed address pool service should not assign to clients.

exclude

To specify a range of IPv4 addresses that distributed address pool service (DAPS) must not assign to clients, use the **exclude** command in Pool IPv4 configuration submode. To remove the excluded IP addresses, use the **no** form of this command.

exclude {*first_address*|*last_address*}

no exclude {*first_address*|*last_address*}

Syntax Description

<i>first_address</i>	Specifies the first address in the range that needs to be excluded for IPv4 and specifies the first address or prefix in the range for IPv6.
<i>last_address</i>	Specifies the last address in the range that needs to be excluded and specifies the last address or prefix in the range for IPv6.

Command Default

None

Command Modes

Pool IPv4 configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **pool ipv4** command to enter IPv4 pool configuration submode.

The low IP address cannot overlap with the IP address of a reserved address command. Multiple exclude commands are allowed within a pool. To exclude a single address, <highIpAddress> can be omitted.



Note

The **exclude** command can be configured along with the **network**, **address-range**, and the **prefix-range** commands.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example to configure the **exclude** command for IPv4:

```
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# pool vrf vrf1 ipv4 pool2  
RP/0/RSP0/CPU0:router(config-pool-ipv4)# exclude 10.10.10.1 10.10.10.10
```

Related Commands

Command	Description
pool ipv4, on page 68	Enables distributed address pool service on IPv4.
pool vrf, on page 66	Enables distributed address pool service on vrf.
network (BNG), on page 64	Specifies a set of addresses or prefixes inside a subnet.

network (BNG)

To specify a set of addresses or prefixes inside a subnet, use the **network** command in Pool IPv4 configuration submode. To remove the addresses or prefixes, use the **no** form of this command.

network {IPv4_subnet/length }

no network {IPv4_subnet/length }

Syntax Description

<i>IPv4_subnet</i>	Specifies the decimal representation of the IPv4 subnet mask.
<i>length</i>	Specifies the length of the prefix. Note The prefix length must be a maximum of 16 bit more than the subnet mask.

Command Default

None

Command Modes

Pool IPv4 configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.3.0	Support for IPv6 was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **pool ipv4** command to enter IPv4 pool configuration submode and **pool ipv6** command to enter IPv6 pool configuration submode.

The **prefix-length** command must be configured whenever the **network** command is used. The **prefix-length** must be configured to 128 to signify singleton addresses and a smaller value to signify IPv6 prefixes. The number of addresses or prefixes that can be allocated by DAPS can become huge when this command is used. The prefix-length command should be configured to a number that limits the number of addresses or prefixes for each pool to 64K.

The prefix is written as the first address of a network, followed by a slash character (/), and ends with the bit-length of the prefix. For example, 192.168.1.0/24 is the prefix of the IPv4 network starting at the given address, having 24 bits allocated for the network prefix, and the remaining 8 bits reserved for host addressing. The IPv6 address specification 2001:db8::/32 is a large network with 2⁹⁶ addresses, having a 32-bit routing prefix. In IPv4 the routing prefix is also specified in the form of the subnet mask, which is expressed in

quad-dotted decimal representation like an address. For example, 255.255.255.0 is the network mask for the 192.168.1.0/24 prefix.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **network** command for IPv4:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pool vrf vrf1 ipv4 pool2
RP/0/RSP0/CPU0:router(config-pool-ipv4)# network 11.11.11.0/24

RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pool vrf vrf1 ipv6 pool3
RP/0/RSP0/CPU0:router(config-pool-ipv6)# network 10:1:1::/50
```

Related Commands

Command	Description
pool ipv4, on page 68	Enables distributed address pool service on ipv4.
pool vrf, on page 66	Enables distributed address pool service on vrf.

pool vrf

To enable distributed address pool service on a vrf and to enter the corresponding configuration submode, use the **pool vrf** command in the global configuration mode. To disable this feature, use the **no** form of this command.

pool vrf {*vrf_name*| **all**} {**ipv4**| *pool_name*}
no pool vrf {*vrf_name*| **all**} {**ipv4**| *pool_name*}

Syntax Description

<i>vrf_name</i>	Specifies the name of the vrf.
ipv4	Specifies IPv4 pool name. Each pool must have a unique name across all VRFs.
<i>pool_name</i>	Specifies the name of the pool for IPv4.
all	Specifies the global pool.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **pool ipv4** command to enter IPv4 pool configuration submode.



Note

Each pool must have a unique name across all VRFs. For example, pool1 can not be created in both vrf1 and vrf2.

Some pools can be associated with all the VRFs and these pools are configured with the **all** keyword.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **pool vrf** command for IPv4 in the global configuration mode:

```
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# pool vrf vrf1 ipv4 pool2  
RP/0/RSP0/CPU0:router(config-pool-ipv4)#
```

Related Commands

Command	Description
pool ipv4, on page 68	Enables distributed address pool service on IPv4.

pool ipv4

To enable distributed address pool service on IPv4 and to enter the pool IPv4 configuration submode, use the **pool ipv4** command in the global configuration mode. To disable this feature, use the **no** form of this command.

pool ipv4 *pool_name*

no pool ipv4 *pool_name*

Syntax Description

<i>pool_name</i>	Specifies the name of the IPv4 pool.
------------------	--------------------------------------

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **pool ipv4** command to enter IPv4 pool configuration submode.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **pool ipv4** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pool ipv4 pool1
RP/0/RSP0/CPU0:router(config-pool-ipv4)# address-range 10.10.10.1 10.10.10.254
```

Related Commands

Command	Description
pool vrf , on page 66	Enables distributed address pool service on vrf.

Command	Description
exclude , on page 62	Specifies a range of IP addresses that distributed address pool service should not assign to clients.
address-range , on page 60	Specifies a range of IP addresses.

show pool ipv4 name

To display the status of an IPv4 pool, use the **show pool ipv4 name** command in the EXEC mode.

show pool ipv4 name *pool_name* {**location**| **verbose**| }

Syntax Description

<i>pool_name</i>	Specifies the name of the IPv4 pool.
location	Specifies the location of the IPv4 pool.
verbose	Displays all allocations for the pools.
	Specifies the output modifiers.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.3.0	Support for IPv6 was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **pool ipv4** command to enter Pool IPv4 configuration submode.

Task ID

Task ID	Operation
ip-services	read

Examples

This is the sample output of the **show pool ipv4 name** command:

```
RP/0/RSP0/CPU0:router# show pool ipv4 name POOL1
```

```
Pool POOL1 Allocations
```

```
-----
```



```
VRF: default
Pool Id: 30
Pool Scope: VRF Specific Pool
Prefix Length: 32
```

```
Used:          100
Excl:          0
Free:          7900
Total:         8000
```

```
Utilization:   1%
```

```
Range List:
```

```
-----
Range Start      : 12.0.0.2
Range End        : 12.0.31.65
Used Addresses   : 100
Excluded Addresses : 0
Free Addresses   : 7900
```

```
RP/0/RSP0/CPU0:router# show pool ipv4 name POOL1 verbose
```

```
Pool POOL1 Allocations
```

```
-----
VRF: default
Pool Id: 30
Pool Scope: VRF Specific Pool
Prefix Length: 32
```

```
Used:          100
Excl:          0
Free:          7900
Total:         8000
```

```
Utilization:   1%
```

```
Range List:
```

```
-----
Range Start      : 12.0.0.2
Range End        : 12.0.31.65
Used Addresses   : 100
Excluded Addresses : 0
Free Addresses   : 7900
```

```
In-Use Address List:
```

```
12.0.0.2 PPP
12.0.0.3 PPP
12.0.0.4 PPP
12.0.0.5 PPP
12.0.0.6 PPP
12.0.0.7 PPP
12.0.0.8 PPP
12.0.0.9 PPP
12.0.0.10 PPP
12.0.0.11 PPP
12.0.0.12 PPP
12.0.0.13 PPP
12.0.0.14 PPP
12.0.0.15 PPP
12.0.0.16 PPP
12.0.0.17 PPP
12.0.0.18 PPP
12.0.0.19 PPP
12.0.0.20 PPP
12.0.0.21 PPP
12.0.0.22 PPP
12.0.0.23 PPP
12.0.0.24 PPP
12.0.0.25 PPP
12.0.0.26 PPP
12.0.0.27 PPP
12.0.0.28 PPP
12.0.0.29 PPP
```

show pool ipv4 name

```
12.0.0.30 PPP
12.0.0.31 PPP
12.0.0.32 PPP
12.0.0.33 PPP
12.0.0.34 PPP
12.0.0.35 PPP
12.0.0.36 PPP
12.0.0.37 PPP
12.0.0.38 PPP
12.0.0.39 PPP
12.0.0.40 PPP
12.0.0.41 PPP
12.0.0.42 PPP
12.0.0.43 PPP
12.0.0.44 PPP
12.0.0.45 PPP
12.0.0.46 PPP
12.0.0.47 PPP
12.0.0.48 PPP
12.0.0.49 PPP
12.0.0.50 PPP
12.0.0.51 PPP
12.0.0.52 PPP
12.0.0.53 PPP
12.0.0.54 PPP
12.0.0.55 PPP
12.0.0.56 PPP
12.0.0.57 PPP
12.0.0.58 PPP
12.0.0.59 PPP
12.0.0.60 PPP
12.0.0.61 PPP
12.0.0.62 PPP
12.0.0.63 PPP
12.0.0.64 PPP
12.0.0.65 PPP
12.0.0.66 PPP
12.0.0.67 PPP
12.0.0.68 PPP
12.0.0.69 PPP
12.0.0.70 PPP
12.0.0.71 PPP
12.0.0.72 PPP
12.0.0.73 PPP
12.0.0.74 PPP
12.0.0.75 PPP
12.0.0.76 PPP
12.0.0.77 PPP
12.0.0.78 PPP
12.0.0.79 PPP
12.0.0.80 PPP
12.0.0.81 PPP
12.0.0.82 PPP
12.0.0.83 PPP
12.0.0.84 PPP
12.0.0.85 PPP
12.0.0.86 PPP
12.0.0.87 PPP
12.0.0.88 PPP
12.0.0.89 PPP
12.0.0.90 PPP
12.0.0.91 PPP
12.0.0.92 PPP
12.0.0.93 PPP
12.0.0.94 PPP
12.0.0.95 PPP
12.0.0.96 PPP
12.0.0.97 PPP
12.0.0.98 PPP
12.0.0.99 PPP
12.0.0.100 PPP
12.0.0.101 PPP
```

This table describes the significant fields shown in the display.

Table 3: show pool ipv4 name Field Descriptions

Field	Description
VRF	Specifies the VRF the pool is associated with.
Pool ID	The unique pool ID of a specific pool.
Pool Scope	Pool scope belongs to the VRF specific pool.
Prefix Length	Length of the prefix specified.

Related Commands

Command	Description
pool vrf, on page 66	Enables distributed address pool service on vrf.
pool ipv4, on page 68	Enables distributed address pool service on ipv4.
exclude, on page 62	Specifies a range of IP addresses that distributed address pool service should not assign to clients.
address-range, on page 60	Specifies a range of IP addresses.

show pool vrf

To show the status of VRF pool, use the **show pool vrf** command in the EXEC mode.

show pool vrf *vrf_name* **ipv4**

Syntax Description

<i>vrf_name</i>	Specifies the vrf name.
all	Displays all vrfs.
ipv4	Specifies the IPv4 pool.
	Specifies the output modifiers.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **pool ipv4** command to enter IPv4 pool configuration submode.

Task ID

Task ID	Operation
ip-services	read

Examples

This is the sample output of the **show pool vrf** command for IPv4:

```
RP/0/RSP0/CPU0:router# show pool vrf vrf1 ipv4
```

```
Allocation Summary
```

```
-----
Used: 0
```

```

Excl: 0
Free: 254
Total: 254
Utilization: 0%

```

Pool Name	Pool ID	VRF	Used	Excl	Free	Total
test1	4	vrf2	0	0	254	254


This table describes the significant fields shown in the display.

Table 4: show pool ipv4 name Field Descriptions

Field	Description
VRF	Specifies the VRF the pool is associated with.
Pool ID	The unique pool ID of a specific pool.
Pool Name	The name of the IPv6 pool.

Related Commands

Command	Description
pool vrf , on page 66	Enables distributed address pool service on vrf.
pool ipv4 , on page 68	Enables distributed address pool service on ipv4.
exclude , on page 62	Specifies a range of IP addresses that distributed address pool service should not assign to clients.
address-range , on page 60	Specifies a range of IP addresses.

 **show pool vrf**



Control Policy Commands

This module describes the Cisco IOS XR software commands used to configure the Control Policy commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [activate](#), [page 78](#)
- [authenticate \(BNG\)](#), [page 80](#)
- [authorize](#), [page 82](#)
- [class-map type control subscriber](#), [page 84](#)
- [deactivate](#), [page 86](#)
- [event](#), [page 88](#)
- [match \(class-map\)](#), [page 90](#)
- [policy-map type control subscriber](#), [page 92](#)
- [service-policy type control subscriber](#), [page 94](#)
- [show class-map](#), [page 96](#)
- [show policy-map](#), [page 98](#)

activate

To activate the dynamic template mode in the class map sub-configuration mode, use the **activate** command in the global configuration mode. To disable this feature, use the **no** form of this command.

activate dynamic-template *name* **aaa list** *{list_name}* **default**

no activate

Syntax Description

dynamic-template	Specifies the actions related to dynamic templates.
<i>name</i>	Specifies the name of the dynamic template.
aaa	Specifies the AAA parameters.
list	Specifies the AAA method list that identifies the radius server from which to acquire the service definition.
default	Specifies the default AAA method list.
<i>list_name</i>	(Optional) Specifies the name of the AAA method list. If provided, the template is downloaded from radius. If not provided, then the template is expected to be locally configured.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **activate** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# policy-map type control subscriber PL1
RP/0/RSP0/CPU0:router(config-pmap)# event session-activate match-first
RP/0/RSP0/CPU0:router(config-pmap-e)# class type control subscriber CL2
RP/0/RSP0/CPU0:router(config-pmap-c)# 1 activate dynamic-template DL1 aaa list default
```

Related Commands

Command	Description
deactivate , on page 86	Deactivates the dynamic template mode in the class map sub-configuration mode.

authenticate (BNG)

To authenticate and specify the AAA method list that authentication should be made with in the class map sub-configuration mode, use the **authenticate** command in the global configuration mode. To disable the AAA method list authentication, use the **no** form of this command.

authenticate aaa list {*list_name* | **default**}

no authenticate

Syntax Description

aaa	Specifies the AAA parameters.
list	Specifies AAA method list that authentication should be made with.
default	Specifies the default AAA method list.
<i>list_name</i>	Specifies the name of the AAA method list.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **authenticate** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# policy-map type control subscriber PL1
RP/0/RSP0/CPU0:router(config-pmap)# event session-start match-first
```

```
RP/0/RSP0/CPU0:router(config-pmap-e)# class type control subscriber CL2  
RP/0/RSP0/CPU0:router(config-pmap-c)# 1 authenticate aaa list default
```

authorize

To authenticate and specify the AAA method list that authorization should be made with in the class map sub-configuration mode, use the **authorize** command in the global configuration mode. To disable the AAA method list authorization, use the **no** form of this command.

authorize aaa list *{list_name| default}* **{format** *format_name* **}** **| identifier** **{circuit-id| remote-id| source-address-ipv4| source-address-mac| username}** **{password** **| {use-from-line** *password* **}** **}**

no authorize

Syntax Description

aaa	Specifies the AAA parameters.
list	Specifies AAA method list that authorization should be made with.
default	Specifies the default AAA method list.
<i>list_name</i>	Specifies the name of the AAA method list.
format	Specifies an authorize format name.
<i>format_name</i>	Specifies to use format_name, which was defined using CLI 'aaa attribute format'. The result of format is used as user name in authorization request.
password	Specifies a password to be used for AAA request.
use-from-line	Specifies the line from which the password needs to be used.
<i>password</i>	Specifies a clear text password.
identifier	Specifies an authorize identifier.
circuit-id	Specifies to use circuit-id as the username in authorize request.
remote-id	Specifies to use remote-id as the username in authorize request. .
source-address-ipv4	Specifies to use source-address-ipv4 as the username in authorize request.
source-address-mac	Specifies to use source-address-mac as the username in authorize request.
username	Specifies an authorize username.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **authorize** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# policy-map type control subscriber PL1
RP/0/RSP0/CPU0:router(config-pmap)# event session-start match-first
RP/0/RSP0/CPU0:router(config-pmap-e)# class type control subscriber CL2
RP/0/RSP0/CPU0:router(config-pmap-c)# 1 authorize aaa list default password DdjkkWE
```

class-map type control subscriber

To determine the list of actions to be executed for the class and to enter the class-map configuration mode, use the **class-map type control subscriber** command in global configuration mode. To disable the class map type control subscriber and exit the class-map configuration mode, use the **no** form of this command.

class-map type control subscriber { **match-all** | **match-any** } *class-map name*

no class-map type control subscriber { **match-all** | **match-any** } *class-map name*

Syntax Description

<i>class-map name</i>	Specifies the class map name.
match-all	Configures the match all criteria for this class.
match-any	Configures the match any criteria for this class.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **class-map type control subscriber** command to enter class-map configuration mode.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **class-map type control subscriber** command in global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# class-map type control subscriber match-any class1
RP/0/RSP0/CPU0:router(config-cmap)# match protocol ppp
RP/0/RSP0/CPU0:router(config-cmap)# end-class-map
```

Related Commands

Command	Description
policy-map type control subscriber, on page 92	Enables the policy-map.
event, on page 88	Enables the event in a policy-map.

deactivate

To deactivate the dynamic template mode, use the **deactivate** command in the class map sub-configuration mode. To disable this feature, use the **no** form of this command.

deactivate dynamic-template *name* **aaa list** *{list_name| default}*

no deactivate

Syntax Description

dynamic-template	Specifies the actions related to dynamic templates.
<i>name</i>	Specifies the name of the dynamic template.
aaa	Specifies the AAA parameters.
list	Specifies AAA method list that authentication should be made with.
default	Specifies the default AAA method list.
<i>list_name</i>	Specifies the name of the AAA method list.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **deactivate** command in the class map sub-configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# policy-map type control subscriber PL1
RP/0/RSP0/CPU0:router(config-pmap)# event session-start match-first
RP/0/RSP0/CPU0:router(config-pmap-e)# class type control subscriber CL2
RP/0/RSP0/CPU0:router(config-pmap-c)# 1 deactivate dynamic-template DL1 aaa list default
```

Related Commands

Command	Description
activate , on page 78	Activates the dynamic template mode in the class map sub-configuration mode.

event

To configure a policy event, use the **event** command in policy-map configuration mode. To disable an event and exit the policy-map configuration mode, use the **no** form of this command.

event { **account-logout** | **account-logon** | **authentication-failure** | **authentication-no-response** | **authorization-failure** | **authorization-no-response** | **service-start** | **service-stop** | **session-activate** | **session-start** | **session-stop** | **timer-expiry** }

no event { **account-logout** | **account-logon** | **authentication-failure** | **authentication-no-response** | **authorization-failure** | **authorization-no-response** | **service-start** | **service-stop** | **session-activate** | **session-start** | **session-stop** | **timer-expiry** }

Syntax Description

account-logout	Specifies an account logout event.
account-logon	Specifies an account logon event.
authentication-failure	Specifies an authentication failure event.
authentication-no-response	Specifies an authentication no response event.
authorization-failure	Specifies an authorization failure event.
authorization-no-response	Specifies an authorization no response event.
service-start	Specifies a service start event.
service-stop	Specifies a service stop event.
session-activate	Specifies session activate event.
session-start	Specifies session start event.
session-stop	Specifies session start event.
timer-expiry	Specifies the timer expiry event.

Command Default

None

Command Modes

Policy-map configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **policy-map type control subscriber** command to enter policy-map configuration mode.

Task ID

Task ID	Operation
qos	read, write

Examples

This example shows how to configure the **event** command in policy configuration mode:

```
RP/0/RSP0/CPU0:router(config)# policy-map type control subscriber poll
RP/0/RSP0/CPU0:router(config-pmap)# event session-start match-first
RP/0/RSP0/CPU0:router(config-pmap-e)# class type control subscriber ip_dhcp do-until-failure
RP/0/RSP0/CPU0:router(config-cmap-c)# 1 activate dynamic-template ip_temp
RP/0/RSP0/CPU0:router(config-cmap-c)# 10 authorize aaa list default identifier format
dhcp_id_format password xya
RP/0/RSP0/CPU0:router(config-cmap-c)# end-policy-map
```

Related Commands

Command	Description
class-map type control subscriber, on page 84	Enables the class-map.
policy-map type control subscriber, on page 92	Enables the policy-map.

match (class-map)

To configure match criteria for the corresponding class, use the **match** command in class-map configuration mode. To disable the match feature and exit the policy-map configuration mode, use the **no** form of this command.

match {**authen-status** | {**authenticated** | **unauthenticated**} | **domain** | *domain_name* | {**format** | *format_name*} | **regexp** | *string* | **not** | **protocol** | {**ppp** | **dhcpv4**} | **source-address** | {**ipv4** | **mac**} | **timer** | *string* | **regexp** | *string* | **username**}

no match {**authen-status** | {**authenticated** | **unauthenticated**} | **domain** | *domain_name* | {**format** | *format_name*} | **regexp** | *string* | **not** | **protocol** | {**ppp** | **dhcpv4**} | **source-address** | {**ipv4** | **mac**} | **timer** | *string* | **regexp** | *string* | **username**}

Syntax Description

authen-status	Specified the authentication status.
authenticated	Specified the authenticated status.
unauthenticated	Specified the unauthenticated status.
domain	Specifies the domain type.
<i>domain_name</i>	Specifies the name of the domain.
format	Specifies the format type.
<i>format_name</i>	Specifies the name of the format.
regexp	Specifies the regular expression.
<i>string</i>	Specifies the regular expression of a string.
not	Negates the match criteria.
protocol	Specifies the protocol type.
source-address	Specifies the source address.
timer	Specifies the timer.
username	Specifies the name of the user.

Command Default

None

Command Modes

Class-map configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **class-map type control subscriber** command to enter class-map configuration mode.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **class-map type control subscriber** command in the class-map configuration mode:

```
RP/0/RSP0/CPU0:router(config)# class-map type control subscriber CL1
RP/0/RSP0/CPU0:router(config-pmap)# match authen-status authenticated
RP/0/RSP0/CPU0:router(config-pmap-e)# match domain dl format fl
RP/0/RSP0/CPU0:router(config-cmap-c)# match protocol ppp
RP/0/RSP0/CPU0:router(config-cmap-c)# match source-address ipv4 1.3.4.5 12.334.55.2
RP/0/RSP0/CPU0:router(config-cmap-c)# match timer time1
```

policy-map type control subscriber

To determine the list of events that are applicable to the subscriber lifecycle and to enter the policy-map configuration mode, use the **policy-map type control subscriber** command in global configuration mode. To disable the policy map type control subscriber and exit the policy-map configuration mode, use the **no** form of this command.

policy-map type control subscriber *policy-map name*

no policy-map type control subscriber *policy-map name*

Syntax Description

<i>policy-map name</i>	Represents the policy map name.
------------------------	---------------------------------

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **policy-map type control subscriber** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router(config)# policy-map type control subscriber poll
RP/0/RSP0/CPU0:router(config-cmap-c)# end-policy-map
```

Related Commands

Command	Description
class-map type control subscriber, on page 84	Enables the class-map.
event, on page 88	Enables the event in the policy-map.

service-policy type control subscriber

To associate a subscriber control service policy to the interface, use the **service-policy type control subscriber** command in interface configuration mode. To disable the service-policy type control subscriber, use the **no** form of this command.

service-policy type control subscriber *name*

no service-policy type control subscriber *name*

Syntax Description

<i>name</i>	Represents the policy map name.
-------------	---------------------------------

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
config-services	read, write

Examples

This is an example of configuring the **service-policy type control subscriber** command in interface configuration mode:

```
RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 344
RP/0/RSP0/CPU0:router(config-if)# service-policy type control subscriber sub1
```

Related Commands

Command	Description
class-map type control subscriber, on page 84	Enables the class-map.

Command	Description
event, on page 88	Enables the event in the policy-map.

show class-map

To show the class-map related information, use the **show class-map** command in the EXEC mode.

show class-map type control subscriber *name*

Syntax Description

type	Displays the type of classmap.
control	Displays all the control class maps.
subscriber	Displays all the subscriber control class maps.
<i>name</i>	Displays the class map name.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read

Examples

This is a sample output of the **show class-map** command in the EXEC mode:

```
RP/0/RSP0/CPU0:router# show class-map type control subscriber PTA_CLASS
```

The show class-map output is as follows:

```
Wed Jan 23 08:55:15.027 GMT
1) ClassMap: PTA_CLASS    Type: subscriber_control
   Referenced by 1 Polycymaps
```

This table describes the significant fields shown in the display.

Table 5: show class-map Field Descriptions

Field	Description
ClassMap	Specifies the class map name.
Type	Specifies the type of the class map.

Related Commands

Command	Description
class-map type control subscriber, on page 84	Determines the list of actions to be executed for the class and enters the class-map configuration mode.

show policy-map

To show the policy-map related information, use the **show policy-map** command in the EXEC mode.

show policy-map type control subscriber pmap-name *name*

Syntax Description

type	Displays the type of policy-map.
control	Displays the control type policy-map.
subscriber	Displays the subscriber control type policy-map.
pmap_name	Specifies the policy-map name.
<i>name</i>	Displays the policy map name.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read

Examples

This is a sample output of the **show policy-map** command in the EXEC mode:

```
RP/0/RSP0/CPU0:router# show policy-map control subscriber pmap-name POLICY1
```

The show policy-map output is as follows:

```
Wed Jan 23 08:56:13.794 GMT
```

```
policy-map type control subscriber POLICY1
  event session-start match-all
  class type control subscriber PTA_CLASS do-all
    1 activate dynamic-template PPF_PTA_TEMPLATE
  !
!
end-policy-map
!
```

This table describes the significant fields shown in the display.

Table 6: show policy-map Field Descriptions

Field	Description
policy-map	Specifies the policy map name.
Type	Specifies the type of the class type control subscriber.

Related Commands

Command	Description
policy-map type control subscriber, on page 92	Determines the list of events that are applicable to the subscriber lifecycle and to enter the policy-map configuration mode.

 `show policy-map`



BNG DHCP Commands

This module describes the Cisco IOS XR software commands used to configure the DHCP commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [broadcast-flag policy check \(BNG\)](#), page 102
- [class](#), page 104
- [dhcp ipv4 \(BNG\)](#), page 106
- [helper-address \(BNG\)](#), page 107
- [interface \(DHCP-BNG\)](#), page 109
- [match option](#), page 111
- [match vrf](#), page 113
- [profile \(BNG\)](#), page 114
- [relay information check \(BNG\)](#), page 115
- [relay information option \(BNG\)](#), page 117
- [relay information option allow-untrusted \(BNG\)](#), page 119
- [relay information policy \(BNG\)](#), page 121
- [limit lease per-circuit-id](#), page 123
- [limit lease per-remote-id](#), page 125
- [limit lease per-interface](#), page 127
- [lease proxy client-lease-time](#), page 129
- [show dhcp ipv4 proxy binding](#), page 131
- [show dhcp ipv4 proxy interface \(BNG\)](#), page 134
- [show dhcp ipv4 proxy profile](#), page 136
- [show dhcp ipv4 proxy statistics](#), page 138

broadcast-flag policy check (BNG)

To configure Dynamic Host Configuration Protocol (DHCP) IPv4 Relay to only broadcast BOOTREPLY packets, if the DHCP IPv4 broadcast flag is set in the DHCP IPv4 header, use the **broadcast-flag policy check** command in DHCP IPv4 relay profile configuration submode . By default, the DHCP IPv4 Relay always broadcasts BOOTREPLY packets. To restore the default, use the **no** form of this command.

broadcast-flag policy { check }

no broadcast-flag policy { check }

Syntax Description

check	Checks the broadcast flag in packets.
unicast-always	Sets the broadcast-flag policy to unicast-always.

Command Default

Relay agent always broadcasts DHCP IPv4 packets to a client.

Command Modes

DHCP IPv4 relay profile configuration

Command History

Release	Modification
Release 3.7.0	This command was introduced.
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This an example of the **broadcast-flag policy check** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
```



```
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# broadcast-flag policy check
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address (BNG), on page 107	Configures the DHCP relay agent to relay packets to a specific DHCP server.
relay information check (BNG), on page 115	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 117	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 119	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.
relay information policy (BNG), on page 121	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

class

To create a proxy profile class and to enter the proxy profile class sub configuration mode, use the **class** command in an appropriate configuration mode. To disable this feature and exit the profile mode, use the **no** form of this command.

```
class class_name {helper-address| match} {address-pool| dns-server| domain-name| prefix-pool}
no class class_name
```

Syntax Description

<i>class_name</i>	Specifies the class name.
helper-address	Specifies the server address to relay packets.
match	Inserts a match keyword.
address-pool	Specifies the name of the address pool
dns-server	Specifies the name of a dns server.
domain-name	Specifies the name of a domain.
prefix-pool	Specifies the name of the prefix pool.

Command Default

No class is specified.

Command Modes

DHCP IPv4 proxy profile configuration
DHCP IPv6 proxy profile configuration
DHCP IPv6 server profile configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.3.0	The support for IPv6 was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The class submode is present in both DHCP IPv6 proxy profile configuration and DHCP IPv6 server profile configuration submodes. A class is associated with a match criterion, which is used to determine if the class is applied to a subscriber or not. The class name needs to be unique for the system.

**Note**

The address-pool, dns-server, domain-name, and prefix-pool keywords appear only in the DHCP IPv6 server profile configuration mode. However, the helper-address keywords appears in both DHCP IPv4 proxy profile configuration and DHCP IPv6 proxy profile configuration modes.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This example shows how to create a class in the DHCP IPv4 proxy profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue
```

This example shows how to create a class in the DHCP IPv6 proxy profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile dhcp_profile1 proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue
```

This example shows how to create a class in the DHCP IPv6 server profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile dhcp_profile2 server
RP/0/RSP0/CPU0:router(config-dhcpv4-server-profile)# class red
```

Related Commands

Command	Description
class-map type control subscriber, on page 84	This topic describes the class-map type control subscriber command.

dhcp ipv4 (BNG)

To enable Dynamic Host Configuration Protocol (DHCP) for IPv4 and to enter DHCP IPv4 configuration mode, use the **dhcp ipv4** command in global configuration mode. To disable DHCP for IPv4 and exit the DHCP IPv4 configuration mode, use the **no** form of this command.

dhcp ipv4

no dhcp ipv4

Syntax Description This command has no keywords or arguments.

Command Modes None

Command Modes Global configuration mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.
	Release 4.2.0	This command was supported for BNG.

Usage Guidelines Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID	Task ID	Operations
	ip-services	read, write

Examples This example shows how to enable DHCP for IPv4:

```
RP/0/RSP0/CPU0:router# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4) #
```

helper-address (BNG)

To configure the Dynamic Host Configuration Protocol (DHCP) IPv4 and IPv6 relay agent to relay BOOTREQUEST packets to a specific DHCP server, use the **helper-address** command in an appropriate configuration mode. Use the **no** form of this command to clear the address.

helper-address [**vrf** *vrf-name*] [*address*] [**giaddr** *gateway-address*]

no helper-address [**vrf** *vrf-name*] [*address*] [**giaddr** *gateway-address*]

Syntax Description

<i>vrf-name</i>	(Optional) Specifies the name of a particular VRF.
<i>address</i>	IPv4 and Pv6 address in four part, dotted decimal format.
giaddr <i>gateway-address</i>	Specifies the gateway address to use in packets relayed to server.

Command Default

Helper address is not configured.

Command Modes

DHCP IPv4 profile relay configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.
Release 4.3.0	The support for IPv6 was added in BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

A maximum of upto eight helper addresses can be configured.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to set the helper-address for a VRF using the **helper-address** command DHCP IPv4 profile relay configuration mode:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# helper-address vrf v1 10.10.10.1
```

This example shows how to set the helper-address for a VRF using the **helper-address** command DHCP IPv4 profile proxy configuration mode:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# helper-address vrf v1 10.10.10.1 giaddr 10.10.10.10
```

Related Commands

Command	Description
dhcp ipv4 (BNG) , on page 106	Enables Dynamic Host Configuration Protocol (DHCP) for IPv4 and enters DHCP IPv4 configuration mode.
relay information check (BNG) , on page 115	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG) , on page 117	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG) , on page 119	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.
#unique_78	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

interface (DHCP-BNG)

To enable Dynamic Host Configuration Protocol (DHCP) for IPv4 on an interface, use the **interface** command in the appropriate configuration mode. To disable DHCPv4 on an interface, use the **no** form of the command.

interface *type interface-path-id* {**server**| **relay**}

no interface *type interface-path-id* {**relay**| **server**}

Syntax Description

<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
relay	Specifies a destination address.

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.3.0	The support for IPv6 was added in BNG.
Release 4.3.0	The support for IPv6 was added in BNG.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example of enabling the DHCP interface mode on a Packet over Sonet/SDH (POS) interface using the **interface** command:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# interface POS 0/5/0/0 relay
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables Dynamic Host Configuration Protocol (DHCP) for IPv4 and enters DHCP IPv4 configuration mode.

match option

To match the proxy with the configured pattern, use the **match option** command in the DHCP IPv4 proxy profile class configuration mode. To disable the match option, use the **no** form of the command.

match option {124| 125| | 60| 77} **hex** *hex_string* **mask** *bit_mask_string*

no match option {124| 125| | 60| 77} **hex** *hex_string* **mask** *bit_mask_string*

Syntax Description

124	Inserts option 124 vendor-identifying vendor class.
125	Inserts option 125 vendor-identifying vendor-specific info.
60	Inserts option 60 vendor class ID.
77	Inserts option 124 user class.
hex	Inserts a hex pattern.
<i>hex_string</i>	Specifies the hex pattern string.
mask	Inserts bit mask pattern.
<i>bit_mask_string</i>	Specifies the bit mask pattern string. The string pattern is between 0 and 4294967295.

Command Default

None

Command Modes

DHCP IPv4 proxy profile class configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **match option** command in the DHCP IPv4 proxy profile class configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile-class)# match option 124 hex hex_name
mask 3445
```

Related Commands

Command	Description
class , on page 104	Creates a proxy profile class and enters the proxy profile class sub configuration mode.

match vrf

To match class based on VRF name, use the **match vrf** command in the DHCP IPv4 proxy profile class configuration mode. To disable the match vrf, use the **no** form of the command.

match vrf *vrf_name*

no match vrf *vrf_name*

Syntax Description	<div><div>vrf_name</div><div>Specifies the VRF name.</div></div>					
Command Default	None					
Command Modes	DHCP IPv4 proxy profile class configuration					
Command History	<table><tr><th>Release</th><th>Modification</th></tr><tr><td>Release 4.2.0</td><td>This command was introduced.</td></tr></table>		Release	Modification	Release 4.2.0	This command was introduced.
Release	Modification					
Release 4.2.0	This command was introduced.					
Usage Guidelines	<p>To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.</p>					
Task ID	<table><tr><th>Task ID</th><th>Operation</th></tr><tr><td>ip-services</td><td>read, write</td></tr></table>		Task ID	Operation	ip-services	read, write
Task ID	Operation					
ip-services	read, write					
Examples	<p>This is an example of configuring the match vrf command</p> <pre>RP/0/RSP0/CPU0:router(config)# dhcp ipv4 RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile-class)# match vrf vrf1</pre>					
Related Commands	<table><tr><th>Command</th><th>Description</th></tr><tr><td>match option, on page 111</td><td>Matches the proxy with the configured pattern.</td></tr></table>		Command	Description	match option, on page 111	Matches the proxy with the configured pattern.
Command	Description					
match option, on page 111	Matches the proxy with the configured pattern.					

profile (BNG)

To specify a DHCP profile for the Dynamic Host Configuration Protocol (DHCP) IPv4 component and to enter the profile mode, use the **profile** command in DHCP IPv4 configuration submode. To disable a profile and exit the profile mode, use the **no** form of this command.

profile *profile_name* {**proxy** | **server**}

no profile *profile_name* **proxy**

Syntax Description

<i>profile_name</i>	Specifies the name of the profile that uniquely identifies the proxy or server.
proxy	Creates a DHCP proxy profile.
server	Creates a DHCP server profile.

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to enable the dhcpv4 configuration mode and how to create a profile called dhcp_profile in the dhcpv4 configuration submode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)#
```

relay information check (BNG)

To configure a Dynamic Host Configuration Protocol (DHCP) IPv4 Relay to validate the relay agent information option in forwarded BOOTREPLY messages, use the **relay information check** command in DHCP IPv4 relay profile configuration submode. To disable this feature, use the **no** form of this command.

relay information check

no relay information check

Syntax Description This command has no keywords or arguments.

Command Default DHCP validates the relay agent information option.

Command Modes DHCP IPv4 relay profile configuration

Command History	Release	Modification
	Release 3.7.2	This command was introduced.
	Release 4.2.0	This command was supported for BNG.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	ip-services	read, write
	basic-services	read, write

Examples This example shows how to use the **relay information check** command:

```
RP/0/RSP0/CPU0:router#config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information check
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address (BNG), on page 107	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
relay information option (BNG), on page 117	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 119	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.
relay information policy (BNG), on page 121	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

relay information option (BNG)

To configure Dynamic Host Configuration Protocol (DHCP) IPv4 relay or DHCP snooping Relay to insert relay agent information option in forwarded BOOTREQUEST messages to a DHCP server, use the **relay information option** command in DHCP IPv4 relay profile relay configuration or DHCP IPv4 profile snoop submode. To disable inserting relay information into forwarded BOOTREQUEST messages, use the **no** form of this command.

relay information option

no relay information option

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes DHCP IPv4 relay profile relay configuration
DHCP IPv4 profile snoop configuration

Command History	Release	Modification
	Release 3.7.2	This command was introduced.
	Release 4.2.0	This command was supported for BNG.

Usage Guidelines

The **relay information option** command automatically adds the circuit identifier suboption and the remote ID suboption to the DHCP relay agent information option.

The **relay information option** command enables a DHCP server to identify the user (for example, cable access router) sending the request and initiate appropriate action based on this information. By default, DHCP does not insert relay information.

If the **information option** command is enabled, DHCP snooping mode does not set the giaddr field in the DHCP packet.

The upstream DHCP server or DHCP relay interface must be configured to accept this type of packet using the **relay information option allow-untrusted** configuration. This configuration prevents the server or relay from dropping the DHCP message.

Task ID	Task ID	Operations
	ip-services	read, write
	basic-services	read, write

Examples

This example shows how to use the **relay information option** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information option
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address (BNG), on page 107	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
profile (DHCP)	Configures a relay profile for the DHCP IPv4 component.
relay information check (BNG), on page 115	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option allow-untrusted (BNG), on page 119	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.
relay information policy (BNG), on page 121	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

relay information option allow-untrusted (BNG)

To configure the Dynamic Host Configuration Protocol (DHCP) IPv4 relay or DHCP snooping Relay not to drop discard BOOTREQUEST packets that have the relay information option set and the giaddr set to zero, use the **relay information option allow-untrusted** command in DHCP IPv4 relay profile configuration submode or DHCP IPv4 profile snoop configuration submode. To restore the default behavior, which is to discard the BOOTREQUEST packets that have the relay information option and set the giaddr set to zero, use the **no** form of this command.

relay information option allow-untrusted

no relay information option allow-untrusted

Syntax Description This command has no keywords or arguments.

Command Default The packet is dropped if the relay information is set and the giaddr is set to zero.

Command Modes DHCP IPv4 relay profile relay configuration
DHCP IPv4 profile snoop configuration

Command History	Release	Modification
	Release 3.7.2	This command was introduced.
	Release 4.2.0	This command was supported for BNG.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

According to RFC 3046, relay agents (and servers) receiving a DHCP packet from an untrusted circuit with giaddr set to zero but with a relay agent information option already present in the packet shall discard the packet and increment an error count. This configuration prevents the server or relay from dropping the DHCP message.

Task ID	Task ID	Operations
	ip-services	read, write
	basic-services	read, write

Examples

This example shows how to use the **relay information option allow-untrusted** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information option allow-untrusted
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address (BNG), on page 107	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
profile (DHCP)	Configures a relay profile for the DHCP IPv4 component.
relay information check (BNG), on page 115	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 117	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information policy (BNG), on page 121	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

relay information policy (BNG)

To configure how the Dynamic Host Configuration Protocol (DHCP) IPv4 relay processes BOOTREQUEST packets that already contain a relay information option, use the **relay information policy** command in DHCP IPv4 relay profile configuration submenu. To restore the default relay information policy, use the **no** form of this command.

relay information policy {drop| keep}

no relay information policy {drop| keep}

Syntax Description

drop	Directs the DHCP IPv4 Relay to discard BOOTREQUEST packets with the existing relay information option.
keep	Directs the DHCP IPv4 Relay not to discard a BOOTREQUEST packet that is received with an existing relay information option and to keep the existing relay information option value.

Command Default

The DHCP IPv4 Relay does not discard a BOOTREQUEST packet that has an existing relay information option. The option and the existing relay information option value is replaced.

Command Modes

DHCP IPv4 relay profile configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
ip-services	read, write
basic-services	read, write

Examples

This is sample output from executing the **relay information policy** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information policy keep
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
#unique_80	Configures how a relay agent processes BOOTREQUEST messages that already contain a nonzero giaddr attribute.
#unique_81	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
profile (DHCP)	Configures a relay profile for the DHCP IPv4 component.
relay information check (BNG), on page 115	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 117	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 119	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.

limit lease per-circuit-id

To specify the lease limit each circuit id each interface, use the **limit lease per-circuit-id** command in the DHCP IPv4 sub configuration mode. To disable the lease per-circuit-id, use the **no** form of this command.

limit lease per-circuit-id *value*

no limit lease per-circuit-id *value*

Syntax Description

<i>value</i>	Specifies the limit up to which the lease value can be extended.
--------------	--

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **limit lease per-circuit-id** command in the DHCP IPv4 sub configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# limit lease per-circuit-id 1000
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

limit lease per-remote-id

To specify the lease limit per remote id each interface, use the **limit lease per-remote-id** command in the DHCP IPv4 sub configuration mode. To disable the lease per-remote-id, use the **no** form of this command.

limit lease per-remote-id *value*

no limit lease per-remote-id *value*

Syntax Description

<i>value</i>	Specifies the limit up to which the lease value can be extended.
--------------	--

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **limit lease per-remote-id** command in the DHCP IPv4 sub configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# limit lease per-remote-id 1000
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

limit lease per-interface

To specify the lease limit each interface, use the **limit lease per-interface** command in the DHCP IPv4 sub configuration mode. To disable the limit lease per-interface, use the **no** form of this command.

limit lease per-interface *value*

no limit lease per-interface *value*

Syntax Description	<i>value</i>	Specifies the limit up to which the lease value can be extended.
--------------------	--------------	--

Command Default	None
-----------------	------

Command Modes	DHCP IPv4 configuration
---------------	-------------------------

Command History	Release	Modification
	Release 4.2.1	This command was introduced.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
------------------	---

Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID	Task ID	Operation
	ip-services	read, write

Examples	This is an example of configuring the limit lease per-interface command in the DHCP IPv4 sub configuration mode:
----------	---

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# limit lease per-interface 1000
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

lease proxy client-lease-time

To specify the lease limit each circuit id each interface, use the **lease proxy client-lease-time** command in the DHCP IPv4 sub configuration mode. To disable the lease proxy client-lease-time, use the **no** form of this command.

lease proxy client-lease-time *value*

no lease proxy client-lease-time *value*

Syntax Description

<i>value</i>	Specifies the time in seconds for the lease proxy client. The minimum value of lease proxy client-time is 600 seconds.
--------------	--

Command Default

If you set the default (no), then the lease proxy gets disabled.

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

When the binding is created, the client-lease-time is cached on a per-binding basis, thus, the changes to the profile client-lease-time does not cause any impact to any existing bindings. However, changes are effective only for subsequently created bindings.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This is an example of configuring the **lease proxy client-lease-time** command in the DHCP IPv4 sub configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# lease proxy client-lease-time 600
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

show dhcp ipv4 proxy binding

To show information concerning DHCP client bindings for proxy, use the **show dhcp ipv4 proxy binding** command in the EXEC mode.

show dhcp ipv4 proxy binding [**circuit-id** *circuit_id_name*| **detail**| **interface** *ipspecifier*| **location** *locationspecifier*| **mac-address**| **remote-id**| **summary**]{**location**| **vrf** *vrf_name*}

Syntax Description

circuit-id	Displays the DHCP IPv4 proxy client binding based on circuit ID.
<i>circuit_id_name</i>	Displays the name of the circuit ID.
detail	Displays detailed binding information for DHCP proxy.
interface	Specifies the interface based on which the DHCP bindings are filtered.
<i>ipspecifier</i>	Displays the name of the interface.
location	Specifies the node location of the DHCP proxy.
<i>locationspecifier</i>	Displays the name of the location.
mac-address	Displays detailed client binding information based on mac-address.
remote-id	Displays the DHCP IPv4 proxy client binding based on remote ID.
summary	Displays the summary binding information for proxy.
vrf	Displays the VRF information.
<i>vrf_name</i>	Displays the name of the VRF.
	Displays the output modifiers.

Command Default

Displays brief information about all DHCP proxy client bindings.

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
ip-services	read

Examples

This is the sample output of the **show dhcp ipv4 proxy binding** command:

RP/0/RSP0/CPU0:router# **show dhcp ipv4 proxy binding**
 The show dhcp ipv4 proxy binding output is as follows:

MAC Address Sublabel	IP Address	State	Remaining	Interface	Lease VRF
0000.6602.0102 0x0	1.1.1.1	BOUND	3495	Gi0/1/0/0	default

RP/0/RSP0/CPU0:router# **show dhcp ipv4 proxy binding mac-address 0000.6602.0102**

```
MAC Address:      0000.6602.0102
IP Address:       1.1.1.1
Profile:         foo
State:           BOUND
Proxy Lease:      86400 secs (1d00h)
Proxy Lease Remaining: 85942 secs (23:52:22)
Client Lease:     600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:        00-00-66-02-01-02
Interface:        GigabitEthernet0/1/0/0.200
VLAN Id:          200
VRF:              default
Subscriber Label: 0x0
```

RP/0/RSP0/CPU0:router# **show dhcp ipv4 proxy binding circuit-id CCCCCCCCCC**

```
MAC Address:      0000.6602.0102
IP Address:       1.1.1.1
circuit-id:       CCCCCCCCCC
remote-id:        RRRRRRRRRR
Profile:         foo
State:           BOUND
Proxy Lease:      86400 secs (1d00h)
Proxy Lease Remaining: 85942 secs (23:52:22)
Client Lease:     600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:        00-00-66-02-01-02
Interface:        GigabitEthernet0/1/0/0.200
VLAN Id:          outer 200, inner 300
VRF:              default
Subscriber Label: 0x0
```

RP/0/RSP0/CPU0:router# **show dhcp ipv4 proxy binding remote-id RRRRRRRRRR**

```
MAC Address:      0000.6602.0102
IP Address:       1.1.1.1
Profile:         foo
circuit-id:       CCCCCCCCCC
remote-id:        RRRRRRRRRR
State:           BOUND
```

```

Proxy Lease:                        86400 secs (1d00h)
Proxy Lease Remaining: 85942 secs (23:52:22)
Client Lease:                       600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:                          00-00-66-02-01-02
Interface:                          GigabitEthernet0/1/0/0
VRF:                                default
Subscriber Label: 0x0

```

RP/0/RSP0/CPU0:router# **show dhcp ipv4 proxy binding detail**

```

MAC Address:      ca01.3fcd.0000
VRF:              default
IP Address:       10.10.10.6
Gateway IP Address: 0.0.0.0
Server IP Address: 11.11.11.3
ReceivedCircuit ID: -
InsertedCircuit ID: -
ReceivedRemote ID: -
InsertedRemote ID: -
Profile:          proxyProfile
State:            BOUND
Proxy Lease:      86400 secs (1d00h)
Proxy Lease Remaining: 85942 secs (23:52:22)
Client Lease:     600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:        0x00-0x76-0x6C-0x61-0x6E-0x31-0x30-0x30
Interface:        GigabitEthernet0/1/0/0.100
VLAN:             None
Subscriber Label: 0x0

```

RP/0/RSP0/CPU0:router# **show dhcp ipv4 proxy binding interface Gi0/1/0/0**

Lease

MAC Address Sublabel	IP Address	State	Remaining	Interface	VRF
0000.6602.0102 0x0	1.1.1.1	BOUND	3495	Gi0/1/0/0	default

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 106	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

show dhcp ipv4 proxy interface (BNG)

To display the proxy interface information for Dynamic Host Configuration Protocol (DHCP) IPv4, use the **show dhcp ipv4 proxy interface** command in EXEC mode.

show dhcp ipv4 proxy interface [*interface-type interface-name*] [**detail**]

Syntax Description

<i>interface-type</i>	Type of the proxy interface.
<i>interface-name</i>	Name of the proxy interface.
detail	Displays the detailed information of proxy interface.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ip-services	read

Examples

This is a sample output from the **show dhcp ipv4 proxy interface** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy interface bundle-Ether 70.16 detail
Sat Jan  5 14:25:53.484 UTC

Interface:          Bundle-Ether70.16
VRF:                default
Mode:               Proxy
Profile Name:       proxy1
Lease Limit:        per circuit id from AAA 2

Lease Count Details:
```



```
Circuit id from AAA  
c2
```

```
Count  
1
```

This table describes the significant fields shown in the display.

Table 7: show dhcp ipv4 proxy interface Command Field Descriptions

Field	Description
Lease Limit	Specifies the lease limit value sent from AAA server.
Count	Specifies the number of sessions on the router having the specific Circuit-ID received from the AAA server.

show dhcp ipv4 proxy profile

To display Dynamic Host Configuration Protocol (DHCP) proxy profile information, use the **show dhcp ipv4 proxy profile** command in the EXEC mode.

show dhcp ipv4 proxy profile {*name*|*profile_name*} }

Syntax Description

name	Displays the detailed proxy profile information.
<i>profile_name</i>	Specifies the profile name.
	Displays the output modifiers.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

This command displays the proxy profiles created for DHCP IPv4.

Task ID

Task ID	Operations
ip-services	read

Examples

This is the sample output of the **show dhcp ipv4 proxy profile** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy profile
```

The show dhcp ipv4 proxy profile output is as follows:

```
Wed Jan 23 17:05:49.760 IST
```

```
DHCP IPv4 Proxy Profiles
-----
```

DHCP_PROF_IPSUB

This table describes the significant fields shown in the display.

Table 8: show dhcp ipv4 proxy profile Field Descriptions

Field	Description
DHCP IPv4 Proxy Profiles	Specifies all the DHCP IPv4 proxy profiles.

show dhcp ipv4 proxy statistics

To display statistics for a specific bridge domain, use the **show dhcp ipv4 proxy statistics** command in the EXEC mode.

show dhcp ipv4 proxy statistics *location* []

Syntax Description

location	Specifies the node information for dhcp ipv4 proxy.
	Displays the output modifiers.

Command Default

Displays a table of DHCP proxy statistics.

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
ip-services	read

Examples

This is the sample output of the **show dhcp ipv4 proxy statistics** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy statistics
The show dhcp ipv4 proxy statistics output is as follows:
```

```
Wed Jan 23 17:07:12.386 IST
```


```

                                VRF                |      RX      |      TX      |      DR
-----
default                        |              0 |              0 |          0 |
**nVSSatellite                 |              0 |              0 |          0 |
```

This table describes the significant fields shown in the display.

Table 9: show dhcp ipv4 proxy statistics Field Descriptions

Field	Description
VRF	Specifies the VRF in the DHCP proxy. The default is nVSatellite.

 `show dhcp ipv4 proxy statistics`



Dynamic Template Commands

This module describes the Cisco IOS XR software commands used to configure the Dynamic Template commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [dynamic-template](#), page 142
- [dynamic-template type ipsubscriber](#), page 144
- [dynamic-template type ppp](#), page 146
- [dynamic-template type service](#), page 148
- [service-policy \(BNG\)](#), page 150
- [vrf \(dynamic-template-BNG\)](#), page 152

dynamic-template

To group a set of configuration items that can be applied to a group of subscribers and to enter the dynamic-template configuration mode, use the **dynamic-template** command in the global configuration mode. To disable this feature and exit the dynamic-template configuration mode, use the **no** form of this command.

dynamic-template type {**ipsubscriber** *name*| **ppp** *name*| **service** *name*}

no dynamic-template

Syntax Description

type	Specifies the type of templates, for example, ppp or ipsubscriber or service.
<i>name</i>	Specifies the name of the dynamic template type.
ipsubscriber	Specifies the ipsubscriber dynamic template type.
ppp	Specifies the ppp dynamic template type.
service	Specifies the service dynamic template type.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **dynamic-template** command to enter dynamic template configuration mode.

Task ID

Task ID	Operation
config-services	read, write

Examples

This is an example of configuring the **dynamic-template** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)#
```


Related Commands

Command	Description
dynamic-template type ppp, on page 146	Enables the ppp dynamic template type.
dynamic-template type ipsubscriber, on page 144	Enables the ipsubscriber dynamic template type.
dynamic-template type service, on page 148	Enables the service dynamic template type.

dynamic-template type ipsubscriber

To group a set of configuration items that can be applied to a group of subscribers based on the ipsubscriber template type and to enter the dynamic-template configuration mode, use the **dynamic-template type ipsubscriber** command. To disable this feature and exit the dynamic-template configuration mode, use the **no** form of this command.

dynamic-template type ipsubscriber *template-name*

no dynamic-template type ipsubscriber *template-name*

Syntax Description

<i>template-name</i>	Specifies the dynamic template name.
----------------------	--------------------------------------

Command Default

None

Command Modes

Dynamic template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **dynamic-template** command to enter dynamic template configuration mode.

Task ID

Task ID	Operation
config-services	read, write

Examples

This is an example of configuring the **dynamic-template type ipsubscriber** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ipsubscriber ipsub1
```

Related Commands

Command	Description
dynamic-template , on page 142	Enables the dynamic template configuration mode.
dynamic-template type ppp , on page 146	Enables the ppp dynamic template type.

Command	Description
dynamic-template type service, on page 148	Enables the service dynamic template type.

dynamic-template type ppp

To group a set of configuration items that can be applied to a group of subscribers based on the ppp template type and to enter the dynamic-template configuration mode, use the **dynamic-template type ppp** command. To disable this feature and exit the dynamic-template configuration mode, use the **no** form of this command.

dynamic-template type ppp *template-name*

no dynamic-template type ppp *template-name*

Syntax Description

<i>template-name</i>	Specifies the dynamic template name.
----------------------	--------------------------------------

Command Default

None

Command Modes

Dynamic template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **dynamic-template** command to enter dynamic template configuration mode.

Task ID

Task ID	Operation
config-services	read, write

Examples

This is an example of configuring the **dynamic-template type ppp** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ppp p1
```

Related Commands

Command	Description
dynamic-template , on page 142	Enables the dynamic template configuration mode.
dynamic-template type ipsubscriber , on page 144	Enables the ipsubscriber dynamic template type.

Command	Description
dynamic-template type service, on page 148	Enables the service dynamic template type.

dynamic-template type service

To group a set of configuration items that can be applied to a group of subscribers based on the service template type and to enter the dynamic-template configuration mode, use the **dynamic-template type service** command. To disable this feature and exit the dynamic-template configuration mode, use the **no** form of this command.

dynamic-template type service *template-name*

no dynamic-template type service *template-name*

Syntax Description

<i>template-name</i>	Specifies the dynamic template name.
----------------------	--------------------------------------

Command Default

None

Command Modes

Dynamic template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **dynamic-template** command to enter dynamic template configuration mode.

Task ID

Task ID	Operation
config-services	read, write

Examples

This is an example of configuring the **dynamic-template type service** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type service s1
```

Related Commands

Command	Description
dynamic-template , on page 142	Enables the dynamic template configuration mode.

Command	Description
dynamic-template type ppp, on page 146	Enables the ppp dynamic template type.
dynamic-template type ipsubscriber, on page 144	Enables the ipsubscriber dynamic template type.

service-policy (BNG)

To associate a service-policy to the dynamic template, use the **service-policy** command in the dynamic template configuration mode. To disable this feature, use the **no** form of this command.

service-policy {input|output} *service-policy_name*

no service-policy

Syntax Description

input	Configures an ingress service-policy.
output	Configures an egress service-policy.
<i>service-policy_name</i>	Name of the service policy.

Command Default

None

Command Modes

Dynamic template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template type ppp** command to enter the ppp dynamic template type configuration mode.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **service-policy** command in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# accounting aaa list default type session
periodic-interval 60 dual-stack-delay 1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# service-policy input i1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# service-policy output o1
```


Related Commands

Command	Description
dynamic-template , on page 142	Enables the dynamic template configuration mode.
dynamic-template type ppp , on page 146	Enables the ppp dynamic template type.
dynamic-template type ipsubscriber , on page 144	Enables the ipsubscriber dynamic template type.

vrf (dynamic-template-BNG)

To set the vrf in which the interface operates, use the **vrf** command in the dynamic template type configuration mode. To disable the VRF, use the **no** form of this command.

vrf *vrf-name*

no vrf

Syntax Description

<i>vrf_name</i>	Specifies the name of the vrf.
-----------------	--------------------------------

Command Default

None

Command Modes

Dynamic template type configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **dynamic-template** command to enter dynamic template configuration mode.

Task ID

Task ID	Operation
config-services	read, write

Examples

This is an example of configuring the **vrf** command in the dynamic template type configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type service s1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# vrf vrf1
```

Related Commands

Command	Description
dynamic-template , on page 142	Enables the dynamic template configuration mode.
dynamic-template type ppp , on page 146	Enables the ppp dynamic template type.

Command	Description
dynamic-template type ipsubscriber, on page 144	Enables the ipsubscriber dynamic template type.

vrf (dynamic-template-BNG)



IPoE Commands

This module describes the Cisco IOS XR software commands used to configure the IPoE commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [ipsubscriber l2-connected, page 156](#)
- [initiator dhcp, page 158](#)
- [initiator unclassified-source, page 159](#)
- [show ipsubscriber access-interface, page 161](#)
- [show ipsubscriber interface, page 164](#)
- [show ipsubscriber summary, page 167](#)

ipsubscriber l2-connected

To enable l2-connected IP subscriber for IPv4, use the **ipsubscriber l2-connected** command in the interface configuration mode. To disable this feature, use the **no** form of this command.

ipsubscriber {ipv4} l2-connected initiator {dhcp| unclassified-source}

no ipsubscriber {ipv4} l2-connected initiator {dhcp| unclassified-source}

Syntax Description

ipv4	Specifies IPv4 address prefixes.
initiator	Configures the IP subscriber initiator.
dhcp	Configures DHCP as first-sign-of-life protocol for IPv4 subscriber.
unclassified-source	Configures unclassified packets as first-sign-of-life for IPv4 subscriber.

Command Default

None

Command Modes

Interface configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
network	read, write

Examples

This is an example of configuring the **ipsubscriber l2-connected** command in the interface configuration mode for IPv4:

```
RP/0/RSP0/CPU0:router# configure
```

```
RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 56
RP/0/RSP0/CPU0:router(config-if)# ipsubscriber ipv4 l2-connected initiator dhcp
```

Related Commands

Command	Description
show ipsubscriber summary, on page 167	Displays the ipsubscriber information.

initiator dhcp

To enable DHCP as first-sign-of-life protocol for IPv4 subscriber, use the **initiator dhcp** command in the appropriate configuration submode. To disable this feature, use the **no** form of this command.

initiator dhcp

no initiator dhcp

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes IP subscriber IPv4 L2-connected configuration

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Operation
network	read, write

Examples This is an example of configuring the **initiator dhcp** command in the Interface configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 56
RP/0/RSP0/CPU0:router(config-if)# ipsubscriber ipv4 l2-connected
RP/0/RSP0/CPU0:router(config-if-ipsub-ipv4-l2conn)# initiator dhcp
```

Command	Description
show ipsubscriber summary, on page 167	Displays the ipsubscriber information.

initiator unclassified-source

To enable unclassified packets as first-sign-of-life for IPv4 subscriber, use the **initiator unclassified-source** command in the appropriate configuration submode. To disable this feature, use the **no** form of this command.

initiator unclassified-source

no initiator unclassified-source

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes IP subscriber IPv4 L2-connected configuration

Command History	Release	Modification
	Release 4.2.0	This command was introduced.
	Release 4.3.0	Supported was added for IPv6.


Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	network	read, write

Examples This is an example of configuring the **initiator unclassified-source** command in the IP subscriber IPv4 L2-connected configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 56
RP/0/RSP0/CPU0:router(config-if)# ipsubscriber ipv4 l2-connected
RP/0/RSP0/CPU0:router(config-if-ipsub-ipv4-l2conn)# initiator unclassified-source
```

Related Commands	Command	Description
	show ipsubscriber summary, on page 167	Displays the ipsubscriber information.

 initiator unclassified-source

show ipsubscriber access-interface

To display the access interface information for IP subscriber, use the **show ipsubscriber access-interface** command in the EXEC mode.

show ipsubscriber access-interface {*type*| *interface-path-id*} [**brief**] [**location**] *location*}

Syntax Description

<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	<p>Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
brief	Displays the brief summary of IP Subscriber access interface status and configuration.
location	Specifies the IP subscriber location.
<i>location</i>	Specifies the fully qualified location specification.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
network	read

Examples

This is the sample output of the **show ipsubscriber access-interface** command:

```
RP/0/RSP0/CPU0:router# show ipsubscriber access-interface
```

```
Interface: GigabitEthernet0/0/0/0 (ifhandle 0x20000040)
```

```
State: UP
Type: Plain
Created Jan 18 00:01:32 (age 00:58:28)
Initiator DHCP enabled
  Session count 0
  FSOL packets 0, bytes 0
  FSOL dropped packets 0, bytes 0
Initiator Packet-Trigger enabled
  Session count 0
  FSOL packets 0, bytes 0
  FSOL dropped packets 0, bytes 0
Initiator DHCPv6 disabled
  Session count 0
  FSOL packets 0, bytes 0
  FSOL dropped packets 0, bytes 0
Initiator Packet-Trigger-IPv6 enabled
  Session count 0
  FSOL packets 0, bytes 0
  FSOL dropped packets 0, bytes 0
```

```
RP/0/RSP0/CPU0:router# show ipsubscriber access-interface brief
```

```
Codes: UP - Up, DOWN - Down, DELETED - Deleted State, UNKNOWN - Unknown State,
       PKT - Packet Trigger Initiation, DHCP - DHCP Initiation
       PKTv6 - Packet Trigger Initiation for IPv6, DHCPv6 - DHCPv6 Initiation
```

Interface State	Proto	DHCP	Pkt Trigger	DHCPv6	PktTrigIPv6
-----	-----	-----	-----	-----	-----
Gi0/0/0/0 0 UP	DHCP, PKT, DHCPv6, PKTv6		0	2	0
BE1.1	DHCP, PKT		0	0	0

0 UP

This table describes the significant fields shown in the display.

Table 10: show ipsubscriber access-interface Field Descriptions

Field	Description
Interface	Specifies the access interface type.
Proto	Specifies the prototype, for instance, DHCP, DHCPv6, PKTv6.
DHCP	Specifies the DHCP initiation.
Pkt Trigger	Specifies the packet trigger Initiation.
DHCPv6	Specifies the packet trigger Initiation for IPv6.
PktTrigIPv6	Specifies the DHCPv6 initiation.
State	Specifies the various states of the access interface, for example, up, down, deleted, and unknown state.

Related Commands

Command	Description
ipsubscriber l2-connected , on page 156	Displays the subscriber management session information.

show ipsubscriber interface

To display the interface information for the IP subscriber interfaces, use the **show ipsubscriber interface** command in the EXEC mode.

show ipsubscriber interface {*type interface-path-id* | **access-interface** | **address-family** | **brief** | **location node-id** | **subscriber-ip** | **subscriber-label** | **subscriber-mac** | **vrf**}

Syntax Description

<i>type</i>	Interface type. For more information on interface types available for this command, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
access-interface	Specifies the access or parent interface.
address-family	Specifies the address-family in which the IP subscriber interface operates.
brief	Displays the brief summary of IP Subscriber access interface status and configuration.
location	Specifies the IP subscriber location.
<i>node-id</i>	Specifies the fully qualified location specification.
subscriber-ip	Specifies the subscriber IPv4 address.
subscriber-label	Specifies the subscriber label.
subscriber-mac	Specifies the subscriber MAC address.
vrf	Specifies the VRF in which the IP subscriber interface operates.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
network	read

Examples

This is the sample output of the **show ipsubscriber interface** command:

```
RP/0/RSP0/CPU0:router# show ipsubscriber interface
```

```
Interface: GigabitEthernet0/1/0/0.11.ip1
  Type: L2-connected
  Ifhandle: 0x201000c0
  Access Interface: GigabitEthernet0/1/0/0.11 (0x20100080)
  Subscriber MAC: 0100.0000.0000
  Subscriber IP: 11.10.10.9          <----- this line will not be shown if empty
  Subscriber IPv6 Prefix: FE80::10  <----- this line will not be shown if empty
  Subscriber Label: 0x80000000
  IPv4: Initiator: Packet-Trigger   <-- this line will not be shown if not enabled
  IPv6: Initiator: DHCPv6          <-- this line will not be shown if not enabled
  Created: May 11 16:33:08 (age 00:03:08)
  VRF: vpn1 (0x60000002), IPv4 Table: default (0xe0000002), IPv6 Table: default
(0xe0000002)
  IPv4: State: Up(9) (old: Adjacency added(8))
    Last state change: May 11 16:33:08 (00:03:08 in current state)
  IPv6: State: Up(9) (old: Adjacency added(8))
    Last state change: May 11 16:33:08 (00:03:08 in current state)
```

```
RP/0/RSP0/CPU0:router# show ipsubscriber interface brief
```

```
Codes: INV - Invalid, INIT - Initialized, STRTD - Session Creation Started,
CPEXCTG - Control-Policy Executing, CPEXCTD - Control-Policy Executed,
FTAPPLD - Session Features Applied, VRFCFGD - VRF Configured,
ADJADDG - Adding Adjacency, ADJADDD - Adjacency Added, UP - Up,
DOWN - Down, DISCG - Disconnecting, DISCD - Disconnected, ERR - Error,
UNKWN - Unknown State, PKT - Packet Trigger Initiation,
PKTV6 - Packet Trigger Initiation for IPv6,
DHCP - DHCP Initiation, DHCPv6 - DHCPv6 Initiation
```

Interface State	Proto	Subscriber IP	MAC Address	Sublabel	VRF
-----	-----	-----	-----	-----	-----

Gi0/0/0/0.ip1	DHCP	1.10.10.9	0100.0000.0000	0x40	default
UP	DHCPv6		0100.0000.0000	0x40	default
UP					
Gi0/0/0/0.ip2	PKT	2.20.20.9	0200.0000.0000	0x20	default
UP	PKTV6		0200.0000.0000	0x20	default

show ipsubscriber interface

```

UP
Gi0/0/0/0.ip3          DHCPv6  5.40.20.9          0200.2200.0000      0x21      default
UP
Gi0/0/0/0.ip4          PKTv6   7.91.20.9          0200.2210.0000      0x31      default
UP

```

This table describes the significant fields shown in the display.

Table 11: show ipsubscriber interface Field Descriptions

Field	Description
Interface	Specifies the access interface type.
Proto	Specifies the prototype, for instance, DHCP, DHCPv6, PKTv6.
Subscriber IP	Specifies the IP address of the subscriber interface.
MAC Address	Specifies the MAC address for each interface type.
Sublabel	Specifies the sub label type for each interface.
VRF	Specifies the default VRF type.
State	Specifies the various states of the access interface, for example, up, down, deleted, and unknown state.

Related Commands

Command	Description
ipsubscriber l2-connected, on page 156	Displays the subscriber management session information.

show ipsubscriber summary

To display the summary information for the IP subscriber interfaces, use the **show ipsubscriber summary** command in the EXEC mode.

show ipsubscriber summary location *location*

Syntax Description	location	Specifies the IP subscriber location.
	<i>location</i>	Specifies the fully qualified location specification.

Command Default None

Command Modes EXEC

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	network	read

Examples This is the sample output of the **show ipsubscriber summary** command:

```
RP/0/RSP0/CPU0:router# show ipsubscriber summary
IPSUB Summary for all nodes
```

Interface Counts:

	DHCP	Pkt Trigger
Invalid:	0	0
Initialized:	0	0
Session creation started:	0	0
Control-policy executing:	0	0
Control-policy executed:	0	0
Session features applied:	0	0
VRF configured:	0	0

show ipsubscriber summary

```

Adding adjacency:      0      0
Adjacency added:      0      0
    Up:                0      0
    Down:              0      0
Disconnecting:        0      0
Disconnected:         0      0
Unknown state:        0      0
Error:                0      0
-----
Total:                0      0

                DHCPv6  PktTrig-IPv6
-----
Invalid:          0      0
Initialized:      0      0
Session creation started: 0      0
Control-policy executing: 0      0
Control-policy executed: 0      0
Session features applied: 0      0
    VRF configured:    0      0
Adding adjacency:  0      0
Adjacency added:  0      0
    Up:              0      0
    Down:            0      0
Disconnecting:     0      0
Disconnected:      0      0
Unknown state:     0      0
Error:             0      0
-----
Total:             0      0

Routes Per VRF (0 VRFs):
                        Count
                        -----

Access Interface Counts (1 interfaces):

                DHCP  Pkt Trigger
-----
FSOL Packets:    0      0
FSOL Bytes:      0      0

                DHCPv6  PktTrig-IPv6
-----
FSOL Packets:    0      0
FSOL Bytes:      0      0

```

This table describes the significant fields shown in the display.

Table 12: show ipsubscriber summary Field Descriptions

Field	Description
Invalid	Specifies the number of invalid packets for DHCP and Packet Trigger.
Initialized	Specifies the number of packets that were initialized for DHCP and Packet Trigger.
Session creation started	Specifies the total number of session initiation that was created.
Control-policy executing	Specifies the control policies that are executing for DHCP and Packet Trigger.

Field	Description
Control-policy executed	Specifies the control policies that were executed for DHCP and Packet Trigger.
Session features applied	Specifies the number of session features that were applied for DHCP and Packet Trigger.
VRF configured	Specifies the VRFs configured.
Up	Specifies the number of packets that are in the UP state.
Down	Specifies the number of packets that are in the DOWN state.
Disconnecting	Specifies the number of packets that are disconnecting.
Disconnected	Specifies the number of packets that are disconnected.
Unknown State	Specifies the packets that are in the unknown state.
Error	Specifies the number of packets that are errored out.

Related Commands

Command	Description
ipsubscriber l2-connected , on page 156	Displays the subscriber management session information.

 **show ipsubscriber summary**



IPv4 and IPv6 Commands

This module describes the Cisco IOS XR software commands used to configure the IPv4 and IPv6 commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [ipv4 mtu \(BNG\), page 172](#)
- [ipv4 unnumbered \(point-to-point -BNG\), page 174](#)
- [ipv4 unreachable disable \(BNG\), page 176](#)
- [ipv4 verify unicast source reachable-via \(BNG\), page 178](#)
- [show ipv4 interface \(BNG\), page 180](#)
- [show ipv4 traffic \(BNG\), page 184](#)

ipv4 mtu (BNG)

To set the maximum transmission unit (MTU) size of IPv4 packets sent on an interface, use the **ipv4 mtu** command in an appropriate configuration mode. To restore the default MTU size, use the **no** form of this command.

ipv4 mtu *bytes*

no ipv4 mtu

Syntax Description

<i>bytes</i>	MTU in bytes. Range is 68 to 65535 bytes for IPv4 packets. The maximum MTU size that can be set on an interface depends on the interface medium.
--------------	--

Command Default

If no MTU size is configured for IPv4 packets sent on an interface, the interface derives the MTU from the Layer 2 MTU.

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The router will fragment any IPv4 packet that exceeds the MTU set for the interface.

The maximum MTU size that can be set on an interface depends on the interface medium. If the Layer 2 MTU is smaller than the Layer 3 MTU, the Cisco IOS XR software uses the Layer 2 MTU value for the Layer 3 MTU. Conversely, if the Layer 3 MTU is smaller than the Layer 2 MTU, the software uses Layer 3 MTU value. In other words the Cisco IOS XR software uses the lower of the two values for the MTU.

All devices on a physical medium must have the same protocol MTU to operate.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

**Note**

Changing the MTU value (with the **mtu** interface configuration command) can affect the IPv4 MTU value. If the current IPv4 MTU value is the same as the MTU value, and you change the MTU value, the IPv4 MTU value will be modified automatically to match the new MTU. However, the reverse is not true; changing the IPv4 MTU value has no effect on the value for the **mtu** command.

Task ID

Task ID	Operations
ipv4	read, write
network	read, write
config-services	read, write

Examples

This example shows how to set the maximum IPv4 packet size to 300 bytes in dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ipv4 mtu 300
```

Related Commands

Command	Description
show ipv4 interface (BNG), on page 180	Displays the MTU status of interfaces configured for IPv4.

ipv4 unnumbered (point-to-point -BNG)

To enable IPv4 processing on a point-to-point interface without assigning an explicit IPv4 address to that interface, use the **ipv4 unnumbered** command in an appropriate configuration mode. To disable this feature, use the **no** form of this command.

ipv4 unnumbered *interface-type interface-instance*

no ipv4 unnumbered *interface-type interface-instance*

Syntax Description

interface-type Interface type. For more information, use the question mark (?) online help function.

interface-instance Either a physical interface instance or a virtual interface instance as follows:

- Physical interface instance. Naming notation is *rack/slot/module/port* and a slash between values is required as part of the notation.
 - *rack*: Chassis number of the rack.
 - *slot*: Physical slot number of the modular services card or line card.
 - *module*: Module number. A physical layer interface module (PLIM) is always 0.
 - *port*: Physical port number of the interface.

Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RSP0) and the module is CPU0. Example: interface MgmtEth0/RSP0 /CPU0/0.

- Virtual interface instance. Number range varies depending on interface type.

For more information about the syntax for the router, use the question mark (?) online help function.

Command Default

IPv4 processing on a point-to-point interface is disabled unless an IPv4 address is assigned explicitly to that interface.

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

Whenever the unnumbered interface generates a packet (for example, for a routing update), it uses the address of the specified interface as the source address of the IPv4 packet. It also uses the IPv4 address of the specified interface in determining which routing processes are sending updates over the unnumbered interface.

Restrictions include the following:

- You cannot use the **ping** EXEC command to determine whether the interface is up because the interface has no address. Simple Network Management Protocol (SNMP) can be used to remotely monitor interface status.

The interface you specify by the *interface-type* and *interface-number* arguments must be enabled (listed as “up” in the **show interfaces** command display).

Task ID

Task ID	Operations
ipv4	read, write
network	read, write
config-services	read, write

Examples

In this example the Bundle-Ether interface is assigned address 100.10 in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ipv4 unnumbered Bundle-Ether100.10
```

ipv4 unreachable disable (BNG)

To disable the generation of IPv4 Internet Control Message Protocol (ICMP) unreachable messages, use the **ipv4 unreachable disable** command in an appropriate configuration mode. To re-enable the generation of ICMP unreachable messages, use the **no** form of this command.

ipv4 unreachable disable

no ipv4 unreachable disable

Syntax Description This command has no keywords or arguments.

Command Default IPv4 ICMP unreachable messages are generated.

Command Modes Dynamic template configuration

Command History	Release	Modification
	Release 3.7.2	This command was introduced.
	Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

If the software receives a nonbroadcast packet destined for itself that uses a protocol it does not recognize, it sends an ICMP protocol unreachable message to the source.

If the software receives a datagram that it cannot deliver to its ultimate destination because it knows of no route to the destination address, it replies to the originator of that datagram with an ICMP host unreachable message.

This command affects a number of ICMP unreachable messages.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

Task ID	Task ID	Operations
	ipv4	read, write
	network	read, write

Task ID	Operations
config-services	read, write

Examples

This example shows how to disable the generation of ICMP unreachable messages on dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp foo  
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ipv4 unreachable disable
```

ipv4 verify unicast source reachable-via (BNG)

To enable IPv4 unicast Reverse Path Forwarding (RPF) checking, use the **ipv4 verify unicast source reachable-via** command in an appropriate configuration mode. To disable unicast RPF, use the **no** form of this command.

ipv4 verify unicast source reachable-via {any| rx} [allow-default] [allow-self-ping]

no ipv4 verify unicast source reachable-via {any| rx} [allow-default] [allow-self-ping]

Syntax Description

any	Enables loose unicast RPF checking. If loose unicast RPF is enabled, a packet is not forwarded unless its source prefix exists in the routing table.
rx	Enables strict unicast RPF checking. If strict unicast RPF is enabled, a packet is not forwarded unless its source prefix exists in the routing table and the output interface matches the interface on which the packet was received.
allow-default	(Optional) Enables the matching of default routes. This option applies to both loose and strict RPF.
allow-self-ping	(Optional) Enables the router to ping out an interface. This option applies to both loose and strict RPF.

Command Default

IPv4 unicast RPF is disabled.

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

Use the **ipv4 verify unicast source reachable-via** interface command to mitigate problems caused by malformed or forged (spoofed) IP source addresses that pass through a router. Malformed or forged source addresses can indicate denial-of-service (DoS) attacks based on source IP address spoofing.

When strict unicast RPF is enabled on an interface, the router examines all packets received on that interface. The router checks to make sure that the source address appears in the routing table and matches the interface on which the packet was received.

When loose unicast RPF is enabled on an interface, the router examines all packets received on that interface. The router checks to make sure that the source address can be reached through any of the router interfaces.

Task ID

Task ID	Operations
ipv4	read, write
network	read, write
config-services	read, write

Examples

This example shows how to configure strict RPF on dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp pl
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ipv4 verify unicast source reachable-via
rx
```

show ipv4 interface (BNG)

To display the usability status of interfaces configured for IPv4, use the **show ipv4 interface** command in the EXEC mode.

show ipv4 [**vrf** *vrf-name*] **interface** [*type interface-path-id*] **brief** **summary**

Syntax Description

vrf	(Optional) Displays VPN routing and forwarding (VRF) instance information.
<i>vrf-name</i>	(Optional) Name of a VRF.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	<p>Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RSP0) and the module is CPU0. Example: interface MgmtEth0/RSP0 /CPU0/0.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
brief	(Optional) Displays the primary IPv4 addresses configured on the router's interfaces and their protocol and line states.
summary	(Optional) Displays the number of interfaces on the router that are assigned, unassigned, or unnumbered.

Command Default

If VRF is not specified, the software displays the default VRF.

Command Modes

EXEC

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show ipv4 interface** command provides output similar to the **show ipv6 interface** command, except that it is IPv4-specific.

The interface name will be displayed only if the name belongs to the VRF instance. If the *vrf-name* is not specified then the interface instance will be displayed only if the interface belongs to the default VRF.

Task ID

Task ID	Operations
ipv4	read
network	read

Examples

This is the sample output of the **show ipv4 interface** command:

```
RP/0/RSP0/CPU0:router# show ipv4 interface

Loopback0 is Up, line protocol is Up
  Internet address is 10
  .0.0.1/8

  Secondary address 10.0.0.2
  /8
  MTU is 1514 (1514 is available to IP)
  Multicast reserved groups joined: 10.0.0.1
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound access list is not set
  Proxy ARP is enabled
  ICMP redirects are always sent
  ICMP unreachable are always sent
gigabitethernet0
/0/0/0 is Up, line protocol is Up
  Internet address is 10.25.58.1/16
  MTU is 1514 (1500 is available to IP)
  Multicast reserved groups joined: 10
  .0.224
  .1
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound access list is not set
  Proxy ARP is enabled
  ICMP redirects are always sent
  ICMP unreachable are always sent
```

```

gigabitethernet0
/0/0/0 is Shutdown, line protocol is Down
  Vrf is default (vrfid 0x60000000)
  Internet protocol processing disabled

```

This table describes the significant fields shown in the display.

Table 13: show ipv4 interface Command Field Descriptions

Field	Description
Loopback0 is Up	If the interface hardware is usable, the interface is marked “Up.” For an interface to be usable, both the interface hardware and line protocol must be up.
line protocol is Up	If the interface can provide two-way communication, the line protocol is marked “Up.” For an interface to be usable, both the interface hardware and line protocol must be up.
Internet address	IPv4 Internet address and subnet mask of the interface.
Secondary address	Displays a secondary address, if one has been set.
MTU	Displays the IPv4 MTU ¹ value set on the interface.
Multicast reserved groups joined	Indicates the multicast groups this interface belongs to.
Directed broadcast forwarding	Indicates whether directed broadcast forwarding is enabled or disabled.
Outgoing access list	Indicates whether the interface has an outgoing access list set.
Inbound access list	Indicates whether the interface has an incoming access list set.
Proxy ARP	Indicates whether proxy ARP ² is enabled or disabled on an interface.
ICMP redirects	Specifies whether ICMPv4 ³ redirects are sent on this interface.
ICMP unreachable	Specifies whether unreachable messages are sent on this interface.
Internet protocol processing disabled	Indicates an IPv4 address has not been configured on the interface.

¹ MTU = maximum transmission unit

- 2 ARP = Address Resolution Protocoladdress resolution protocol
- 3 ICMPv4 = Internet Control Message Protocol internet control message protocol version 4

show ipv4 traffic (BNG)

To display the IPv4 traffic statistics, use the **show ipv4 traffic** command in the EXEC mode.

show ipv4 traffic [brief]

Syntax Description

brief	(Optional) Displays only IPv4 and Internet Control Message Protocol version 4 (ICMPv4) traffic.
--------------	---

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 3.7.2	This command was introduced .
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show ipv4 traffic** command provides output similar to the **show ipv6 traffic** command, except that it is IPv4-specific.

Task ID

Task ID	Operations
ipv4	read
network	read

Examples

This is the sample output of the **show ipv4 traffic** command:

```
RP/0/RSP0/CPU0:router# show ipv4 traffic

IP statistics:
  Rcvd:  16372 total, 16372 local destination
         0 format errors, 0 bad hop count
         0 unknown protocol, 0 not a gateway
```

```

    0 security failures, 0 bad source, 0 bad header
    0 with options, 0 bad, 0 unknown
Opts: 0 end, 0 nop, 0 basic security, 0 extended security
      0 strict source rt, 0 loose source rt, 0 record rt
      0 stream ID, 0 timestamp, 0 alert, 0 cipso
Frgs: 0 reassembled, 0 timeouts, 0 couldn't reassemble
      0 fragmented, 0 fragment count
Bcast: 0 sent, 0 received
Mcast: 0 sent, 0 received
Drop: 0 encapsulation failed, 0 no route, 0 too big, 0 sanity address check
Sent: 16372 total

ICMP statistics:
  Sent: 0 admin unreachable, 0 network unreachable
        0 host unreachable, 0 protocol unreachable
        0 port unreachable, 0 fragment unreachable
        0 time to live exceeded, 0 reassembly ttl exceeded
        5 echo request, 0 echo reply
        0 mask request, 0 mask reply
        0 parameter error, 0 redirects
        5 total
  Rcvd: 0 admin unreachable, 0 network unreachable
        2 host unreachable, 0 protocol unreachable
        0 port unreachable, 0 fragment unreachable
        0 time to live exceeded, 0 reassembly ttl exceeded
        0 echo request, 5 echo reply
        0 mask request, 0 mask reply
        0 redirect, 0 parameter error
        0 source quench, 0 timestamp, 0 timestamp reply
        0 router advertisement, 0 router solicitation
        7 total, 0 checksum errors, 0 unknown

UDP statistics:
  16365 packets input, 16367 packets output
  0 checksum errors, 0 no port
  0 forwarded broadcasts

TCP statistics:
  0 packets input, 0 packets output
  0 checksum errors, 0 no port

```

This table describes the significant fields shown in the display.

Table 14: show ipv4 traffic Command Field Descriptions

Field	Description
bad hop count	Occurs when a packet is discarded because its TTL ⁴ field was decremented to zero.
encapsulation failed	Usually indicates that the router had no ARP request entry and therefore did not send a datagram.
format errors	Indicates a gross error in the packet format, such as an impossible Internet header length.
IP statistics Rcvd total	Indicates the total number of local destination and other packets received in the software plane. It does not account for the IP packets forwarded or discarded in hardware.
no route	Counted when the Cisco IOS XR software discards a datagram it did not know how to route.

⁴ TTL = time-to-live



Multicast Commands

This module describes the Cisco IOS XR software commands used to configure the Multicast commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [router igmp vrf](#), page 188
- [igmp accounting](#), page 189
- [igmp explicit-tracking](#), page 190
- [igmp query-interval](#), page 192
- [igmp query-max-response-time](#), page 194
- [multicast \(BNG\)](#), page 196
- [unicast-qos-adjust](#), page 198
- [show igmp unicast-qos-adjust statistics](#), page 200
- [show igmp vrf \(BNG\)](#), page 203
- [clear igmp unicast-qos-adjust](#), page 205

router igmp vrf

To configure route-policy to be used to map the bandwidth profile, use the **router igmp vrf** command in the global configuration mode. To disable this feature, use the **no** form of this command.

router igmp vrf *vrf_name* {**traffic**|**profile**|*profile_name*}

no router igmp vrf *vrf_name* {**traffic**|**profile**|*profile_name*}

Syntax Description

<i>vrf_name</i>	Specifies the VRF name.
traffic	Configures IGMP traffic variables.
profile	Configures route-policy to be used to map the bandwidth profile.
<i>profile_name</i>	Specifies the profile name.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
multicast	read, write

Examples

This is an example of configuring the **router igmp vrf** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)# router igmp vrf vrf1
RP/0/RSP0/CPU0:router(config)# router igmp vrf vrf1 traffic profile prof-name
```

igmp accounting

To enable accounting feature under igmp, use the **igmp accounting** command in the global configuration mode. To disable this feature, use the **no** form of this command.

igmp accounting { **max-history** | *number_of_days* }

no igmp accounting { **max-history** | *number_of_days* }

Syntax Description

max-history	Sets the maximum history for the accounting in days.
<i>number_of_days</i>	Specifies the number of days the history has to be retained. This value ranged from 1 to 365.

Command Default

If max-history is not specified, then the default is 0 days, which indicates that there was no history saved.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
multicast	read, write

Examples

This is an example of configuring the **igmp accounting** command in the global configuration mode:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)# router igmp accounting max-history 67
```

igmp explicit-tracking

To configure explicit host tracking under Internet Group Management Protocol (IGMP) Version 3, use the **igmp explicit-tracking** command in the dynamic-template configuration mode. To disable explicit host tracking, use the **no** form of this command.

igmp explicit-tracking *access_list_name*

no igmp explicit-tracking

Syntax Description

<i>access_list_name</i>	Specifies the access list tracking group range.
-------------------------	---

Command Default

None

Command Modes

Dynamic template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template type ppp** command to enter dynamic template type ppp configuration mode.

Task ID

Task ID	Operation
multicast	read, write

Examples

This is an example of configuring the **igmp explicit-tracking** command in the dynamic-template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ppp foo
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# igmp explicit-tracking igmpl
```


Related Commands

Command	Description
igmp query-interval, on page 192	Configures the frequency at which the Cisco IOS XR Software sends Internet Group Management Protocol (IGMP) host-query messages.
unicast-qos-adjust, on page 198	Configures the IGMP QOS Shaper for subscriber unicast traffic.
show igmp unicast-qos-adjust statistics, on page 200	Displays the internal statistics of the unicast-qos-adjusted feature.
igmp query-max-response-time, on page 194	Configures the maximum response time advertised in Internet Group Management Protocol (IGMP) queries
multicast (BNG), on page 196	Configures the mode in which the multicast components will work for subscriber sessions associated with a dynamic template.

igmp query-interval

To configure the frequency at which the Cisco IOS XR Software sends Internet Group Management Protocol (IGMP) host-query messages, use the **igmp query-interval** command in the dynamic-template configuration mode. To disable this feature, use the **no** form of this command.

igmp query-interval *seconds*

no igmp query-interval

Syntax Description

<i>seconds</i>	Specifies the frequency used to send IGMP host-query messages and ranges between 1 to 3600.
----------------	---

Command Default

The default query-interval value is 60s.

Command Modes

Dynamic template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template type ppp** command to enter dynamic template type ppp configuration mode.

Task ID

Task ID	Operation
multicast	read, write

Examples

This is the example of configuring the **igmp query-interval** command in the dynamic-template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ppp foo
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# igmp query-interval 60
```

Related Commands

Command	Description
unicast-qos-adjust , on page 198	Configures the IGMP QOS Shaper for subscriber unicast traffic.
igmp explicit-tracking , on page 190	Configures explicit host tracking under Internet Group Management Protocol (IGMP) Version 3
igmp query-max-response-time , on page 194	Configures the maximum response time advertised in Internet Group Management Protocol (IGMP) queries
multicast (BNG) , on page 196	Configures the mode in which the multicast components will work for subscriber sessions associated with a dynamic template.
show igmp unicast-qos-adjust statistics , on page 200	Displays the internal statistics of the unicast-qos-adjusted feature.

igmp query-max-response-time

To configure the maximum response time advertised in Internet Group Management Protocol (IGMP) queries, use the **igmp query-max-response-time** command in the dynamic-template configuration mode. To disable this feature, use the **no** form of this command.

igmp query-max-response-time *seconds*

no igmp query-max-response-time

Syntax Description

<i>seconds</i>	Specifies the maximum response time, in seconds, advertised in IGMP queries, and ranges between 1 to 12.
----------------	--

Command Default

The default query-max-response-time is 10 seconds.

Command Modes

Dynamic template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template type ppp** command to enter dynamic template type ppp configuration mode.

Task ID

Task ID	Operation
multicast	read, write

Examples

This is the example of configuring the **igmp query-max-response-time** command in the dynamic-template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ppp foo
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# igmp query-max-response-time 12
```

Related Commands

Command	Description
igmp query-interval, on page 192	Configures the frequency at which the Cisco IOS XR Software sends Internet Group Management Protocol (IGMP) host-query messages.
igmp explicit-tracking, on page 190	Configures explicit host tracking under Internet Group Management Protocol (IGMP) Version 3
show igmp unicast-qos-adjust statistics, on page 200	Displays the internal statistics of the unicast-qos-adjusted feature.
unicast-qos-adjust, on page 198	Configures the IGMP QOS Shaper for subscriber unicast traffic.
multicast (BNG), on page 196	Configures the mode in which the multicast components will work for subscriber sessions associated with a dynamic template.

multicast (BNG)

To configure the mode in which the multicast components will work for subscriber sessions associated with a dynamic template, use the **multicast** command in the dynamic-template configuration mode. To disable this feature, use the **no** form of this command.

multicast[ipv4]{qos-correlation| passive}

no multicast[ipv4]{qos-correlation| passive}

qos-correlation	Configures multicast in a IGMP-HQOS correlation mode.
passive	Configures multicast is an passive mode.
ipv4	Optional. Specifies configuration for IPv4 address family.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template type ppp** command to enter dynamic template type ppp configuration mode.

Task ID

Task ID	Operation
multicast	read, write

Examples

This is an example of configuring the **multicast** command in the dynamic-template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template
```

```
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ppp foo  
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# multicast ipv4 qos-correlation
```

Related Commands

Command	Description
igmp query-interval, on page 192	Configures the frequency at which the Cisco IOS XR Software sends Internet Group Management Protocol (IGMP) host-query messages.
unicast-qos-adjust, on page 198	Configures the IGMP QOS Shaper for subscriber unicast traffic.
igmp explicit-tracking, on page 190	Configures explicit host tracking under Internet Group Management Protocol (IGMP) Version 3
igmp query-max-response-time, on page 194	Configures the maximum response time advertised in Internet Group Management Protocol (IGMP) queries
show igmp unicast-qos-adjust statistics, on page 200	Displays the internal statistics of the unicast-qos-adjusted feature.

unicast-qos-adjust

To configure the IGMP QOS Shaper for subscriber unicast traffic, use the **unicast-qos-adjust** command in the IGMP configuration mode. To disable this feature, use the **no** form of this command.

unicast-qos-adjust {**adjustment-delay** | **download-interval** | **holdoff**}

no unicast-qos-adjust

Syntax Description

adjustment-delay	Configures the time to wait before programming rate in QOS.
download-interval	Configures the time before downloading a batch of interfaces to QOS.
holdoff	Configures the hold-off time before QOS clears the stale entries.

Command Default

None

Command Modes

IGMP configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template type ppp** command to enter dynamic template type ppp configuration mode.

Task ID

Task ID	Operation
multicast	read, write

Examples

This is an example of configuring the **unicast-qos-adjust** command in the IGMP configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# router igmp
RP/0/RSP0/CPU0:router(config-igmp)# unicast-qos-adjust
```


Related Commands

Command	Description
igmp query-interval, on page 192	Configures the frequency at which the Cisco IOS XR Software sends Internet Group Management Protocol (IGMP) host-query messages.
igmp explicit-tracking, on page 190	Configures explicit host tracking under Internet Group Management Protocol (IGMP) Version 3.
show igmp unicast-qos-adjust statistics, on page 200	Displays the internal statistics of the unicast-qos-adjusted feature.
igmp query-max-response-time, on page 194	Configures the maximum response time advertised in Internet Group Management Protocol (IGMP) queries.
multicast (BNG), on page 196	Configures the mode in which the multicast components will work for subscriber sessions associated with a dynamic template.

show igmp unicast-qos-adjust statistics

To show the statistics of the unicast-qos-adjusted feature, use the **show igmp unicast-qos-adjust statistics** command in the EXEC mode.

show igmp unicast-qos-adjust statistics[*interface type interface-path-id*]

Syntax Description	<div> <div>interface</div> <div>(Optional). Displays the interface specific information such as name of the interface, number of flows adjusted, total rate adjusted, and uptime after first adjustment, in a tabular format. If the interface is specified, then the interface specific statistics are displayed with table of 5 latest updates.</div> </div>
	<div> <div> </div> <div>Specifies the output modifiers.</div> </div>

Command Default None

Command Modes EXEC

Command History	<div> <div>Release</div> <div>Modification</div> </div>
	<div> <div>Release 4.2.0</div> <div>This command was introduced.</div> </div>

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	<div> <div>Task ID</div> <div>Operation</div> </div>
	<div> <div>multicast</div> <div>read</div> </div>

Examples

This is the sample output of the **show igmp unicast-qos-adjust statistics** command:

```
RP/0/RSP0/CPU0:router# show igmp unicast-qos-adjust statistics
The show igmp unicast-qos-adjust statistics output is as follows:

Mon Feb  4 08:47:01.640 GMT

IGMP to QoS Batch stats
Current Queue count           : 0
```

```

Last IGMP-to-QoS Batch count           : 0
Last IGMP-to-QoS Batch errors          : 0
Interfaces added to queue(all batches)  : 0
Interfaces removed from queue(all batches) : 0

IGMP to QoS message send stats
Number of Send Success                  : 1
Number of Send Error COMMS              : 0
Number of Send Error Partial            : 0
Time elapsed since last download        : 3w0d

Resync stats
Is RESYNC required                      : No
Is RESYNC REQUEST received              : No
Is RESYNC START message sent            : No
Has Mark&Sweep happened anytime         : Yes
Time elapsed since last mark and sweep  : 3w0d

```

This table describes the significant fields shown in the display.

Table 15: show igmp unicast-qos-adjust statistics Field Descriptions

Field	Description
IGMP to QoS Batch stats	Specifies the batch statistics details for IGMP to QoS, such as current queue count, batch counter, batch errors, number of interfaces added to the queue, and the number of interfaces removed from the queue.
IGMP to QoS message send stats	Specifies the send statistics details for IGMP to QoS, such as number of send messages that was successful, number of send messages that had errored, number of send messages that had partially errored, and time elapsed since the last download.
Resync stats	Specifies the detailed information on the resynchronization statistics, such as whether resync is required, if the resync request was received, if the resync start message was sent, if mark and sweep for the resync has taken place, and time elapsed since the last mark and sweep.

Related Commands

Command	Description
igmp query-interval , on page 192	Configures the frequency at which the Cisco IOS XR Software sends Internet Group Management Protocol (IGMP) host-query messages.
unicast-qos-adjust , on page 198	Configures the IGMP QoS Shaper for subscriber unicast traffic.
igmp explicit-tracking , on page 190	Configures explicit host tracking under Internet Group Management Protocol (IGMP) Version 3

Command	Description
igmp query-max-response-time, on page 194	Configures the maximum response time advertised in Internet Group Management Protocol (IGMP) queries
multicast (BNG), on page 196	Configures the mode in which the multicast components will work for subscriber sessions associated with a dynamic template.

show igmp vrf (BNG)

To show the igmp vrf specific information, use the **show igmp vrf** command in the EXEC mode.

```
show igmp vrf vrf_name {groups| interface| nsf| ranges| ssm| summary| traffic| unicast-qos-adjusted}
```

Syntax Description

vrf	Shows the vrf information for igmp unicast qos shaper.
<i>vrf_name</i>	Specifies the vrf name.
groups	Shows the igmp group membership information.
interface	Shows igmp interface information.
nsf	Shows igmp nsf status.
ranges	Shows igmp group-map ranges.
ssm	Shows ssm related information.
summary	Shows igmp summary information.
traffic	Show igmp traffic counters.
unicast-qos-adjusted	Shows igmp unicast qos shaper.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
multicast	read

Examples

This is the sample output of the **show igmp vrf** command:

```
RP/0/RSP0/CPU0:router#show igmp vrf vrf1 summary
```

The show igmp vrf vrf1 summary output is as follows:

```
Thu Feb  7 10:02:24.457 GMT
Robustness Value 2
No. of Group x Interfaces 10
Maximum number of Group x Interfaces 50000

Supported Interfaces      : 2
Unsupported Interfaces    : 0
Enabled Interfaces        : 2
Disabled Interfaces       : 0

MTE tuple count          : 0

Interface                  Number  Max #
                               Groups  Groups
BVI1                       3        7      10
Loopback1001               3       25000

RP/0/RSP0/CPU0:router#show igmp vrf vrf1 interface bvi1

Thu Feb  7 10:02:48.231 GMT

BVI1 is up, line protocol is up
 Internet address is 172.16.251.1/30
  IGMP is enabled on interface
  Current IGMP version is 3
  IGMP query interval is 60 seconds
  IGMP querier timeout is 125 seconds
  IGMP max query response time is 10 seconds
  Last member query response interval is 1 seconds
  IGMP activity: 26 joins, 19 leaves
  IGMP querying router is 172.16.251.1 (this system)
  Time elapsed since last query sent 00:00:41
  Time elapsed since IGMP router enabled 3w3d
  Time elapsed since last report received 00:00:32
```

This table describes the significant fields shown in the display.

Table 16: show igmp vrf Field Descriptions

Field	Description
Supported Interfaces	Specifies the number of supported interfaces.
Unsupported Interfaces	Specifies the number of unsupported interfaces.
Enabled Interfaces	Specifies the number of interfaces that are enabled.
Disabled Interfaces	Specifies the number of interfaces that are disabled.

clear igmp unicast-qos-adjust

To clear IGMP unicast rate adjustment database, use the **clear igmp unicast-qos-adjust** command in the EXEC mode.

clear igmp unicast-qos-adjust {*rate* | *statistics* } **interface** {*type* | *interface_path_id* }

Syntax Description

rate	Specifies the rate programmed in QoS.
statistics	Specifies the unicast rate adjustment statistics.
interface	Specifies the interface specific rate.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	<p>Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none">Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation.<ul style="list-style-type: none">◦ <i>rack</i>: Chassis number of the rack.◦ <i>slot</i>: Physical slot number of the modular services card or line card.◦ <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0.◦ <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.</p> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>

Command Default

Clears all unicast qos adjust parameters.

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
multicast	exec

Examples

This is an example of using the **clear igmp unicast-qos-adjust** command:

```
RP/0/RSP0/CPU0:router# clear igmp unicast-qos-adjust rate interface Loopback 1
```




BNG PPP Commands

This module describes the Cisco IOS XR software commands used to configure the PPP commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [ppp authentication \(BNG\), page 208](#)
- [ppp chap, page 211](#)
- [ppp ipcp, page 213](#)
- [ppp lcp, page 215](#)
- [ppp max-bad-auth \(BNG\), page 217](#)
- [ppp max-configure \(BNG\), page 219](#)
- [ppp max-failure \(BNG\), page 221](#)
- [ppp ms-chap, page 223](#)
- [ppp timeout, page 225](#)
- [show ppp interfaces \(BNG\), page 227](#)
- [show ppp statistics, page 235](#)
- [show ppp summary, page 238](#)

ppp authentication (BNG)

To enable Challenge Handshake Authentication Protocol (CHAP), MS-CHAP, or Password Authentication Protocol (PAP), and to specify the order in which CHAP, MS-CHAP, and PAP authentication is selected on the interface, use the **ppp authentication** command in appropriate configuration mode. To disable PPP authentication, use the **no ppp authentication** command.

ppp authentication *protocol* [*protocol* [*protocol*]] {*list-name*| **default**}

no ppp authentication

Syntax Description

<i>protocol</i>	Name of the authentication protocol used for PPP authentication. See Table 17: PPP Authentication Protocols for Negotiation, on page 209 for the appropriate keyword. You may select one, two, or all three protocols, in any order.
<i>list-name</i>	(Optional) Used with authentication, authorization, and accounting (AAA). Name of a list of methods of authentication to use. If no list name is specified, the system uses the default. The list is created with the aaa authentication ppp command.
default	(Optional) Specifies the name of the list of methods created with the aaa authentication ppp command.

Command Default

PPP authentication is not enabled.

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 3.9.0	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

When you enable CHAP or PAP authentication (or both), the local router requires the remote device to prove its identity before allowing data traffic to flow. PAP authentication requires the remote device to send a name and a password, which is checked against a matching entry in the local username database or in the remote security server database. CHAP authentication sends a challenge message to the remote device. The remote device encrypts the challenge value with a shared secret and returns the encrypted value and its name to the

local router in a response message. The local router attempts to match the remote device's name with an associated secret stored in the local username or remote security server database; it uses the stored secret to encrypt the original challenge and verify that the encrypted values match.

You can enable CHAP, MS-CHAP, or PAP in any order. If you enable all three methods, the first method specified is requested during link negotiation. If the peer suggests using the second method, or refuses the first method, the second method is tried. Some remote devices support only one method. Base the order in which you specify methods on the remote device's ability to correctly negotiate the appropriate method, and on the level of data line security you require. PAP usernames and passwords are sent as clear text strings, which can be intercepted and reused.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

**Note**

If you use a *list-name* value that was not configured with the **aaa authentication ppp** command, then authentication does not complete successfully and the line does not come up.

[Table 17: PPP Authentication Protocols for Negotiation, on page 209](#) lists the protocols used to negotiate PPP authentication.

Table 17: PPP Authentication Protocols for Negotiation

Protocol	Description
chap	Enables CHAP on an interface.
ms-chap	Enables Microsoft's version of CHAP (MS-CHAP) on an interface.
pap	Enables PAP on an interface.

Enabling or disabling PPP authentication does not affect the ability of the local router to authenticate itself to the remote device.

MS-CHAP is the Microsoft version of CHAP. Like the standard version of CHAP, MS-CHAP is used for PPP authentication. In this case, authentication occurs between a personal computer using Microsoft Windows NT or Microsoft Windows 95 and a Cisco router or access server acting as a network access server.

Enabling or disabling PPP authentication does not affect the local router authenticating itself to the remote device.

Task ID

Task ID	Operations
ppp	read, write
aaa	read, write

Examples

This is an example of configuring the **ppp authentication** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp authentication chap ms-chap pap
```

Related Commands

Command	Description
ppp chap, on page 211	Configures the PPP chap hostname.
ppp ipcp, on page 213	Sets IPCP negotiation options.
ppp lcp, on page 215	Configures the lcp global configure for PPP protocol.

ppp chap

To enable a router calling a collection of routers to configure a common Challenge Handshake Authentication Protocol (CHAP) for PPP interfaces, use the **ppp chap** command in the dynamic template configuration mode. To disable this feature, use the **no** form of this command.

ppp chap hostname *chap_hostname*

no ppp chap

Syntax Description

hostname	Sets the CHAP hostname.
<i>chap_hostname</i>	Specifies the CHAP hostname.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template type ppp** command to enter the ppp dynamic template type configuration mode.

Task ID

Task ID	Operation
ppp	read, write

Examples

This is an example of configuring the **ppp chap** command in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp chap hostname host1
```

Related Commands

Command	Description
ppp authentication (BNG), on page 208	Sets PPP link authentication method.

ppp ipcp

To set Internet Protocol Control Protocol (IPCP) negotiation options, use the **ppp ipcp** command in the dynamic template configuration mode. To disable this feature, use the **no** form of this command.

```
ppp ipcp [ dns { primary_ip_address | secondary_ip_address } | mask peer_netmask_address | peer-address { default | peer_ipaddress | pool | pool_name } | renegotiation ignore | wins | primary_ipaddress | secondary_ipaddress ]
```

no ppp ipcp

Syntax Description

dns	Configures the dns options.
<i>primary_ip_address</i>	Specifies the primary DNS IP addresses.
<i>secondary_ip_address</i>	Specifies the secondary DNS IP addresses.
mask	Specifies the IPv4 netmask to use for the peer.
<i>peer_netmask_address</i>	Specifies the peer netmask address.
peer-address	Specifies the change in peer-address configuration.
default	Specifies the default peer IP address.
<i>peer_ipaddress</i>	Specifies the peer IP address.
pool	Configures the pool options.
<i>pool_name</i>	Specifies the pool name.
renegotiation	Specifies the peer negotiation options.
wins	Specifies the WINS options.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **dynamic-template type ppp** command to enter the ppp dynamic template type configuration mode.

Task ID

Task ID	Operation
ppp	read, write
aaa	read, write

Examples

This is an example of configuring the **ppp ipcp** command in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp ipcp
```

Related Commands

Command	Description
ppp authentication (BNG), on page 208	Sets PPP link authentication method.

ppp lcp

To enable the link control protocol (LCP) on PPP interfaces, use the **ppp lcp** command in the dynamic template configuration mode. To disable this feature, use the **no** form of this command.

ppp lcp [**delay** *delay_seconds delay_milliseconds* | **renegotiation ignore**]
no ppp lcp

Syntax Description

delay	Sets the time to delay before starting active LCP negotiations.
<i>delay_seconds</i>	Specifies the delay time in seconds. The value ranges from 0-255.
<i>delay_milliseconds</i>	Specifies the delay time in milliseconds. The value ranges from 0-999.
renegotiation	Specifies the peer renegotiation options.
ignore	Specifies the number of attempts that can be ignored by the peer to renegotiate LCP.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

Use the **dynamic-template type ppp** command to enter the ppp dynamic template type configuration mode.

Task ID

Task ID	Operation
ppp	read, write
aaa	read, write

Examples

This is an example of configuring the **ppp lcp** command in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
```

```
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1  
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp lcp delay 45 890
```

Related Commands

Command	Description
ppp authentication (BNG), on page 208	Sets PPP link authentication method.

ppp max-bad-auth (BNG)

To configure a PPP interface not to reset itself immediately after an authentication failure but instead to allow a specified number of authentication retries, use the **ppp max-bad-auth** command in the appropriate configuration mode. To reset to the default of immediate reset, use the **no** form of this command.

ppp max-bad-auth *retries*

no ppp max-bad-auth

Syntax Description

<i>retries</i>	Number of retries after which the interface is to reset itself. Range is from 0 to 10. Default is 0 retries.
----------------	--

Command Default

retries: 0

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 3.9.0	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **ppp max-bad-auth** command applies to any interface on which PPP encapsulation is enabled.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

Task ID

Task ID	Operations
ppp	read, write
aaa	read, write

Examples

This example shows how to allow two additional retries after an initial authentication failure in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp max-configure 5
```

ppp max-configure (BNG)

To specify the maximum number of configure requests to attempt (without response) before stopping the requests, use the **ppp max-configure** command in an appropriate configuration mode. To disable the maximum number of configure requests and return to the default, use the **no** form of this command.

ppp max-configure *retries*

no ppp max-configure

Syntax Description

<i>retries</i>	Maximum number of retries. Range is 4 through 20. Default is 10.
----------------	--

Command Default

retries: 10

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 3.9.0	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **ppp max-configure** command to specify how many times an attempt is made to establish a Link Control Protocol (LCP) session between two peers for a particular interface. If a configure request message receives a reply before the maximum number of configure requests are sent, further configure requests are abandoned.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

Task ID

Task ID	Operations
ppp	read, write
aaa	read, write

Examples

This example shows how a limit of four configure requests is specified in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp ipcp
```

Related Commands

Command	Description
ppp max-failure (BNG), on page 221	Configures the maximum number of consecutive CONFNAKs to permit before terminating a negotiation.

ppp max-failure (BNG)

To configure the maximum number of consecutive Configure Negative Acknowledgments (CONFNAKs) to permit before terminating a negotiation, use the **ppp max-failure** command in an appropriate configuration mode. To disable the maximum number of CONFNAKs and return to the default, use the **no** form of this command.

ppp max-failure *retries*

no ppp max-failure

Syntax Description

<i>retries</i>	Maximum number of CONFNAKs to permit before terminating a negotiation. Range is from 2 to 10. Default is 5.
----------------	---

Command Default

retries: 5

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 3.9.0	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

To enter the dynamic template configuration mode, run **dynamic-template** command in the global configuration mode.

Task ID

Task ID	Operations
ppp	read, write
aaa	read, write

Examples

This example shows how no more than three CONFNAKs are permitted before terminating the negotiation in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp max-failure 4
```

Related Commands

Command	Description
ppp max-configure (BNG), on page 219	Specifies the maximum number of configure requests to attempt (without response) before stopping the requests.

ppp ms-chap

To configure CHAP using the point-to-point protocol, use the **ppp ms-chap** command in the dynamic template configuration mode. To disable this feature, use the **no** form of this command.

ppp ms-chap hostname *chap_hostname*

no ppp ms-chap

Syntax Description

hostname	Sets the MS-CHAP hostname.
<i>chap_hostname</i>	Specifies the name of the MS-CHAP hostname.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template** command to enter the dynamic template configuration mode.

Task ID

Task ID	Operation
ppp	read, write
aaa	read, write

Examples

This is an example of configuring the **ppp ms-chap** command in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp ms-chap hostname host1
```

Related Commands

Command	Description
ppp authentication (BNG), on page 208	Sets PPP link authentication method.

ppp timeout

To configure timeouts for PPP protocol, use the **ppp timeout** command in the dynamic template configuration mode. To disable this feature, use the **no** form of this command.

ppp timeout [**absolute** *absolute_minutes* | **authentication** *auth_seconds* | **retry** *retry_seconds*]

no ppp timeout

Syntax Description

absolute	Specifies the absolute timeout for a PPP session.
authentication	Specifies the maximum wait time to receive an authentication response.
retry	Specifies the maximum time to wait for a response during PPP negotiation.
<i>absolute_minutes</i>	Specifies the absolute timeout in minutes. This value ranges from 0-70000000.
<i>auth_seconds</i>	Specifies the authentication wait time in seconds. This value ranges from 3-30.
<i>retry_seconds</i>	Specifies the retry timeout in seconds. This value ranges from 1-10.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **dynamic-template** command to enter the dynamic template configuration mode.

Task ID

Task ID	Operation
ppp	read, write
aaa	read, write

Examples

This is an example of configuring the **ppp timeout** command in the dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp timeout absolute 56
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp timeout authentication 4
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# ppp timeout retry 5
```

Related Commands

Command	Description
ppp authentication (BNG), on page 208	Sets PPP link authentication method.

show ppp interfaces (BNG)

To display PPP state information for an interface, use the **show ppp interfaces** command in EXEC mode.

show ppp interfaces [**brief** | **detail**] {**all** | *type interface-path-id* | **location node-id**}

Syntax Description

brief	(Optional) Displays brief output for all interfaces on the router, for a specific POS interface instance, or for all interfaces on a specific node.
detail	(Optional) Displays detailed output for all interfaces on the router, for a specific interface instance, or for all interfaces on a specific node.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
all	(Optional) Displays detailed PPP information for all nodes.
location node-id	(Optional) Displays detailed PPP information for the designated node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Command Default

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.9.0	This command was introduced.
Release 4.2.0	This command was supported in the dynamic template configuration mode for BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

There are seven possible PPP states applicable for either the Link Control Protocol (LCP) or the Network Control Protocol (NCP).

The command output displays a summary of the interface as it is in the PPP Interface Descriptor Block (IDB). The output includes the following information (where applicable):

- Interface state
- Line protocol state
- Link Control Protocol (LCP) state
- Network Control Protocol (NCP) state
- Multilink PPP state
- Multilink PPP configuration
- Keepalive configuration
- Authentication configuration
- Negotiated MRUs
- Negotiated IP addresses

This command can display information for a single interface, all interfaces on a specified node, or all interfaces on the router.

Task ID

Task ID	Operations
ppp	read

Examples

This example shows how to display PPP state information for a POS interface:

```
RP/0/RSP0/CPU0:router# show ppp interface POS 0/2/0/3
POS0/2/0/3 is up, line protocol is up
  LCP: Open
    Keepalives enabled (10 sec)
    Local MRU: 4470 bytes
    Peer MRU: 4470 bytes
  Authentication
    Of Us: CHAP (Completed as 'test-user')
    Of Peer: PAP (Completed as 'peer-user')
  CDPCP: Listen
  IPCP: Open
    Local IPv4 address: 55.0.0.1
    Peer IPv4 address: 55.0.0.2
    Peer DNS Primary: 55.0.0.254
    Peer DNS Secondary: 155.0.0.254
  IPV6CP: Open
    Local IPv6 address: fe80::3531:35ff:fe55:5747/128
```

```

Peer IPv6 address: fe80::3531:35ff:fe55:4213/128
MPLSCP: Stopped

```

This example shows how to display PPP state information for a POS interface that is running as a Layer 2 attachment circuit:

```
RP/0/0/CPU0:# show ppp interface POS0/2/0/2
```

```

POS0/2/0/2 is up, line protocol is up
LCP: Open
Running as L2 AC

```

This example shows how to display PPP state information for a multilink interface:

```
RP/0/RSP0/CPU0:router:# show ppp interface Multilink 0/3/0/0/100
```

```

Multilink0/3/0/0/100 is up, line protocol is down
LCP: Open
SSO-State: Standby-Up
Keepalives disabled
IPCP: Open
SSO-State: Standby-Up
Local IPv4 address: 100.0.0.1
Peer IPv4 address: 100.0.0.2
IPV6CP: Open
Local IPv6 address: fe80::3531:35ff:fe55:4600/128
Peer IPv6 address: fe80::3531:35ff:fe55:3215/128
Multilink
Local MRRU: 1500 bytes
Peer MRRU: 1500 bytes
Local Endpoint Discriminator: 1234567812345678
Peer Endpoint Discriminator: 1111222233334444
MCMP classes: Local 4, Remote 2
Member links: 2 active, 6 inactive (min-active 2)
- Serial0/3/1/3/1 ACTIVE
- Serial0/3/1/3/2 ACTIVE
- Serial0/3/1/3/3 INACTIVE : LCP not negotiated
- Serial0/3/1/3/4 INACTIVE : Mismatching peer endpoint
- Serial0/3/1/3/5 INACTIVE : Mismatching peer auth name
- Serial0/3/1/3/6 INACTIVE : MRRU option rejected by Peer
- Serial0/3/1/3/7 INACTIVE : Mismatching local MCMP classes
- Serial0/3/1/3/8 INACTIVE : MCMP option rejected by peer

```

This example shows how to display PPP state information for a serial interface:

```
RP/0/RSP0/CPU0:router# show ppp interface Serial 0/3/1/3/1
```

```

Serial0/3/1/3/1 is down, line protocol is down
LCP: Open
SSO-State: Standby-Up
Keepalives enabled (10 sec)
Local MRU: 1500 bytes
Peer MRU: 1500 bytes
Local Bundle MRRU: 1500 bytes
Peer Bundle MRRU: 1500 bytes
Local Endpoint Discriminator: 1234567812345678
Peer Endpoint Discriminator: 1111222233334444
Local MCMP Classes: Not negotiated
Remote MCMP Classes: Not negotiated
Authentication
Of Us: CHAP (Completed as 'test-user')
Of Peer: PAP (Completed as 'peer-user')
Multilink
Multilink group id: 100
Member status: ACTIVE

```

Table 18: show ppp interfaces Field Descriptions

Field	Description
Ack-Rcvd	Configuration acknowledgement was received; waiting for peer to send configuration request.
Ack-Sent	Configuration acknowledgement was sent; waiting for peer to respond to configuration request.
Authentication	Type of user authentication configured on the local equipment and on the peer equipment. Possible PPP authentication protocols are Challenge Handshake Authentication Protocol (CHAP), MS-CHAP, and Password Authentication Protocol (PAP).
Closed	Lower layer is up, but this layer is not required.
Closing	Shutting down due to local change.
Initial	Connection is idle.

Field	Description
IPCP	<p>IP Control Protocol (IPCP) state. The seven possible states that may be displayed are as follows:</p> <ul style="list-style-type: none"> • Initial—Lower layer is unavailable (Down), and no Open has occurred. The Restart timer is not running in the Initial state. • Starting—An administrative Open has been initiated, but the lower layer is still unavailable (Down). The Restart timer is not running in the Starting state. When the lower layer becomes available (Up), a Configure-Request is sent. • Closed—IPCP is not currently trying to negotiate. • Stopped—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. • Closing—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. Upon reception of a Terminate-Ack, the Closed state is entered. Upon the expiration of the Restart timer, a new Terminate-Request is transmitted, and the Restart timer is restarted. After the Restart timer has expired Max-Terminate times, the Closed state is entered. • Stopping—A Terminate-Request has been sent and the Restart timer is running, but a IPCP-Ack has not yet been received. Req-Sent. • ACKsent—IPCP has received a request and has replied to it. • ACKrcvd—IPCP has received a reply to a request it sent. • Open—IPCP is functioning properly.
Keepalive	Keepalive setting and interval in seconds for echo request packets.

Field	Description
LCP	<p>Indicates the current state of LCP. The state of the LCP will report the following states:</p> <ul style="list-style-type: none"> • Initial—Lower layer is unavailable (Down), and no Open has occurred. The Restart timer is not running in the Initial state. • Starting—An administrative Open has been initiated, but the lower layer is still unavailable (Down). The Restart timer is not running in the Starting state. When the lower layer becomes available (Up), a Configure-Request is sent. • Closed— LCP is not currently trying to negotiate. • Stopped—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. • Closing—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. Upon reception of a Terminate-Ack, the Closed state is entered. Upon the expiration of the Restart timer, a new Terminate-Request is transmitted, and the Restart timer is restarted. After the Restart timer has expired Max-Terminate times, the Closed state is entered. • Stopping—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. Req-Sent. • ACKsent—LCP has received a request and has replied to it. • ACKrcvd—LCP has received a reply to a request it sent. • Open—LCP is functioning properly
Local IPv4 address	IPv4 address for the local interface.
Local MRU	Maximum receive unit. The maximum size of the information transported, in bytes, in the PPP packet received by the local equipment.
Open	Connection open.

Field	Description
OSICP	<p>Open System Interconnection Control Protocol (OSICP) state. The possible states that may be displayed are as follows:</p> <ul style="list-style-type: none"> • Initial—Lower layer is unavailable (Down), and no Open has occurred. The Restart timer is not running in the Initial state. • Starting—An administrative Open has been initiated, but the lower layer is still unavailable (Down). The Restart timer is not running in the Starting state. When the lower layer becomes available (Up), a Configure-Request is sent. • Closed—OSICP is not currently trying to negotiate. • Stopped—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. • Closing—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. Upon reception of a Terminate-Ack, the Closed state is entered. Upon the expiration of the Restart timer, a new Terminate-Request is transmitted, and the Restart timer is restarted. After the Restart timer has expired Max-Terminate times, the Closed state is entered. • Stopping—A Terminate-Request has been sent and the Restart timer is running, but a Terminate-Ack has not yet been received. Req-Sent. • ACKsent—OSICP has received a request and has replied to it. • ACKrcvd—OSICP has received a reply to a request it sent. • Open—OSICP is functioning properly.
Peer IPv4 address	IPv4 address for the peer equipment.
Peer MRU	Maximum receive unit. The maximum size of the information transported, in bytes, in the PPP packet received by the peer equipment.
Req-Sent	Configuration request was sent; waiting for peer to respond.

Field	Description
Starting	This layer is required, but lower layer is down.
Stopped	Listening for a configuration request.
Stopping	Shutting down as a result of interactions with peer.

show ppp statistics

To display the statistics information for PPP interfaces, use the **show ppp statistics** command in EXEC mode.

```
show ppp statistics {extended | {location | location}} | interface | {interface-type | interface-path-id} | summary | {location | location}}
```

Syntax Description

extended	Displays the extended PPP statistics across all interfaces.
interface	Displays the PPP statistics for a single interface.
summary	Displays aggregated PPP statistics across all interfaces.
location	Displays the PPP statistics for interfaces at a location.
<i>location</i>	Specifies the location details.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ppp	read

Examples

This example shows the output of the **show ppp statistics** command:

```
RP/0/RSP0/CPU0:router# show ppp statistics summary location 0/RSP0/CPU0
```

```
Thu Sep  6 06:38:17.668 DST
LCP
Packets                Sent                Received
Conf-Req                0                  0
Conf-Ack                0                  0
Conf-Nak                0                  0
Conf-Rej                0                  0
Term-Req                0                  0
Term-Ack                0                  0
Code-Rej                0                  0
Proto-Rej               0                  0
Echo-Req                0                  0
Echo-Rep                0                  0
Disc-Req                0                  0
Line state brought up: 0
Keepalive Link Failures: 0
Authentication
Packets                Sent                Received
PAP
Request                 0                  0
Ack                     0                  0
Nak                     0                  0
(MS-)CHAP
Challenge                0                  0
Response                 0                  0
Rep Success              0                  0
Rep Fail                 0                  0
AAA authentication timeouts: 0
CDPCP
Packets                Sent                Received
Conf-Req                0                  0
Conf-Ack                0                  0
Conf-Nak                0                  0
Conf-Rej                0                  0
Term-Req                0                  0
Term-Ack                0                  0
Proto-Rej               0                  0
IPCP
Packets                Sent                Received
Conf-Req                0                  0
Conf-Ack                0                  0
Conf-Nak                0                  0
Conf-Rej                0                  0
Term-Req                0                  0
Term-Ack                0                  0
Proto-Rej               0                  0
IPCPiW
Packets                Sent                Received
Conf-Req                0                  0
Conf-Ack                0                  0
Conf-Nak                0                  0
Conf-Rej                0                  0
Term-Req                0                  0
Term-Ack                0                  0
Proto-Rej               0                  0
IPv6CP
```

```

Packets                               Sent           Received
Conf-Req                             0              0
Conf-Ack                             0              0
Conf-Nak                             0              0
Conf-Rej                             0              0
Term-Req                             0              0
Term-Ack                             0              0
Proto-Rej                           0              0
MPLSCP
Packets                               Sent           Received
Conf-Req                             0              0
Conf-Ack                             0              0
Conf-Nak                             0              0
Conf-Rej                             0              0
Term-Req                             0              0
Term-Ack                             0              0
Proto-Rej                           0              0
OSICP
Packets                               Sent           Received
Conf-Req                             0              0
Conf-Ack                             0              0
Conf-Nak                             0              0
Conf-Rej                             0              0
Term-Req                             0              0
Term-Ack                             0              0
Proto-Rej                           0              0

```

Related Commands

Command	Description
show ppp interfaces (BNG), on page 227	Displays the PPP interfaces.
show ppp summary, on page 238	Displays the PPP summary.

show ppp summary

To display the summary information for the PPP interfaces, use the **show ppp summary** command in EXEC mode.

show ppp summary *location location*

Syntax Description	location	Displays the PPP summary for interfaces at a location.
	<i>location</i>	Specifies the location details.

Command Default None

Command Modes EXEC

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	ppp	read

Examples This example shows the output of the **show ppp summary** command for interfaces running PPP:

```
RP/0/RSP0/CPU0:router# show ppp summary location 0/5/CPU0

=====
Interfaces running PPP
=====
POS                0
Serial             200
PPPoE              10000
Multilink Bundles  100
-----
Total               10300
=====
```



```

CP FSM States
=====
Name      Total  Open   ACK   ACK   REQ   Stop-  Clos-  Stop-  Clos-  Start-
          sent   sent   sent  rcvd  sent  ping   ing    ped    ed     ing   Initial
-----
LCP       10300 10300    0     0     0     0     0     0     0     0     0
CDPCP      100     0     0     0    100    0     0     0     0     0     0
IPCP      10000 10000    0     0     0     0     0     0     0     0     0
IPv6CP      0     0     0     0     0     0     0     0     0     0     0
MPLSCP      0     0     0     0     0     0     0     0     0     0     0
OSICP      0     0     0     0     0     0     0     0     0     0     0
=====

LCP/Authentication Phases
=====
LCP Not Negotiated          100
Authenticating               0
Line held down               0
Line Up (Local Termination) 10200
Line Up (L2 Forwarded)      0
Line UP (VPDN Tunneled)     100

```

Related Commands

Command	Description
show ppp statistics, on page 235	Displays the PPP statistics.
show ppp interfaces (BNG), on page 227	Displays the PPP interfaces.

 show ppp summary



PPPoE LAC-Specific Commands

This module describes the Cisco IOS XR software commands used to configure the PPPoE LAC-specific commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [l2tp-class](#), page 242
- [session-limit \(BNG\)](#), page 244
- [template \(BNG\)](#), page 246
- [tunnel](#), page 248
- [vpdn](#), page 250
- [vpn](#), page 252
- [show l2tpv2](#), page 254
- [show vpdn](#), page 256

l2tp-class

To create the l2tp class that needs to be used for L2TP parameters for the vpdn-group and to enter the l2tp class configuration submode, use the **l2tp-class** command in global configuration mode. To disable this feature, use the **no** form of this command.

l2tp-class {c1 | l1 | *l2tp_class_name*} [**authentication** | **congestion-control** | **digest** | **hello-interval** | **hidden** | **hostname** | **ip** | **password** | **receive-window** | **retransmit** | **security** | **timeout** | **tunnel**]

no l2tp-class

c1	Specifies the l2tp class name.
l1	Specifies the l2tp class name.
<i>l2tp_class_name</i>	Specifies the l2tp class name.
authentication	Authenticates the L2TP control connection.
congestion-control	Enables L2Tp congestion control.
digest	Specifies message digest configuration for L2TPv3 control connection.
hello-interval	Hides AVPs in outgoing control messages.
hidden	Sets HELLO message interval.
hostname	Specifies the local hostname for control connection authentication.
ip	Specifies the settings for tunnel.
password	Specifies the password for control connection authentication.
receive-window	Receives the window size for control connection.
retransmit	Specifies the control message retransmission parameters.
security	Specifies the L2TP security command.
timeout	Specifies the control connection timeout parameters.
tunnel	Specifies the tunnel settings.

Command Default No default behavior or values

Command Modes Global configuration

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	tunnel	read, write

Examples

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# l2tp-class c1
RP/0/RSP0/CPU0:router(config)# l2tp-class c1 congestion-control
```

Related Commands	Command	Description
	tunnel , on page 248	Configures l2tp tunnel.

session-limit (BNG)

To configure maximum simultaneous VPDN sessions, use the **session-limit** command in vpdn configuration mode. To disable this feature, use the **no** form of this command.

session-limit *number*

no session-limit

Syntax Description

<i>number</i>	Specifies the number of sessions and the value can range between 1-131072.
---------------	--

Command Default

The default and max value for global session-limit is 65536(64k sessions).

Command Modes

VPDN configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **vpdn** command to enter vpdn configuration submode.



Note

Per vpdn group session limiting is not supported on LAC.

If limit is configured after a number of sessions are up, then those sessions remain up irrespective of the limit and new sessions will not come up based on the limit. The **no** form of the command results in removing limits on number of sessions and new sessions are accepted by vpdn.

Task ID

Task ID	Operation
tunnel	read, write

Examples

This is an example of configuring the **session-limit** command in vpdn configuration mode:

```
RP/0/RSP0/CPU0:router# configure
```

```
RP/0/RSP0/CPU0:router(config)# vpdn  
RP/0/RSP0/CPU0:router(config-vpdn)# session-limit 567
```

template (BNG)

To configure the VPDN template and enter the vpdn template configuration mode, use the **template** command in vpdn configuration mode. To disable vpdn template, use the **no** form of this command.

template *vpdn-template_name* {**description**| **caller-id**| **ip**| **dsl-line-forwarding**| **ipv4**| **l2tp-class**| **tunnel**| **vpn**}
no template

Syntax Description

<i>vpdn-template_name</i>	Specifies the vpdn template name.
description	Specifies the description of the vpdn template.
caller-id	Specifies the options to apply on calling station id.
ip	Specifies the tos ip value.
dsl-line-forwarding	Enables dsl line information forwarding.
ipv4	Specifies the ipv4 settings for tunnel.
l2tp-class	Specifies the l2tp class name.
tunnel	Specifies the l2tp tunnel commands.
vpn	Specifies the vpn id/vrf name.

Command Default

None

Command Modes

VPDN configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **vpdn** command, to enter vpdn configuration submode.

Task ID

Task ID	Operation
tunnel	read, write

Examples

This is an example of configuring the **template** command in vpdn configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# vpdn
RP/0/RSP0/CPU0:router(config-vpdn)# template temp1
RP/0/RSP0/CPU0:router(config-vpdn-temp)#
```

tunnel

To configure the amount of time that the peer will be put in a dead cache, use the **tunnel** command in vpdn template configuration mode. To disable this feature, use the **no** form of this command.

tunnel busy list timeout *timeout_value*

no tunnel

Syntax Description

<i>timeout_value</i>	Specifies the amount of time in seconds that the peer will remain in dead cache. This value ranges from 60 to 65535.
----------------------	--

Command Default

None

Command Modes

VPDN template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **vpdn template** command to enter vpdn template configuration submode.

Task ID

Task ID	Operation
tunnel	read, write

Examples

This is an example of configuring the **tunnel** command in vpdn template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# vpdn template
RP/0/RSP0/CPU0:router(config-vpdn-template)# tunnel busy list timeout 56
```

Related Commands

Command	Description
vpdn , on page 250	Configures VPDN and to enter the VPDN sub-configuration mode.

vpdn

To configure VPDN and to enter the VPDN configuration submode, use the **vpdn** command in global configuration mode. To disable vpdn, use the **no** form of this command.

vpdn {**caller-id**| **history**| **l2tp**| **logging**| **session-limit**| **softshut**| **template**}

no vpdn

Syntax Description

caller-id	Specifies the options to apply on calling station id.
history	Enables VPDN history logging.
l2tp	Specifies the l2tpv2 protocol commands.
logging	Enables logging for VPDN.
session-limit	Allows to configure maximum simultaneous VPDN sessions.
softshut	Specifies that a new session is no longer allowed.
template	Specifies the VPDN template configuration.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **vpdn** command to enter vpdn sub-configuration mode.

Task ID

Task ID	Operation
tunnel	read, write

Examples

This is an example of configuring the **vpdn** command in global configuration mode:

```
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# vpdn  
RP/0/RSP0/CPU0:router(config-vpdn)# history failure  
RP/0/RSP0/CPU0:router(config-vpdn)# softshut
```

vpn

To configure the VPN ID or VRF name, use the **vpn** command in vpdn template configuration mode. To disable this feature, use the **no** form of this command.

vpn { **id** *vpn_index* | **vrf** *vrf_name* }

no vpn

Syntax Description

id	Specifies the VPN ID.
vrf	Specifies the VRF.
<i>vpn_index</i>	Specifies a value between 0-fffff.
<i>vrf_name</i>	Specifies the name of the vrf.

Command Default

None

Command Modes

VPDN template configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **vpdn template** command to enter vpdn template configuration submode.

Task ID

Task ID	Operation
tunnel	read, write

Examples

This is an example of configuring the **vpn** command in vpdn template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# vpdn template
```

```
RP/0/RSP0/CPU0:router(config-vpdn-template)# vpn vrf vrf1
```

show l2tpv2

To display the tunnel-related information, use the **show l2tpv2** command in the EXEC mode.

show l2tpv2 {**class** | **counters** | **session** | **statistics** | **tunnel**}

Syntax Description

class	Displays the L2TP class details.
counters	Displays the L2TP counter information.
session	Displays the L2TP session information.
statistics	Displays the L2TP protocol statistics.
tunnel	Displays the L2TP tunnel information.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ipv4	read
network	read

Examples

This is the sample output of the **show l2tpv2** command in the EXEC mode:

```
RP/0/RSP0/CPU0:router# show l2tpv2 class name c1
RP/0/RSP0/CPU0:router# show l2tpv2 counters forwarding tunnel id 67
RP/0/RSP0/CPU0:router# show l2tpv2 session brief if 89 789
```


RP/0/RSP0/CPU0:router# **show l2tpv2 statistics | file tftp: vrf vrf1 |**
 RP/0/RSP0/CPU0:router# **show l2tpv2 tunnel accounting statistics | file tftp: vrf vrf1 |**
 Show output for l2tpv2 session:

```
Sun Dec  4 22:37:48.554 PST

Session id 46362 is up, tunnel id 58775, logical session id 131086
  Remote session id is 16, remote tunnel id 54970
  Locally initiated session
  Call serial number is 2062300015
  Remote tunnel name is ios_lns
  Internet address is 3.3.3.4
  Local tunnel name is blah_client_auth_id
  Internet address is 1.1.1.1
  IP protocol 17
  Session is L2TP signaled
  Session state is established, time since change 00:06:56
  UDP checksums are enabled
  Sequencing is off
  Conditional debugging is disabled
  Unique ID is 0
  Session username is user3_vpdn@domain.com
  Interface GigabitEthernet0_0_0_1.pppoe14
```

Show output for l2tpv2 tunnel detail:

```
Mon Dec  5 20:37:55.891 PST

Tunnel id 133 is up, remote id is 15705, 1 active sessions
  Locally initiated tunnel
  Tunnel state is established, time since change 6d09h
  Tunnel transport is UDP (17)
  Remote tunnel name is IOS_LNS
  Internet Address 3.3.3.3, port 1701
  Local tunnel name is XR_LAC
  Internet Address 1.1.1.1, port 1701
  VRF name: default
  Tunnel group id
  L2TP class for tunnel is VPDN_3.3.3.3
  Control Ns 9205, Nr 342
  Local RWS 512 (default), Remote RWS 1024
  Control channel Congestion Control is disabled
  Tunnel PMTU checking disabled
  Retransmission time 1, max 1 seconds
  Unsent queue size 0, max 0
  Resend queue size 0, max 2
  Total resends 0, ZLB ACKs sent 340
  Total out-of-order dropped pkts 0
  Total out-of-order reorder pkts 0
  Total peer authentication failures 0
  Current no session pak queue check 0 of 5
  Retransmit time distribution: 0 0 0 0 0 0 0 0 0
  Control message authentication is disabled
```

Related Commands

Command	Description
l2tp-class , on page 242	Configures the l2tp class.

show vpdn

To display all vpdn-related information, use the **show vpdn** command in the EXEC mode.

show vpdn {client| config| history| tunnel destination| session}

Syntax Description

client	Displays VPDN client information.
config	Displays VPDN configuration information.
history	Displays the vpdn session history information.
tunnel destination	Displays the vpdn tunnel destination information.
session	Displays the vpdn session information.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ipv4	read
network	read

Examples

This is the sample output of the **show vpdn** command in the EXEC mode:

```
RP/0/RSP0/CPU0:router# show vpdn history failure | file tftp: vrf vrf1 |
RP/0/RSP0/CPU0:router# show vpdn client location 0/0/CPU0
RP/0/RSP0/CPU0:router# show vpdn tunnel destination detail |
```

RP/0/RSP0/CPU0:router# **show vpdn session destination 4.5.4.5**

Show output for vpdn session:

Sun Dec 4 22:34:19.328 PST


```
Subscriber label: 0x45, interface name: GigabitEthernet0/0/0/1.pppoe14
user name: user3_vpdn@domain.com
parent interface: GigabitEthernet0/0/0/1
state: est last change: 00:03:26
time to setup session: 0:164(s:msec)
conditional debug flags: 0
L2TP data
  local end point: 1.1.1.1 remote end point: 3.3.3.4
  call serial number: 2062300015
  local tunnel id: 58775 remote tunnel id: 54970
  local session id: 46362 remote session id: 16 remote port: 1701
  tunnel client authentication id: blah_client_auth_id
  tunnel server authentication id: ios_lns
  tunnel authentication: disabled
  class attribute mask:
    local hostname from AAA
    tunnel password from AAA
Subscriber data
  NAS port id: lac_circuit_id.lac_remote_id
  NAS port type: PPPoE over Ethernet
  physical channel id: 0
  Rx speed: 1000000000, Tx speed: 1000000000
Configuration data
  table id: 0xe0000000, VRF id: 0x60000000, VPN id: 0:0
  VRF name: default
  dsl line info forwarding: disabled, l2tp busy timeout: 60
  TOS mode: set, value: 13
```

Show output for tunnel destination:

```
Sun Dec 4 22:36:15.296 PST
Destination      VRF-name      Status  Load
3.3.3.4          default        active  1
```

Related Commands

Command	Description
vpdn , on page 250	Configures VPDN and enters the VPDN sub-configuration mode.

 show vpdn



PPPoE Commands

This module describes the Cisco IOS XR software commands used to configure the PPPoE commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [pppoe bba-group, page 260](#)
- [pppoe enable bba-group, page 263](#)
- [show pppoe interfaces, page 265](#)
- [show pppoe limits, page 267](#)
- [show pppoe statistics, page 269](#)
- [show pppoe summary, page 272](#)
- [show pppoe throttles, page 274](#)

pppoe bba-group

To add configuration for a particular BBA-Group and to enter the BBA-Group submode, use the **pppoe bba-group** command in global configuration mode. To disable this feature, use the **no** form of this command.

```
pppoe bba-group bba-group name {ac | name | new_name | control-packets | priority | priority_bits | service |
{name | new_name | selection | disable}} | sessions | {access-interface | circuit-id | mac | mac-iwf |
{access-interface | pair | limit}} | max | {access-interface | limit | throttle}} | limit | session_limit | tag |
{ppp-max-payload | {deny | minimum | minimum_payload}}}}
```

no pppoe bba-group

Syntax Description

<i>bba-group-name</i>	Specifies the bba group name.
ac	Enables modification of the access concentrator configuration.
name	Indicates the name change to include in the AC tag.
<i>new_name</i>	Specifies the new name.
control-packets	Enables change of control-packets configuration.
priority	Sets the priority to use in PPPoE and PPP control packets.
<i>priority_bits</i>	Specifies the priority bits for outgoing PPPoE and PPP control packets. This ranges between 0 and 7, where 0 indicates highest priority and 7 indicates the lowest.
service	Enables modification of service configuration.
name	Configures the service name.
<i>new_name</i>	Specifies the new service name.
selection	Specifies the selection of unrequested service names.
disable	Disables the advertising of unrequested service names.
sessions	Enables modification of sessions configuration.
access-interface	Limits PPPoE sessions on any one access interface.
circuit-id	Limits PPPoE sessions with any one circuit-id.
mac	Limits or throttles PPPoE sessions from any one mac-address.

mac-iwf	Limits or throttles IWF PPPoE sessions from any one mac-address.
max	Sets a per-card session limit.
limit	Specifies the action of limiting the PPPoE sessions for various attributes.
<i>session_limit</i>	Specifies the access-interface session limit. The value ranges from 1 to 65535.
tag	Enables modification of tag configuration.
ppp-max-payload	Modifies the ppp-max-payload configuration and allows to configure minimum and maximum payloads.
deny	Ignores the ppp-max-payload tag.
minimum	Configures the minimum payload.
<i>minimum_payload</i>	Specifies the value of the minimum payload. The value ranges from 500 to 2000.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

BBA-Groups are configured globally (these are essentially configuration templates), containing the PPPoE configuration settings.

When this configuration changes to use a different BBAGroup, then all existing PPPoE sessions running under the interface are terminated.

Task ID

Task ID	Operation
ppp	read, write

Examples

This is an example of configuring the **pppoe bba-group** command in global configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# ac name red
RP/0/RSP0/CPU0:router(config-bbgroup)# service name blue
RP/0/RSP0/CPU0:router(config-bbgroup)# service selection disable
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions max limit 45
RP/0/RSP0/CPU0:router(config-bbgroup)# tag ppp-max-payload minimum 689 maximum 788
```

Related Commands

Command	Description
pppoe enable bba-group , on page 263	Enables PPPoE on an interface.

pppoe enable bba-group

To enable pppoe on an interface, use the **pppoe enable bba-group** command in interface configuration mode. To disable the pppoe on the interface, use the **no** form of this command.

pppoe enable bba-group *bba-group name*

no pppoe enable bba-group

Syntax Description

bba-group name

Specifies the name of the bba-group.

Command Default

If no BBA-Group is specified, then the default configuration options are used, else the BBA-Group's configuration is used on this interface.

Command Modes

Interface configuration

Command History

Release

Release 4.2.0

Modification

This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

When this configuration changes to use a different BBAGroup, then all existing PPPoE sessions running under the interface are terminated.

Task ID

Task ID

ppp

Operation

read, write

Examples

This is an example of configuring the **pppoe enable bba-group** command in interface configuration mode:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#interface Bundle-Ether100.10
RP/0/RSP0/CPU0:router(config-if)# pppoe enable bba-group bba1
```

Related Commands

Command	Description
pppoe bba-group , on page 260	Enables you to add configuration for a particular bba-group.

show pppoe interfaces

To display a summary of the protocol state for the specified PPPoE interface filtered by circuit-id, remote-id, interface or location, use the **show pppoe interfaces** command in the EXEC mode.

show pppoe interfaces {**circuit-id** | *circuit_id* | **remote-id** | *remote_id* | **access-interface** | *type* | *interface-path-id* | **location** | *node* | **all**}

Syntax Description

circuit-id	Shows information for a given circuit-id.
<i>circuit_id</i>	Specifies the circuit-id to show data for.
remote-id	Show information for a given remote-id.
<i>remote_id</i>	Specifies the remote-id to show data for.
access-interface	Shows PPPoE status for all sessions on a single access interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
location	Shows PPPoE status for all sessions at a location.
<i>node</i>	Specifies the fully qualified location specification.
all	Shows PPPoE status for all sessions.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ppp	read

Examples

This is a sample output of the **show pppoe interfaces** command:

```
RP/0/RSP0/CPU0:router# show pppoe interfaces Loopback1
Loopback1 is Complete
Session id: 1
Access interface: Loopback1
BBA-Group: blue
Local MAC address: aabb.cc00.8301
Remote MAC address: aabb.cc00.8201
Tags:
Service-Name: servicel
Max-Payload: 1500
IWF
Circuit-ID: circuit1
Remote-ID: remotel
```

show pppoe limits

To show the PPPoE session limit information, use the **show pppoe limits** command in the EXEC mode.

show pppoe limits [**active**] [**access-interface** *type interface-path-id* | **bba-group** *bba-group-name* | **location** *node*]

Syntax Description

active	Shows only those throttles that are currently blocking packets.
access-interface	Shows PPPoE status for all sessions on a single access interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
bba-group	Shows throttles for all interfaces with a given bba-group.
<i>bba_group_name</i>	Specifies the bba-group to show throttle for.
location	Shows PPPoE status for all sessions at a location.
<i>node</i>	Specifies the fully qualified location specification.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ppp	read

Examples

This is a sample output of the **show pppoe limits** command:

```
RP/0/RSP0/CPU0:router# show pppoe limits active access-interfaces loopback 45
BBA-Group TEST
-----
Card session limit information:
Maximum session limit: 50 sessions
Warning threshold: 40 sessions
State #Sessions
-----
Block 50
Access-interface session limits not configured.
MAC session limits not configured.
MAC-IWF session limits not configured.
Circuit-ID session limit information:
Maximum session limit: 50 sessions
Warning threshold: 40 sessions
Circuit-ID State #Sessions
-----
circuit_id1 Block 50
circuit_id field which_can_be_up_to_sixty_four_chars_long Warn 45
circuit_id2 OK 32
circuit_id,/[]* OK 1
BBA-Group TEST2
-----
Card session limits not configured.
Access-interfaces session limit information:
Maximum session limit: 50 sessions
Warning threshold: 40 sessions
Access-Interface State #Sessions
-----
GE0/1/0/0/0 Block 50
GE0/1/0/0/1 Warn 45
GE0/1/0/0/2 OK 32
GE0/1/0/0/0.12 OK 1
MAC session limits not configured.
MAC-IWF session limits not configured.
Circuit-ID session limits not configured.
```

Related Commands

Command	Description
show pppoe throttles, on page 274	Shows the throttle information for the PPPoE sessions.
show pppoe interfaces, on page 265	Shows a summary of the protocol state for the specified PPPoE interface filtered by circuit-id, remote-id, interface, or location.
show pppoe statistics, on page 269	Shows the counters for packets received and sent by the PPPoE sessions.
show pppoe summary, on page 272	Shows summary information of the PPPoE sessions.

show pppoe statistics

To show the counters for packets received and sent by the PPPoE sessions, use the **show pppoe statistics** command in the EXEC mode.

```
show pppoe statistics {access-interface| type| interface-path-id| internal | { location| node}| location| node}
```

Syntax Description

access-interface	Shows PPPoE status for all sessions on a single access interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
internal	Shows internal PPPoE statistics.
location	Shows PPPoE status for all sessions at a location.
<i>node</i>	Specifies the fully qualified location specification.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ppp	read

Examples

This is the sample output of the **show pppoe statistics** command:

```
RP/0/RSP0/CPU0:router# show pppoe statistics access-interfaces Loopback 156
```

```
Packets Sent Received Dropped
```

```
-----
PADI 0 3723 18
PADO 3182 0 0
PADR 0 1732 93
PADS (success) 1601 0 0
PADS (error) 38 0 0
PADT 158 552 9
Session-stage 0 18 17
Other 0 2 2
-----
```

```
TOTAL 3979 6063 139
```

```
RP/0/RSP0/CPU0:router# show pppoe statistics location 0/2/cpu0
```

```
Packets Sent Received Dropped
```

```
-----
PADI 0 3723 18
PADO 3182 0 0
PADR 0 1732 93
PADS (success) 1601 0 0
PADS (error) 38 0 0
PADT 158 552 9
Session-stage 0 18 17
Other 0 2 2
-----
```

```
TOTAL 3979 6063 139
```

```
Packet Error Count
```

```
-----
No interface handle 1
No packet payload 1
No packet mac-address 1
Invalid version-type value 3
Bad packet length 7
Unknown interface 11
PADO receive
ed 1
PADS received 1
Unknown packet type received 1
Unexpected Session-ID in packet 1
No Service-Name Tag 11
PADT for unknown session 13
PADT with wrong peer-mac 7
PADT before PADS sent 1
Session-stage packet for unknown session 13
Session-stage packet with wrong mac 19
Session-stage packet with no error 1
Tag too short 1
Bad tag-length field 1
Multiple Service-Name tags 1
Multiple Max-Payload tags 1
Invalid Max-Payload tag 1
Multiple Vendor-specific tags 1
Unexpected AC-Name tag 1
Unexpected error tags 3
Unknown tag received 1
No IANA code in vendor tag 1
Invalid IANA code in vendor tag 1
Vendor tag too short 1
Bad vendor tag length field 1
Multiple Host-Uniq tags 1
Multiple Circuit-ID tags 1
Multiple Remote-ID tags 1
Invalid DSL tag 1
Multiple of the same DSL tag 1
```



```
Invalid IWF tag 1
Multiple IWF tags 1
Unknown vendor-tag 11
No space left in packet 1
Duplicate Host-Uniq tag received 1
Packet too long 1
-----
TOTAL 140
```

show pppoe summary

To show the summary information for the PPPoE sessions, use the **show pppoe summary** command in the EXEC mode.

show pppoe summary {*per-access-interface*| *total*} { *location*| *node*}

Syntax Description

per-access-interface	Summarizes PPPoE sessions running on each access-interface.
total	Shows the overall summary information of access-interfaces and sessions.
location	Shows PPPoE status for all sessions at a location.
<i>node</i>	Specifies the fully qualified location specification.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ppp	read

Examples

This is the sample output of the **show pppoe summary** command:

```
RP/0/RSP0/CPU0:router# show pppoe summary per-access-interfaces location 0/1/cpu0

COMPLETE: Complete PPPoE Sessions
INCOMPLETE: PPPoE sessions being brought up or torn down
Interface BBA-Group READY TOTAL COMPLETE INCOMPLETE
-----
Fa0/1/0/0 blue Y 20 18 2
```

```
Fa0/1/0/1.1 red Y 128000 100010 27990
Fa0/1/0/1.2 green N 0 0 0
-----
TOTAL 2 128020 100028 27992
RP/0/0/CPU0:demo#show pppoe summary total location 0/5/cpu0
=====
Configured Access Interfaces
=====
Ready 300
Not-Ready 15
-----
TOTAL 315
=====
PPPoE Sessions
=====
Complete 3812
Incomplete 302
-----
TOTAL 4114
=====
Flow Control
=====
Limit 1000
In Flight 12
Dropped 212
Disconnected 6
Successful 1021
```

show pppoe throttles

To show the throttle information for the PPPoE sessions, use the **show pppoe throttles** command in the EXEC mode.

show pppoe throttles [**active**] [**access-interface** *type interface-path-id* | **bba-group** *bba-group-name* | **location** *node*]

Syntax Description

active	Shows only those throttles that are currently blocking packets.
access-interface	Shows PPPoE status for all sessions on a single access interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
bba-group	Shows throttles for all interfaces with a given bba-group.
<i>bba_group_name</i>	Specifies the bba-group name.
location	Shows PPPoE status for all sessions at a location.
<i>node</i>	Specifies the fully qualified location specification.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ppp	read

Examples

This is the sample output of the **show pppoe throttles** command:

```
RP/0/RSP0/CPU0:router# show pppoe throttles location 0/2/cpu0

BBA-Group TEST
-----
MAC throttle information:
Max packets per request period: 5
Request period duration: 20s
Blocking period duration: 5s
Time Since
MAC Address State left reset PADI PADR
-----
aabb.ccdd.1123 Idle 30s 16s 0 0
7582.1352.e29a Monitor 3s 20s 5 5
7582.1352.e29a Block 4s 17s 6 5
MAC Access-interface throttle information:
Max packets per request period: 5
Request period duration: 20s
Blocking period duration: 5s
Time Since
Access-Int MAC Address State left reset PADI PADR
-----
GE0/1/0/0 aabb.ccdd.1123 Idle 30s 16s 0 0
GE0/1/0/0 7582.1352.e29a Monitor 3s 20s 5 5
GE0/1/0/0 7582.1352.e29a Block 4s 17s 6 5
MAC IWF throttle information:
Max packets per request period: 5
Request period duration: 20s
Blocking period duration: 5s
Time Since
MAC Address State left reset PADI PADR
-----
aabb.ccdd.1123 Idle 30s 16s 0 0
7582.1352.e29a Mon 3s 20s 5 5
7582.1352.e29a Block 4s 17s 6 5
BBA-Group TEST2
-----
MAC throttling is not configured.
MAC Access-interface throttling is not configured.
MAC IWF throttling is not configured.
```

Related Commands

Command	Description
show pppoe limits, on page 267	Shows the PPPoE session limit information.
show pppoe interfaces, on page 265	Shows a summary of the protocol state for the specified PPPoE interface filtered by circuit-id, remote-id, interface, or location.
show pppoe statistics, on page 269	Shows the counters for packets received and sent by the PPPoE sessions.
show pppoe summary, on page 272	Shows summary information of the PPPoE sessions.

 show pppoe throttles



QoS Commands

This module describes the Cisco IOS XR software commands used to configure the QoS commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [qos account](#), page 278
- [qos output minimum-bandwidth](#), page 280
- [service-policy \(QoS-BNG\)](#), page 282
- [service-policy \(interface-BNG\)](#), page 284
- [show qos inconsistency \(BNG\)](#), page 286
- [show qos interface \(BNG\)](#), page 289
- [show qos summary \(BNG\)](#), page 294

qos account

To enable QoS Layer 2 overhead accounting, use the **qos account** command in dynamic template configuration mode. To disable this qos account, use the **no** form of this command.

```
qos account[ AAL5|user-defined offset atm] [ mux-1483
mux-dot1q-rbe|mux-pppoa|mux-rbe|snap-1483routed|snap-dot1q-rbe|snap-pppoa|snap-rbe ]
no qos account
```

Syntax Description

AAL5	Specifies AAL5 for qos.
user-defined	Specifies the user-defined keyword.
<i>offset</i>	Specifies the user-defined offset size.
atm	Adds ATM cell tax to the L2 overhead.
mux-1483 routed	Specifies the mux-1483 routed.
mux-dot1q-rbe	Specifies the mux-dot1q-rbe.
mux-pppoa	Specifies the mux-pppoa.
mux-rbe	Specifies the mux-rbe.
snap-1483routed	Specifies the snap-1483routed.
snap-dot1q-rbe	Specifies the snap-dot1q-rbe.
snap-pppoa	Specifies the snap-pppoa.
snap-rbe	Specifies the snap-rbe.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

This command is available only in the dynamic template type ppp submode.

Task ID

Task ID	Operation
qos	read, write

Examples

This is an example of configuring the **qos account** command in dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# qos account AAL5 snap-rbe
```

Related Commands

Command	Description
qos output minimum-bandwidth, on page 280	Sets the minimum guaranteed output bandwidth for a subscriber.

qos output minimum-bandwidth

To set the minimum guaranteed output bandwidth for a subscriber, use the **qos output minimum-bandwidth** command in dynamic template configuration mode.

qos output minimum-bandwidth *range*

Syntax Description

<i>range</i>	Specifies the minimum bandwidth range (1- 4294967295 kpbs).
--------------	---

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance..

This command is available only in the dynamic template type ppp submode. The value specified in this command is used only if IGMP HQoS correlation is configured. This is to ensure that the resultant bandwidth does not go below the specified value.

Task ID

Task ID	Operation
vrrp	read, write

Examples

This is an example of configuring the **qos output minimum-bandwidth** command in dynamic template configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp p1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# qos output minimum-bandwidth 10
```

Related Commands

Command	Description
qos account, on page 278	Enables QoS Layer 2 overhead accounting.

service-policy (QoS-BNG)

To enable the QoS policy on a parent S-VLAN, use the **service-policy** command in the interface configuration mode. To disable this feature, use the **no** form of this command.

Egress S-VLAN Policy:

service-policy output *service_policy_name* **subscriber-parent** [**resource-id** *value*]

no service-policy output *service_policy_name* **subscriber-parent** [**resource-id** *value*]

Syntax Description

output	Attaches the specified service-policy to the egress direction.
<i>service_policy_name</i>	Name of the input or output service-policy.
subscriber-parent	Configures an S-VLAN policy. Note This keyword applies only to the egress direction.
<i>value</i>	The resource ID value that ranges from 0-3.

Command Default

None

Command Modes

Interface configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.3.0	Support for the resource-id keyword was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
qos	read, write

Examples

This example shows how to configure an egress S-VLAN policy using the **service-policy** command, with **subscriber-parent** keyword, in the interface configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface bundle-ether 18.12
RP/0/RSP0/CPU0:router(config-subif)# service-policy output svlan-policy subscriber-parent
resource-id 1
```

service-policy (interface-BNG)

To attach a policy map to an input interface or output interface to be used as the service policy for that interface, and optionally multiple subinterfaces, use the **service-policy** command in the appropriate configuration mode. To remove a service policy from an input or output interface, use the **no** form of the command.

service-policy {input| output} *policy-map*

no service-policy {input| output} *policy-map*

Syntax Description

input	Attaches the specified policy map to the input interface.
output	Attaches the specified policy map to the output interface.
<i>policy-map</i>	Name of a service policy map (created using the policy-map command) to be attached.

Command Default

No service policy is specified.

Command Modes

Interface configuration
Layer 2 transport configuration
Subinterface configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 3.9.0	This command was updated to support shared policy instance over bundle interfaces.
Release 3.6.0	The command was supported in Layer 2 transport configuration mode.
Release 4.3.0	The command was supported in dynamic template configuration mode in BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

You can attach a single policy map to one or more interfaces to specify the service policy for those interfaces. The class policies composing the policy map are then applied to packets that satisfy the class map match

criteria for the class. To apply a new policy to an interface, you must remove the previous policy. A new policy cannot replace an existing policy.

Task ID

Task ID	Operations
qos	read, write

Examples

This example shows policy map policy1 applied to Packet-over-SONET/SDH (POS) interface 0/2/0/0:

```
RP/0/RSP0/CPU0:router(config)# class-map class1
RP/0/RSP0/CPU0:router(config-cmap)# match precedence ipv4 1
RP/0/RSP0/CPU0:router(config-cmap)# exit
RP/0/RSP0/CPU0:router(config)# policy-map policy1
RP/0/RSP0/CPU0:router(config-pmap)# class class1
RP/0/RSP0/CPU0:router(config-pmap-c)# set precedence 2
RP/0/RSP0/CPU0:router(config-pmap)# exit
RP/0/RSP0/CPU0:router(config)# interface pos 0/2/0/0
RP/0/RSP0/CPU0:router(config-if)# service-policy output policy1
```

This example shows policy map policy2 applied to GigabitEthernet subinterface 0/1/0/0.1.

```
RP/0/RSP0/CPU0:router(config)# class-map class2
RP/0/RSP0/CPU0:router(config-cmap)# exit

RP/0/RSP0/CPU0:router(config)# policy-map policy2
RP/0/RSP0/CPU0:router(config-pmap)# class-map class2
RP/0/RSP0/CPU0:router(config-pmap-c)# set precedence 3
RP/0/RSP0/CPU0:router(config-pmap)# exit

RP/0/RSP0/CPU0:router(config)# interface gigabitethernet 0/1/0/0.1
RP/0/RSP0/CPU0:router(config-subif)# service-policy input policy2 shared-policy-instance ethernet101
```

This example shows policy map policy 1 applied to Bundle-Ether interfaces 100.1 and 100.2

```
RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 100.1
RP/0/RSP0/CPU0:router(config-if)# service-policy policy1 shared-policy-instance subscriber1
RP/0/RSP0/CPU0:router(config-if)# exit

RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 100.2
RP/0/RSP0/CPU0:router(config-if)# service-policy output policy1 shared-policy-instance subscriber1
```

show qos inconsistency (BNG)

To display inconsistency information for the QoS policy on an interface, use the **show qos inconsistency** command in EXEC mode.

show qos inconsistency [**detail** *warning-type* [**file** *filename*| **location** *node-id*]] [**summary** [**file** *filename*| **location** *node-id*]]

Syntax Description

detail	Displays interface and policy name details of the inconsistency.
<i>warning-type</i>	Selects the warning types to display: <ul style="list-style-type: none"> • 0—All warning types • 1—ANCP - No shaper at top policy map • 2—ANCP - Multiple classes at top policy map • 3—ANCP - Downstream rate less than shaper rate • 4—ANCP - Downstream rate more than port speed • 5—ANCP - Policy resolution failure • 6—ANCP - Traffic manager program failure • 7—Port speed - Policy resolution failure • 8—Port speed - Traffic manager program failure • 9—Bundle member addition failure • 10—Interface state not matching system configuration
file <i>filename</i>	Specify a file name, such as disk0:tmp.log or bootflash:.
location <i>node-id</i>	Displays detailed QoS information for the designated node. The <i>node-id</i> argument is entered in the rack/slot/module notation.
summary	Displays summary counts of QoS inconsistency warnings.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 3.7.2	This command was introduced.

Release	Modification
Release 4.3.0	The command was supported in dynamic template configuration mode in BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
qos	read

Examples

This example provides detail about QoS policy inconsistency, for all warning types:

```
RP/0/RSP0/CPU0:router# show qos inconsistency detail 0 location 0/7/CPU0

Interface Lists with QoS Inconsistency Warning:
=====

Node 0/7/CPU0
-----

Interfaces with QoS Inconsistency:  ANCP - No Shaper at top policymap
=====
Interface          Direction  Policy Name      SPI Name
-----
GigabitEthernet0/7/0/1.5    output    parent-none

Interfaces with QoS Inconsistency:  ANCP - Downstream Rate less than Shaper Rate
=====
Interface          Direction  Policy Name      SPI Name
-----
GigabitEthernet0/7/0/1      output    parent           SPI1
GigabitEthernet0/7/0/1.2    output    parent
GigabitEthernet0/7/0/1      output    normal-policy-name  normal-spi-name
```

This example displays summary counts of inconsistency warnings:

```
RP/0/RSP0/CPU0:router#
RP/0/RSP0/CPU0:router# show qos inconsistency summary location 0/7/CPU0

Summary Counts of QoS Inconsistency Warnings:
=====

Node 0/7/CPU0

Inconsistency Warning Type          Count
-----
ANCP - No Shaper at top policymap:    1
ANCP - Downstream Rate less than Shaper Rate:  4
```

Related Commands

Command	Description
show qos interface (BNG), on page 289	Displays QoS information for a specific interface.

show qos interface (BNG)

To display QoS information for a specific interface, use the **show qos interface** command in the EXEC mode.

show qos interface *type interface-path-id* {**input**| **output**} [**host-link** *interface-path-id*] **location** *node-id*]

Syntax Description

<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	<p>Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none">Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation.<ul style="list-style-type: none"><i>rack</i> : Chassis number of the rack.<i>slot</i> : Physical slot number of the modular services card or line card.<i>module</i> : Module number. A physical layer interface module (PLIM) is always 0.<i>port</i> : Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RSP0 RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/ RSP0 RP1 /CPU0/0.</p> <ul style="list-style-type: none">Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
input	Attaches the specified policy map to the input interface.
output	Attaches the specified policy map to the output interface.
host-link	Specifies the host-link

location <i>node-id</i>	(Optional) Displays detailed QoS information for the designated node. The <i>node-id</i> argument is entered in the rack/slot/module notation.
--------------------------------	--

Command Default None

Command Modes EXEC

Command History	Release	Modification
	Release 3.7.2	This command was introduced.
	Release 4.3.0	The command was supported in dynamic template configuration mode in BNG.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The **show qos interface** command displays configuration for all classes in the service policy that is attached to an interface.

Use this command to check the actual values programmed in the hardware from the action keywords in the **police rate** command.

Task ID	Task ID	Operations
	qos	read

Examples This is the sample output shows the QoS information on a GigabitEthernet interface:

```
show qos interface gig0/0/0/11.1 output

Wed Mar 18 18:25:20.140 UTC
Interface: GigabitEthernet0_0_0_11.1 output Bandwidth: 1000000 kbps ANCP: 999936 kbps
Policy: parent-3play-subscriber-line Total number of classes: 5
-----
Level: 0 Policy: parent-3play-subscriber-line Class: class-default
QueueID: N/A
Shape Profile: 1 CIR: 200000 kbps (200 mbps)
CBS: 100352 bytes PIR: 999936 kbps PBS: 12517376 bytes
WFQ Profile: 1 Committed Weight: 51 Excess Weight: 100
Bandwidth: 200000 kbps, BW sum for Level 0: 1000000 kbps, Excess Ratio: 100
-----
Level: 1 Policy: child-3play Class: 3play-voip
Parent Policy: parent-3play-subscriber-line Class: class-default
```

```

QueueID: 136 (Priority 1)
Queue Limit: 16 kbytes Profile: 3 Scale Profile: 0
Policer Profile: 0 (Single)
Conform: 65 kbps (65 kbps) Burst: 1598 bytes (0 Default)
Child Policer Conform: TX
Child Policer Exceed: DROP
Child Policer Violate: DROP
-----
Level: 1 Policy: child-3play Class: 3play-video
Parent Policy: parent-3play-subscriber-line Class: class-default
QueueID: 137 (Priority 2)
Queue Limit: 8 kbytes (11 Unknown) Profile: 4 Scale Profile: 0
Policer Profile: 24 (Single)
Conform: 128 kbps (128 kbps) Burst: 1598 bytes (0 Default)
Child Policer Conform: TX
Child Policer Exceed: DROP
Child Policer Violate: DROP
WRED Type: COS based Table: 0 Profile: 4 Scale Profile: 0 Curves: 3
Default RED Curve Thresholds Min : 8 kbytes Max: 8 kbytes
WRED Curve: 1 Thresholds Min : 8 kbytes Max: 8 kbytes
  Match: 3
WRED Curve: 2 Thresholds Min : 8 kbytes Max: 8 kbytes
  Match: 4
-----
Level: 1 Policy: child-3play Class: 3play-premium
Parent Policy: parent-3play-subscriber-line Class: class-default
QueueID: 138 (Priority Normal)
Queue Limit: 2097 kbytes Profile: 2 Scale Profile: 0
WFQ Profile: 6 Committed Weight: 1020 Excess Weight: 1020
Bandwidth: 200000 kbps, BW sum for Level 1: 200000 kbps, Excess Ratio: 1
-----
Level: 1 Policy: child-3play Class: class-default
Parent Policy: parent-3play-subscriber-line Class: class-default
QueueID: 139 (Priority Normal)
Queue Limit: 65 kbytes Profile: 1 Scale Profile: 3
WFQ Profile: 0 Committed Weight: 1 Excess Weight: 1020
Bandwidth: 0 kbps, BW sum for Level 1: 200000 kbps, Excess Ratio: 1
-----

```

Use the **host-link** option to display the output for the desired Bundle ICL. In cases when the Satellite is hosted on a redundant (Bundle ICL), the qos command to check for the qos programming also needs to include the host-link option.

The host-link is the underlying ICL Bundle member, this output can be executed for all the members belonging to the ICL Bundle via the host-link option.

For eg, Bundle ICL, Bundle-ether 2, hosting the sat-ether interface gig 100/0/0/34 has a member tengige 0/3/0/7. The qos command to check for the qos programming would be:

```

RP/0/RSP0/CPU0:router # sh qos inter gigabitEthernet 100/0/0/34 output host-link tenGigE
0/3/0/7 location 0/3/CPU0
Interface: GigabitEthernet100_0_0_34 output
Bandwidth configured: 500000 kbps Bandwidth programed: 500000 kbps
ANCP user configured: 0 kbps ANCP programed in HW: 0 kbps
Port Shaper programed in HW: 500000 kbps
Policy: grand Total number of classes: 10
-----
Level: 0 Policy: grand Class: class-default
QueueID: N/A
Shape CIR : ALL
Shape PIR Profile : 2/4(S) Scale: 488 PIR: 499712 kbps PBS: 6246400 bytes
WFQ Profile: 2/9 Committed Weight: 10 Excess Weight: 10
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 1
-----
Level: 1 Policy: parent Class: class-default
Parent Policy: grand Class: class-default
QueueID: N/A
Shape CIR : NONE
Shape PIR Profile : 2/4(S) Scale: 244 PIR: 249856 kbps PBS: 3123200 bytes
WFQ Profile: 2/9 Committed Weight: 10 Excess Weight: 10
Bandwidth: 0 kbps, BW sum for Level 1: 0 kbps, Excess Ratio: 1

```

show qos interface (BNG)

```

-----
Level: 2 Policy: child Class: prec1
Parent Policy: parent Class: class-default
QueueID: 131264 (Priority 1)
Queue Limit: 2496 kbytes Abs-Index: 89 Template: 0 Curve: 6
Shape CIR Profile: INVALID
Policer Profile: 54 (Single)
Conform: 50000 kbps (20 percent) Burst: 625000 bytes (0 Default)
Child Policer Conform: set dscp 46 set cos 7
Child Policer Exceed: DROP
Child Policer Violate: DROP
-----

Level: 2 Policy: child Class: prec2
Parent Policy: parent Class: class-default
QueueID: 131265 (Priority 2)
Queue Limit: 624 kbytes (100 ms) Abs-Index: 59 Template: 0 Curve: 6
Shape CIR Profile: INVALID
Shape PIR Profile : 2/0(E) PIR: 50000 kbps PBS: 624992 bytes
Child Mark: set dscp 46 set cos 7
-----

Level: 2 Policy: child Class: prec3
Parent Policy: parent Class: class-default
QueueID: 131267 (Priority 3)
Queue Limit: 472 kbytes (100 ms) Abs-Index: 53 Template: 0 Curve: 6
Shape CIR Profile: INVALID
Shape PIR Profile : 2/1(E) PIR: 37496 kbps PBS: 468736 bytes
Child Mark: set dscp 46 set cos 7
-----

Level: 2 Policy: child Class: prec4
Parent Policy: parent Class: class-default
QueueID: 131266 (Priority Normal)
Queue Limit: 60 kbytes Abs-Index: 18 Template: 0 Curve: 0
Shape CIR Profile: INVALID
Child Mark: set dscp 46 set cos 7
WFQ Profile: 2/39 Committed Weight: 40 Excess Weight: 40
Bandwidth: 0 kbps, BW sum for Level 2: 0 kbps, Excess Ratio: 4
-----

Level: 2 Policy: child Class: prec5
Parent Policy: parent Class: class-default
QueueID: 131268 (Priority Normal)
Queue Limit: 44 kbytes Abs-Index: 15 Template: 0 Curve: 0
Shape CIR Profile: INVALID
WFQ Profile: 2/29 Committed Weight: 30 Excess Weight: 30
Bandwidth: 0 kbps, BW sum for Level 2: 0 kbps, Excess Ratio: 3
-----

Level: 2 Policy: child Class: prec6
Parent Policy: parent Class: class-default
QueueID: 131269 (Priority Normal)
Queue Limit: 28 kbytes Abs-Index: 11 Template: 0 Curve: 0
Shape CIR Profile: INVALID
WFQ Profile: 2/19 Committed Weight: 20 Excess Weight: 20
Bandwidth: 0 kbps, BW sum for Level 2: 0 kbps, Excess Ratio: 2
-----

Level: 2 Policy: child Class: prec7
Parent Policy: parent Class: class-default
QueueID: 131270 (Priority Normal)
Queue Limit: 16 kbytes Abs-Index: 8 Template: 0 Curve: 0
Shape CIR Profile: INVALID
Child Mark: set cos 5
WFQ Profile: 2/9 Committed Weight: 10 Excess Weight: 10
Bandwidth: 0 kbps, BW sum for Level 2: 0 kbps, Excess Ratio: 1
-----

Level: 2 Policy: child Class: class-default
Parent Policy: parent Class: class-default
QueueID: 131271 (Priority Normal)
Queue Limit: 16 kbytes Abs-Index: 8 Template: 0 Curve: 0
Shape CIR Profile: INVALID
WFQ Profile: 2/9 Committed Weight: 10 Excess Weight: 10
Bandwidth: 0 kbps, BW sum for Level 2: 0 kbps, Excess Ratio: 1

```

Related Commands

Command	Description
show qos inconsistency (BNG) , on page 286	Displays inconsistency information for the QoS policy on an interface.

show qos summary (BNG)

To list the interfaces at a specific location, use the **show qos summary** command in EXEC mode.

show qos summary [**shared-policy-instance** *instance-name* **location** *rack/slot/module/interface.subinterface* | **police** [**interface** *type instance* | **location** [*rack/slot/module/interface.subinterface* | *location-name*]]] **policy** *policy-name* [**interface** *type instance* | **location** *node-location*]] **queue** [**interface** *type instance* | **location** *node-location*]]

Syntax Description

shared-policy-instance <i>instance-name</i>	String of up to 32 characters to identify the shared policy instance.
location <i>rack/slot/module/interface.subinterface</i>	Location of node in format rack/slot/module/interface.subinterface.
police	Show policer interface statistics.
interface <i>type instance</i>	Interface type and number.
location <i>location-name</i>	String to identify the fully qualified location specification.
policy <i>policy-name</i>	String to identify the policy.
location <i>node-location</i>	Identifies fully qualified location specification.
queue	Show queue statistics.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.3.0	The command was supported in dynamic template configuration mode in BNG.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID


Task ID	Operations
qos	read, write

Examples

This example shows the results of the command to show interfaces at location 0/RSP0/CPU0 for a shared-policy-instance:

```
RP/0/RSP0/CPU0:router# show qos summary shared-policy-instance instancetwo location 0/RSP0/CPU0
```

```
list of interfaces retrieved
  TenGigE0/0/0.1
  TenGigE0/0/0.2
RP/0/RSP0/CPU0:router#
```

 **show qos summary (BNG)**



Show Subscriber Commands

This module describes the Cisco IOS XR software commands used to configure the Show subscriber commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

- [show subscriber database, page 298](#)
- [show subscriber manager statistics, page 303](#)
- [show subscriber running-config, page 306](#)
- [show subscriber session, page 308](#)
- [clear subscriber session, page 311](#)

show subscriber database

To display the configuration details of subscriber database, use the **show subscriber database** command in the EXEC mode.

show subscriber database {association |configuration |connection |interface |statistics summary }

Syntax Description

association	Displays the association between subscriber sessions and dynamic templates.
configuration	Displays the configuration database information.
connection	Displays subscriber client connection identifiers.
interface	Displays the mapping between subscriber labels and interface handles.
statistics	Displays the show subscriber database statistics information.
summary	Displays the show subscriber database summary counts.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
network	read

Examples

The sample output of the **show subscriber database** command is:

```
RP/0/RSP0/CPU0:router# show subscriber database association

Mon Jun 14 16:24:50.432 EDT
Object Name: TEMPL1
Object Type: IP-SUBSCRIBER-TEMPLATE
Feature Name: IPV4
  Attribute Name: ipv4/unnumbered
    reference count : 1
    sysDb pathname  :
/cfg/gl/dynamic-templates/ipssubscriber/TEMPL1/ipv4/unnumbered
    datatype       : string
    length         : 10
    value          : Loopback0

Object Name: TEMPL2
Object Type: IP-SUBSCRIBER-TEMPLATE
Feature Name: IPV4
  Attribute Name: ipv4/mtu
    reference count : 1
    sysDb pathname  : /cfg/gl/dynamic-templates/ipssubscriber/ss/ipv4/mtu
    datatype       : uint32
    length         : 4
    value          : 1500

Feature Name: QoS
  Attribute Name: qos/service_policy_in/qos_policy
    reference count : 1
    sysDb pathname  :
/cfg/gl/dynamic-templates/ipssubscriber/ss/qos/service_policy_in/:qos_policy
    datatype       : packed
    length         : 20
    value          : packed
                                AB CD 43 21 02 00 04 00
00 00 00 03 00 00 03 00
                                00 06 00 00

Feature Name: 'RSI'
  Attribute Name: rsi/vrf
    reference count : 1
    sysDb pathname  : /cfg/gl/dynamic-templates/ipssubscriber/ss/rsi/vrf
    datatype       : 3
    length         : 5
    value          : blue

RP/0/RSP0/CPU0:router# show subscriber database connection

Tue Jun 15 11:00:19.650 EDT

Client Connection Identifier: 0x0
=====
  ref_count      = 3
  req_count      = 0
  bpi_reg_count  = 0
  spi_reconciled = TRUE
  bpi_reconciled = FALSE
  client_restarted = FALSE
  client_name    = template-mgr
  timer_running  = FALSE

  spi_cb_info:  N/A

Persistent Information:
  in_use          = TRUE
  forced_full_resync = FALSE
  client_flags    = TMPL_PROD
  state          = SUBDB_CLIENT_FULL
  instance_no     = 0
  num_bpi_regs    = 0
```

show subscriber database

```

num_send_drop_bpi_msg      = 0
num_send_drop_spi_msg      = 0
num_rcv_drop_bpi_msg       = 0
num_rcv_drop_spi_msg       = 0
num_sent_bpi_msg           = 0
num_sent_spi_msg           = 0
num_rcv_bpi_msg            = 0
num_rcv_spi_msg            = 0
num_sent_pulse             = 0

SPI AIPC Information:
conn_present               = 0
tx_attempt_count          = 0
tx_count                  = 0
rx_count                  = 0
notify_connect_count      = 0
notify_queue_high_count   = 0
notify_queue_low_count    = 0
notify_queue_full_count   = 0
notify_data_waiting_count = 0
notify_error_count        = 0
notify_close_count        = 0
notify_sendstatus_count   = 0
notify_open_count         = 0
pulse_data_waiting_count  = 0
queue_full                = 0
queue_full_drop           = 0
outstanding_buffers       = 0
overflow_queue_size       = 0
cumulative_overflow_msgs  = 0
hwm_overflow_msgs         = 0
BPI AIPC Information:
conn_present               = 1
tx_attempt_count          = 0
tx_count                  = 0
rx_count                  = 1
notify_connect_count      = 0
notify_queue_high_count   = 0
notify_queue_low_count    = 0
notify_data_waiting_count = 1
notify_error_count        = 0
notify_close_count        = 0
notify_sendstatus_count   = 0
notify_open_count         = 1
queue_full                = 0
queue_full_drop           = 0
outstanding_buffers       = 0
overflow_queue_size       = 0
cumulative_overflow_msgs  = 0
hwm_overflow_msgs         = 0
Feature Information (number of entries = 3):
-----
***Feature Name***        = RSI
Connection ID              = 0x1
Session type               = SUBDB_SESSION_LABEL_TYPE_IP_SUB_INBAND
Activate Required          = FALSE
Config Set ID              = 1
Registration Handle        = 0x1
whichevent[0]              = SUBDB_CB_EVENT_NONE
whichevent[1]              = SUBDB_CB_EVENT_ALL
Feature State               = SUBDB_FEATURE_REGISTERED

***Feature Name***        = RSI
Connection ID              = 0x1
Session type               = SUBDB_SESSION_LABEL_TYPE_PPPOE_SUB
Activate Required          = FALSE
Config Set ID              = 1
Registration Handle        = 0x2
whichevent[0]              = SUBDB_CB_EVENT_NONE
whichevent[1]              = SUBDB_CB_EVENT_ALL
Feature State               = SUBDB_FEATURE_REGISTERED

***Feature Name***        = RSI

```

```

Connection ID          = 0x1
Session type           = SUBDB_SESSION_LABEL_TYPE_IP_SUB_DHCP
Activate Required      = FALSE
Config Set ID          = 1
Registration Handle    = 0x3
whichevent[0]          = SUBDB_CB_EVENT_NONE
whichevent[1]          = SUBDB_CB_EVENT_ALL
Feature State          = SUBDB_FEATURE_REGISTERED

```

Client Connection Identifier: 0x2

=====

```

ref_count              = 2
req_count              = 0
bpi_reg_count          = 0
spi_reconciled         = TRUE
bpi_reconciled         = TRUE
client_restarted       = FALSE
client_name            = iedge SVM
timer_running          = FALSE

```

spi_cb_info:

```

SUBDB_SPI_CB_PROD_ALL_DONE          = SUBDB_CB_EVENT_NONE
SUBDB_SPI_CB_SESSION_PROD_DONE      = SUBDB_CB_EVENT_ALL
SUBDB_SPI_CB_SESSION_ACTIVATED      = SUBDB_CB_EVENT_NONE
SUBDB_SPI_CB_SESSION_CREATED        = SUBDB_CB_EVENT_NONE
SUBDB_SPI_CB_SESSION_DESTROYED      = SUBDB_CB_EVENT_NONE
SUBDB_SPI_CB_SESSION_ASSOCIATED     = SUBDB_CB_EVENT_ALL
SUBDB_SPI_CB_SESSION_UNASSOCIATED   = SUBDB_CB_EVENT_ALL
SUBDB_SPI_CB_SESSION_CONFIG_CHANGED = SUBDB_CB_EVENT_ALL
SUBDB_SPI_CB_TEMPLATE_INSTALLED     = SUBDB_CB_EVENT_ALL
SUBDB_SPI_CB_TEMPLATE_UNINSTALLED   = SUBDB_CB_EVENT_ALL
SUBDB_SPI_CB_OBJECT_AGEOUT          = SUBDB_CB_EVENT_ALL

```

Persistent Information:

```

in_use                  = TRUE
forced_full_resync      = FALSE
client_flags            = TMPL_PROD, SESS_PROD
state                   = SUBDB_CLIENT_FULL
instance_no             = 1
num_bpi_regs            = 0
num_send_drop_bpi_msg   = 0
num_send_drop_spi_msg   = 0
num_rcv_drop_bpi_msg    = 0
num_rcv_drop_spi_msg    = 0
num_sent_bpi_msg        = 0
num_sent_spi_msg        = 0
num_rcv_bpi_msg          = 0
num_rcv_spi_msg         = 1
num_sent_pulse          = 0

```

SPI AIPC Information:

```

conn_present            = 1
tx_attempt_count        = 0
tx_count                = 0
rx_count                = 2
notify_connect_count    = 0
notify_queue_high_count = 0
notify_queue_low_count  = 0
notify_queue_full_count = 0
notify_data_waiting_count = 2
notify_error_count      = 0
notify_close_count      = 0
notify_sendstatus_count = 0
notify_open_count       = 1
pulse_data_waiting_count = 0
queue_full              = 0
queue_full_drop         = 0
outstanding_buffers     = 0
overflow_queue_size     = 0
cumulative_overflow_msgs = 0
hwm_overflow_msgs       = 0

```

BPI AIPC Information:

show subscriber database

```

conn_present           = 0
tx_attempt_count       = 0
tx_count               = 0
rx_count               = 0
notify_connect_count   = 0
notify_queue_high_count = 0
notify_queue_low_count = 0
notify_data_waiting_count = 0
notify_error_count     = 0
notify_close_count     = 0
notify_sendstatus_count = 0
notify_open_count      = 0
queue_full             = 0
queue_full_drop        = 0
outstanding_buffers    = 0
overflow_queue_size    = 0
cumulative_overflow_msgs = 0
hwm_overflow_msgs      = 0
Feature Information (number of entries = 0):
-----

```

RP/0/RSP0/CPU0:router# **show subscriber database interface**

```

Tue Jun 15 09:05:53.769 EDT
Interface Ifhandle      Session ID:
Gi0/2/0/0.ip1 0x1000040 0x4000000
Gi0/2/0/0.ip2 0x1000060 0x4000082

```

RP/0/RSP0/CPU0:router# **show subscriber database statistics**

```

Tue Jun 15 09:05:53.769 EDT
3 wrapping entries (2048 possible, 0 filtered, 3 total)
Jun 15 06:49:40.123 subdb/common 0/0/CPU0 t4004322208 Process client ID '2' with connection
event 'RESTARTED'
Jun 15 06:49:40.125 subdb/common 0/0/CPU0 t4153857728 Process SPI END RECONCILE msg for
client '2' [ring index '0']
Jun 15 06:49:40.125 subdb/common 0/0/CPU0 t4004322208 Process client ID '2' with connection
event 'RECONCILED'

```


show subscriber manager statistics

To display the subscriber management internal manager information, use the **show subscriber manager statistics** command in the EXEC mode.

show subscriber manager statistics {AAA| HA| PPSM| PRE| SVM| debug| performance| summary}

Syntax Description

AAA	Displays the Authentication, Authorization, Accounting Coordinator statistics.
HA	Displays the High Availability statistics.
PPSM	Displays the Policy Plane Session Manager statistics.
PRE	Displays the Policy Rule Engine statistics.
SVM	Displays the Service Manager statistics.
debug	Displays the debug statistics.
performance	Displays the performance statistics.
summary	Displays the summary statistics.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
network	read

Examples

This is the sample output of the **show subscriber manager statistics** command in the EXEC mode:

RP/0/RSP0/CPU0:router# **show subscriber manager statistics summary total**
 The show subscriber manager statistics output is as follows:

```

Wed Jan 23 09:57:41.855 GMT

[ IEDGE SUMMARY STATISTICS ]

Location: 0/0/CPU0

IEDGE SUMMARY
=====
Control Policy errors
  Subscriber control policy not applied on interface = 0
  No class match in Start Request                  = 0

Attribute format warnings
  NAS Port = 0
  NAS Port id = 0
  Destination station id = 0
  Calling station id = 0
  User Name = 0

User Profile Statistics
  User Profile Install = 0
  User Profile Install errors = 0
  User Profile Removes = 0
  User Profile Errors = 0

Session Disconnect Flow Control
  Inflight = 0
  Queued = 0

Location: 0/1/CPU0

IEDGE SUMMARY
=====
Control Policy errors
  Subscriber control policy not applied on interface = 0
  No class match in Start Request                  = 0

Attribute format warnings
  NAS Port = 72
  NAS Port id = 0
  Destination station id = 72
  Calling station id = 72
  User Name = 0

User Profile Statistics
  User Profile Install = 0
  User Profile Install errors = 0
  User Profile Removes = 0
  User Profile Errors = 0

Session Disconnect Flow Control
  Inflight = 0
  Queued = 0
  
```

This table describes the significant fields shown in the display.

Table 19: show subscriber manager statistics Field Descriptions

Field	Description
Control Policy errors	Specifies the errors in the control policy.
Attribute format warnings	Specifies the attribute format warnings.
User Profile Statistics	Specifies the user profile statistics.
Session Disconnect Flow Control	Specifies the session disconnect flow control.

show subscriber running-config

To display the subscriber running configuration derived from dynamic template, use the **show subscriber running-config** command in EXEC.

show subscriber running-config {location| subscriber-label}

Syntax Description

location	Displays subscriber database running configuration information for all sessions at specified location.
subscriber-label	Allows to enter a hex value subscriber-value that ranges between 0X0-0xffffffff.
	Specifies the output modifiers.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
network	read

Examples

This is a sample output of the **show subscriber running-config** command:

```
RP/0/RSP0/CPU0:router# show subscriber running-config
Tue Jun 15 09:05:53.769 EDT
Session ID: 0x4000000
dynamic-template
  type ipsubscriber TEMPL1
  ipv4 unnumbered Loopback0
```

```
!  
!  
dynamic-template  
  type ipsubscriber TEMPL2  
    service-policy input qos_policy  
    vrf blue  
    ipv4 mtu 1500  
  !  
!  
Session ID: 0x4000082  
dynamic-template  
  type ipsubscriber TEMPL1  
    ipv4 unnumbered Loopback0  
  !  
!  
dynamic-template  
  type ipsubscriber TEMPL2  
    service-policy input qos_policy  
    vrf blue  
    ipv4 mtu 1500  
  !  
!
```

show subscriber session

To display the subscriber management session information, use the **show subscriber session** command in the EXEC mode.

show subscriber session {all| debug| filter| subscriber-label}

Syntax Description	all	Displays all subscriber sessions.
	debug	Displays unique subscriber session selected for debugging.
	filter	Displays the search results of the subscriber session database based on the filter criteria.
	subscriber-label	Displays the unique ID of the subscriber session.

Command Default None

Command Modes EXEC

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	network	read
	config-services	read

Examples This is the sample output of the **show subscriber session** command in the EXEC mode:

```
RP/0/RSP0/CPU0:router# show subscriber session all
```

```
RP/0/RSP0/CPU0:router# show subscriber session all summary location 0/1/CPU0
RP/0/RSP0/CPU0:router# show subscriber session filter vrf vrf1 location 0/1/CPU0
RP/0/RSP0/CPU0:router# show subscriber session subscriber-label 40
```

This is the sample output of the **show subscriber session** command:

Wed Jan 23 10:20:58.344 GMT

Codes: IN - Initialize, CN - Connecting, CD - Connected, AC - Activated,
ID - Idle, DN - Disconnecting, ED - End

Type	Interface	State	Subscriber IP Addr / Prefix LNS Address (Vrf)
PPPoE:PTA	Gi0/1/0/0.pppoe1	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe2	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe3	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe1	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe2	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe3	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe1	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe2	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe3	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe1	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe2	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe3	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe4	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe5	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe6	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe4	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe5	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe6	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe4	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe5	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe6	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe4	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe5	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe6	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe7	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe8	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe9	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe7	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe8	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe9	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe7	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe8	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe9	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe7	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe8	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe9	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe10	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe11	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe12	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe10	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe11	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe12	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe10	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe11	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe12	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe10	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe11	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe12	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe13	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe14	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.pppoe15	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe13	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe14	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.1.pppoe15	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe13	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe14	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.2.pppoe15	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe13	AC	100.0.0.1 (default)
PPPoE:PTA	Gi0/1/0/0.3.pppoe14	AC	100.0.0.1 (default)

```

PPPoE:PTA      Gi0/1/0/0.3.pppoe15      AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.pppoe16      AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.pppoe17      AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.pppoe18      AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.1.pppoe16     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.1.pppoe17     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.1.pppoe18     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.2.pppoe16     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.2.pppoe17     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.2.pppoe18     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.3.pppoe16     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.3.pppoe17     AC      100.0.0.1 (default)
PPPoE:PTA      Gi0/1/0/0.3.pppoe18     AC      100.0.0.1 (default)

```

This table describes the significant fields shown in the display.

Table 20: show subscriber session Field Descriptions

Field	Description
Type	Specifies the subscriber session type.
Interface	Specifies the interface type.
State	Specifies the states of the subscriber session such as initiate, connecting, connected, activated, disconnected, idle, end.
Subscriber IP Addr / Prefix LNS Address (Vrf)	Specifies the IP address of the subscriber interface.

clear subscriber session

To clear the subscriber sessions in BNG, use the **clear subscriber session** command in EXEC mode.

clear subscriber session {all | debug { subscriber-label } | identifier { access-interface *interface-type* *interface-instance* | interface *interface-type* *interface-instance* } } [**location** *node-id*]

Syntax Description

all	Clears all subscriber sessions.
debug subscriber-label	Clears debug tracking of unique subscriber session.
identifier	Clears the subscriber session information based on the identifier(s) you select.
access-interface	Clears the subscriber session based on the access interface name.
<i>interface-type</i>	Specifies the interface type whose subscriber sessions you want to delete.
<i>interface-instance</i>	<p>Specifies either a physical interface instance or a virtual interface instance that you want to delete.</p> <p>The details of the interface instance are as follows:</p> <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type.
location	Clears the subscriber session information of a specific location.

<i>node-id</i>	Specifies the node whose subscriber sessions you want to delete. The node-id argument is entered in the rack/slot/module notation.
----------------	--

Command Default	None
------------------------	------

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
-------------------------	---

Task ID	Task ID	Operation
	network	execute

Examples	This example shows how to clear all the subscriber sessions in a particular node location:
-----------------	--

```
RP/0/RSP0/CPU0:router# clear subscriber session all location 0/RSP0/CPU0
```

Related Commands	Command	Description
	show subscriber session, on page 308	Displays the subscriber management session information.



INDEX

A

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