



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*.

To use commands of this module, 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 any command, contact your AAA administrator for assistance.

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aaa accounting service

To create an accounting list for service accounting, use the **aaa accounting service** command in Global Configuration mode or Admin Configuration mode. To disable the service authentication method, use the **no** form of this command.

aaa accounting service *{list_name | default}* **{broadcast group {group_name | diameter | radius} | group {group_name | diameter | 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 of the list name for AAA authentication.
broadcast		Specifies the broadcast accounting for the service.
group		Specifies the server-group.
<i>group_name</i>		Specifies the server group name.
diameter		Specifies the list of all DIAMETER peers.
radius		Specifies the list of all RADIUS hosts.

Command Default None

Command Modes Global Configuration mode

Command History	Release	Modification
	Release 4.3.1	This command was introduced.
	Release 5.3.0	The diameter keyword was added for DIAMETER protocol support in BNG.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	aaa	read, write

This is an example of configuring the **aaa accounting service** command for the grpFR server group:

```
RP/0/RSP0/CPU0:router(config)# aaa accounting service default group grpFR
```

This example shows how to configure the **aaa accounting service** command with DIAMETER protocol to carry subscriber service accounting records to DIAMETER server using base accounting application:

```
RP/0/RSP0/CPU0:router(config)# aaa accounting service default group diameter
```

Related Commands

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

aaa accounting subscriber

To create an accounting list for subscriber accounting, use the **aaa accounting subscriber** command in Global 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 | diameter | radius}
| group {group_name | diameter | radius}}
```

Syntax Description	default	Uses the listed authentication methods that follow this keyword as the default list of methods for authentication.
	list-name	Represents the character string for the list name for AAA authentication.
	broadcast	Specifies the broadcast accounting for subscriber.
	group	Specifies the server-group.
	group_name	Specifies the server group name.
	diameter	Specifies the list of all DIAMETER peers.
	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.
	Release 5.3.0	The diameter keyword was added for DIAMETER protocol support in BNG.
Usage Guidelines	No specific guidelines impact the use of this command.	
Task ID	Task ID	Operation
	aaa	read, write

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
```

This example shows how to configure the **aaa accounting subscriber** command with DIAMETER protocol to carry subscriber session accounting to DIAMETER server using base accounting application:

```
RP/0/RSP0/CPU0:router(config)# aaa accounting subscriber default group diameter
```

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}**

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 No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	aaa	read, write

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	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} ]
```

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.
Release 6.2.1	Introduced support for a new MAC address format, client-mac-address-custom1 , which is in 01.23.45.67.89.AB format.
Release 6.4.1	Introduced support for dhcpv6-client-id-enterprise-identifier , dhcpv6-vendor-class-spl , dhcpv4-client-id-spl and dhcpv4-vendor-class as part of enabling AAA username formation using DHCP option 1 and option 16.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
aaa	read, write

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 @
```

This is an example of configuring MAC address in "01.23.45.67.89.AB" format:

```
RP/0/RSP0/CPU0:router(config)# aaa attribute format form1
RP/0/RSP0/CPU0:router(config-id-format)# format-string length 253 "%s"
client-mac-address-custom1
```

This example shows how to enable AAA username formation using DHCP option 1 and option 16 in BNG:

```
RP/0/RSP0/CPU0:router(config)# aaa attribute format format_v6  
RP/0/RSP0/CPU0:router(config-id-format)# format-string length 233 "%s@%s"  
dhcpv6-client-id-enterprise-identifier dhcpv6-vendor-class-string
```

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 | diameter | 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.
	diameter	Specifies the list of all DIAMETER peers.
	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.
	Release 5.3.0	The diameter keyword was added for DIAMETER protocol support in BNG.
Usage Guidelines	No specific guidelines impact the use of this command.	
Task ID	Task ID	Operation
	aaa	read, write

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
```

This example shows how to configure the **aaa authentication subscriber** command with DIAMETER protocol to carry subscriber authentication with DIAMETER protocol using NASREQ application:

```
RP/0/RSP0/CPU0:router(config)# aaa authentication subscriber default group diameter
```

Related Commands

Command	Description
aaa authorization subscriber, on page 15	Creates authorization-related configurations

aaa authorization policy-intf

To configure authorization lists for DIAMETER policy interface (Gx interface), use the **aaa authorization policy-intf** command in Global Configuration mode. To remove the authorization lists for DIAMETER policy interface (Gx interface), use the **no** form of this command.

aaa authorization policy-if *{list-name | default}* **group** *{server-group-name | diameter}*

Syntax Description	<i>list-name</i>	Specifies the list name for AAA authorization.
	default	Specifies default list name for AAA authorization.
	group	Specifies the server-group.
	<i>server-group-name</i>	Specifies the server-group name.
	diameter	Specifies the list of all DIAMETER peers.

Command Default None

Command Modes Global Configuration mode

Command History	Release	Modification
	Release 5.3.0	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	aaa	read, write

This example shows how to configure authorization lists for DIAMETER policy interface (Gx interface) in BNG:

```
RP/0/RSP0/CPU0:router(config)# aaa authorization policy-intf default group diameter
```

Related Commands	Command	Description
	aaa authorization prepaid, on page 14	Configures authorization lists for DIAMETER prepaid interface (Gy interface).

aaa authorization prepaid

To configure authorization lists for DIAMETER prepaid interface (Gy interface), use the **aaa authorization prepaid** command in Global Configuration mode. To remove the authorization lists for DIAMETER prepaid interface (Gy interface), use the **no** form of this command.

aaa authorization prepaid {*list-name* | **default**} **group** {*server-group-name* | **diameter**}

Syntax Description		
	<i>list-name</i>	Specifies the list name for AAA authorization.
	default	Specifies default list name for AAA authorization.
	group	Specifies the server-group.
	<i>server-group-name</i>	Specifies the server-group name.
	diameter	Specifies the list of all DIAMETER peers.

Command Default None

Command Modes Global Configuration mode

Command History	Release	Modification
	Release 5.3.0	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	aaa	read, write

This example shows how to configure authorization lists for DIAMETER prepaid interface (Gy interface) in BNG:

```
RP/0/RSP0/CPU0:router(config)# aaa authorization prepaid default group diameter
```

Related Commands	Command	Description
	aaa authorization policy-intf, on page 13	Configures authorization lists for DIAMETER policy interface (Gx interface).

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 | diameter | 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.
	diameter	Specifies the list of all DIAMETER peers.
	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.
	Release 5.3.0	The diameter keyword was added for DIAMETER protocol support in BNG.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	aaa	read, write

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
```

This example shows how to configure the **aaa authorization subscriber** command to carry subscriber authorization with DIAMETER protocol using NASREQ application:

```
RP/0/RSP0/CPU0:router(config)# aaa authorization subscriber default group diameter
```

Related Commands

Command	Description
aaa authentication subscriber, on page 11	Creates a method list for subscriber authentication.

aaa group server diameter (BNG)

To configure the named server group for DIAMETER, and to enter the server group sub-mode, use the **aaa group server diameter** command in Global Configuration mode. To remove the named server group for DIAMETER, use the **no** form of this command.

aaa group server diameter *server-group-name*

Syntax Description	<i>server-group-name</i> Specifies the server-group name.
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Command Default	None
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Command Modes	Global Configuration mode
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Command History	Release	Modification
	Release 5.3.0	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
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Task ID	Task ID	Operation
	aaa	read, write

This example shows how to configure the named server group for DIAMETER, and to enter the server group sub-mode in BNG:

```
RP/0/RSP0/CPU0:router(config)# aaa group server diameter GX_SG
```

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**}]

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. Accepts IP address (IPv4 and IPv6) or hostname of the RADIUS server. The hostname option is supported only for IPv4 domain address.
server-private	Specifies a private RADIUS server. Accepts IP address (IPv4 and IPv6) or hostname of the RADIUS server. The hostname option is supported only for IPv4 domain address.
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.
Release 5.3.1	The command was modified to add IPv6 address support for server and server-private configuration, as part of RADIUS over IPv6 feature.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ip-services	read, write

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 intercept

To enable RADIUS-based Lawful Intercept (LI) feature on a router, use the **aaa intercept** command in Global Configuration mode. To disable RADIUS-based Lawful Intercept feature, use the **no** form of this command.

aaa intercept

Syntax Description	This command has no keywords or arguments.
---------------------------	--

Command Default	RADIUS-based Lawful Intercept feature is not enabled.
------------------------	---

Command Modes	Global Configuration mode
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Command History	Release	Modification
	Release 4.3.0	This command was introduced.
	Release 4.3.2	By default, Lawful Intercept (LI) is not a part of the Cisco IOS XR software. The LI package needs to be installed separately. So, this command is enabled only after installing and activating the asr9k-li-px.pie.

Usage Guidelines	To use aaa intercept command, you must install and activate the asr9k-li-px.pie .
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Use the **aaa intercept** command to enable a RADIUS-Based Lawful Intercept solution on your router. Intercept requests are sent (through Access-Accept packets or CoA-Request packets) to the network access server (NAS) or the Layer 2 Tunnel Protocol (L2TP) access concentrator (LAC) from the RADIUS server. All data traffic going to, or from, a PPP or L2TP session is passed to a mediation device.

Task ID	Task ID	Operation
	aaa	read, write
	li	read

This example shows how to configure **aaa intercept** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# aaa intercept
```

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*}}

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 No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ip-services	read, write

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 service-accounting

To set accounting parameters for service, use the **aaa service-accounting** command in Global Configuration mode or Admin Configuration mode. To disable this behavior, use the **no** form of this command.

aaa service-accounting [{**extended** | **brief**}]

Syntax Description	extended	Sends extended service accounting records.
	brief	Sends brief service accounting records.

Command Default The default setting is **extended**.

Command Modes Global Configuration mode

Command History	Release	Modification
	Release 4.3.1	This command was introduced.

Usage Guidelines The **extended** keyword allows to report all the subscriber accounting identities and state attributes within all the service accounting records. While, the **brief** keyword allows to report only brief information about service accounting records without any parent accounting record details.

Task ID	Task ID	Operation
	aaa	read, write

This example shows how to set service accounting parameters to send brief information about service accounting records:

```
RP/0/RSP0/CPU0:router(config)# aaa service-accounting brief
```

Related Commands	Command	Description
	aaa accounting subscriber, on page 5	Creates an accounting list for subscriber accounting.
	aaa accounting service, on page 3	Creates an accounting list for service accounting.

aaa server radius dynamic-author

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

```
aaa server radius dynamic-author {client hostname | ignore {server-key | session-key} | port
port_number | server-key {0 | 7 | line_number}}
```

Syntax Description	session-key	Specifies that the session-key could be ignored.
	client	Represents the CoA client configuration.
	<i>hostname</i>	Specifies the hostname (IPv4 address or domain or IPv6 address) of the CoA client. IPv6 domain name is not supported.
	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 mode.

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.
	Release 5.3.1	The command was modified to add IPv6 address support for aaa server radius dynamic-author client configuration, as part of RADIUS over IPv6 feature.

Usage Guidelines If multiple session identification keys are present in the CoA request, an AND operation is performed such that all the keys participate in the session selection. That is, if the CoA request contains the Accounting-Session-ID attribute and a Framed-IP-Address, then these parameters must match on the targeted session. For example, if the Session-ID referenced is 00001111 and the Framed-IP-Address is 10.0.0.10, and

if the BNG is having a subscriber session with ID as 00001111 but with address as 10.10.10.1, then the session is not subjected to the CoA action. A CoA NACK is returned in this case.

Task ID

Task ID	Operation
aaa	read, write

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

Related Commands

Command	Description
show radius (BNG), on page 51	Displays various RADIUS statistics.
show aaa trace, on page 49	Displays all trace data for AAA sub-system

aaa radius attribute nas-port-type

To configure the AAA RADIUS attribute nas-port-type for a physical interface or a VLAN sub-interface, use the **aaa radius attribute nas-port-type** command in the interface configuration mode. To remove the configuration of nas-port-type from the interface or VLAN sub-interface, use the **no** form of this command.

aaa radius attribute nas-port-type {*value string*}

Syntax Description	<i>value</i>	The nas-port-type value for the interface or VLAN sub-interface. The range is from 0 to 44.
	<i>string</i>	The nas-port-type name for the interface or VLAN sub-interface.

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

Command Modes	Interface or VLAN sub-interface configuration
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Command History	Release	Modification
	Release 4.3.1	This command was introduced.

Usage Guidelines	The permissible values for nas-port-type within the given range are 0 - 6, 9, 15 and 30 - 44.
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Task ID	Task ID	Operation
	aaa	read, write

This example shows how to configure the AAA RADIUS attribute, **nas-port-type** for each physical interface :

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface gigabitEthernet 0/0/0/0
RP/0/RSP0/CPU0:router(config-if)# aaa radius attribute nas-port-type 15
```

Related Commands	Command	Description
	aaa radius attribute, on page 21	Configures a format e encode string for particular interface or NAS-Port type.

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*}

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

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

Task ID

Task ID	Operation
config-services	read, write

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	Enables the dynamic template configuration mode.
dynamic-template type ppp	Enables the ppp dynamic template type.
dynamic-template type ipsubscriber	Enables the ipsubscriber dynamic template type.

accounting aaa list type service

To configure the service accounting feature, use the **accounting aaa list type service** 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 service** [**periodic-interval** *time*]

Syntax Description

<i>method_list_name</i>	Specifies the pre-configured method list name.
default	Specifies the default method list.
type	Specifies the type of accounting performed.
service	Applies the accounting to a service.
periodic-interval	Specifies the periodic accounting interval in minutes.
<i>time</i>	Value of the periodic accounting interval in minutes. The range is from 1 to 65535.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.3.1	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

This is an example of configuring service accounting for periodic accounting interval of 600 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 service
periodic-interval 600
```

Related Commands

Command	Description
dynamic-template	Enables the dynamic template configuration mode.
dynamic-template type service	Specifies the service template type for a group of subscribers or services.

accounting prepaid

To configure accounting information for subscriber prepaid feature in BNG, use the **accounting prepaid** command in subscriber configuration mode. To remove this configuration, use the **no** form of this command.

accounting prepaid *name* [{**method-list** **authorization** *list-name* | **password** *password* | **quota-holding time** *quota-holding-time* | **quota-validity time** *quota-validity-time* | **threshold** {**time** *time-threshold* | **volume** *volume-threshold* } | **traffic** {**both** | **inbound** | **outbound**}}]

Syntax Description		
	<i>name</i>	Prepaid configuration name or default.
	method-list	Specifies method list configuration.
	authorization	Specifies authorization method list.
	<i>list-name</i>	Name of the authorization method list.
	password	Specifies the password to be used when placing prepaid authorization or re-authorization requests.
	<i>password</i>	Password string.
	quota-holding time	Specifies quota holding time.
	quota-validity time	Specifies quota validity time.
	<i>quota-holding-time</i>	Quota holding time, in seconds. The range is from 0 to 99000; the default is 100.
	<i>quota-validity-time</i>	Quota validity time, in seconds. The range is from 0 to 99000; the default is 50.
	threshold	Specifies the threshold configuration for prepaid feature.
	time	Specifies the time threshold.
	<i>time-threshold</i>	Time threshold, in seconds. The range is 0 to 4294967295; the default is 100.
	volume	Specifies the volume threshold.

<i>volume-threshold</i>	Volume threshold, in bytes. The range is 0 to 4294967295; the default is 100.
traffic	Specifies the traffic direction to be considered while deriving the volume. The default is inbound .
both	Considers both inbound and outbound traffic while deriving the volume.
inbound	Considers inbound traffic while deriving the volume.
outbound	Considers outbound traffic while deriving the volume.

Command Default None

Command Modes Subscriber configuration

Command History	Release	Modification
	Release 5.3.0	This command was introduced.

Usage Guidelines To configure the authorization method list, the accounting network name must already be created using **aaa accounting network** command in global configuration mode.

Task ID	Task ID	Operation
	config-services	read, write

This example shows how to configure accounting information for subscriber prepaid feature in BNG:

```
RP/0/RSP0/CPU0:router(config)# subscriber
RP/0/RSP0/CPU0:router(config-subscriber)# accounting prepaid feat1
RP/0/RSP0/CPU0:router(config-prepaid)# traffic both
```

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*}]

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 No specific guidelines impact the use of this command.

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 attribute 11 default direction inbound

To change the direction in which the Remote Authentication Dial In User Service (RADIUS) filter-ID attribute is applied, use the **radius-server attribute 11 default direction inbound** command in Global Configuration mode.

radius-server attribute 11 default direction inbound

Syntax Description	This command has no keywords or arguments.	
Command Default	RADIUS filter-ID attribute is applied by default in the output direction of the corresponding subscriber interface.	
Command Modes	Global Configuration mode	
Command History	Release	Modification
	Release 5.3.2	This command was introduced.
Usage Guidelines	No specific guidelines impact the use of this command.	
Task ID	Task ID	Operation
	ethernet-services	read, write

Example

This example shows how to change the direction of the RADIUS filter-ID attribute:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)# radius-server attribute 11 default direction inbound
```


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*}

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	No specific guidelines impact the use of this command.
-------------------------	--

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 *minutes*

Syntax Description	<i>minutes</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.
Usage Guidelines	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	<p>The following example specifies five minutes of deadtime for RADIUS servers that fail to respond to authentication requests for the radius-server deadtime command:</p> <pre>RP/0/RSP0/CPU0:router# configure RP/0/RSP0/CPU0:router(config)# radius-server deadtime 5</pre>	

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

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	No specific guidelines impact the use of this command.
-------------------------	--

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*]

Syntax Description	<table> <tr> <td><i>ip-address</i></td><td>IP address of the RADIUS server host.</td></tr> <tr> <td>auth-port <i>port-number</i></td><td>(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.</td></tr> <tr> <td>acct-port <i>port-number</i></td><td>(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.</td></tr> <tr> <td>timeout <i>seconds</i></td><td>(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.</td></tr> <tr> <td>retransmit <i>retries</i></td><td>(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.</td></tr> <tr> <td>key <i>string</i></td><td> <p>(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.</p> <p>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.</p> </td></tr> </table>	<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>	<p>(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.</p> <p>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.</p>
<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>	<p>(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.</p> <p>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.</p>												
Command Default	No RADIUS host is specified; use global radius-server command values.												
Command Modes	Global Configuration mode												
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 3.7.2</td><td>This command was introduced.</td></tr> <tr> <td>Release 4.2.0</td><td>This command was supported on BNG.</td></tr> <tr> <td>Release 5.3.1</td><td>The command was modified to add IPv6 address support for the RADIUS server host configuration.</td></tr> </table>	Release	Modification	Release 3.7.2	This command was introduced.	Release 4.2.0	This command was supported on BNG.	Release 5.3.1	The command was modified to add IPv6 address support for the RADIUS server host configuration.				
Release	Modification												
Release 3.7.2	This command was introduced.												
Release 4.2.0	This command was supported on BNG.												
Release 5.3.1	The command was modified to add IPv6 address support for the RADIUS server host configuration.												

Usage Guidelines

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 39	Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon.
radius-server retransmit(BNG), on page 42	Specifies how many times Cisco IOS XR software retransmits packets to a server before giving up.
radius-server timeout(BNG), on page 44	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*

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	No specific guidelines impact the use of this command.
-------------------------	--

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*}

Syntax Description	<div> 0 Specifies an unencrypted (cleartext) shared key. <i>clear-text-key</i> </div> <hr/> <div> 7 Specifies a encrypted shared key. <i>encrypted-key</i> </div> <hr/> <div> <i>clear-text-key</i> Specifies an unencrypted (cleartext) shared key. </div>				
Command Default	The authentication and encryption key is disabled.				
Command Modes	Global Configuration mode				
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 3.7.2</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 3.7.2	This command was introduced.
Release	Modification				
Release 3.7.2	This command was introduced.				
Usage Guidelines	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	<table> <tr> <th>Task ID</th><th>Operations</th></tr> <tr> <td>aaa</td><td>read, write</td></tr> </table>	Task ID	Operations	aaa	read, write
Task ID	Operations				
aaa	read, write				

Examples

The following 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
```

The following 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
```

Related Commands

Command	Description
key (RADIUS)	Specifies the authentication and encryption key that is used between the router and the RADIUS daemon running on the RADIUS server.
server-private (RADIUS)	Configures the IP address of the private RADIUS server for the group server.

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**}]

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	No specific guidelines impact the use of this command.
------------------	--

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*

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 mode

Command History	Release	Modification
	Release 3.7.2	This command was introduced.

Usage Guidelines 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 The following 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 39	Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon.
	retransmit (RADIUS)	Specifies the number of times a RADIUS request is resent to a server if the server is not responding or is responding slowly.
	server-private (RADIUS)	Configures the IP address of the private RADIUS server for the group server.

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

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.	
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*

Syntax Description	<i>seconds</i> Number that specifies the timeout interval, in seconds. Range is from 1 to 1000.				
Command Default	5 seconds				
Command Modes	Global Configuration mode				
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 3.7.2</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 3.7.2	This command was introduced.
Release	Modification				
Release 3.7.2	This command was introduced.				
Usage Guidelines	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	<table> <tr> <th>Task ID</th><th>Operations</th></tr> <tr> <td>aaa</td><td>read, write</td></tr> </table>	Task ID	Operations	aaa	read, write
Task ID	Operations				
aaa	read, write				
Examples	The following 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
```

Related Commands	Command	Description
	radius-server key(BNG), on page 39	Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon.
	server-private (RADIUS)	Configures the IP address of the private RADIUS server for the group server.
	timeout (RADIUS)	Specifies the number of seconds the router waits for the RADIUS server to reply before retransmitting.

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

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	No specific guidelines impact the use of this command.	
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*}

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

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
aaa	read, write

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-name* [**vrf** *vrf-id*]

Syntax Description	<table> <tr> <td><i>interface-name</i></td><td>Name of the interface that RADIUS uses for all of its outgoing packets.</td></tr> <tr> <td>vrf <i>vrf-id</i></td><td>Specifies the name of the assigned VRF.</td></tr> </table>	<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.
<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	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 3.7.2</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 3.7.2	This command was introduced.
Release	Modification				
Release 3.7.2	This command was introduced.				
Usage Guidelines	<p>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.</p> <p>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.</p> <p>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.</p>				

Task ID	Task ID	Operations
	aaa	read, write

Examples

The following 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
```

Related Commands

Command	Description
aaa group server tacacs+	Groups different RADIUS server hosts into distinct lists.
radius-server key(BNG), on page 39	Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon.

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 mode
---------------	-----------

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
------------------	--

Task ID	Task ID	Operation
	aaa	read

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 mode

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	aaa	read

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 mode				
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	No specific guidelines impact the use of this command.				
Task ID	<table> <tr> <th>Task ID</th><th>Operation</th></tr> <tr> <td>aaa</td><td>read</td></tr> </table>	Task ID	Operation	aaa	read
Task ID	Operation				
aaa	read				

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.

show subscriber database configuration brief service-profile

The command displays a list of downloaded service profile in cache and whether service profile is being used or not.

show subscriber database configuration brief service-profile

Command Default None

Command Modes Global Configuration Mode

Command History	Release	Modification
	6.6.3	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

This example displays a list of downloaded service profile in cache:

```
RP/0/0/CPU0:router#show subscriber database configuration brief service-profile
Wed Apr 24 14:55:11.173 IST
```

```
Location 0/0/CPU0
```

ServiceName:MethodList	In Use By Subscriber
-----	-----
1_Mbps_FQOS:default	True
2_Mbps_FQOS:default	False

statistics period service-accounting

To set collection period for statistics collectors, use the **statistics period service-accounting** command in Global Configuration mode or Admin Configuration mode. To disable this behavior, use the **no** form of this command.

statistics period service-accounting {*period* | **disable**}

Syntax Description

period Collection period in seconds. The range is from 30 to 3600. The default is 900.

disable Disables periodic statistics collection.

Command Default

Default collection period is 900 seconds.

Command Modes

Global Configuration mode

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
diag	read, write

This example shows how to change the collection period or polling interval for statistics collector:

```
RP/0/RSP0/CPU0:router(config)# statistics period service-accounting 2000
```

Related Commands

Command	Description
aaa accounting subscriber, on page 5	Creates an accounting list for subscriber accounting.
aaa accounting service, on page 3	Creates an accounting list for service accounting.

