



## BNG AAA Commands

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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      | <b>default</b> 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.  |   |
| <b>broadcast</b>        | Specifies the broadcast accounting for the service.   |   |
| <b>group</b>            | Specifies the server-group.   |   |
| <i>group_name</i>       | Specifies the server group name.  |   |
| <b>diameter</b>         | Specifies the list of all DIAMETER peers.   |   |
| <b>radius</b>           | Specifies the list of all RADIUS hosts.   |   |
| <b>Command Default</b>  | None  |   |
| <b>Command Modes</b>    | Global Configuration mode   |   |
| Command History         | Release   | Modification  |
|                         | Release<br>4.3.1  | This command was introduced.  |
|                         | Release<br>5.3.0  | The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG. |
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command.  |   |
| Task ID                 | Task ID   | Operation   |
|                         | aaa   | read,<br>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
```

**aaa accounting service**

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   |
|--|---|
| <a href="#">aaa accounting subscriber, on page 5</a> | 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}}
```

| <b>Syntax Description</b> | <b>default</b><br><br><b>list-name</b><br><br><b>broadcast</b><br><br><b>group</b><br><br><b>group_name</b><br><br><b>diameter</b><br><br><b>radius</b>  |  | Uses the listed authentication methods that follow this keyword as the default list of methods for authentication.<br><br>Represents the character string for the list name for AAA authentication.<br><br>Specifies the broadcast accounting for subscriber.<br><br>Specifies the server-group.<br><br>Specifies the server group name.<br><br>Specifies the list of all DIAMETER peers.<br><br>Specifies the list of all RADIUS hosts. |              |       |                              |       |   |  |
|---------------------------|--|--|--|--------------|-------|------------------------------|-------|---|--|
| <b>Command Default</b>    | None   |  |  |              |       |                              |       |   |  |
| <b>Command Modes</b>      | Global Configuration mode  |  |  |              |       |                              |       |   |  |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>4.2.0</td> <td>This command was introduced.</td> </tr> <tr> <td>5.3.0</td> <td>The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG.</td> </tr> </tbody> </table> |  | Release  | Modification | 4.2.0 | This command was introduced. | 5.3.0 | The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG. |  |
| Release                   | Modification   |  |  |              |       |                              |       |   |  |
| 4.2.0                     | This command was introduced.   |  |  |              |       |                              |       |   |  |
| 5.3.0                     | The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG.  |  |  |              |       |                              |       |   |  |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.   |  |  |              |       |                              |       |   |  |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>aaa</td> <td>read,<br/>write</td> </tr> </tbody> </table>  |  | Task ID  | Operation    | aaa   | read,<br>write               |       |   |  |
| Task ID                   | Operation  |  |  |              |       |                              |       |   |  |
| aaa                       | read,<br>write   |  |  |              |       |                              |       |   |  |

**aaa accounting subscriber**

This is an example of configuring the **aaa accounting subscriber** command for sgl 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**

| <b>Command</b>   | <b>Description</b>                            |
|--|---|
| <a href="#">aaa accounting system rp-failover, on page 7</a> | 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.    |
| <b>default</b>    | Specifies the default accounting list. |
| <b>start-stop</b> | Enables the start and stop records.    |
| <b>stop-only</b>  | Enables the stop records only.         |

## Command Default

None

## Command Modes

Global Configuration mode

## Command History

| Release | Modification                 |
|---------|------------------------------|
| 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,<br>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 } ]
```

|                           |  |   |
|---------------------------|--|---|
| <b>Syntax Description</b> |  |   |
| <i>format_name</i>        |  | Specifies the name of the format.   |
| <b>circuit-id</b>         |  | Specifies the construction of the AAA attribute format name for subscribers based on the circuit-ID.  |
| <b>format-string</b>      |  | 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.<br>For more information about the syntax for the router, use the question mark (?) online help function.  |
| <b>length</b>             |  | Specifies the length of the formatted attribute string.   |
| <i>length</i>             |  | Length of the formatted string, in integer.<br>The range is from 1 to 253.  |
| <b>mac-address</b>        |  | 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). |
| <b>remote-id</b>          |  | Specifies the construction of the AAA attribute format name for subscribers based on the remote-ID.   |
| <b>plus</b>               |  | Specifies the use of additional identifiers.  |
| <b>separator</b>          |  | Specifies the separator to be used between keys.  |
| <i>separator</i>          |  | Separator to be used between keys, default is a semicolon.  |
| <b>username-strip</b>     |  | 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.   |

|                         |   |  |
|-------------------------|---|--|
| <b>prefix-delimiter</b> | Enables prefix stripping and specifies the character that will be recognized as a prefix delimiter. |  |
| <b>suffix-delimiter</b> | Enables suffix stripping and specifies the character that will be recognized as a suffix delimiter. |  |
| <i>Delimiter</i>        | Suffix or prefix delimiter.   |  |
| <b>Command Default</b>  | None  |  |
| <b>Command Modes</b>    | Global Configuration mode   |  |
| <b>Command History</b>  | <b>Release</b>  | <b>Modification</b>  |
|                         | Release 4.2.0   | This command was introduced.   |
|                         | Release 4.2.1   | The support for <b>format-string</b> keyword was added.  |
|                         | Release 6.2.1   | Introduced support for a new MAC address format, <b>client-mac-address-custom1</b> , which is in 01.23.45.67.89.AB format.   |
|                         | Release 6.4.1   | Introduced support for <b>dhcpv6-client-id-enterprise-identifier</b> , <b>dhcpv6-vendor-class-spl</b> , <b>dhcpv4-client-id-spl</b> and <b>dhcpv4-vendor-class</b> as part of enabling AAA username formation using DHCP option 1 and option 16. |
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command.  |  |
| <b>Task ID</b>          | <b>Task ID</b>  | <b>Operation</b>   |
|                         | aaa   | read,<br>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:

**aaa attribute format**

```
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   |
|--|---|
| <a href="#">aaa accounting subscriber, on page 5</a> | 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}
```

| <b>Syntax Description</b> | <b>default</b>   | 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.  |                     |               |                              |               |   |  |
|                           | <b>group</b>   | Specifies the server-group.  |                     |               |                              |               |   |  |
|                           | <b>diameter</b>  | Specifies the list of all DIAMETER peers.  |                     |               |                              |               |   |  |
|                           | <b>radius</b>  | Specifies the list of all RADIUS hosts.  |                     |               |                              |               |   |  |
|                           | <i>server_group_name</i>   | Specifies the server group name.   |                     |               |                              |               |   |  |
| <b>Command Default</b>    | None   |  |                     |               |                              |               |   |  |
| <b>Command Modes</b>      | Global Configuration mode  |  |                     |               |                              |               |   |  |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th> <th><b>Modification</b></th> </tr> </thead> <tbody> <tr> <td>Release 4.2.0</td> <td>This command was introduced.</td> </tr> <tr> <td>Release 5.3.0</td> <td>The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG.</td> </tr> </tbody> </table> | <b>Release</b>   | <b>Modification</b> | Release 4.2.0 | This command was introduced. | Release 5.3.0 | The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG. |  |
| <b>Release</b>            | <b>Modification</b>  |  |                     |               |                              |               |   |  |
| Release 4.2.0             | This command was introduced.   |  |                     |               |                              |               |   |  |
| Release 5.3.0             | The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG.  |  |                     |               |                              |               |   |  |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.   |  |                     |               |                              |               |   |  |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th> <th><b>Operation</b></th> </tr> </thead> <tbody> <tr> <td>aaa</td> <td>read,<br/>write</td> </tr> </tbody> </table>  | <b>Task ID</b>   | <b>Operation</b>    | aaa           | read,<br>write               |               |   |  |
| <b>Task ID</b>            | <b>Operation</b>   |  |                     |               |                              |               |   |  |
| aaa                       | read,<br>write   |  |                     |               |                              |               |   |  |

This is an example of configuring the **aaa authentication subscriber** command in the Global Configuration mode:

**aaa authentication subscriber**

```
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                                  |
|--|--|
| <a href="#">aaa authorization subscriber, on page 15</a> | 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.     |
| <b>default</b>           | Specifies default list name for AAA authorization. |
| <b>group</b>             | Specifies the server-group.                        |
| <i>server-group-name</i> | Specifies the server-group name.                   |
| <b>diameter</b>          | Specifies the list of all DIAMETER peers.          |

## Command Default

None

## Command Modes

Global Configuration mode

## Command History

| Release | Modification                 |
|---------|------------------------------|
| 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,<br>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   |
|---|---|
| <a href="#">aaa authorization prepaid, on page 14</a> | Configures authorization lists for DIAMETER prepaid interface (Gy interface). |

**aaa authorization prepaid**

## 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}**

| <b>Syntax Description</b>   | <table border="0"> <tr> <td><i>list-name</i></td><td>Specifies the list name for AAA authorization.</td></tr> <tr> <td><b>default</b></td><td>Specifies default list name for AAA authorization.</td></tr> <tr> <td><b>group</b></td><td>Specifies the server-group.</td></tr> <tr> <td><i>server-group-name</i></td><td>Specifies the server-group name.</td></tr> <tr> <td><b>diameter</b></td><td>Specifies the list of all DIAMETER peers.</td></tr> </table> | <i>list-name</i> | Specifies the list name for AAA authorization. | <b>default</b>  | Specifies default list name for AAA authorization.                           | <b>group</b> | Specifies the server-group. | <i>server-group-name</i> | Specifies the server-group name. | <b>diameter</b> | Specifies the list of all DIAMETER peers. |
|---|---|------------------|--|---|--|--------------|-----------------------------|--------------------------|----------------------------------|-----------------|---|
| <i>list-name</i>  | Specifies the list name for AAA authorization.  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>default</b>  | Specifies default list name for AAA authorization.  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>group</b>  | Specifies the server-group.   |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <i>server-group-name</i>  | Specifies the server-group name.  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>diameter</b>   | Specifies the list of all DIAMETER peers.   |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>Command Default</b>  | None  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>Command Modes</b>  | Global Configuration mode   |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>Command History</b>  | <table border="0"> <thead> <tr> <th><b>Release</b></th> <th><b>Modification</b></th> </tr> </thead> <tbody> <tr> <td>Release 5.3.0</td><td>This command was introduced.</td></tr> </tbody> </table>   | <b>Release</b>   | <b>Modification</b>                            | Release 5.3.0   | This command was introduced.   |              |                             |                          |                                  |                 |   |
| <b>Release</b>  | <b>Modification</b>   |                  |  |   |  |              |                             |                          |                                  |                 |   |
| Release 5.3.0   | This command was introduced.  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>Task ID</b>  | <table border="0"> <thead> <tr> <th><b>Task ID</b></th> <th><b>Operation</b></th> </tr> </thead> <tbody> <tr> <td>aaa</td><td>read,<br/>write</td></tr> </tbody> </table>   | <b>Task ID</b>   | <b>Operation</b>                               | aaa   | read,<br>write   |              |                             |                          |                                  |                 |   |
| <b>Task ID</b>  | <b>Operation</b>  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| aaa   | read,<br>write  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| This example shows how to configure authorization lists for DIAMETER prepaid interface (Gy interface) in BNG: |   |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <pre>RP/0/RSP0/CPU0:router(config)# aaa authorization prepaid default group diameter</pre>                    |   |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <b>Related Commands</b>   | <table border="0"> <thead> <tr> <th><b>Command</b></th> <th><b>Description</b></th> </tr> </thead> <tbody> <tr> <td><a href="#">aaa authorization policy-intf, on page 13</a></td><td>Configures authorization lists for DIAMETER policy interface (Gx interface).</td></tr> </tbody> </table>  | <b>Command</b>   | <b>Description</b>                             | <a href="#">aaa authorization policy-intf, on page 13</a> | Configures authorization lists for DIAMETER policy interface (Gx interface). |              |                             |                          |                                  |                 |   |
| <b>Command</b>  | <b>Description</b>  |                  |  |   |  |              |                             |                          |                                  |                 |   |
| <a href="#">aaa authorization policy-intf, on page 13</a>   | 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}**

| <b>Syntax Description</b> | <b>default</b> Uses the listed authentication methods that follow this keyword as the default list of methods for authentication.<br><br><i>list-name</i> Represents the character string for the list name for AAA authorization.<br><br><b>group</b> Specifies the server-group.<br><br><b>diameter</b> Specifies the list of all DIAMETER peers.<br><br><b>radius</b> Specifies the list of all RADIUS hosts.<br><br><i>server_group_name</i> Specifies the server group name. |         |              |               |                              |               |   |
|---------------------------|---|---------|--------------|---------------|------------------------------|---------------|---|
| <b>Command Default</b>    | None  |         |              |               |                              |               |   |
| <b>Command Modes</b>      | Global Configuration mode   |         |              |               |                              |               |   |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 4.2.0</td> <td>This command was introduced.</td> </tr> <tr> <td>Release 5.3.0</td> <td>The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG.</td> </tr> </tbody> </table>  | Release | Modification | Release 4.2.0 | This command was introduced. | Release 5.3.0 | The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG. |
| Release                   | Modification  |         |              |               |                              |               |   |
| Release 4.2.0             | This command was introduced.  |         |              |               |                              |               |   |
| Release 5.3.0             | The <b>diameter</b> keyword was added for DIAMETER protocol support in BNG.   |         |              |               |                              |               |   |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |         |              |               |                              |               |   |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>aaa</td> <td>read,<br/>write</td> </tr> </tbody> </table>   | Task ID | Operation    | aaa           | read,<br>write               |               |   |
| Task ID                   | Operation   |         |              |               |                              |               |   |
| aaa                       | read,<br>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:

**aaa authorization subscriber**

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

**Related Commands**

| Command   | Description  |
|---|--|
| <a href="#">aaa authentication subscriber, on page 11</a> | 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***

| <b>Syntax Description</b> | <i>server-group-name</i> Specifies the server-group name.   |                |                     |               |                              |
|---------------------------|---|----------------|---------------------|---------------|------------------------------|
| <b>Command Default</b>    | None  |                |                     |               |                              |
| <b>Command Modes</b>      | Global Configuration mode   |                |                     |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th> <th><b>Modification</b></th> </tr> </thead> <tbody> <tr> <td>Release 5.3.0</td> <td>This command was introduced.</td> </tr> </tbody> </table> | <b>Release</b> | <b>Modification</b> | Release 5.3.0 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>   |                |                     |               |                              |
| Release 5.3.0             | This command was introduced.  |                |                     |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |                |                     |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th> <th><b>Operation</b></th> </tr> </thead> <tbody> <tr> <td>aaa</td> <td>read,<br/>write</td> </tr> </tbody> </table>                           | <b>Task ID</b> | <b>Operation</b>    | aaa           | read,<br>write               |
| <b>Task ID</b>            | <b>Operation</b>  |                |                     |               |                              |
| aaa                       | read,<br>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 sever_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.   |
| <b>accounting</b>        |  | Specifies a RADIUS attribute filter for accounting.   |
| <b>authorization</b>     |  | Specifies a RADIUS attribute filter for authorization.  |
| <b>deadtime</b>          |  | Specifies the time in minutes after which a RADIUS server will be marked up after it has gone dead.   |
| <b>load-balance</b>      |  | Specifies the radius load-balancing options.  |
| <b>server</b>            |  | Specifies the RADIUS server.<br>Accepts IP address (IPv4 and IPv6) or hostname of the RADIUS server. The hostname option is supported only for IPv4 domain address.       |
| <b>server-private</b>    |  | Specifies a private RADIUS server.<br>Accepts IP address (IPv4 and IPv6) or hostname of the RADIUS server. The hostname option is supported only for IPv4 domain address. |
| <b>source-interface</b>  |  | Specifies interface for source address in RADIUS packet.  |
| <b>throttle</b>          |  | Specifies RADIUS throttling options.  |
| <b>vrf</b>               |  | 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 <b>server</b> and <b>server-private</b> 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,<br>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

# 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

| <b>Syntax Description</b> | This command has no keywords or arguments.            |  |
|---------------------------|---|--|
| <b>Command Default</b>    | RADIUS-based Lawful Intercept feature is not enabled. |  |
| <b>Command Modes</b>      | Global Configuration mode                             |  |
| Command History           | Release   | Modification   |
|                           | Release<br>4.3.0                                      | This command was introduced.   |
|                           | Release<br>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 <b>asr9k-li-px.pie</b> . |

## Usage Guidelines

To use **aaa intercept** command, you must install and activate the **asr9k-li-px.pie**. 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,<br>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 or 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}}
```

| <b>Syntax Description</b> | <b>called-station-id</b>  | Specifies the AAA nas-port attribute.   |                |                     |               |                              |
|---------------------------|---|---|----------------|---------------------|---------------|------------------------------|
|                           | <b>calling-station-id</b>   | Specifies the AAA nas-port attribute.   |                |                     |               |                              |
|                           | <b>nas-port</b>   | Specifies the AAA nas-port attribute.   |                |                     |               |                              |
|                           | <b>nas-port-id</b>  | Specifies the AAA nas-port-id attribute.  |                |                     |               |                              |
|                           | <b>format</b>   | Specifies the AAA nas-port attribute format.  |                |                     |               |                              |
|                           | <b>e</b>  | Specifies the AAA format type.  |                |                     |               |                              |
|                           | <i>format_name</i>  | Specifies a 32 character string representing the format to be used.                               |                |                     |               |                              |
|                           | <b>type</b>   | 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. |                |                     |               |                              |
| <b>Command Default</b>    | None  |   |                |                     |               |                              |
| <b>Command Modes</b>      | Global Configuration mode   |   |                |                     |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th> <th><b>Modification</b></th> </tr> </thead> <tbody> <tr> <td>Release 4.2.0</td> <td>This command was introduced.</td> </tr> </tbody> </table> |   | <b>Release</b> | <b>Modification</b> | Release 4.2.0 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>   |   |                |                     |               |                              |
| Release 4.2.0             | This command was introduced.  |   |                |                     |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |   |                |                     |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th> <th><b>Operation</b></th> </tr> </thead> <tbody> <tr> <td>ip-services</td> <td>read,<br/>write</td> </tr> </tbody> </table>                   |   | <b>Task ID</b> | <b>Operation</b>    | ip-services   | read,<br>write               |
| <b>Task ID</b>            | <b>Operation</b>  |   |                |                     |               |                              |
| ip-services               | read,<br>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}]**

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | <b>extended</b> Sends extended service accounting records. |
|                           | <b>brief</b> Sends brief service accounting records.       |

|                        |  |
|------------------------|--|
| <b>Command Default</b> | The default setting is <b>extended</b> . |
|------------------------|--|

|                      |                           |
|----------------------|---------------------------|
| <b>Command Modes</b> | Global Configuration mode |
|----------------------|---------------------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 4.3.1  | This command was introduced. |

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

| <b>Task ID</b> | <b>Task ID</b> | <b>Operation</b> |
|----------------|----------------|------------------|
| aaa            | read,<br>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
```

| <b>Related Commands</b> | <b>Command</b>                                       | <b>Description</b>                                    |
|-------------------------|--|---|
|                         | <a href="#">aaa accounting subscriber, on page 5</a> | Creates an accounting list for subscriber accounting. |
|                         | <a href="#">aaa accounting service, on page 3</a>    | 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

|                    |  |
|--------------------|--|
| <b>session-key</b> | Specifies that the session-key could be ignored.   |
| <b>client</b>      | Represents the CoA client configuration.   |
| <i>hostname</i>    | Specifies the hostname (IPv4 address or domain or IPv6 address) of the CoA client.<br>IPv6 domain name is not supported. |
| <b>ignore</b>      | Specifies the ignore options.  |
| <b>port</b>        | Specifies the CoA server port to listen on.  |
| <b>server-key</b>  | 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.   |
| <b>0</b>           | Specifies that the unencrypted key will follow.  |
| <b>7</b>           | 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, <b>auth-key</b> and <b>ignore {session-key}</b> were removed.   |
| Release 5.3.1 | The command was modified to add IPv6 address support for <b>aaa server radius dynamic-author client</b> 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

```
aaa server radius dynamic-author
```

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 Operation ID |
|---------|-------------------|
| aaa     | read,<br>write    |

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

| Related Commands | Command                                       | Description                                |
|------------------|---|--|
|                  | <a href="#">show radius (BNG), on page 51</a> | Displays various RADIUS statistics.        |
|                  | <a href="#">show aaa trace, on page 49</a>    | 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

**value** The nas-port-type value for the interface or VLAN sub-interface.

The range is from 0 to 44.

**string** The nas-port-type name for the interface or VLAN sub-interface.

## Command Default

None

## Command Modes

Interface or VLAN sub-interface configuration

## Command History

### Release      Modification

Release      This command was  
4.3.1            introduced.

## Usage Guidelines

The permissible values for nas-port-type within the given range are 0 - 6, 9, 15 and 30 - 44.

## Task ID

### Task      Operation ID

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  |
|--|--|
| <a href="#">aaa radius attribute, on page 21</a> | 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

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

| <b>Release</b> | <b>Modification</b> |
|----------------|---------------------|
|----------------|---------------------|

|               |                              |
|---------------|------------------------------|
| Release 4.2.0 | This command was introduced. |
|---------------|------------------------------|

## Usage Guidelines

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

## Task ID

| <b>Task ID</b>  | <b>Operation</b> |
|-----------------|------------------|
| config-services | read,<br>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 11 type session periodic-interval 456
```

| Related Commands | Command  | Description                                      |
|------------------|--|--|
|                  | <a href="#">dynamic-template</a>                   | Enables the dynamic template configuration mode. |
|                  | <a href="#">dynamic-template type ppp</a>          | Enables the ppp dynamic template type.           |
|                  | <a href="#">dynamic-template type ipsubscriber</a> | Enables the ipsubscriber dynamic template type.  |

accounting aaa list type service

# 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]**

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

| <b>Command Default</b>  | None  |         |              |               |                              |
|-------------------------|---|---------|--------------|---------------|------------------------------|
| <b>Command Modes</b>    | Dynamic template configuration  |         |              |               |                              |
| <b>Command History</b>  | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 4.3.1</td> <td>This command was introduced.</td> </tr> </tbody> </table> | Release | Modification | Release 4.3.1 | This command was introduced. |
| Release                 | Modification  |         |              |               |                              |
| Release 4.3.1           | This command was introduced.  |         |              |               |                              |
| <b>Usage Guidelines</b> | Use the <b>dynamic-template</b> command to enter dynamic template configuration mode.   |         |              |               |                              |

|                |                 |                  |
|----------------|-----------------|------------------|
| <b>Task ID</b> | <b>Task ID</b>  | <b>Operation</b> |
|                | config-services | read,<br>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
```

| <b>Related Commands</b> | <b>Command</b>                                | <b>Description</b>  |
|-------------------------|---|---|
|                         | <a href="#">dynamic-template</a>              | Enables the dynamic template configuration mode.                            |
|                         | <a href="#">dynamic-template type service</a> | 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 |                            |  |
|--------------------|----------------------------|--|
|                    | <b>name</b>                | Prepaid configuration name or default.   |
|                    | <b>method-list</b>         | Specifies method list configuration.   |
|                    | <b>authorization</b>       | Specifies authorization method list.   |
|                    | <i>list-name</i>           | Name of the authorization method list.   |
|                    | <b>password</b>            | Specifies the password to be used when placing prepaid authorization or re-authorization requests. |
|                    | <i>password</i>            | Password string.   |
|                    | <b>quota-holding time</b>  | Specifies quota holding time.  |
|                    | <b>quota-validity time</b> | Specifies quota validity time.   |
|                    | <i>quota-holding-time</i>  | Quota holding time, in seconds.<br>The range is from 0 to 99000; the default is 100.               |
|                    | <i>quota-validity-time</i> | Quota validity time, in seconds.<br>The range is from 0 to 99000; the default is 50.               |
|                    | <b>threshold</b>           | Specifies the threshold configuration for prepaid feature.   |
|                    | <b>time</b>                | Specifies the time threshold.  |
|                    | <i>time-threshold</i>      | Time threshold, in seconds.<br>The range is 0 to 4294967295; the default is 100.                   |
|                    | <b>volume</b>              | Specifies the volume threshold.  |

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

| <b>Command Default</b>  | None  |                |                     |                 |                              |
|-------------------------|---|----------------|---------------------|-----------------|------------------------------|
| <b>Command Modes</b>    | Subscriber configuration  |                |                     |                 |                              |
| <b>Command History</b>  | <table border="1"> <thead> <tr> <th><b>Release</b></th> <th><b>Modification</b></th> </tr> </thead> <tbody> <tr> <td>Release 5.3.0</td> <td>This command was introduced.</td> </tr> </tbody> </table> | <b>Release</b> | <b>Modification</b> | Release 5.3.0   | This command was introduced. |
| <b>Release</b>          | <b>Modification</b>   |                |                     |                 |                              |
| Release 5.3.0           | This command was introduced.  |                |                     |                 |                              |
| <b>Usage Guidelines</b> | To configure the authorization method list, the accounting network name must already be created using <b>aaa accounting network</b> command in global configuration mode.                             |                |                     |                 |                              |
| <b>Task ID</b>          | <table border="1"> <thead> <tr> <th><b>Task ID</b></th> <th><b>Operation</b></th> </tr> </thead> <tbody> <tr> <td>config-services</td> <td>read,<br/>write</td> </tr> </tbody> </table>               | <b>Task ID</b> | <b>Operation</b>    | config-services | read,<br>write               |
| <b>Task ID</b>          | <b>Operation</b>  |                |                     |                 |                              |
| config-services         | read,<br>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*}]**

| <b>Syntax Description</b> | <p><b>list</b> Specifies a list of attributes that are used in conjunction with server-groups to accept or reject a list of attributes.</p> <p><b><i>list_name</i></b> Specifies the list name.</p> <p><b>attribute</b> Specifies a list of Radius attributes.</p> <p><b><i>list</i></b> Specifies the list of comma-delimited Radius attributes.</p> <p><b>vendor-id</b> Specifies the vendor-id of the RADIUS attribute.</p> <p><b><i>value</i></b> Specifies the vendor-id value. The value ranges from 0 to 429496729.</p> |                |                     |               |                              |
|---------------------------|--|----------------|---------------------|---------------|------------------------------|
| <b>Command Default</b>    | None   |                |                     |               |                              |
| <b>Command Modes</b>      | Global Configuration mode  |                |                     |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th><th><b>Modification</b></th></tr> </thead> <tbody> <tr> <td>Release 4.2.0</td><td>This command was introduced.</td></tr> </tbody> </table>  | <b>Release</b> | <b>Modification</b> | Release 4.2.0 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>  |                |                     |               |                              |
| Release 4.2.0             | This command was introduced.   |                |                     |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.   |                |                     |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th><th><b>Operations</b></th></tr> </thead> <tbody> <tr> <td>aaa</td><td>read,<br/>write</td></tr> </tbody> </table>   | <b>Task ID</b> | <b>Operations</b>   | aaa           | read,<br>write               |
| <b>Task ID</b>            | <b>Operations</b>  |                |                     |               |                              |
| aaa                       | read,<br>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**

## 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**

| <b>Syntax Description</b> | This command has no keywords or arguments.  |  |         |              |                   |                              |
|---------------------------|---|--|---------|--------------|-------------------|------------------------------|
| <b>Command Default</b>    | RADIUS filter-ID attribute is applied by default in the output direction of the corresponding subscriber interface.   |  |         |              |                   |                              |
| <b>Command Modes</b>      | Global Configuration mode   |  |         |              |                   |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 5.3.2</td> <td>This command was introduced.</td> </tr> </tbody> </table> |  | Release | Modification | Release 5.3.2     | This command was introduced. |
| Release                   | Modification  |  |         |              |                   |                              |
| Release 5.3.2             | This command was introduced.  |  |         |              |                   |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |  |         |              |                   |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>ethernet-services</td> <td>read,<br/>write</td> </tr> </tbody> </table>             |  | Task ID | Operation    | ethernet-services | read,<br>write               |
| Task ID                   | Operation   |  |         |              |                   |                              |
| ethernet-services         | read,<br>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}**

| <b>Syntax Description</b> | <b>time</b> Specifies the minimum time that must elapse since a response was received from this RADIUS server.<br><b>value</b> Specifies the time in seconds. The value ranges from 1 to 120.<br><b>tries</b> Specifies the minimum number of transmissions (original attempts plus retransmits) to this RADIUS server.<br><b>number_of_tries</b> Specifies the number of tries. The range is from 1 to 100. |                |                     |       |                              |
|---------------------------|--|----------------|---------------------|-------|------------------------------|
| <b>Command Default</b>    | None   |                |                     |       |                              |
| <b>Command Modes</b>      | Global Configuration mode  |                |                     |       |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th><th><b>Modification</b></th></tr> </thead> <tbody> <tr> <td>4.2.0</td><td>This command was introduced.</td></tr> </tbody> </table>  | <b>Release</b> | <b>Modification</b> | 4.2.0 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>  |                |                     |       |                              |
| 4.2.0                     | This command was introduced.   |                |                     |       |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.   |                |                     |       |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th><th><b>Operations</b></th></tr> </thead> <tbody> <tr> <td>aaa</td><td>read,<br/>write</td></tr> </tbody> </table>   | <b>Task ID</b> | <b>Operations</b>   | aaa   | read,<br>write               |
| <b>Task ID</b>            | <b>Operations</b>  |                |                     |       |                              |
| aaa                       | read,<br>write   |                |                     |       |                              |
| <b>Examples</b>           | <p>This is an example of configuring the <b>radius-server dead-criteria</b> command with 100s time and 34 tries:</p> <pre>RP/0/RSP0/CPU0:router(config)#radius-server dead-criteria time 100 RP/0/RSP0/CPU0:router(config)#radius-server dead-criteria tries 34</pre>  |                |                     |       |                              |

radius-server deadtime(BNG)

# 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**

---

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | <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. |
|---------------------------|--|

---

|                        |                        |
|------------------------|------------------------|
| <b>Command Default</b> | Dead time is set to 0. |
|------------------------|------------------------|

|                      |                           |
|----------------------|---------------------------|
| <b>Command Modes</b> | Global Configuration mode |
|----------------------|---------------------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 3.7.2  | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | 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. |
|-------------------------|--|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operations</b> |
|----------------|----------------|-------------------|
|                | aaa            | read,<br>write    |

|                 |  |
|-----------------|--|
| <b>Examples</b> | The following example specifies five minutes of deadtime for RADIUS servers that fail to respond to authentication requests for the <b>radius-server deadtime</b> command: |
|-----------------|--|

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

**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,<br>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)

# 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 | <p><b>ip-address</b> IP address of the RADIUS server host.</p> <p><b>auth-port port-number</b> (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.</p> <p><b>acct-port port-number</b> (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.</p> <p><b>timeout seconds</b> (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 <b>radius-server timeout</b> 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.</p> <p><b>retransmit retries</b> (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 <b>radius-server retransmit</b> 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.</p> <p><b>key string</b> (Optional) Specifies the authentication and encryption key used between the router and the RADIUS server. This key overrides the global setting of the <b>radius-server key</b> 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 <b>radius-server host</b> 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 <b>radius-server</b> command values.   |         |              |               |                              |               |                                    |               |  |
| Command Modes      | Global Configuration mode  |         |              |               |                              |               |                                    |               |  |
| Command History    | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <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> </tbody> </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,<br>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  |
|------------------|---|--|
|                  | <a href="#">aaa accounting subscriber</a>                 | Creates a method list for accounting.  |
|                  | <a href="#">aaa authentication subscriber</a>             | Creates a method list for authentication.  |
|                  | <a href="#">aaa authorization subscriber</a>              | Creates a method list for authorization.   |
|                  | <a href="#">radius-server key(BNG), on page 39</a>        | Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon. |
|                  | <a href="#">radius-server retransmit(BNG), on page 42</a> | Specifies how many times Cisco IOS XR software retransmits packets to a server before giving up.                   |
|                  | <a href="#">radius-server timeout(BNG), on page 44</a>    | Sets the interval a router waits for a server host to reply.   |

**radius-server ipv4 dscp**

## 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**

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

|                        |      |
|------------------------|------|
| <b>Command Default</b> | None |
|------------------------|------|

|                      |                           |
|----------------------|---------------------------|
| <b>Command Modes</b> | Global Configuration mode |
|----------------------|---------------------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 4.2.0  | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command. |
|-------------------------|--|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operations</b> |
|----------------|----------------|-------------------|
|                | aaa            | read,<br>write    |

|                 |  |
|-----------------|--|
| <b>Examples</b> | This is an example of configuring the <b>radius-server ipv4 dscp</b> 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}**

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

**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 | Task ID | Operations     |
|---------|---------|----------------|
|         | aaa     | read,<br>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
```

**radius-server key(BNG)**

| 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. |
|                  | <a href="#">server-private (RADIUS)</a> | 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]**

| <b>Syntax Description</b> | <b>method</b> Specifies the method by which the next host will be picked.<br><b>least-outstanding</b> Picks the server with the least transactions outstanding.<br><b>batch-size</b> Specifies the batch size for the selection of the server.<br><b>value</b> Specifies the batch size value. The value ranges from 1 to 1500. The default is 25.<br><b>ignore-preferred-server</b> Disables the preferred server for this server group. |                |                     |               |                              |
|---------------------------|---|----------------|---------------------|---------------|------------------------------|
| <b>Command Default</b>    | None  |                |                     |               |                              |
| <b>Command Modes</b>      | Global Configuration mode   |                |                     |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th><th><b>Modification</b></th></tr> </thead> <tbody> <tr> <td>Release 4.2.0</td><td>This command was introduced.</td></tr> </tbody> </table>   | <b>Release</b> | <b>Modification</b> | Release 4.2.0 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>   |                |                     |               |                              |
| Release 4.2.0             | This command was introduced.  |                |                     |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |                |                     |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th><th><b>Operations</b></th></tr> </thead> <tbody> <tr> <td>aaa</td><td>read,<br/>write</td></tr> </tbody> </table>  | <b>Task ID</b> | <b>Operations</b>   | aaa           | read,<br>write               |
| <b>Task ID</b>            | <b>Operations</b>   |                |                     |               |                              |
| aaa                       | read,<br>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**

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

|                        |  |
|------------------------|--|
| <b>Command Default</b> | The RADIUS servers are retried three times, or until a response is received. |
|------------------------|--|

|                      |                           |
|----------------------|---------------------------|
| <b>Command Modes</b> | Global Configuration mode |
|----------------------|---------------------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 3.7.2  | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | The RADIUS client tries all servers, allowing each one to time out before increasing the retransmit count. |
|-------------------------|--|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operations</b> |
|----------------|----------------|-------------------|
|                | aaa            | read,<br>write    |

|                 |  |
|-----------------|--|
| <b>Examples</b> | 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
```

| <b>Related Commands</b> | <b>Command</b>                                     | <b>Description</b>  |
|-------------------------|--|---|
|                         | <a href="#">radius-server key(BNG), on page 39</a> | Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon.            |
|                         | <a href="#">retransmit (RADIUS)</a>                | Specifies the number of times a RADIUS request is resent to a server if the server is not responding or is responding slowly. |
|                         | <a href="#">server-private (RADIUS)</a>            | 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**

|                           |   |                              |
|---------------------------|---|------------------------------|
| <b>Syntax Description</b> | <b>extended</b> Specifies that the source-port can be extended to 50.   |                              |
| <b>Command Default</b>    | None  |                              |
| <b>Command Modes</b>      | Global Configuration mode   |                              |
| <b>Command History</b>    | <b>Release</b>  | <b>Modification</b>          |
|                           | Release 4.2.0   | This command was introduced. |
| <b>Usage Guidelines</b>   | 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. |                              |
| <b>Task ID</b>            | <b>Task ID</b>  | <b>Operations</b>            |
|                           | aaa   | read,<br>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)

# 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***

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

|                        |           |
|------------------------|-----------|
| <b>Command Default</b> | 5 seconds |
|------------------------|-----------|

|                      |                           |
|----------------------|---------------------------|
| <b>Command Modes</b> | Global Configuration mode |
|----------------------|---------------------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 3.7.2  | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | Use the <b>radius-server timeout</b> command to set the number of seconds a router waits for a server host to reply before timing out. |
|-------------------------|--|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operations</b> |
|----------------|----------------|-------------------|
|                | aaa            | read,<br>write    |

|                 |   |
|-----------------|---|
| <b>Examples</b> | 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
```

| <b>Related Commands</b> | <b>Command</b>                                     | <b>Description</b>   |
|-------------------------|--|--|
|                         | <a href="#">radius-server key(BNG), on page 39</a> | Sets the authentication and encryption key for all RADIUS communications between the router and the RADIUS daemon. |
|                         | <a href="#">server-private (RADIUS)</a>            | Configures the IP address of the private RADIUS server for the group server.                                       |
|                         | <a href="#">timeout (RADIUS)</a>                   | 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,<br>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}
```

| <b>Syntax Description</b> | <b>access</b> Controls the number of access requests sent to a radius server.<br><b>value</b> 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.<br><b>access-timeout</b> Specifies the number of timeouts exceeding which a throttled access request is dropped.<br><b>time</b> Specifies the number of timeouts for a transaction. The default value is 3.<br><b>accounting</b> Controls the number of accounting requests sent to a radius server.<br><b>acc_value</b> 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. |                |                     |               |                              |
|---------------------------|--|----------------|---------------------|---------------|------------------------------|
| <b>Command Default</b>    | None   |                |                     |               |                              |
| <b>Command Modes</b>      | Global Configuration mode  |                |                     |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th><th><b>Modification</b></th></tr> </thead> <tbody> <tr> <td>Release 4.2.1</td><td>This command was introduced.</td></tr> </tbody> </table>  | <b>Release</b> | <b>Modification</b> | Release 4.2.1 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>  |                |                     |               |                              |
| Release 4.2.1             | This command was introduced.   |                |                     |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.   |                |                     |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th><th><b>Operation</b></th></tr> </thead> <tbody> <tr> <td>aaa</td><td>read,<br/>write</td></tr> </tbody> </table>  | <b>Task ID</b> | <b>Operation</b>    | aaa           | read,<br>write               |
| <b>Task ID</b>            | <b>Operation</b>   |                |                     |               |                              |
| aaa                       | read,<br>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

*interface-name* Name of the interface that RADIUS uses for all of its outgoing packets.

**vrf** *vrf-id* 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.

## Usage Guidelines

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      Operations ID

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
```

**radius source-interface(BNG)**

| Related Commands | Command  | Description  |
|------------------|--|--|
|                  | <a href="#">aaa group server tacacs+</a>           | Groups different RADIUS server hosts into distinct lists.  |
|                  | <a href="#">radius-server key(BNG), on page 39</a> | 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}]
```

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

|                        |      |
|------------------------|------|
| <b>Command Default</b> | None |
|------------------------|------|

|                      |           |
|----------------------|-----------|
| <b>Command Modes</b> | EXEC mode |
|----------------------|-----------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 4.2.0  | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command. |
|-------------------------|--|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operation</b> |
|----------------|----------------|------------------|
|                | aaa            | read             |

**show aaa trace**

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}]**

| <b>Syntax Description</b> | <b>accounting</b> Displays the RADIUS accounting data.<br><b>authentication</b> Displays the RADIUS authentication data.<br><b>dead-criteria</b> Displays the RADIUS dead-server detection criteria.<br><b>double-dip</b> Displays the RADIUS double-dip data.<br><b>location</b> Specifies the RADIUS instance location.<br><b>server-groups</b> Displays the RADIUS server group information.<br>  Displays the output modifiers. |                |                     |               |                              |
|---------------------------|---|----------------|---------------------|---------------|------------------------------|
| <b>Command Default</b>    | None  |                |                     |               |                              |
| <b>Command Modes</b>      | EXEC mode   |                |                     |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th> <th><b>Modification</b></th> </tr> </thead> <tbody> <tr> <td>Release 4.2.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>   | <b>Release</b> | <b>Modification</b> | Release 4.2.0 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>   |                |                     |               |                              |
| Release 4.2.0             | This command was introduced.  |                |                     |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |                |                     |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th> <th><b>Operation</b></th> </tr> </thead> <tbody> <tr> <td>aaa</td> <td>read</td> </tr> </tbody> </table>  | <b>Task ID</b> | <b>Operation</b>    | aaa           | read                         |
| <b>Task ID</b>            | <b>Operation</b>  |                |                     |               |                              |
| aaa                       | read  |                |                     |               |                              |

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

```
RP/0/RSP0/CPU0:router#show radius | file tftp: vrf vrfl1 |
```

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:

```

**show radius (BNG)**

```

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**

# 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**

| <b>Syntax Description</b> | <i>server_group_name</i> Specifies the name of the RADIUS server group.   |         |              |               |                              |
|---------------------------|---|---------|--------------|---------------|------------------------------|
| <b>Command Default</b>    | None  |         |              |               |                              |
| <b>Command Modes</b>      | EXEC mode   |         |              |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 4.2.0</td> <td>This command was introduced.</td> </tr> </tbody> </table> | Release | Modification | Release 4.2.0 | This command was introduced. |
| Release                   | Modification  |         |              |               |                              |
| Release 4.2.0             | This command was introduced.  |         |              |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |         |              |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>aaa</td> <td>read</td> </tr> </tbody> </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**

# 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.

## how subscriber database configuration brief service-profile

| <b>Command Default</b>  | None  |         |              |       |                              |
|---|---|---------|--------------|-------|------------------------------|
| <b>Command Modes</b>  | Global Configuration Mode   |         |              |       |                              |
| <b>Command History</b>  | <table border="1"> <thead> <tr> <th>Release</th><th>Modification</th></tr> </thead> <tbody> <tr> <td>6.6.3</td><td>This command was introduced.</td></tr> </tbody> </table> | Release | Modification | 6.6.3 | This command was introduced. |
| Release   | Modification  |         |              |       |                              |
| 6.6.3   | This command was introduced.  |         |              |       |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |         |              |       |                              |
| <p>This example displays a list of downloaded service profile in cache:</p> <pre>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</pre> |   |         |              |       |                              |

# 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}**

| <b>Syntax Description</b> | <b>period</b> Collection period in seconds. The range is from 30 to 3600. The default is 900.<br><br><b>disable</b> Disables periodic statistics collection.                                      |                |                     |               |                              |
|---------------------------|---|----------------|---------------------|---------------|------------------------------|
| <b>Command Default</b>    | Default collection period is 900 seconds.   |                |                     |               |                              |
| <b>Command Modes</b>      | Global Configuration mode   |                |                     |               |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th><b>Release</b></th><th><b>Modification</b></th></tr> </thead> <tbody> <tr> <td>Release 4.3.1</td><td>This command was introduced.</td></tr> </tbody> </table> | <b>Release</b> | <b>Modification</b> | Release 4.3.1 | This command was introduced. |
| <b>Release</b>            | <b>Modification</b>   |                |                     |               |                              |
| Release 4.3.1             | This command was introduced.  |                |                     |               |                              |
| <b>Usage Guidelines</b>   | No specific guidelines impact the use of this command.  |                |                     |               |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th><b>Task ID</b></th><th><b>Operation</b></th></tr> </thead> <tbody> <tr> <td>diag</td><td>read,<br/>write</td></tr> </tbody> </table>                          | <b>Task ID</b> | <b>Operation</b>    | diag          | read,<br>write               |
| <b>Task ID</b>            | <b>Operation</b>  |                |                     |               |                              |
| diag                      | read,<br>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
```

| <b>Related Commands</b> | <b>Command</b>                                       | <b>Description</b>                                    |
|-------------------------|--|---|
|                         | <a href="#">aaa accounting subscriber, on page 5</a> | Creates an accounting list for subscriber accounting. |
|                         | <a href="#">aaa accounting service, on page 3</a>    | Creates an accounting list for service accounting.    |

statistics period service-accounting