



Cisco IOS Access Node Control Protocol Command Reference

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Introduction

Access Node Control Protocol (ANCP) is a Cisco IOS software feature set that provides a transport protocol that can be used to deliver information for any application, while remaining independent from the application. ANCP is used in the application between digital subscriber line access multiplexers (DSLAMs) and the broadband remote access server (BRAS) in a DSL broadband environment.

ANCP enables close communication between DSL aggregation modems (for example, DSLAMs) and network edge devices. Using ANCP between DSLAMs and a BRAS enables the two ends to exchange events, actions, and information requests so that the appropriate actions occur on either end.

The *Cisco IOS Access Node Control Protocol Command Reference* describes the commands that can be used to configure ANCP functionality.

For more information about ANCP, including configuration procedures and examples, refer to the [Cisco IOS Access Node Control Protocol Configuration Guide](#).



Cisco IOS Access Node Control Protocol Commands

aaa connect-info

To configure connection information (RADIUS attribute 77) as the identifier at either the ATM virtual circuit or Gigabit Ethernet subinterface level, use the **aaa connect-info** command in the appropriate mode. To deconfigure RADIUS attribute 77 as the identifier, use the **no** form of this command.

aaa connect-info *string*

no aaa connect-info *string*

ATM

no aaa connect-info

Syntax Description

<i>string</i>	ASCII string of up to 64 characters that specifies the connection information sent through attribute 77.
---------------	--

Command Default

No connection information is configured.

Command Modes

Gigabit Ethernet Subinterface configuration (config-subif)
 ATM PVC configuration (config-if-atm)
 ATM PVC range configuration (config-if-atm-range)
 ATM PVC-in-range configuration (cfg-if-atm-range-pvc)
 ATM VC-Class configuration (config-vc-class)

Command History

Release	Modification
12.2(31)ZV0d	This command was introduced on the Cisco IOS 10000 series router.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

Specify characteristics of the subscriber in the command's *string* argument to easily identify policy information for a connection. For example:

```
aaa connect-info subscriber_specific_info
```

The router rejects the command if the string exceeds 64 characters.

Examples

This example shows the configuration of the connect-info (RADIUS Attribute 77) as the identifier under a Gigabit Ethernet subinterface. The string indicates that the connection speed is 25100 Kbps.

```
Router(config)# interface GigabitEthernet4/1/0.2
Router(config-subif)# aaa connect-info speed25100
```

The following examples show how to configure the **aaa connect-info** command in the configuration modes indicated:

ATM PVC Configuration Mode

```
interface atm1/0.1 point-to-point
  pvc 2/200
    aaa connect-info speed:ubr:2303:224:10:isp-specific-desc
```

ATM PVC Range Configuration Mode

```
interface atm 1/0
  range pvc 2/45 2/47
    aaa connect-info speed:ubr:2303:224:10:isp-specific-desc
```

ATM PVC-in-Range Configuration Mode

```
interface atm 1/0
  range pvc 2/25 2/27
    pvc-in-range 2/46
    aaa connect-info speed:ubr:2303:224:10:isp-specific-desc
```

ATM VC Class Configuration Mode

```
vc-class atm conninfo
  aaa connect-info speed:ubr:2303:224:10:isp-specific-desc
interface atm 1/0
  pvc 1/10
    class-vc conninfo
```

Related Commands

Command	Description
aaa description-attribute-77	Specifies connection information, which the router copies to attribute 77.
class-vc	Specifies a VC class, which the router copies to attribute 77.
service-policy	Specifies a service policy to be applied to an interface, subinterface, or PVC. To customize attribute 77 for Ethernet connections, enter the connection information as the name of the service policy attached to the Ethernet subinterface. The router takes the policy name and copies it to attribute 77.
show atm class-links	Displays the inheritance level at which the aaa connect-info command is configured.
show atm pvc	Displays the connect-info string, when configured.

ancp adjacency timer

To set the interval between Access Node Control Protocol (ANCP) hello messages, use the **ancp adjacency timer** command in global configuration mode. To restore the default interval, use the **no** form of this command.

ancp adjacency timer *interval*

no ancp adjacency timer *interval*

Syntax Description

<i>interval</i>	Length of time between ANCP hello messages to ANCP neighbors. The interval is defined in units of 100 ms. Valid values are from 1 to 255. Default: 100 (10 seconds).
-----------------	--

Command Default

The interval is 100 ms (10 seconds).

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(28)ZV	This command was introduced and implemented on the Cisco 10000 series router.
12.2(31)ZV1	This command was modified for ANCP, replacing L2CP.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Examples

The following example shows how to set the interval between ANCP hello messages from the BRAS to the ANCP access node neighbor identified as dslam1. This example sets the interval to 200 ms.

```
ancp neighbor id dslam1
  ancp adjacency timer 200
```

Related Commands

Command	Description
ancp enable	Enables ANCP.
ancp neighbor	Specifies the ANCP access node (DSLAM) neighbor.
ancp atm shaper	Enables ANCP cell tax accounting for ATM U-interface connections.

ancp atm shaper

To enable Access Node Control Protocol (ANCP) cell tax accounting for ATM U-interface connections, use the **ancp atm shaper** command in global configuration mode. To disable ANCP cell tax accounting, use the **no** form of this command.

ancp atm shaper percent-factor *factor*

no ancp atm shaper percent-factor *factor*

Syntax Description	percent-factor	Keyword that indicates to adjust the selected downstream shaping rate by multiplying it by the specified <i>factor</i> .
	<i>factor</i>	The percentage by which the selected downstream shaping rate is multiplied. Valid values are from 1 to 100. The resulting shaping rate is applied to the terminating interface for subscriber links.

Command Default ANCP cell tax accounting is disabled.

Command Modes Global configuration (config)

Command History	Release	Modification
	12.2(28)ZV	This command was introduced and implemented on the Cisco 10000 series router.
	12.2(31)ZV1	This command was modified for ANCP, replacing L2CP.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines The router checks the ANCP dsl-type to enable adjustment to the downstream shaping rate. The dsl-types 1, 2, and 3 correspond to the asymmetric digital subscriber line (ADSL) standards that are used in ATM. If ATM is specified in the client-ID, the router looks for dsl-type 1, 2, 3 before the router applies the shaper.

Examples The following example shows how to enable ANCP cell tax accounting using a shaping factor of 95 percent.

```
Router (config)# ancp atm shaper percent-factor 95
```

Related Commands

Command	Description
ancp adjacency timer	Specifies the interval between ANCP hello messages.
ancp enable	Enables ANCP.
ancp neighbor	Specifies the ANCP access node neighbor (DSLAM).

ancp enable

To enable Access Network Control Protocol (ANCP) on an IP-enabled interface, use the **ancp enable** command in ATM virtual circuit configuration or interface configuration mode. To disable ANCP, use the **no** form of this command.

ancp enable [**neighbor** *neighbor-name*]

no ancp enable

Syntax Description	neighbor	(Optional) Associates a session with a digital subscriber line access multiplexer (DSLAM) neighbor.
	<i>neighbor-name</i>	(Optional) Name of the DSLAM neighbor.

Command Default ANCP is disabled.

Command Modes ATM virtual circuit configuration (config-if-atm-vc)
Interface configuration (config-if)

Command History	Release	Modification
	12.2(28)ZV	This command was introduced on the Cisco 10000 series router.
	12.2(31)ZV1	This command was modified. Layer 2 Control Protocol (L2CP) was replaced with ANCP.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.
	Cisco IOS XE Release 3.2S	This command was modified. The neighbor keyword and <i>neighbor-name</i> argument were added.

Usage Guidelines You must configure the **ancp enable** command on an interface on which IP is configured. Do not configure the **ancp enable** command prior to configuring all the **ancp neighbor** commands because the access node connecting to the broadband remote access server (BRAS) (where **ancp enable** is configured) relays ANCP Port UP events related to the interfaces. If the **ancp neighbor** command is not configured for an interface, the client ID in the ANCP Port UP event is not matched, and the message is discarded.

Examples The following example shows how to enable ANCP on Gigabit Ethernet interface 1/0/1:

```
interface GigabitEthernet1/0/1
 ip address 10.0.75.123 255.255.255.0
 ancp enable
```

■ **ancp enable****Related Commands**

Command	Description
ancp adjacency timer	Specifies the interval between ANCP hello messages.
ancp atm shaper	Enables ANCP cell tax accounting for ATM U-interface connections.
ancp neighbor	Specifies the ANCP access node neighbor (DSLAM).

ancp enable test-configuration

To enable Access Network Control Protocol (ANCP) test configuration, use the **ancp enable test-configuration** command in global configuration mode. To disable the test configuration, use the **no** form of this command.

ancp enable test-configuration

no ancp enable test-configuration

Syntax Description This command has no arguments or keywords.

Command Default ANCP test configuration is disabled.

Command Modes Global configuration (config)

Command History	Release	Modification
	Cisco IOS XE Release 2.4	This command was introduced.

Usage Guidelines Use the **ancp test-configuration** command when you need to test the digital subscriber line (DSL) line rates and the actual upstream and downstream data rates.

Examples The following example shows how to enable ANCP test configuration:

```
Router# configure terminal
Router(config)# ancp enable test-configuration
```

Related Commands	Command	Description
	ancp enable	Enables ANCP on an IP-enabled interface.
	ancp neighbor	Specifies the ANCP access node neighbor (DSLAM).

ancp neighbor

To define an Access Node Control Protocol (ANCP) neighbor when configuring port mapping between a digital subscriber line access multiplexer (DSLAM) and broadband remote access server (BRAS), use the **ancp neighbor** command in ATM PVC range configuration, ATM virtual circuit configuration, global configuration, or subinterface configuration mode. To remove the ANCP neighbor, use the **no** form of this command.

```
ancp neighbor name dslam-name [id dslam-id] client-id client-id
```

```
no ancp neighbor name dslam-name [id dslam-id] client-id client-id
```

Syntax Description

name <i>dslam-name</i>	Name of the DSLAM neighbor.
id <i>dslam-id</i>	(Optional) Identifier for the DSLAM neighbor, such as the IP address of the DSLAM. This keyword and argument are required when using this command in global configuration mode.
client-id <i>client-id</i>	Access loop circuit ID for the customer premises equipment (CPE) client of the DSLAM. This keyword and argument are not supported in global configuration mode. The <i>client-id</i> value must be enclosed in quotation marks (""). See the "Usage Guidelines" section for more information.

Command Default

No ports are mapped.

Command Modes

ATM PVC range configuration (config-if-atm-range-pvc)
 ATM virtual circuit configuration (config-if-atm-vc)
 Global configuration (config)
 Subinterface configuration (config-subif)

Command History

Release	Modification
12.2(28)ZV	This command was introduced on the Cisco 10000 series router.
12.2(31)ZV1	This command was modified for ANCP, replacing L2CP.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

Use the **ancp neighbor** command when mapping ports between DSL aggregation modems (for example, DSLAMs) and network edge devices in DSL broadband environments. In global configuration mode, this command enters ANCP mapping configuration mode and allows you to group access-node port clients for the DSLAM neighbor and configure access-node port client-to-BRAS port mappings.

The *client-id* is the access-loop circuit-id for the CPE client of the DSLAM. The *client-id* has a defined format consisting of an access-node-identifier and line information. The syntax of the *client-id* is shown below, depending on whether the line is ATM or Ethernet:

```
"access-node-identifier atm slot/module/port.subinterface:vpi.vci"
```

```
"access-node-identifier ethernet slot/module/port.subinterface[:vlan-id]"
```

<i>"access-node-identifier</i>	Uniquely identifies the access node in the access network. The <i>access-node-identifier</i> can be the IP address of the DSLAM. The quotation mark (") is required.
atm	The portion of the CPE client circuit-id that specifies ATM as the line.
<i>slot/module/port.subinterface</i>	The portion of the CPE client circuit-id that uniquely identifies the line on the access node.
<i>:vpi.vci"</i>	Virtual path identifier (VPI) and virtual channel identifier (VCI) that uniquely identifies the line on the access node. The quotation mark (") is required.
ethernet	The portion of the CPE client circuit-id that specifies Ethernet as the line.
<i>:vlan-id"</i>	(Optional) The VLAN number assigned to the terminating VLAN subinterface. The VLAN corresponds to the subscriber line. The quotation mark (") is required

Examples

The following example shows how to specify the ANCP neighbor when mapping ports between a DSLAM and the BRAS. In the example, the ANCP neighbor is named `dslam1` with an ID of 10.2.3.4.

```
interface GigabitEthernet8/0/0
 ip address 10.0.75.123 255.255.255.0
 ancp enable
!
policy-map speed:eth:10600:5000:80/0
 description parent shaper for premium
 class class-default
   shape peak 10600
   service-policy premium
!
interface GigabitEthernet8/0/0.1
 encapsulation dot1q 412
!
interface GigabitEthernet8/0/0.2
 encapsulation dot1q 412
!
interface GigabitEthernet8/0/0.3128
 encapsulation dot1q 3 second-dot1q 128
 pppoe enable group global
 service-policy output speed:eth:10600:5000:80/0
!
ancp neighbor name dslam1 id 10.2.3.4
 dot1q 3 second-dot1q 128 client-id "10.2.3.4 ethernet8/0/0.3128"
 dot1q 412 client-id interface GigabitEthernet8/0/0.2 "10.2.3.4 ethernet8/0/0.2"
```

Related Commands

Command	Description
ancp adjacency timer	Specifies the interval between ANCP hello messages.
ancp enable	Enables ANCP.
dot1q	Maps CPE clients of a DSLAM to VLAN subinterfaces on a BRAS.

ancp vdsl ethernet shaper

To enable Access Node Control Protocol (ANCP) cell tax accounting for Ethernet U-interface connections, use the **ancp vdsl ethernet shaper** command in global configuration mode. To disable ANCP cell tax accounting, use the **no** form of this command.

ancp vdsl ethernet shaper percent-factor *factor*

no ancp ethernet shaper percent-factor *factor*

Syntax Description

percent-factor	Adjusts the selected downstream shaping rate by multiplying it by the specified <i>factor</i> .
<i>factor</i>	Percentage by which the selected downstream shaping rate is multiplied. Valid values are from 1 to 100. The resulting shaping rate is applied to the terminating interface for subscriber links.

Command Default

ANCP cell tax accounting is disabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(28)ZV2	This command was introduced and implemented on the Cisco 10000 series router.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

You must define the Access-Loop-Circuit-ID in the **dot1q** command for the router to adjust the downstream shaping rate. The syntax of the Access-Loop-Circuit-ID is:

Aynchronous Transfer Mode/Digital Subscriber Line

"Access-Node-Identifier **atm** slot/port:vpi.vci"

Ethernet/Digital Subscriber Line

"Access-Node-Identifier **ethernet** slot/port[:vlan-id]"

If the DSL type is 4 or 5, the router applies the **ancp vdsl ethernet shaper** command. Otherwise, the router does not apply the shaping factor.



Note

The **ancp vdsl ethernet shaper** command supports only VDSL1 (Very-high-bit-rate Digital Subscriber Line) and VDSL2 implementations.

Examples

The following example shows how to enable ANCP cell tax accounting for Ethernet links using a shaping factor of 95 percent.

```
anyp neighbor id dslam client-ID "10.2.3.4 ethernet1/0/0.1"
anyp vdsl ethernet shaper percent-factor 95
!
policy-map speed:eth:10600:5000:80/0
  description parent shaper for premium
  class class-default
    shape 10600
    service-policy premium
!
interface GigabitEthernet8/0/0.3128
  encapsulation dot1q 3 second-dot1q 128
  pppoe enable group global
  service-policy output speed:eth:10600:5000:80/0
```

Related Commands

Command	Description
anyp adjacency timer	Specifies the interval between ANCP hello messages.
anyp enable	Enables ANCP.
anyp neighbor	Specifies the ANCP access node neighbor (DSLAM).

dot1q

To map CPE clients of a DSLAM to 802.1Q VLAN subinterfaces, or to queue-in-queue (Q-in-Q) hierarchical VLAN subinterfaces on a broadband remote access server (BRAS), use the **dot1q** command in Access Node Control Protocol (ANCP) mapping configuration mode. To remove the mapping, use the **no** form of this command.

```
dot1q outer-vlanid [second-dot1q inner-vlanid] [interface type number] client-id client-id
```

```
no dot1q outer-vlanid [second-dot1q inner-vlanid] [interface type number] client-id client-id
```

Syntax Description

<i>outer-vlanid</i>	VLAN number assigned to an 802.1Q VLAN subinterface or the VLAN number of the outer VLAN for a Q-in-Q VLAN subinterface. Valid values are from 1 to 4094.
second-dot1q	(Optional) Specifies the second VLAN of a Q-in-Q VLAN subinterface.
<i>inner-vlanid</i>	(Optional) VLAN number assigned to the inner VLAN for a Q-in-Q VLAN subinterface. Valid values are from 1 to 4094.
interface	(Optional) Specifies the subinterface on which the VLAN is configured. This option is required if you configure the same VLAN on multiple physical interfaces.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>number</i>	Interface or subinterface number. For more information about the numbering syntax for your networking device, use the question mark (?) online help function.
client-id	Keyword for the customer premises equipment (CPE) client circuit ID for the CPE client of the DSLAM.
<i>client-id</i>	The access loop circuit ID for the CPE client of the DSLAM. The <i>client-id</i> argument has a defined format consisting of an access node identifier and line information. For more information, see the “Usage Guidelines” section.

Command Default

No VLAN interfaces are mapped to client IDs.

Command Modes

ANCP mapping configuration (config-ancp)

Command History

Release	Modification
12.2(28)ZV	This command was introduced and implemented on the Cisco 10000 series router.
12.2(31)ZV1	This command was modified for ANCP, replacing L2CP.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

The *client-id* is the access-loop-circuit-id for the CPE client of the DSLAM. The *client-id* has a defined format consisting of an access-node-identifier and line information. The syntax of the *client-id* is shown below, depending on whether the line is ATM or Ethernet:

```
"access-node-identifier atm slot/module/port.subinterface:vpi.vci"
"access-node-identifier ethernet slot/module/port.subinterface[:vlan-id]"
```

<i>"access-node-identifier"</i>	Uniquely identifies the access node in the access network. The <i>access-node-identifier</i> can be the IP address of the DSLAM. The quotation mark (") is required.
atm	The portion of the CPE client circuit-id that specifies ATM as the line.
<i>slot/module/port.subinterface</i>	The portion of the CPE client circuit-id that uniquely identifies the line on the access node.
<i>:vpi.vci"</i>	Virtual path identifier (VPI) and virtual channel identifier (VCI) that uniquely identifies the line on the access node. The quotation mark (") is required.
ethernet	The portion of the CPE client circuit-id that specifies Ethernet as the line.
<i>:vlan-id"</i>	(Optional) The VLAN number assigned to the terminating VLAN subinterface. The VLAN corresponds to the subscriber line. The quotation mark (") is required

Map VLAN interfaces to client-ids by configuring the mapping per DSLAM. When you group the mappings for each DSLAM, the router attempts to determine its corresponding subinterface.

The same VLAN and Q-in-Q can exist under different physical interfaces (for example, interfaces 1/0/0 and 1/0/1), but the same VLAN and Q-in-Q cannot exist under the same physical interface (for example, interface 1/0/0).

If you configure the same VLAN on multiple physical interfaces, you must specify the interface explicitly using the **interface type number** option of the **dot1q** command.

Examples

The following example shows how to map a CPE client of the DSLAM named dslamA to a Q-in-Q VLAN subinterface. In the example, the client identified as "10.16.3.4 ethernet1/0/1.1" is mapped to Q-in-Q VLANs 512 and 514.

```
anyp atm shaper percent-factor 95

interface GigabitEthernet1/0/1
  ip address 10.1.75.123 255.255.255.0
  ancp enable
!
interface GigabitEthernet1/0/1.1
  encapsulation dot1q 512 second-dot1q 514
!
anyp neighbor name dslamA id "10.16.3.4"
  dot1q 512 second-dot1q 514 client-ID "10.16.3.4 ethernet1/0/1.1"
```

The following example shows how to map a client of the DSLAM named dslam1 to an 802.1Q VLAN. In the example, the client identified as 10.2.3.4 ethernet8/0/0.3128 is mapped to queue-in-queue (Q-in-Q) VLANs 3 and 128. Because VLAN 412 is configured on both Gigabit Ethernet subinterfaces 1/0/0.2 and 1/0/1.2, the mapping of client 10.2.3.4 ethernet8/0/0.2 to VLAN 412 explicitly identifies the interface (for example, interface GigabitEthernet 8/0/0.2).

```

ancp atm shaper percent-factor 95
!
interface GigabitEthernet8/0/0
  ip address 10.0.75.123 255.255.255.0
  ancp enable
!
policy-map speed:eth:10600:5000:80/0
  description parent shaper for premium
  class class-default
    shape 10600
  service-policy premium
!
interface GigabitEthernet8/0/0.1
  encapsulation dot1q 412
!
interface GigabitEthernet8/0/0.2
  encapsulation dot1q 412
!
interface GigabitEthernet8/0/0.3128
  encapsulation dot1q 3 second-dot1q 128
  pppoe enable group global
  service-policy output speed:eth:10600:5000:80/0
!
ancp neighbor name dslam1 id "10.2.3.4"
  dot1q 3 second-dot1q 128 client-ID "10.2.3.4 ethernet8/0/0.3128"
  dot1q 412 client-ID interface GigabitEthernet8/0/0.2 "10.2.3.4 ethernet8/0/0.2"

radius-server host 192.168.164.228 auth-port 1645 acct-port 1646 non-standard
radius-server vsa send accounting
radius-server vsa send authentication

```

Related Commands

Command	Description
ancp adjacency timer	Specifies the interval between ANCP hello messages.
ancp atm shaper	Enables ANCP cell tax accounting for ATM U-interface connections.
ancp neighbor	Specifies the ANCP access node neighbor.

ping ancp

To trigger an on-demand local loop test on a digital subscriber line access multiplexer (DSLAM) port, use the **ping ancp** command in privileged EXEC mode.

```
ping ancp {interface type number | name neighbor-name} client-id client-id count messages
[timeout seconds] [opaque first-handle second-handle]
```

Syntax Description

interface <i>type number</i>	Type and number of the interface to ping.
name <i>neighbor-name</i>	Name of the neighbor device to ping.
client-id <i>client-id</i>	Access loop circuit ID for a particular port on the DSLAM.
count <i>messages</i>	Number of loopback messages that should be generated on the local loop. Range: 1 to 32.
timeout <i>seconds</i>	Amount of time in seconds that the broadband remote access server (BRAS) chooses to time out the ping request. An amount of 0 means the BRAS waits indefinitely for a DSLAM-sent port management response. Range: 0 to 255 seconds.
opaque <i>first-handle second-handle</i>	A pair of numbers that the BRAS can choose to uniquely identify each ping request, in addition to using <i>client-id</i> . Range: 0 to 4294967295.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(28)ZV2	This command was introduced and implemented on the Cisco 10000 series router.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Examples

The following example shows how to trigger one on-demand local loopback message from the neighbor device "cisco" on DSLAM port "abc":

```
Router(config)# ping ancp name cisco client-ID abc count 1
```

Related Commands

Command	Description
ping	Diagnoses basic network connectivity.

show aaa user

To display attributes related to an authentication, authorization, and accounting (AAA) session, use the **show aaa user** command in privileged EXEC mode.

```
show aaa user {all | unique-id}
```

Syntax Description

all	Displays information about all users of which AAA currently has knowledge.
<i>unique-id</i>	Displays information about this user only.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(4)T	This command was introduced.
12.2(31)ZV1	This command was modified to display the user name first and then the accounting data and was implemented on the Cisco 10000 series router for the PRE3.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

When a user logs into a Cisco router and uses AAA, a unique ID is assigned to the session. Throughout the life of the session, various attributes that are related to the session are collected and stored internally within a AAA database. These attributes can include the IP address of the user, the protocol being used to access the router (such as PPP or Serial Line Internet Protocol [SLIP]), the speed of the connection, and the number of packets or bytes that are received or transmitted.

The output of this command:

- Provides a snapshot of various subdatabases that are associated with a AAA unique ID. Some of the more important ones are listed in [Table 1](#).
- Shows various AAA call events that are associated with a particular session. For example, when a session comes up, the events generally recorded are CALL START, NET UP, and IP Control Protocol UP (IPCP UP).
- Provides a snapshot of the dynamic attributes that are associated with a particular session. (Dynamic attributes are those that keep changing values throughout the life of the session.) Some of the more important ones are listed in [Table 1](#).

The unique ID of a session can be obtained from the output of the **show aaa sessions** command.



Note

This command does not provide information for all users who are logged into a device, but only for those who have been authenticated or authorized using AAA or only for those whose sessions are being accounted for by the AAA module.

**Note**

When you use the **all** keyword, a large amount of output may be produced, depending on the number of users who are logged into the device at any time.

Examples

The following example shows that information is requested for all users:

```
Router# show aaa user all
```

The following example shows that information is requested for user 5:

```
Router# show aaa user 5
```

The following is sample output from the **show aaa user** command. The session information displayed is for a PPP over Ethernet over Ethernet (PPPoEoE) session.

```
Router# show aaa user 3
```

```
Load for five secs: 0%/0%; one minute: 0%; five minutes: 0%
Time source is hardware calendar, *20:32:49.199 PST Wed Dec 17
2003
```

```
Unique id 3 is currently in use.
Accounting:
  log=0x20C201
  Events recorded :
    CALL START
    NET UP
    IPCP_PASS
    INTERIM START
    VPDN NET UP
update method(s) :
  NONE
update interval = 0
Outstanding Stop Records : 0
Dynamic attribute list:
  63CCF138 0 00000001 connect-progress(30) 4 LAN Ses Up
  63CCF14C 0 00000001 pre-session-time(239) 4 3(3)
  63CCF160 0 00000001 nas-tx-speed(337) 4 102400000(61A8000)
  63CCF174 0 00000001 nas-rx-speed(33) 4 102400000(61A8000)
  63CCF188 0 00000001 elapsed_time(296) 4 2205(89D)
  63CCF19C 0 00000001 bytes_in(97) 4 6072(17B8)
  63CCF1B0 0 00000001 bytes_out(223) 4 6072(17B8)
  63CCF1C4 0 00000001 pre-bytes-in(235) 4 86(56)
  63CCF1D8 0 00000001 pre-bytes-out(236) 4 90(5A)
  63CCF1EC 0 00000001 paks_in(98) 4 434(1B2)
  63CCF244 0 00000001 paks_out(224) 4 434(1B2)
  63CCF258 0 00000001 pre-paks-in(237) 4 7(7)
  63CCF26C 0 00000001 pre-paks-out(238) 4 9(9)
No data for type EXEC
No data for type CONN
NET: Username=peer1
  Session Id=00000003 Unique Id=00000003
  Start Sent=1 Stop Only=N
  stop_has_been_sent=N
  Method List=63B4A10C : Name = default
  Attribute list:
    63CCF138 0 00000001 session-id(293) 4 3(3)
    63CCF14C 0 00000001 Framed-Protocol(62) 4 PPP
    63CCF160 0 00000001 protocol(241) 4 ip
    63CCF174 0 00000001 addr(5) 4 70.0.0.1
No data for type CMD
```

```

No data for type SYSTEM
No data for type RM CALL
No data for type RM VPDN
No data for type AUTH PROXY
No data for type IPSEC-TUNNEL
No data for type RESOURCE
No data for type 10
No data for type CALL
Debg: No data available
Radi: 641AACAC
Interface:
  TTY Num = -1
  Stop Received = 0
  Byte/Packet Counts till Call Start:
    Start Bytes In = 106      Start Bytes Out = 168
    Start Paks   In = 3       Start Paks   Out = 4
  Byte/Packet Counts till Service Up:
    Pre Bytes In = 192       Pre Bytes Out = 258
    Pre Paks   In = 10       Pre Paks   Out = 13
  Cumulative Byte/Packet Counts :
    Bytes In = 6264         Bytes Out = 6330
    Paks   In = 444         Paks   Out = 447
  StartTime = 19:56:01 PST Dec 17 2003
  AuthenTime = 19:56:04 PST Dec 17 2003
  Component = PPoE
Authen: service=PPP type=CHAP method=RADIUS
Kerb: No data available
Meth: No data available
Preauth: No Preauth data.
General:
  Unique Id = 00000003
  Session Id = 00000003
  Attribute List:
    63CCF180 0 00000001 port-type(156) 4 PPP over Ethernet
    63CCF194 0 00000009 interface(152) 7 0/0/0/0
PerU: No data available

```

Table 1 describes the significant fields shown in the display.

Table 1 *show aaa user Field Descriptions*

Field	Description
EXEC	Exec-Accounting database.
NET	Network Accounting database.
CMD	Command Accounting database.
Pre Bytes In	Bytes that were received before the call was authenticated.
Pre Bytes Out	Bytes that were transmitted before the call was authenticated.
Pre Paks In	Packets that were received before the call was authenticated.
Pre Paks Out	Packets that were transmitted before the call was authenticated.
Bytes In	Bytes that were received after the call was authenticated.

Table 1 *show aaa user Field Descriptions (continued)*

Field	Description
Bytes Out	Bytes that were transmitted after the call was authenticated.
Paks In	Packets that were received after the call was authenticated.
Paks Out	Packets that were transmitted after the call was authenticated.
Authen	Authentication database.
General	General database.
PerU	Per-User database.

Related Commands

Command	Description
show aaa sessions	Displays information about AAA sessions as seen in the AAA Session MIB.

show ancp an-port

To display information about Access Node Control Protocol (ANCP) Access Node (AN) ports, use the **show ancp an-port** command in user EXEC or privileged EXEC mode.

show ancp an-port { **dynamic-only** [**statistics**] | **interface** *type number* | **summary** [**statistics**] }

Syntax Description

dynamic-only	Displays the summary of AN ports that are not mapped to any local subinterfaces.
statistics	(Optional) Displays the summary of message statistics for AN ports that are not mapped to any local subinterfaces.
interface	Displays information about an AN port and the corresponding subscriber access line identified by a local interface mapped to the port.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>number</i>	Interface or subinterface number. For more information about the numbering syntax for your networking device, use the question mark (?) online help function.
summary	Displays a summary of all AN ports.
statistics	(Optional) Displays the aggregate ANCP event message statistics.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 3.2S	This command was introduced.

Examples

The following is sample output from the **show ancp an-port dynamic-only statistics** command:

```
Router# show ancp an-port dynamic-only statistics

List of AN port statistics for ports not mapped to local sub-interfaces
Circuit-id          Port Up   Port Down
-----
alcid1              2        0
```

Table 2 describes the fields shown in the display.

Table 2 *show ancp an-port dynamic-only statistics Field Descriptions*

Field	Description
Circuit-id	Circuit-ID is the Access-Loop Circuit ID of the ANCP protocol. For more information on Access-Loop-Circuit-ID Type-Length-Value (TLV), see http://datatracker.ietf.org/doc/draft-ietf-ancp-protocol/ .
Port Up	Number of port-up event messages received.
Port Down	Number of port-down event messages received.

The following is sample output from the **show ancp an-port interface** command:

```
Router# show ancp an-port interface ethernet0/0.2

AN port Circuit-ID "alcid1":

State                               UP
Uptime                               00:34:25
Time Since Last Message              00:34:25
Encap Type                           qinq
DSL type                              VDSL1
DSL Line State                       SHOWTIME
Neighbor sender-name                 aabb.cc00.7c00
Neighbor description                 neighbor1
Configured Rate Adjustment           100%
Actual Downstream Data Rate (kbps)   9090
Effective Downstream Data Rate (kbps) 9090
```

Table 3 describes the significant fields shown in the display.

Table 3 *show ancp an-port interface Field Descriptions*

Field	Description
State	State of the AN port (up or down).
Uptime	Time since an AN port is up.
Time Since Last Message	Time since the last message was received.
Encap Type	Type of encapsulation.
DSL type	Type of Digital Subscriber Line (DSL).
DSL Line State	State of the DSL line. The state field will appear with one of the following values: <ul style="list-style-type: none"> UNKNOWN—Unknown state. SHOWTIME—Active state. IDLE—Idle state. SILENT—Silent state.
Neighbor sender-name	Sender of the ANCP session identifier.
Neighbor description	ANCP session identifier.

Table 3 *show ancp an-port interface Field Descriptions (continued)*

Field	Description
Configured Rate Adjustment	Value configured through an ANCP ATM shaper percent-factor for ATM or through an ANCP very-high-bit-rate digital subscriber line (VDSL) Ethernet shaper percent-factor for Ethernet for VDSL.
Actual Downstream Data Rate (kbps)	Actual downstream net data rate on a DSL line.
Effective Downstream Data Rate (kbps)	Value after applying the downstream data rate adjustment.

The following is sample output from the **show ancp an-port summary** command:

```
Router# show ancp an-port summary
```

```
AN Port Summary
-----
State UP           5
State DOWN        1
Total             6
```

[Table 4](#) describes the fields shown in the display.

Table 4 *show ancp an-port summary Field Descriptions*

Field	Description
AN Port Summary	Summary of all AN ports.
State UP	Number of ports that are enabled.
State DOWN	Number of ports that are disabled.
Total	Total number of AN ports.

The following is sample output from the **show ancp an-port summary statistics** command:

```
Router# show ancp an-port summary statistics
```

```
AN Port Message Statistics Summary
-----
Port UP           27
Port DOWN         3
```

[Table 5](#) describes the fields shown in the display.

Table 5 *show ancp an-port summary statistics Field Descriptions*

Field	Description
Port UP	Number of port-up event messages received.
Port DOWN	Number of port-down event messages received.

Related Commands

Command	Description
ancp enable	Enables ANCP on an IP-enabled interface.

show ancp an-port circuit-id

To display information about an Access Node Control Protocol (ANCP) Access Node (AN) port and the corresponding subscriber access line identified by the subscriber circuit ID, use the **show ancp an-port circuit-id** command in user EXEC or privileged EXEC mode.

show ancp an-port circuit-id *name* [**detail** | **statistics**]

Syntax Description	
name	Subscriber circuit ID.
detail	(Optional) Displays details of an AN port and the corresponding subscriber access line identified by the subscriber circuit ID. This display also includes a list of local interfaces mapped to the port through an ANCP configuration.
statistics	(Optional) Displays message statistics for an AN port identified by the subscriber circuit ID.

Command Modes	
	User EXEC (>)
	Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Release 3.2S	This command was introduced.

Examples The following is sample output from the **show ancp an-port circuit-id detail** command:

```
Router# show ancp an-port circuit-id g_alcid1 detail

AN port Circuit-ID "g_alcid1":

State                               UP
Uptime                               00:33:23
Time Since Last Message              00:33:23
Encap Type                            dot1q
DSL type                              VDSL1
DSL Line State                        SHOWTIME
Neighbor sender-name                  aabb.cc00.7c00
Neighbor description                  glob
Configured Rate Adjustment            100%
Actual Downstream Data Rate (kbps)    9090
Effective Downstream Data Rate (kbps) 9090

Actual Data Rate Upstream/Downstream (kbps) 7878/9090
Default Data Rate Upstream/Downstream (bps) 0/0
Minimum Data Rate Upstream/Downstream (kbps) 0/0
Attainable Data Rate Upstream/Downstream (kbps) 0/0
Maximum Data Rate Upstream/Downstream (kbps) 0/0
Minimum Low Power Data Rate Upstream/Downstream (kbps) 0/0
```

■ **show ancp an-port circuit-id**

```

Maximum Interleaving Delay Upstream/Downstream (ms)      0/0
Actual Interleaving Delay Upstream/Downstream (ms)      0/0
.
.
.

```

Table 6 describes the significant fields shown in the display.

Table 6 *show ancp an-port circuit-id detail Field Descriptions*

Field	Description
State	State of the AN port (up or down).
Uptime	Time since the AN port is up.
Time Since Last Message	Time after the last message was received.
Encap Type	Type of encapsulation.
DSL type	Type of Digital Subscriber Line (DSL).
DSL Line State	State of the DSL line. The state field will appear with one of the following values: <ul style="list-style-type: none"> • UNKNOWN—Unknown state. • SHOWTIME—Active state. • IDLE—Idle state. • SILENT—Silent state.
Neighbor sender-name	Sender of the ANCP session identifier.
Neighbor description	ANCP session identifier.
Configured Rate Adjustment	Value configured through an ANCP ATM shaper percent-factor in case of ATM or through an ANCP very-high-bit-rate digital subscriber line (VDSL) Ethernet shaper percent-factor in case of Ethernet for VDSL.
Actual Downstream Data Rate (kbps)	Actual downstream net data rate on a DSL line.
Effective Downstream Data Rate (kbps)	Value after applying the downstream data rate adjustment.

Related Commands

Command	Description
show ancp an-port	Displays information about ANCP AN ports.

show ancp an-port neighbor description

To display information about the Access Node (AN) ports associated with an Access Node Control Protocol (ANCP) neighbor identified by a description name, use the **show ancp an-port neighbor description** command in user EXEC or privileged EXEC mode.

```
show ancp an-port neighbor description name [statistics]
```

Syntax Description

<i>name</i>	Name of the ANCP neighbor.
statistics	(Optional) Displays the summary of message statistics for AN ports associated with an ANCP neighbor identified by the description name.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 3.2S	This command was introduced.

Usage Guidelines

The output of the **show ancp an-port neighbor description** command displays a list of ports associated with a specified neighbor and the state of these ports.

Examples

The following is sample output from the **show ancp an-port neighbor description** command:

```
Router# show ancp an-port neighbor description dslam

-----
Circuit-ID      State      Uptime      Line State      Adjusted DS Rate (kbps)
-----
alcid2          DOWN              UNKNOWN              0
```

The following is sample output from the **show ancp an-port neighbor description statistics** command:

```
Router# show ancp an-port neighbor description glob statistics

List of AN port statistics for neighbor description glob
-----
Circuit-ID      Port Up      Port Down
-----
g_alcid1        2            1
g_alcid2        2            1
g_alcid3        1            0
g_alcid4        1            0
```

Table 7 describes the fields shown in the displays.

Table 7 *show ancp an-port neighbor description Field Descriptions*

Field	Description
Circuit-ID	Access-Loop Circuit ID of the ANCP protocol. For more information on Access-Loop-Circuit-ID Type-Length-Value (TLV), see http://datatracker.ietf.org/doc/draft-ietf-ancp-protocol/ .
State	State of the AN port (up or down).
Uptime	Time since the AN port is up.
Line State	State of the Digital Subscriber Line (DSL) line. The state field will appear with one of the following values: <ul style="list-style-type: none"> • UNKNOWN—Unknown state. • SHOWTIME—Active state. • IDLE—Idle state. • SILENT—Silent state.
Adjusted DS Rate (kbps)	Actual upstream net data rate on a DSL line.
Port Up	Number of ports that are up.
Port Down	Number of ports that are down.

Related Commands

Command	Description
ancp neighbor	Defines an ANCP neighbor when configuring port mapping between a DSLAM and a BRAS.
show ancp an-port	Displays information about ANCP AN ports.

show ancp neighbor

To display statistics of Access Node Control Protocol (ANCP) neighbor information and neighborhood information with local ANCP ports, use the **show ancp neighbor** command in user EXEC mode or privileged EXEC mode.

```
show ancp neighbor [brief | detail | id neighbor-id | name neighbor-name | port [statistics |
client-id access-loop-circuit-id name neighbor-name] | statistics | summary [statistics]]
```

Syntax Description	
brief	(Optional) Displays summary information about all ANCP neighbors.
detail	(Optional) Displays detailed information about all ANCP neighbors.
id <i>neighbor-id</i>	(Optional) Identifies an ANCP session.
name <i>neighbor-name</i>	(Optional) Identifies an ANCP session.
port	(Optional) Displays ANCP neighbor port information.
statistics	(Optional) Displays a summary of ANCP neighbor port statistics.
client-id <i>access-loop-circuit-id</i>	(Optional) Displays information related to the specified port.
statistics	(Optional) Displays message statistics for all active or configured ANCP neighbors.
summary	(Optional) Displays a summary of the ANCP neighbors identified by an ANCP session state.
statistics	(Optional) Displays the aggregate ANCP session message statistics.

Command Default ANCP neighbor information statistics are displayed.

Command Modes User EXEC (>)
Privileged EXEC (#)

Command History	Release	Modification
	12.2(28)ZV2	This command was introduced and implemented on the Cisco 10000 series router.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.
	Cisco IOS XE Release 3.2S	This command was modified. The statistics and summary keywords were added.

Usage Guidelines The access loop circuit ID is a unique ID that the digital subscriber line access multiplexer (DSLAM) sends to the broadband remote access server (BRAS) for each unique port.

Examples

The following is sample output from the **show ancp neighbor port statistics** command. The output fields are self-explanatory.

```
Router# show ancp neighbor port statistics
```

```
Remote Peer Line Statistics
=====
3    DSL lines in UNKNOWN state
1    DSL lines in SHOWTIME state
0    DSL lines in IDLE state
0    DSL lines in SILENT state
4    Total DSL Lines
```

The following is sample output from the **show ancp neighbor port** command:

```
Router# show ancp neighbor port
```

```
Neighbor  Access Loop Circuit ID  Up/Downstream  DSL Line  ANCP Port
Name/ID   (kbps)                State          State
-----
VendorB_10.3.1.2/10.3.1.2
          10.3.1.2 eth 1/162 3:11 0/0          IDLE      DOWN
VendorC_10.3.1.2/10.3.1.2
          10.3.1.2 eth 1/162 3:21 0/0          SILENT    DOWN
VendorA_10.3.1.2/10.3.1.2
          10.3.1.2 eth 1/162 3:10 45078/89560  SHOWTIME  UP
          10.3.1.2 eth 1/161 3:9  0/0          UNKNOWN   DOWN
```

Table 8 describes the significant fields shown in the display.

Table 8 *show ancp neighbor port Field Descriptions*

Field	Description
Neighbor Name/ID	ANCP session identifier.
Access Loop Circuit ID	Unique ID that the DSLAM sends to the BRAS for each unique port.
DSL Line State	State of the DSL line. The state field will appear with one of the following values: <ul style="list-style-type: none"> UNKNOWN—Unknown state. SHOWTIME—Active state. IDLE—Idle state. SILENT—Silent state.
ANCP Port State	State of the ANCP port.

The following is sample output from the **show ancp neighbor port detail** command:

```
Router# show ancp neighbor detail
```

```
DSLAM  BRAS  vlan tag  interface  client-ID name/ID port
-----
': global, +: global&interface, -: interface, x: global&inactive 'dslam/d1
qinq  2/4  Et0/0.2   alcid1
          ANCP Port State                               UP
          DSL type/DSL Line State                   ADSL1/SHOWTIME
          Actual Data Rate Upstream/Downstream (kbps) 7800/8900
          Default Data Rate Upstream/Downstream (bps)  0/0
```

```

Minimum Data Rate Upstream/Downstream (kbps)          0/0
Attainable Data Rate Upstream/Downstream (kbps)        0/0
Maximum Data Rate Upstream/Downstream (kbps)           0/0
Minimum Low Power Data Rate Upstream/Downstream (kbps) 0/0
Maximum Interleaving Delay Upstream/Downstream (ms)    0/0
Actual Interleaving Delay Upstream/Downstream (ms)     0/0
qinq 2/6 Et0/0.3      alcid2
ANCP Port State                                         UP
DSL type/DSL Line State                                VDSL1/SHOWTIME
Actual Data Rate Upstream/Downstream (kbps)            7869/9080
Default Data Rate Upstream/Downstream (bps)            0/0
Minimum Data Rate Upstream/Downstream (kbps)           3445/4645
Attainable Data Rate Upstream/Downstream (kbps)         43546/6768
Maximum Data Rate Upstream/Downstream (kbps)           8080/9090
Minimum Low Power Data Rate Upstream/Downstream (kbps) 1213/5634
Maximum Interleaving Delay Upstream/Downstream (ms)    7878/8989
Actual Interleaving Delay Upstream/Downstream (ms)     6787/7898

```

The following is sample output from the **show ancp neighbor statistics** command:

```
Router# show ancp neighbor statistics
```

```

Displaying all neighbor statistics
-----

Neighbor sender-name 7200-client, description 0006.2aaa.281b
      Sent      Received
SYN          1          3
SYNACK       1          0
ACK         163        165
RSTACK       0          0
Port Up      -          14
Port Down    -          1
Drops        0          0
Total       165        183

```

Table 9 describes the significant fields shown in the display.

Table 9 *show ancp neighbor statistics* Field Descriptions

Field	Description
SYN	Number of synchronization state messages received and sent.
SYNACK	Number of acknowledgment messages received and sent for the synchronization state messages that were received and sent.
Port Up	Number of ports that are enabled.
Port Down	Number of ports that are disabled.
Drops	Number of dropped messages.
Total	Total number of ANCP ports.

The following is sample output from the **show ancp neighbor summary** command. The output fields are self-explanatory.

```
Router# show ancp neighbor summary

ANCP Neighbor Summary Information
-----
Neighbor count by state:
-                0
SYNSENT         0
SYNRCVD         0
ESTAB           1
-----
Total           1
```

The following is sample output from the **show ancp neighbor summary statistics** command. The output fields are self-explanatory.

```
Router# show ancp neighbor summary statistics

ANCP Summary Neighbor Statistics
-----
                Sent           Received
SYN              5             12
SYNACK           2              0
ACK             299           303
RSTACK           0              0
Port Up          -             27
Port Down        -              3
Drops            0              0
Total           306           345
```

Related Commands

Command	Description
show ancp port	Displays statistics of all ANCP local ports and their respective status and neighbor information.
show ancp session	Displays details of ANCP sessions and statistics of sessions in each state.
show ancp session event	Displays a snapshot of the last ANCP session event on each port of all neighbors.
show ancp statistics	Collects summaries and statistics from show commands and displays the statistics at one location.
show ancp status	Displays ANCP status information for ANCP endpoints configured on a BRAS interface.

show ancp neighbor description

To display brief information about an Access Node Control Protocol (ANCP) neighbor that is identified by a description name, use the **show ancp neighbor description** command in user EXEC or privileged EXEC mode.

show ancp neighbor description *name* [**detail** | **statistics**]

Syntax Description

<i>name</i>	Description name of the neighbor.
detail	(Optional) Displays the details of an ANCP neighbor that is identified by the description name. The displayed information includes a summary of the Access Node (AN) ports that are associated with the neighbor.
statistics	(Optional) Displays message statistics for an ANCP neighbor that is identified by the ANCP sender name.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 3.2S	This command was introduced.

Examples

The following is sample output from the **show ancp neighbor description detail** command:

```
Router# show ancp neighbor description glob detail
```

```

          ANCP Neighbor Data
-----
Sender Name           aabb.cc00.7c00
Description           glob
State                 ESTAB
Capability             Topology Discovery, OAM
Ports:
  State Up            4
  State Down          0
  Total                4

Remote IP Addr/TCP Port 192.0.2.1/50828
Local IP Addr/TCP Port  192.0.2.254/6068
Server Sender Name     aabb.cc00.7a00
Remote Timeout         30000 ms
Local Timeout          30000 ms
Adjacency Uptime       02:54:47
Time Since Last Port Msg 00:31:03
Remote Instance        1
Local Instance         1
Remote Partition ID    0

```

show ancp neighbor description

```
List of-AN port data for neighbor sender name aabb.cc00.7c00
```

Circuit-ID	State	Uptime	Line State	Adjusted DS Rate (kbps)
g_alcid1	UP	00:31:10	SHOWTIME	9090
g_alcid2	UP	00:31:08	SHOWTIME	9090
g_alcid3	UP	00:31:04	SHOWTIME	9090
g_alcid4	UP	00:31:03	SHOWTIME	9090

Table 10 describes the significant fields shown in the display.

Table 10 show ancp neighbor description detail Field Descriptions

Field	Description
Sender Name	Remote sender name or MAC address of the peer that is exchanged through ANCP adjacency messages.
Description	Description name of the neighbor.
State	ANCP adjacency state. It can be any one of the following: <ul style="list-style-type: none"> • ESTAB—Session established. • DOWN—Session down. • SYNRCVD—Synchronization state messages received. • SYNSENT—Synchronization state message sent.
Capability	Set of capabilities negotiated for this session in the adjacency establishment phase. It can be either topology discovery capabilities or operations, administration, and maintenance (OAM) capabilities.
State Up	Number of ports under the neighbor that are in the up state.
State Down	Number of ports under the neighbor that are in the down state.
Total	Total number of ports under the neighbor.
Remote IP Addr/TCP Port	Remote IP address and port for the TCP session.
Local IP Addr/TCP Port	Local IP address and port for the TCP session.
Server Sender Name	MAC address of the server.
Remote Timeout	Remote timeout calculated based on the adjacency interval.
Local Timeout	Local timeout calculated based on the adjacency interval.
Adjacency Uptime	Time since an AN port is up.
Circuit-ID	Access-Loop Circuit ID of the ANCP protocol. For more information on Access-Loop-Circuit-ID Type-Length-Value (TLV), see http://datatracker.ietf.org/doc/draft-ietf-ancp-protocol/ .

Table 10 *show ancp neighbor description detail Field Descriptions (continued)*

Field	Description
Line State	State of the DSL line. The state field will appear with one of the following values: <ul style="list-style-type: none"> • UNKNOWN—Unknown state. • SHOWTIME—Active state. • IDLE—Idle state. • SILENT—Silent state.
Adjusted DS Rate (kbps)	Actual downstream net data rate on a DSL line.

Related Commands	Command	Description
	ancp neighbor	Defines an ANCP neighbor when configuring port mapping between a DSLAM and a BRAS.
	show ancp neighbor	Displays statistics of ANCP neighbor information and neighborhood information with local ANCP ports.

show ancp neighbor sender-name

To display brief information about an Access Node Control Protocol (ANCP) session that has a neighbor identified by an ANCP sender name, use the **show ancp neighbor sender-name** command in user EXEC or privileged EXEC mode.

show ancp neighbor sender-name *address*

Syntax Description	address	Sender address. This argument can be either a MAC address or an IPv4 address.
--------------------	---------	---

Command Modes	User EXEC (>) Privileged EXEC (#)
---------------	--------------------------------------

Command History	Release	Modification
	Cisco IOS XE Release 3.2S	This command was introduced.

Examples The following is sample output from the **show ancp neighbor sender-name** command:

```
Router# show ancp neighbor sender-name aabb.cc00.7c00
```

```

      ANCP Neighbor Data
-----
Sender Name          aabb.cc00.7c00
Description          neighbor1
State                ESTAB
Capability            Topology Discovery, OAM
Ports:
  State Up           4
  State Down         0
  Total              4

```

[Table 11](#) describes the significant fields shown in the display.

Table 11 show ancp neighbor sender-name Field Descriptions

Field	Description
Sender Name	Sender of the ANCP session identifier.
Description	ANCP session identifier.
State	ANCP adjacency state. It can be any one of the following: <ul style="list-style-type: none"> ESTAB—Session established. DOWN—Session down. SYNRCVD—Synchronization state messages received. SYNSENT—Synchronization state message sent.

Table 11 *show ancp neighbor sender-name Field Descriptions (continued)*

Field	Description
Capability	Set of capabilities negotiated for this session in the adjacency establishment phase. It can be either topology discovery capabilities or operations, administration, and maintenance (OAM) capabilities.
State Up	Number of ports that are enabled.
State Down	Number of ports that are disabled.
Total	Total number of AN ports.

Related Commands

Command	Description
ancp neighbor	Defines an ANCP neighbor when configuring port mapping between a DSLAM and a BRAS.
show ancp neighbor	Displays statistics of ANCP neighbor information and neighborhood information with local ANCP ports.

show ancp neighbor statistics

To display message statistics of all active or configured Access Node Control Protocol (ANCP) neighbors, use the **show ancp neighbor statistics** command in user EXEC or privileged EXEC mode.

show ancp neighbor statistics

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 3.2S	This command was introduced.

Examples

The following is sample output from the **show ancp neighbor statistics** command:

```
Router# show ancp neighbor statistics

  Displaying all neighbor statistics
  -----

  Sender-name aabb.cc00.7c00
  Description dslam
  -----

      Sent      Received
  SYN          1          1
  SYNACK       1          1
  ACK         1056       1056
  RSTACK       0          0
  Port UP      -          1
  Port DOWN    -          0
  Port Mgmt    0          0
  Total       1058       1059
```

Table 12 describes the significant fields shown in the display.

Table 12 *show ancp neighbor statistics Field Descriptions*

Field	Description
SYN	Number of synchronization state messages received and sent.
SYNACK	Number of acknowledgment messages received and sent for the synchronization state messages that were received and sent.
Port UP	Number of port-up event messages.
Port DOWN	Number of port-down event messages.
Total	Total number of messages sent and received.

Related Commands	Command	Description
	ancp neighbor	Defines an ANCP neighbor when configuring port mapping between a DSLAM and a BRAS.
	show ancp neighbor	Displays statistics of ANCP neighbor information and neighborhood information with local ANCP ports.

show ancp neighbor summary

To display a summary of the Access Node Control Protocol (ANCP) neighbors, use the **show ancp neighbor summary** command in user EXEC or privileged EXEC mode.

show ancp neighbor summary [statistics]

Syntax Description	statistics (Optional) Displays the aggregate ANCP session message statistics.
---------------------------	--

Command Modes	User EXEC (>) Privileged EXEC (#)
----------------------	--------------------------------------

Command History	Release	Modification
	Cisco IOS XE Release 3.2S	This command was introduced.

Examples The following is sample output from the **show ancp neighbor summary** command:

```
Router# show ancp neighbor summary

ANCP Neighbor Summary Information
-----
Neighbor count by state:

DOWN           0
ESTAB          4
SYNRCVD        0
SYNSENT        0
-----
Total          4
```

[Table 13](#) describes the significant fields shown in the display.

Table 13 *show ancp neighbor summary Field Descriptions*

Field	Description
DOWN	Number of sessions that are down.
ESTAB	Number of sessions in established state.
Total	Total number of sessions.

The following is sample output from the **show ancp neighbor summary statistics** command:

```
Router# show ancp neighbor summary statistics
```

```

ANCP Summary Neighbor Statistics
-----
                Sent           Received
SYN              5             12
SYNACK           2             0
ACK             299           303
RSTACK           0             0
Port Up          -             27
Port Down        -             3
Drops            0             0
Total           306           345

```

Table 14 describes the significant fields shown in the display.

Table 14 *show ancp neighbor summary statistics Field Descriptions*

Field	Description
SYN	Number of synchronization state messages received and sent.
SYNACK	Number of acknowledgment messages received and sent for the synchronization state messages that were received and sent.
Port Up	Number of port-up event messages.
Port Down	Number of port-down event messages.
Total	Total number of messages sent and received.

Related Commands

Command	Description
ancp neighbor	Defines an ANCP neighbor when configuring port mapping between a DSLAM and a BRAS.
show ancp neighbor	Displays statistics of ANCP neighbor information and neighborhood information with local ANCP ports.

show ancp port

To display statistics of all Access Node Control Protocol (ANCP) local ports and their respective status and neighbor information, use the **show ancp port** command in user EXEC mode or privileged EXEC mode.

show ancp port [**statistics** | **client-id** *access-loop-circuit-id*]

Syntax Description	statistics	(Optional) Displays a summary of all ANCP port statistics.
	client-id <i>access-loop-circuit-id</i>	(Optional) Only information related to the specified port appears.

Command Default Statistics of all ANCP local ports are displayed.

Command Modes User EXEC (>)
Privileged EXEC (#)

Command History	Release	Modification
	12.2(28)ZV2	This command was introduced and implemented on the Cisco 10000 series router.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines The access loop circuit ID is a unique ID that the digital subscriber line access multiplexer (DSLAM) sends to the broadband remote access server (BRAS) for each unique port.

Examples The following example shows sample output that appears when you enter the **show ancp port statistics** command:

```
Router# show ancp port statistics
```

```
ANCP Port Statistics
=====
1   ANCP ports in UP state
3   ANCP ports in DOWN state
4   Total ANCP ports
```

The following example shows sample output that appears when you enter the **show ancp port client-id access-loop-circuit-id** command:

```
Router# show ancp port client-id abc
```

```
Neighbor   Access Loop Circuit ID  Up/Downstream ANCP Port DSL Line
Name/ID                               (kbps)         State      State
-----
VendorB_10.3.1.2/10.3.1.2
```

```

10.3.1.2 eth 1/162 3:11 0/0          DOWN    UNKNOWN
VendorC_10.3.1.2/10.3.1.2
10.3.1.2 eth 1/162 3:21 0/0          DOWN    SILENT
VendorA_10.3.1.2/10.3.1.2
10.3.1.2 eth 1/162 3:10 45078/89560  UP      SHOWTIME

```

Table 15 lists the significant fields shown in the display.

Table 15 *show ancp port* Field Descriptions

Field	Description
Neighbor Name/ID	ANCP session identifier.
Access Loop Circuit ID	Unique ID that the DSLAM sends to the BRAS for each unique port.
ANCP Port State	State of the ANCP port.
DSL Line State	State of the DSL line. The state field will appear with one of the following values: UNKNOWN—Unknown state. SHOWTIME—Active state. IDLE—Idle state. SILENT—Silent state.

Related Commands

Command	Description
show ancp neighbor	Displays statistics of ANCP neighbor port information and neighborhood information with local ANCP ports.
show ancp session	Displays details of ANCP sessions and statistics of sessions in each state.
show ancp session event	Displays a snapshot of the last ANCP session event on each port of all neighbors.
show ancp statistics	Collects summaries and statistics from show commands and displays the statistics at one location.
show ancp status	Displays ANCP status information for ANCP endpoints configured on a BRAS interface.

show ancp session

To display details of Access Node Control Protocol (ANCP) sessions and statistics of sessions in each state, use the **show ancp session** command in user EXEC mode or privileged EXEC mode.

show ancp session [**statistics** | **adjacency** [**name** *mac-address*]]

Syntax Description	
statistics	(Optional) Displays a summary of ANCP session statistics.
adjacency	(Optional) Displays ANCP adjacency information.
name <i>mac-address</i>	(Optional) Identifies an ANCP session. Only information related to the specified MAC address session appears. The MAC address is entered as a 12-digit hexadecimal string.

Command Default ANCP session details are displayed.

Command Modes User EXEC (>)
Privileged EXEC(#)

Command History	Release	Modification
	12.2(28)ZV2	This command was introduced and implemented on the Cisco 10000 series router.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Examples The following example shows sample output that appears when you enter the **show ancp session** command:

```
Router# show ancp session

ANCP Session Statistics
=====
1    ANCP session in SYNSENT state
1    ANCP session in SYNRCVD state
1    ANCP session in ESTAB state
1    ANCP session in DOWN state
4    Total ANCP sessions
```

The following example shows sample output that appears when you enter the **show ancp session adjacency name mac-address** command:

```
Router# show ancp session adjacency name 00aa00bb00cc

Remote AddressStateHello IntervalInterface
      (Seconds)
-----
12.12.1.1ESTAB 98Gi1/0.1

Last Adjacency message received: Message len 40 Capability len 4
```

```

Ver/Sub          x31
Message Type     10 (10 Adjacency Protocol)
Timer           100
M-Flag/Code     x03 (x80 M 1 SYN 2 SYNACK 3 ACK 4 RSTACK)
Sender Name     0006.52a5.1c1c
Receiver Name   0006.52a5.141c
Sender Port     0
Receiver Port   0
PType/PFlag     x01 (x10/x20 Fixed Partition request/Assigned
                  1/2 New/Recovered Adjacency)
Sender Instance x000001
Partition ID    0
Receiver Instance x000001
Tech Type       5 (5 DSL)
# of TLVs      1
Total Length    4
Capability      (1 Dynamic-Topology-Discovery 2 Line-Configuration
                  3 Transactional-Multicast 4 OAM)
TLV             Type 1 Len 0

```

Table 16 lists the significant fields shown in the display.

Table 16 show ancp session Field Descriptions

Field	Description
Ver/Sub	The version and sub-version number of the GSMP protocol being used in the session. ANCP uses version 3 and sub-version 1 of the GSMP protocol.
Message Type	ANCP message type.
Timer	Specifies the nominal time between periodic adjacency protocol messages. The timer field is specified in units of 100 milliseconds.
M-Flag/Code	Indicates whether the sender is a master or a slave.
PType/PFlag	PType specifies if partitions are used and how the partition ID is negotiated. PFlag indicates the type of partition request.
Sender Instance	Instance number that changes when the access node changes from a down state to an up state.
Partition ID	Partition ID number.
Receiver Instance	Current instance number determined by sender.
Tech Type	The Tech Type indicates the technology to which the capability extension applies. For access node control in case of DSL networks, the value for DSL is 5.

Table 16 *show ancp session Field Descriptions (continued)*

Field	Description
Capability	Adjacency messages include supported capabilities. Capability types include the following: <ul style="list-style-type: none"> • Dynamic-Topology-Discovery • Line-Configuration • Transactional-Multicast • Operations, administration, and maintenance (OAM)
TLV	Type-length-value.

Related Commands

Command	Description
show ancp neighbor	Displays statistics of ANCP neighbor port information and neighborhood information with local ANCP ports.
show ancp port	Displays statistics of all ANCP local ports and their respective status and neighbor information.
show ancp session event	Displays a snapshot of the last ANCP session event on each port of all neighbors.
show ancp statistics	Collects summaries and statistics from show commands and displays the statistics at one location.
show ancp status	Displays ANCP status information for ANCP endpoints configured on a BRAS interface.

show ancp session event

To display a snapshot of the last Access Node Control Protocol (ANCP) session event on each port of all neighbors, use the **show ancp session event** command in user EXEC mode or privileged EXEC mode.

show ancp session event [**client-id** *access-loop-circuit-id*]

Syntax Description	client-id (Optional) Only information related to the port appears. <i>access-loop-circuit-id</i>
---------------------------	--

Command Default The last ANCP session event messages received are displayed.

Command Modes User EXEC (>)
Privileged EXEC (#)

Command History	Release	Modification
	12.2(28)ZV2	This command was introduced and implemented on the Cisco 10000 series router.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines The *access-loop-circuit-id* is a unique ID that the digital subscriber line access multiplexer (DSLAM) sends to the broadband remote access server (BRAS) for each unique port.

Examples The following example shows sample output that appears when you enter the **show ancp event port client-id access-loop-circuit-id** command:

```
Router# show ancp event port client-id abc

Local/Remote      Interface  State  Local/Remote
Socket            MAC Address
-----
12.12.2.2(6068)   Gi1/0.1   ESTAB  0006.52a5.141c/
12.12.1.1(11032)/ 0006.52a5.1c1c

Last ANCP Port event received: Message len 144
Ver/Sub           x31
Message Type      80 (80 Port Up 81 Port Down 82 Invalid Label 83 New Port
                  84 Dead Port 85 Adjacency Update)
Result/Code       0 (1 NoSuccessAck 2 AckAll 3 Success 4 Failure 5 More
                  6 ReturnReceipt)
Partition ID      x00
Transaction ID    x000000
I/SubMessage Number x00 (x80 I)
Length            144
Port              x0
Port Session Number x0
Event Sequence Number x0
```

```

Label 1          x0
Label 2          x0
Reserved         x00
Message Type     80 (See Message Type above)
Tech Type        5 (5 DSL)
Block Length     0
# of TLVs        2
Extension Block Length x00
Extensions       (1 Access-Loop-Circuit-ID
                  2/3 Access-Aggregation-Circuit-ID-Binary/ASCII
                  4 DSL Line Attributes)
TLV              Type 1 Len 2
TLV              Type 4 Len 32

```

Table 17 lists the significant fields shown in the display.

Table 17 *show ancp session event Field Descriptions*

Field	Description
Ver/Sub	The version and sub-version number of the General Switch Management Protocol (GSMP) protocol being used in the session. ANCP uses version 3 and sub-version 1 of the GSMP protocol.
Message Type	ANCP message type.
Result/Code	The Result field has the following codes: <ul style="list-style-type: none"> Ignore—Ignore this field on receipt and follow the procedures specified for the received message type. Nack—Result code indicating that no response is expected to the message other than in cases of failure caused during the processing of the message contents or that of the contained directives. AckAll—Result code indicating that a response to the message is requested in all cases. It is specifically intended to be used in some cases for Request messages only, and is not to be used in Event messages. Success—Set by receiver to indicate successful execution of all directives in the corresponding Request message. Failure—Set by receiver in the Response message if one or more directives in the corresponding Request message fails.
Transaction ID	The transaction ID is a 24-bit number set by the sender of a request message to associate a response message with the original request message. The receiver of a request message reflects the transaction ID from the request message in the corresponding response message.

Table 17 *show ancp session event Field Descriptions (continued)*

Field	Description
I/SubMessage Number	When a message is segmented because it exceeds the maximum transmission unit (MTU) of the link layer, each segment includes a submessage number to indicate its position. If it is the first submessage in a sequence of submessages, the I flag is set and the submessage number contains the total count of submessage segments.
Port Session Number	Port session number maintained by the switch.
Event Sequence Number	The success response message gives the current value of the event sequence number of the switch port indicated by the port field.
Extension Block Length	The extension block length contains one or more type-length-values (TLVs) to identify a digital subscriber line (DSL) and define its characteristics.
Extensions	The network access server (NAS) uses the extension block in the Port Management messages to convey service attributes of the DSL lines to the DSLAM.

Related Commands

Command	Description
show ancp neighbor	Displays statistics of ANCP neighbor port information and neighborhood information with local ANCP ports.
show ancp port	Displays statistics of all ANCP local ports and their respective status and neighbor information.
show ancp session	Displays details of ANCP sessions and statistics of sessions in each state.
show ancp statistics	Collects summaries and statistics from show commands and displays the statistics at one location.
show ancp status	Displays ANCP status information for ANCP endpoints configured on a BRAS interface.

show ancp statistics

To collect summaries and statistics from **show** commands and display the statistics at one location, use the **show ancp statistics** command in user EXEC mode or privileged EXEC mode.

show ancp statistics

Syntax Description This command has no arguments or keywords.

Command Modes User EXEC (>)
Privileged EXEC (#)

Command History	Release	Modification
	12.2(28)ZV2	This command was introduced and implemented on the Cisco 10000 series router.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Examples The following example shows sample output that appears when you enter the **show ancp statistics** command:

```
Router# show ancp statistics

Local Port Statistics
=====
1    ANCP ports in UP state
4    ANCP ports in DOWN state
5    Total ANCP ports

Remote Peer Line Statistics
=====
4    DSL lines in UNKNOWN state
1    DSL lines in SHOWTIME state
0    DSL lines in IDLE state
0    DSL lines in SILENT state
5    Total DSL Lines

ANCP Session Statistics
=====
0    ANCP sessions in DOWN state
1    ANCP sessions in ESTAB state
0    ANCP sessions in SYNRCVD state
0    ANCP sessions in SYNSENT state
1    Total ANCP sessions
```

Table 18 lists the significant fields shown in the display.

Table 18 *show ancp statistics Field Descriptions*

Field	Description
ANCP ports	ANCP ports.
DSL lines	The DSL line state appears with one of the following values: UNKNOWN—Unknown state. SHOWTIME—Active state. IDLE—Idle state. SILENT—Silent state.
ANCP sessions	The ANCP session state appears with one of the following values: DOWN—Down state. ESTAB—Established state. SYNRCVD—Received state. SYNSENT—Sent state.

Related Commands

Command	Description
show ancp neighbor	Displays information about ANCP and port mappings between the DSLAM and the BRAS, and shows dynamic line conditions.
show ancp port	Displays statistics of all ANCP local ports and their respective status and neighbor information.
show ancp session	Displays details of ANCP sessions and statistics of sessions in each state.
show ancp session event	Displays a snapshot of the last ANCP session event on each port of all neighbors.
show ancp status	Displays ANCP status information for ANCP endpoints configured on a BRAS interface.

show ancp status

To display Access Node Control Protocol (ANCP) status information for ANCP endpoints configured on a broadband remote access server (BRAS) interface, use the **show ancp status** command in user EXEC mode or privileged EXEC mode.

show ancp status *type number*

Syntax Description	<i>type number</i>	Type and number of an interface.
--------------------	--------------------	----------------------------------

Command Modes	User EXEC (>) Privileged EXEC (#)
---------------	--------------------------------------

Command History	Release	Modification
	12.2(28)ZV	This command was introduced and implemented on the Cisco 10000 series router.
	12.2(31)ZV1	This command was modified for ANCP, replacing L2CP.
	Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Examples The following example shows the status information that appears when you enter the **show ancp status** command for a specific interface:

```
Router# show ancp status GigabitEthernet1/0/0
ANCP enabled on the following interfaces

GigabitEthernet1/0/0

ANCP endpoint(s) on this interface:
  ANCP stateESTAB
  Neighbor 10.0.0.1
  Neighbor port11005
  Hello interval100
  Sender instance1
  Sender name6363218A
  Send port0
  Partition ID0
  TCB 21289B00
```

[Table 19](#) lists the significant fields shown in the display.

Table 19 *show ancp status* Field Descriptions

Field	Description
Hello interval	Time in seconds between hello packets.

Table 19 *show ancp status Field Descriptions (continued)*

Field	Description
Sender instance	Instance number that changes when the access node changes from a down state to an up state.
Partition ID	Partition ID number.

Related Commands

Command	Description
show ancp neighbor	Displays information about ANCP and port mappings between the DSLAM and the BRAS, and shows dynamic line conditions.
show ancp port	Displays statistics of all ANCP local ports and their respective status and neighbor information.
show ancp session	Displays details of ANCP sessions and statistics of sessions in each state.
show ancp session event	Displays a snapshot of the last ANCP session event on each port of all neighbors.
show ancp statistics	Collects summaries and statistics from show commands and displays the statistics at one location.

show atm pvc

To display all ATM permanent virtual connections (PVCs) and traffic information, use the **show atm pvc** command in privileged EXEC mode.

show atm pvc [**interface atm** *interface-number*[*.subinterface*] *vpi/vci* **vaccess** [*detail*]]

Syntax Description

<i>vpi/vci</i>	(Optional) ATM virtual path identifier (VPI) and virtual channel identifier (VCI) numbers. The absence of the slash character (/) and a <i>vpi</i> value causes the <i>vpi</i> value to default to 0.
interface atm <i>interface-number</i>	(Optional) Displays all PVCs on the specified ATM interface. To determine the appropriate form of the <i>interface-number</i> argument, consult your ATM network module, port adapter, or router documentation.
<i>.subinterface-number</i>	(Optional) Subinterface number in the range from 1 to 4294967293. The dot (.) is required as a separator between <i>interface-number</i> and <i>subinterface-number</i> .
<i>vpi/vci</i>	(Optional) Displays the names of all of the virtual access interfaces associated with the PVC <i>vpi/vci</i> on the ATM subinterface you specify.
vaccess <i>detail</i>	Displays information about the virtual access interfaces associated with the PVC <i>vpi/vci</i> on the ATM subinterface you specify.

Command Default

All ATM PVCs are displayed.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(31)ZV1	This command was introduced to display information about all of the virtual access interfaces associated with an ATM PVC.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

If you do not specify the *vpi/vci* or *name* argument, the output of this command is the same as that of the **show atm vc** command, but only the configured PVCs appear.

If you specify the *vpi/vci* or *name* argument, the output of this command is the same as that of the **show atm vc vcd** command, with extra information related to PVC management, including connection name, detailed states, and Operation, Administration, and Maintenance (OAM) counters.

If you include the **interface atm** *interface-number* argument in the command, the output of this command displays all of the PVCs under that interface or subinterface. If you include the *vpi/vci* **vaccess** argument, the command output displays the names of all of the virtual access interfaces associated with the PVC on the ATM interface. If you include the *vpi/vci* **vaccess detail** argument, the command output displays detailed virtual access interface information.

The functionality and output of the **show atm pvc {interface atm interface-number vpi/vci}** command are unchanged.

Examples

The following is sample output from the **show atm pvc** command. The output is the same as that of the **show atm vc** command, but only the configured PVCs appear.

```
Router# show atm pvc
```

Interface	VCD/ Name	VPI	VCI	Type	Encaps	Peak Kbps	Avg/Min Kbps	Burst Cells	Sts
2/0	1	0	5	PVC	SAAL	155000	155000		UP
2/0	2	0	16	PVC	ILMI	155000	155000		UP
2/0.2	101	0	50	PVC	SNAP	155000	155000		UP
2/0.2	102	0	60	PVC	SNAP	155000	155000		DOWN
2/0.2	104	0	80	PVC	SNAP	155000	155000		UP
2/0	hello	0	99	PVC	SNAP	1000			UP

The following is sample output from the **show atm pvc** command with the *vpi/vci* argument specified:

```
Router# show atm pvc 0/41
```

```
ATM2/0: VCD: 3, VPI: 0, VCI: 41
UBR, PeakRate: 155000
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0
OAM frequency: 0 second(s), OAM retry frequency: 1 second(s), OAM retry frequency: 1
second(s)
OAM up retry count: 3, OAM down retry count: 5
OAM Loopback status: OAM Disabled
OAM VC state: Not Managed
OAM Loop detection: Disabled
ILMI VC state: Not Managed
InARP frequency: 15 minutes(s)
InPkts: 31759, OutPkts: 26497, InBytes: 2356434, OutBytes: 1589743
InPProc: 15785, OutPProc: 26472, Broadcasts: 0
InFast: 20, OutFast: 20, InAS: 15954, OutAS: 6
OAM cells received: 0
F5 InEndloop: 0, F5 InSegloop: 0, F5 InAIS: 0, F5 InRDI: 0
F4 InEndloop: 0, F4 InSegloop: 0, F4 InAIS: 0, F4 InRDI: 0
OAM cells sent: 0
F5 OutEndloop: 0, F5 OutSegloop: 0, F5 OutRDI: 0
F4 OutEndloop: 0, F4 OutSegloop: 0, F4 OutRDI: 0
OAM cell drops: 0
Status: UP
PPPOE enabled.
```

The following sample output from the **show atm pvc** command displays OAM cell emulation statistics, which are marked in this example by exclamation points:

```
Router# show atm pvc 5/500
```

```
ATM4/1/0.200: VCD: 6, VPI: 5, VCI: 500
UBR, PeakRate: 1
AAL5-LLC/SNAP, etype:0x0, Flags: 0x3400C20, VCmode: 0x0
OAM Cell Emulation: enabled, F5 End2end AIS Xmit frequency: 1 second(s) !!!
OAM frequency: 0 second(s), OAM retry frequency: 1 second(s)
```

show atm pvc

```

OAM up retry count: 3, OAM down retry count: 5
OAM Loopback status: OAM Disabled
OAM VC state: Not ManagedVerified
OAM Loop detection: Disabled
ILMI VC state: Not Managed
InPkts: 564, OutPkts: 560, InBytes: 19792, OutBytes: 19680
InPRoc: 0, OutPRoc: 0
InFast: 4, OutFast: 0, InAS: 560, OutAS: 560
InPktDrops: 0, OutPktDrops: 0
CrcErrors: 0, SarTimeOuts: 0, OverSizedSDUs: 0
Out CLP=1 Pkts: 0
OAM cells received: 26
F5 InEndloop: 0, F5 InSegloop: 0, F5 InAIS: 0, F5 InRDI: 26
OAM cells sent: 77
F5 OutEndloop: 0, F5 OutSegloop: 0, F5 OutAIS: 77, F5 OutRDI: 0 !!!
OAM cell drops: 0
Status: UP

```

The following is sample output from the **show atm pvc** command with the ATM subinterface specified:

```
Router# show atm pvc interface atm 2/0.2
```

Interface	VCD/ Name	VPI	VCI	Type	Encaps	Peak Kbps	Avg/Min Kbps	Burst Cells	Sts
2/0.2	101	0	50	PVC	SNAP	155000	155000		UP
2/0.2	102	0	60	PVC	SNAP	155000	155000		DOWN
2/0.2	104	0	80	PVC	SNAP	155000	155000		UP

The following is sample output for the **show atm pvc** command for a PVC that is a member of a multilink PPP bundle:

```
Router# show atm pvc 15/200
```

```

ATM4/0.10000:VCD:16, VPI:15, VCI:200
UBR, PeakRate:149760 (353208 cps)
AAL5-LLC/SNAP, etype:0x0, Flags:0xC20, VCmode:0x0, Encapsize:12
OAM frequency:0 second(s), OAM retry frequency:1 second(s)
OAM up retry count:3, OAM down retry count:5
OAM Loopback status:OAM Disabled
OAM VC State:Not Managed
OAM Loop detection: Disabled
ILMI VC status:Not Managed
VC TxRingLimit:40 particles
VC Rx Limit:800 particles
InARP frequency:15 minutes(s)
Transmit priority 6
InPkts:347, OutPkts:399, InBytes:6268, OutBytes:7728
InCells:347, OutCells:399
InPRoc:7, OutPRoc:228
InFast:338, OutFast:169, InAS:0, OutAS:0
InPktDrops:0, OutPktDrops:0/0/0 (holdq/outputq/total)
InCellDrops:0, OutCellDrops:0
InByteDrops:0, OutByteDrops:0
CrcErrors:0, SarTimeOuts:0, OverSizedSDUs:0, LengthViolation:0, CPIErrors:0
Out CLP=1 Pkts:0, Cells:0
OAM cells received:0
F5 InEndloop:0, F5 InSegloop:0, F5 InAIS:0, F5 InRDI:0
F4 InEndloop:0, F4 InSegloop:0, F4 InAIS:0, F4 InRDI:0
OAM cells sent:0
F5 OutEndloop:0, F5 OutSegloop:0, F5 OutRDI:0
F4 OutEndloop:0, F4 OutSegloop:0, F4 OutRDI:0
OAM cell drops:0
Status:UP
PPP:Virtual-Access3 from Virtual-Template1

```

```

PPPoA Current State = LOCALLY_TERMINATED
PPPoA Latest Event = Vaccess Up
PPPoA Latest Error = None
PPPoA Session ID = 7
PPPoA Handle = 0x4D000006, SSS Handle = 0x00000000
Switch Handle = 0xB5000006, PPP Handle = 0xD700000A
AAA Unique ID = 0x00000007, AIE Handle = 0xE7000006
PVC belongs to Multilink PPP Bundle Virtual-Access4 as a PPPoA member link
Packets in VC Holdq:0 , Particles in VC Tx Ring:0

```

The following is sample output from the **show atm pvc** command with loopback detection mode through OAM enabled:

```

Router# show atm pvc 4/100

ATM1/0: VCD: 4, VPI: 4, VCI: 100
UBR, PeakRate: 149760
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0
!
OAM frequency: 10 second(s), OAM retry frequency: 1 second(s)
OAM up retry count: 3, OAM down retry count: 5
OAM Loopback status: OAM Received
OAM VC state: Verified
OAM Loop detection: Enabled ! Indicates that loopback mode detection is enabled.
!
ILMI VC state: Not Managed
VC is managed by OAM.
InARP frequency: 15 minutes(s)
Transmit priority 4
InPkts: 0, OutPkts: 0, InBytes: 0, OutBytes: 0
InPRoc: 0, OutPRoc: 0, Broadcasts: 0
InFast: 0, OutFast: 0, InAS: 0, OutAS: 0
InPktDrops: 0, OutPktDrops: 0
CrcErrors: 0, SarTimeOuts: 0, OverSizedSDUs: 0
Out CLP=1 Pkts: 0
OAM cells received: 27
F5 InEndloop: 27, F5 InSegloop: 0, F5 InAIS: 0, F5 InRDI: 0
OAM cells sent: 27
F5 OutEndloop: 27, F5 OutSegloop: 0, F5 OutAIS: 0, F5 OutRDI: 0
OAM cell drops: 3
Status: UP

```

The following is sample output from the **show atm pvc** command when loopback mode is detected:

```

Router# show atm pvc 4/100

ATM1/0: VCD: 4, VPI: 4, VCI: 100
UBR, PeakRate: 149760
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0
!
OAM frequency: 10 second(s), OAM retry frequency: 1 second(s)
OAM up retry count: 3, OAM down retry count: 5
OAM Loopback status: OAM Sent
OAM VC state: Not Verified
OAM Loop detection: Enabled, Detected ! Indicates that loopback mode has been detected on
this interface.
!
ILMI VC state: Not Managed
VC is managed by OAM.
InARP frequency: 15 minutes(s)
Transmit priority 4
InPkts: 0, OutPkts: 0, InBytes: 0, OutBytes: 0
InPRoc: 0, OutPRoc: 0, Broadcasts: 0
InFast: 0, OutFast: 0, InAS: 0, OutAS: 0

```

```

InPktDrops: 0, OutPktDrops: 0
CrcErrors: 0, SarTimeOuts: 0, OverSizedSDUs: 0
Out CLP=1 Pkts: 0
OAM cells received: 20
F5 InEndloop: 20, F5 InSegloop: 0, F5 InAIS: 0, F5 InRDI: 0
OAM cells sent: 20
F5 OutEndloop: 20, F5 OutSegloop: 0, F5 OutAIS: 0, F5 OutRDI: 0
OAM cell drops: 1
Status: DOWN, State: NOT_VERIFIED

```

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The following example shows sample output from the **show atm pvc interface atm interface-number vpi/vci vaccess** command. In the output, the *vpi/vci vaccess* option causes the name of all of the virtual access interfaces (VAIs) to appear. These VAIs are associated with PVC 100/1000 on ATM subinterface ATM 3/0/0.6.

```

Router# show atm pvc interface atm3/0/0.6 100/1000 vaccess
      VCD / ProtocolVirtual Access
InterfaceNameVPI VCITypeInterface
ATM3/0/0.63100 1000pppoeVi3.1

```

The following example shows sample output when using the **show atm pvc interface atm interface-number vpi/vci vaccess detail** command. The output is similar to the output that appears when you use the **show interface virtual-access-number** command.

```

Router# show atm pvc interface atm3/0/0.6 100/1000 vaccess detail
ATM3/0/0.6: VCD: 3 VPI: 100 VCI: 1000
Virtual-Access3.1 is up, line protocol is up
Hardware is Virtual Access interface
Internet address will be negotiated using IPCP
MTU 1492 bytes, BW 599040 Kbit, DLY 100000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, LCP Open
Stopped: IPCP
PPPoE vaccess, cloned from Virtual-Template1
Vaccess status 0x0
PPPoE Bound to ATM3/0/0.6 VCD: 3, VPI: 100, VCI: 1000
Keepalive set (10 sec)
3 packets input, 50 bytes
3 packets output, 44 bytes
Last clearing of "show interface" counters never

```

[Table 20](#) describes the significant fields shown in the displays.

Table 20 show atm pvc Field Descriptions

Field	Description
Interface	Interface and subinterface slot and port.
VCD/Name	Virtual connection descriptor (virtual connection number). The connection name is displayed if a name for the VC was configured using the pvc command.
VPI	Virtual path identifier.
VCI	Virtual channel identifier.

Table 20 *show atm pvc Field Descriptions (continued)*

Field	Description
Type	Type of PVC detected from PVC discovery; either PVC-D, PVC-L, or PVC-M: <ul style="list-style-type: none"> PVC-D—PVC created as a result of PVC discovery. PVC-L—The corresponding peer of this PVC could not be found on the switch. PVC-M—Some or all of the QoS¹ parameters of this PVC fail to match those of the corresponding peer on the switch.
Encaps	Type of ATM adaptation layer (AAL) and encapsulation.
Peak or PeakRate	Kilobits per second sent at the peak rate.
Avg/Min or Average Rate	Kilobits per second sent at the average rate.
Burst Cells	Maximum number of ATM cells that the VC can send at peak rate.
Sts or Status	Status of the VC connection: <ul style="list-style-type: none"> UP—The connection is enabled for data traffic. DOWN—The connection is not ready for data traffic. When the Status field is DOWN, a State field is shown. See a description of the different values for the State field later in this table. INACTIVE—The interface is down.
Connection Name	Name of the PVC.
UBR, UBR+, or VBR-NRT	<ul style="list-style-type: none"> UBR—Unspecified bit rate QoS is specified for this PVC. See the ubr command for further information. UBR+—Unspecified bit rate QoS is specified for this PVC. See the ubr+ command for further information. VBR-NRT—Variable bit rate–non-real-time QoS rates are specified for this PVC. See the vbr-nrt command for further information.
etype	Encapsulation type.

Table 20 show atm pvc Field Descriptions (continued)

Field	Description
Flags	<p>Bit mask describing VC information. The flag values are summed to result in the displayed value:</p> <ul style="list-style-type: none"> • 0x40—SVC • 0x20—PVC • 0x10—ACTIVE • 0x0—AAL5-SNAP • 0x1—AAL5-NLPID • 0x2—AAL5-FRNLPID • 0x3—AAL5-MUX • 0x4—AAL3/4-SMDS • 0x5—QSAAL • 0x6—ILMI • 0x7—AAL5-LANE • 0x9—AAL5-CISCOPPP
virtual-access	Virtual-access interface identifier.
virtual-template	Virtual template identifier.
VCmode	AIP-specific or NPM-specific register describing the usage of the VC. This register contains values such as rate queue, peak rate, and AAL mode, which are also displayed in other fields.
OAM Cell emulation	The status of the OAM cell emulation functionality. It is either enabled or disabled.
F5 end2end AIS xmit frequency	Number of seconds between transmissions of AIS cells.
OAM frequency	Number of seconds between transmissions of OAM loopback cells.
OAM retry frequency	Frequency (in seconds) at which end-to-end F5 loopback cells should be sent when a change in state (up or down) is being verified. For example, if a PVC is up and a loopback cell response is not received after the value of the <i>frequency</i> argument (in seconds) specified using the oam-pvc command, loopback cells are sent at the value of the <i>retry-frequency</i> argument to determine whether the PVC is down.
OAM up retry count	Number of consecutive end-to-end F5 OAM loopback cell responses that must be received in order to change a PVC state to up. Does not apply to SVCs.
OAM down retry count	Number of consecutive end-to-end F5 OAM loopback cell responses that if not received, change a PVC state to down or tear down an SVC.

Table 20 *show atm pvc Field Descriptions (continued)*

Field	Description
OAM Loopback status	Status of end-to-end F5 OAM loopback cell generation for this VC. This field will have one of the following values: <ul style="list-style-type: none"> • OAM Disabled—End-to-end F5 OAM loopback cell generation is disabled. • OAM Sent—OAM cell was sent. • OAM Received—OAM cell was received. • OAM Failed—OAM reply was not received within the frequency period or contained a bad correlation tag.
OAM VC state	This field will have one of the following states for this VC: <ul style="list-style-type: none"> • AIS²/RDI³—The VC received AIS/RDI cells. End-to-end F5 OAM loopback cells are not sent in this state. • Down Retry—An OAM loopback failed. End-to-end F5 OAM loopback cells are sent at retry frequency to verify that the VC is really down. After down-count unsuccessful retries, the VC goes to the Not Verified state. • Not Managed—VC is not being managed by OAM. • Not Verified—VC has not been verified by end-to-end F5 OAM loopback cells. AIS and RDI conditions are cleared. • Up Retry—An OAM loopback was successful. End-to-end F5 OAM loopback cells are sent at retry frequency to verify that the VC is really up. After up-count successive and successful loopback retries, the VC goes to the Verified state. • Verified—Loopbacks are successful. AIS/RDI cell was not received.
OAM Loop detection	Status of loopback detection mode through OAM: <ul style="list-style-type: none"> • Disabled—Automatic loopback detection is disabled. • Enabled—Automatic loopback detection is enabled. • Detected—Loopback mode is detected on an ATM interface.
ILMI VC state	This field will have one of the following states for this VC: <ul style="list-style-type: none"> • Not Managed—VC is not being managed by ILMI⁴. • Not Verified—VC has not been verified by ILMI. • Verified—VC has been verified by ILMI.
VC is managed by OAM/ILMI	VC is managed by OAM or ILMI.
InARP frequency	Number of minutes for the Inverse Address Resolution Protocol time period.
InPkts	Total number of packets received on this VC. This number includes all fast-switched and process-switched packets.
OutPkts	Total number of packets sent on this VC. This number includes all fast-switched and process-switched packets.
InBytes	Total number of bytes received on this VC. This number includes all fast-switched and process-switched bytes.

Table 20 *show atm pvc Field Descriptions (continued)*

Field	Description
OutBytes	Total number of bytes sent on this VC. This number includes all fast-switched and process-switched bytes.
InPRoc	Number of process-switched input packets.
OutPRoc	Number of process-switched output packets.
Broadcasts	Number of process-switched broadcast packets.
InFast	Number of fast-switched input packets.
OutFast	Number of fast-switched output packets.
InAS	Number of autonomous-switched or silicon-switched input packets.
OutAS	Number of autonomous-switched or silicon-switched output packets.
OAM cells received	Total number of OAM cells received on this VC.
F5 InEndloop	Number of end-to-end F5 OAM loopback cells received.
F5 InSegloop	Number of segment F5 OAM loopback cells received.
F5 InAIS	Number of F5 OAM AIS cells received.
F5 InRDI	Number of F5 OAM RDI cells received.
F4 InEndloop	Number of end-to-end F4 OAM loopback cells received.
F4 InSegloop	Number of segment F4 OAM loopback cells received.
F4 InAIS	Number of F4 OAM AIS cells received.
F4 InRDI	Number of F4 OAM RDI cells received.
OAM cells sent	Total number of OAM cells sent on this VC.
F5 OutEndloop	Number of end-to-end F5 OAM loopback cells sent.
F5 OutSegloop	Number of segment F5 OAM loopback cells sent.
F5 OutRDI	Number of F5 OAM RDI cells sent.
OAM cell drops	Number of OAM cells dropped (or flushed).
PVC Discovery	<ul style="list-style-type: none"> • NOT_VERIFIED—This PVC is manually configured on the router and not yet verified with the attached adjacent switch. • WELL_KNOWN—This PVC has a VCI value of 0 through 31. • DISCOVERED—This PVC is learned from the attached adjacent switch via ILMI. • MIXED—Some of the traffic parameters for this PVC were learned from the switch via ILMI. • MATCHED—This PVC is manually configured on the router, and the local traffic-shaping parameters match the parameters learned from the switch. • MISMATCHED—This PVC is manually configured on the router, and the local traffic-shaping parameters do not match the parameters learned from the switch. • LOCAL_ONLY—This PVC is configured locally on the router and not on the remote switch.

Table 20 *show atm pvc Field Descriptions (continued)*

Field	Description
Status	When the Status field indicates UP, the VC is established. When the Status field indicates DOWN, refer to the State field for further information about the VC state.
State	When the Status field is UP, this field does not appear. When the Status field is DOWN or INACTIVE, the State field will appear with one of the following values: <ul style="list-style-type: none"> • NOT_VERIFIED—The VC has been established successfully; waiting for OAM (if enabled) and ILMI (if enabled) to verify that the VC is up. • NOT_EXIST—VC has not been created. • HASHING_IN—VC has been hashed into a hash table. • ESTABLISHING—Ready to establish VC connection. • MODIFYING—VC parameters have been modified. • DELETING—VC is being deleted. • DELETED—VC has been deleted. • NOT_IN_SERVICE—ATM interface is shut down.
PPP	For PPP over ATM, indicates the virtual access interface number and virtual template number being used.
PPPoA Current State	State of the PPPoA session associated with the VC.
PPPoA Latest Event	The latest event that occurred on the PPPoA session associated with the VC.
PPPoA Latest Error	The latest error that occurred on the PPPoA session associated with the VC.
PPPoA Session ID	PPPoA session identifier of the PPPoA session associated with the VC.
PPPoA Handle	PPPoA context handle.
SSS Handle	SSS handle for PPPoA session associated with the VC.
Switch Handle	SSS handle for switch management.
PPP Handle	Handle associated with the PPP context.
AAA Unique ID	Unique identifier associated with the AAA session.
AIE Handle	Access IE handle for the PPPoA session.
Packets in VC Holdq	Number of packets in the hold queue of the VC.
Particles in VC Tx Ring	Number of particles in the Tx ring of the VC.

1. QoS = quality of service
2. AIS = alarm indication signal
3. RDI = remote defect identification
4. ILMI = Interim Local Management Interface

Related Commands

Command	Description
show atm svc	Displays all ATM SVCs and traffic information.
show atm vc	Displays all ATM PVCs and SVCs and traffic information.

subscriber service

To enable per-subscriber services, use the **subscriber service** command in global configuration mode. To disable per-subscriber services, use the **no** form of this command.

```
subscriber service { coa-rfc-compliant | multiple-accept | password | police | session-accounting |
shaper | target-atm-vc }
```

```
no subscriber service { coa-rfc-compliant | multiple-accept | password | police | session-accounting
| shaper | target-atm-vc }
```

Syntax Description

coa-rfc-compliant	Sends RFC 3576 compliant change of authorization (CoA) NAK messages.
multiple-accept	Allows multiple services on access-accept.
password	Password to use when downloading services.
police	Quality of service (QoS) RADIUS service police command.
session-accounting	Enables the inclusion of activated services in a session accounting start message.
shaper	QoS RADIUS service shaper command.
target-atm-vc	Enables the QoS service on the target ATM virtual circuit (VC).

Command Default

Service accounting is disabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
Release 12.2(31)ZV1	This command was introduced for session accounting and was implemented on the Cisco 10000 series router for the PRE3.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

The **subscriber service session-accounting** command enables the router to include all activated services in a single accounting Session-Start message for a session.

RADIUS can activate a service using the RADIUS Access-Accept message. When RADIUS activates a service on the router after the router sends the accounting Session-Start message, the router generates an accounting session update that includes all activated services.

When a session stops, all currently active services are included in the accounting session stop record.

Examples

The following example enables per-service accounting:

```
Router(config)# subscriber service session-accounting
```

Related Commands

Command	Description
bandwidth account	Enables class-based fair queuing and ATM overhead accounting.
shape account	Shapes traffic to the indicated bit rate and enables ATM overhead accounting.

subscriber service multiple-accept

To configure the BRAS to accept multiple service processing use the **subscriber service multiple-accept** command in global configuration mode. To turn off multiple service processing use the **no** form of the command.

subscriber service multiple-accept

no subscriber service multiple-accept

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration

Command History	Release	Modification
	12.2(31)ZV	This command was introduced and implemented on the Cisco 10000 series router.
	Cisco IOS XE Release 2.4	This command was implemented on the Cisco ASR 1000 Series Aggregation Services Router.

Examples The following sample configuration shows how to turn on the subscriber service multiple-accept feature.

```
ip dhcp class MY_DHCP
!
ip cef
!
!
subscriber service multiple-accept
subscriber access pppoe pre-authorize nas-port-id default
subscriber authorization enable
vpdn enable
!
redirect server-group rabapol-14redirect-group
ip 217.89.29.149 port 80
```

test aaa group

To associate a dialed number identification service (DNIS) or calling line identification (CLID) user profile with the record that is sent to the RADIUS server or to manually test load-balancing server status, use the **test aaa group** command in privileged EXEC mode.


DNIS and CLID User Profile

```
test aaa group {group-name | radius} username password new-code [profile profile-name]
```

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```
test aaa group group-name [server ip-address] [auth-port port-number] [acct-port port-number]
username password new-code [count requests] [rate requests-per-second] [blocked {yes |
no}]
```

Syntax Description

<i>group-name</i>	Subset of RADIUS servers that are used, as defined by the server group <i>group-name</i> .
radius	Uses RADIUS servers for authentication.
<i>username</i>	Name for the test user.
	 <p>Caution If you use this command to manually test RADIUS load-balancing server state, it is recommended that a test user, one that is not defined on the RADIUS server, be used to protect against security issues that may arise if the test user is not correctly configured.</p>
<i>password</i>	Password.
new-code	Code path through the new code, which supports a CLID or DNIS user profile association with a RADIUS server.
profile <i>profile-name</i>	(Optional) Identifies the user profile specified in the aaa user profile command. To associate a user profile with the RADIUS server, you must identify the user profile name.
server <i>ip-address</i>	(Optional) For RADIUS server load balancing, specifies to which server in the server group the test packets will be sent.
auth-port	(Optional) User Datagram Protocol (UDP) destination port for authentication requests.
<i>port-number</i>	(Optional) Port number for authentication requests; the host is not used for authentication if set to 0. If unspecified, the port number defaults to 1646.
acct-port	(Optional) UDP destination port for accounting requests.
<i>port-number</i>	(Optional) Port number for accounting requests; the host is not used for accounting if set to 0. If unspecified, the port number defaults to 1646.
count <i>requests</i>	(Optional) Number of authentication and accounting requests that are to be sent to the server for each port. Range: 1 to 50000. Default: 1.

rate <i>requests-per-second</i>	(Optional) Number of requests per second that are to be sent to the server. Range: 1 to 1000. Default: 10.
blocked { yes no }	(Optional) Specifies whether the request is sent in blocking or nonblocking mode. If the blocked keyword is not used and one request is sent, the default is yes ; if more than one request is sent, the default is no .

Command Defaults**DNIS and CLID User Profile**

DNIS or CLID attribute values are not sent to the RADIUS server.

RADIUS Server Load Balancing Manual Testing

RADIUS server load-balancing server status manual testing does not occur.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(4)T	This command was introduced.
12.2(28)SB	The following keywords and arguments were added for configuring RADIUS load balancing manual testing functionality: server <i>ip-address</i> , auth-port <i>port-number</i> , acct-port <i>port-number</i> , count <i>request</i> , rate <i>requests-per-second</i> , blocked .
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.
12.2(31)ZV1	This command was enhanced to show user attributes returned from RADIUS authentication when authentication is successful.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.

Usage Guidelines

The **test aaa group** command can be used to

- Associate a DNIS or CLID named user profile with the record that is sent to the RADIUS server, which can then access DNIS or CLID information when the server receives a RADIUS record.
- Verify RADIUS load-balancing server status.



Note The **test aaa group** command does not work with TACACS+.

Examples

The following example shows how to configure a dnis = dnisvalue user profile named prfl1 and associate it with a **test aaa group** command:

```
aaa user profile prfl1
  aaa attribute dnis
  aaa attribute dnis dnisvalue
  no aaa attribute clid
! Attribute not found.
```

```

aaa attribute clid clidvalue
no aaa attribute clid
exit
!
! Associate the dnis user profile with the test aaa group command.
test aaa group radius user1 pass new-code profile prfl1

```

The following example shows the response from a load-balanced RADIUS server that is alive when the username “test” does not match a user profile. The server is verified alive when it issues an Access-Reject response to a AAA packet generated by the **test aaa group** command.

```

Router# test aaa group SG1 test lab new-code

00:06:07: RADIUS/ENCODE(00000000):Orig. component type = INVALID
00:06:07: RADIUS/ENCODE(00000000): dropping service type, "radius-server attribute 6
on-for-login-auth" is off
00:06:07: RADIUS(00000000): Config NAS IP: 192.0.2.4
00:06:07: RADIUS(00000000): sending
00:06:07: RADIUS/ENCODE: Best Local IP-Address 192.0.2.141 for Radius-Server 192.0.2.176
00:06:07: RADIUS(00000000): Send Access-Request to 192.0.2.176:1645 id 1645/1, len 50
00:06:07: RADIUS: authenticator CA DB F4 9B 7B 66 C8 A9 - D1 99 4E 8E A4 46 99 B4
00:06:07: RADIUS: User-Password [2] 18 *
00:06:07: RADIUS: User-Name [1] 6 "test"
00:06:07: RADIUS: NAS-IP-Address [4] 6 192.0.2.141
00:06:07: RADIUS: Received from id 1645/1 192.0.2.176:1645, Access-Reject, len 44
00:06:07: RADIUS: authenticator 2F 69 84 3E F0 4E F1 62 - AB B8 75 5B 38 82 49 C3
00:06:07: RADIUS: Reply-Message [18] 24
00:06:07: RADIUS: 41 75 74 68 65 6E 74 69 63 61 74 69 6F 6E 20 66 [Authentication ]
00:06:07: RADIUS: 61 69 6C 75 72 65 [failure]
00:06:07: RADIUS(00000000): Received from id 1645/1
00:06:07: RADIUS/DECODE: Reply-Message fragments, 22, total 22 bytes

```

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The following example shows the user attribute list that the RADIUS server returns when you issue the **test aaa** command and authentication is successful:

```

Router# test aaa group radius viral viral new-code blocked no
AAA/SG/TEST: Sending 1 Access-Requests @ 10/sec, 0 Accounting-Requests @ 10/sec

CLI-1#
AAA/SG/TEST: Testing Status
AAA/SG/TEST: Authen Requests to Send : 1
AAA/SG/TEST: Authen Requests Processed : 1
AAA/SG/TEST: Authen Requests Sent : 1
AAA/SG/TEST: Authen Requests Replied : 1
AAA/SG/TEST: Authen Requests Successful : 1
AAA/SG/TEST: Authen Requests Failed : 0
AAA/SG/TEST: Authen Requests Error : 0
AAA/SG/TEST: Authen Response Received : 1
AAA/SG/TEST: Authen No Response Received: 0

AAA/SG/TEST: Testing Status
AAA/SG/TEST: Account Requests to Send : 0
AAA/SG/TEST: Account Requests Processed : 0
AAA/SG/TEST: Account Requests Sent : 0
AAA/SG/TEST: Account Requests Replied : 0
AAA/SG/TEST: Account Requests Successful : 0
AAA/SG/TEST: Account Requests Failed : 0
AAA/SG/TEST: Account Requests Error : 0
AAA/SG/TEST: Account Response Received : 0
AAA/SG/TEST: Account No Response Received: 0

```

test aaa group

USER ATTRIBUTES

```

username          "Username:viral"
nas-ip-address    3.1.1.1
interface         "210"
service-type      1 [Login]
Framed-Protocol   3 [ARAP]
ssg-account-info  "S20.5.0.2"
ssg-command-code  0B 4C 32 54 50 53 55 52 46
Router

```

Related Commands

Command	Description
aaa attribute	Adds DNIS or CLID attribute values to a user profile.
aaa user profile	Creates a AAA user profile.
load-balance	Enables RADIUS server load-balancing for RADIUS-named server groups.
radius-server host	Enables RADIUS automated testing for load balancing.
radius-server load-balance	Enables RADIUS server load-balancing for the global RADIUS server group.