



Configuring the Physical Subscriber Line for RADIUS Access and Accounting

Configuring a physical subscriber line for RADIUS Access and Accounting enables an L2TP access concentrator (LAC) and an L2TP network server (LNS) to forward RADIUS NAS-Port and NAS-Port-Type attribute values for PPP over ATM, PPPoE over ATM, and PPPoE over IEEE 802.1Q VLANs.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Prerequisites for Configuring the Physical Subscriber Line for RADIUS Access and Accounting

- RADIUS port identification for PPP requires the PPP extended NAS-Port format.
- You must perform the configuration procedures in the "Configuring RADIUS" chapter in the Cisco IOS Security Configuration Guide.
- You must perform the PPP over ATM configuration procedures in the "Providing Protocol Support for Broadband Access Aggregation of PPP over ATM Sessions" module.
- You must perform the PPPoE configuration procedures in the "Providing Protocol Support for Broadband Access Aggregation of PPPoE Sessions" module.



Note

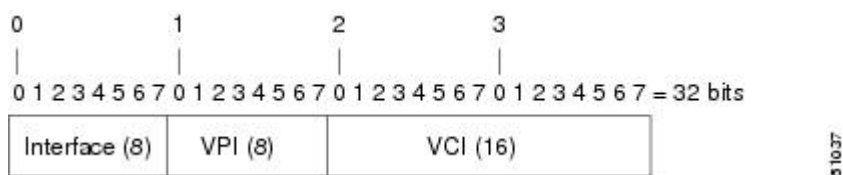
The PPP extended NAS-Port format increases the size of the NAS-Port attribute field to 32 bits and changes the NAS-Port attribute format to provide the RADIUS server with details about the ATM port, the virtual path identifier (VPI), the virtual channel identifier (VCI), and, for IEEE 802.1Q VLANs, the VLAN ID.

Information About Configuring the Physical Subscriber Line for RADIUS Access and Accounting

PPP over ATM and PPPoE over ATM NAS-Port Attribute Field Format

For PPP over ATM and PPP over ATM, the PPP extended format enables the NAS-Port attribute field to provide details about the ATM interface, VPI, and VCI. The figure below shows the format of the NAS-Port attribute field when the PPP extended NAS-Port format is configured and PPPoA over ATM or PPPoE over ATM is being used.

Figure 1: Format of the NAS-Port Attribute Field for PPP over ATM and PPPoE over ATM



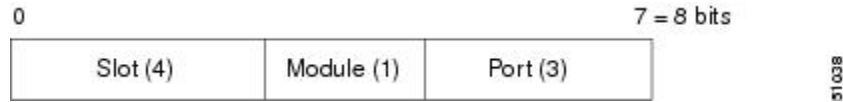
The interfaces, VPI, and VCI correspond to the interface and virtual circuit (VC) on which the ppp session entered the router.



Note For Cisco 6400 series routers, the interface, VPI, and VCI correspond to the interface and VC on which the session entered the Cisco 6400 node switch processor (NSP).

The figure below shows the format of the 8-bit interface field. For platforms that do not have slots or modules, the slot and module fields is 0.

Figure 2: Format of the Interface Field for PPP over ATM and PPPoE over ATM

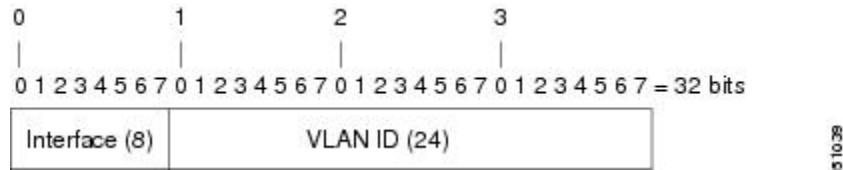


The NAS-Port-Type value for PPP over ATM and PPPoE over ATM is 5, which is the value for virtual port types.

PPPoE over IEEE 802.1Q VLANs Format

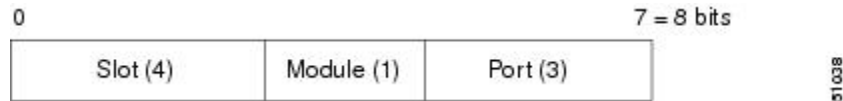
For PPPoE over 802.1Q VLANs, the PPP extended format provides details about the interface and the VLAN ID. The figure below shows the format of the NAS-Port attribute field when the PPP extended NAS-Port format is configured and PPPoE over an IEEE 802.1Q VLAN is being used.

Figure 3: Format of the NAS-Port Attribute Field for PPPoE over 802.1Q VLANs



The figure below shows the format of the 8-bit interface field. For platforms that do not have slots or modules, the slot and module fields will be 0.

Figure 4: Format of the Interface Field for PPPoE over 802.1Q VLANs



The NAS-Port-Type value for PPPoE over 802.1Q VLANs is 15.

How to Configure the Physical Subscriber Line for RADIUS Access and Accounting

Configuring the LAC for RADIUS Port Identification for PPP

Perform this task to configure the LAC for RADIUS port identification for PPP.

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `radius-server attribute nas-port format d`
4. `end`

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	radius-server attribute nas-port format d Example: Router(config)# radius-server attribute nas-port format d	Specifies that PPP extended NAS-Port format that is used for RADIUS accounting.
Step 4	end Example: Router(config-bba-group)# end	Ends the configuration session and returns to privileged EXEC mode.

Configuring the LNS for RADIUS Port Identification for PPP

Perform this task to configure the LNS for RADIUS port identification for PPP.



Note In order for the LNS to forward PPP extended NAS-Port format values to the RADIUS server, both the LAC and the LNS must be Cisco routers running a Cisco IOS image that supports RADIUS port identification for PPP.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **radius-server attribute nas-port format d**
4. **vpdn aaa attribute nas-port vpdn-nas**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	radius-server attribute nas-port format d Example: Router(config)# radius-server attribute nas-port format d	Specifies that PPP extended NAS-Port format that is used for RADIUS accounting.
Step 4	vpdn aaa attribute nas-port vpdn-nas Example: Router(config)# vpdn aaa attribute nas-port vpdn-nas	Enables the LNS to send PPP extended NAS-Port format values to the RADIUS server for accounting.

	Command or Action	Purpose
Step 5	end Example: Router(config-bba-group)# end	Ends the configuration session and returns to privileged EXEC mode.

Configuration Examples for Identifying the Physical Subscriber Line

RADIUS Port Identification for PPPoE over ATM Example

The following example shows the configuration of the PPP extended NAS-Port format on an LAC using PPPoE over ATM:

```

vpdn enable
!
vpdn-group 1
 request-dialin
 protocol l2tp
 domain vpn1

initiate-to ip 10.12.1.64 priority 1
 local name NAS1-1
!
virtual-template 1 pre-clone 20
virtual-template 2 pre-clone 20
!
!
bba-group pppoe vpn1
 virtual-template 1
 sessions per-vc limit 2
 sessions per-mac limit 1
!
!

interface ATM4/0.1 multipoint
 pvc 1/33
 encapsulation aal5snap
 protocol pppoe group vpn1
!
!
aaa new-model
aaa authentication ppp default local group radius
aaa authorization network default local group radius
aaa accounting network default start-stop group radius
radius-server host 172.69.69.66 auth-port 1645 acct-port 1646
radius-server retransmit 3
radius-server attribute nas-port format d
radius-server key rad123
!

```

RADIUS Port Identification for PPPoE over an 802.1Q VLAN Example

The following example shows the configuration of the PPP extended NAS-Port format on an LAC running PPPoE over an 802.1Q VLAN:

```
bba-group pppoe global
  virtual-template 1
  sessions max limit 8000
  sessions per-vc limit 8
sessions per-mac limit 2

!
bba-group pppoe vpn1
  virtual-template 1
  sessions per-vc limit 2
  sessions per-mac limit 1
!
bba-group pppoe vpn2
  virtual-template 2
  sessions per-vc limit 2
  sessions per-mac limit 1 !
vc-class atm class-pppoe-global
  protocol pppoe
! !
interface FastEthernet2/0.2
  encapsulation dot1Q 2
  pppoe enable group vpn1
!
interface FastEthernet2/0.3
  encapsulation dot1Q 3
  pppoe enable group vpn2
!
aaa new-model

aaa authentication ppp default local group radius
aaa authorization network default local group radius
aaa accounting network default start-stop group radius
radius-server host 172.69.69.66 auth-port 1645 acct-port 1646
radius-server retransmit 3
radius-server attribute nas-port format d
radius-server key rad123
```

LNS Configuration for RADIUS Port Identification for PPP Example

In the following example, the LNS is configured to recognize and forward PPP extended NAS-Port format values to the RADIUS server. The PPP extended NAS-Port format must also be configured on the LAC for this configuration to be effective.

```
vpdn enable
no vpdn logging
!
vpdn-group L2TP-tunnel
  accept-dialin
  protocol l2tp
  virtual-template 1
  terminate-from hostname lac1
  local name lns1
!
!
aaa new-model
aaa authentication ppp default local group radius
aaa authorization network default local group radius
```

```

aaa accounting network default start-stop group radius
radius-server host 172.79.79.76 auth-port 1645 acct-port 1646
radius-server retransmit 3
radius-server attribute nas-port format d
radius-server key lns123
!
vpdn aaa attribute nas-port vpdn-nas

```

Additional References

The following sections provide references related to the Identifying the Physical Subscriber Line for RADIUS Access and Accounting feature.

Related Documents

Related Topic	Document Title
Configuring PPP over ATM sessions	"Providing Protocol Support for Broadband Access Aggregation of PPP over ATM Sessions" module
Configuring PPPoE sessions	"Providing Protocol Support for Broadband Access Aggregation of PPPoE Sessions" module
RADIUS configuration	"Configuring RADIUS" module of the <i>Cisco IOS Security Configuration Guide</i>
RADIUS attributes	"RADIUS Attributes" appendix to the <i>Cisco IOS Security Configuration Guide</i>
Tunneling configuration	"Configuring Virtual Private Networks" module of the <i>Cisco IOS Dial Technologies Configuration Guide</i>

Standards

Standard	Title
No new or modified standards are supported by this feature.	--

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
None	--

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	http://www.cisco.com/techsupport

Feature Information for Identifying the Physical Subscriber Line for RADIUS Access and Accounting

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [http://www.cisco.com/go/featurenavigator](#). An account on Cisco.com is not required.

Table 1: Feature Information for Identifying the Physical Subscriber Line for RADIUS Access and Accounting

Feature Name	Releases	Feature Information
RADIUS Port Identification	12.2(1) 12.2(33)SRC	<p>Configuring RADIUS port identification for PPP enables an L2TP access concentrator (LAC) and an L2TP network server (LNS) to identify and forward RADIUS NAS-Port and NAS-Port-type attribute values for PPP over ATM, PPPoE over ATM, and PPPoE over IEEE 802.1Q VLANs.</p> <p>In 12.2(1), this feature was introduced.</p> <p>In 12.2(33)SRC, this feature was integrated into the SRC release.</p>