



Monitoring PPPoE Sessions with SNMP

First Published: May 2, 2005

Last Updated: February 20, 2010

The PPPoE Session Count Management Information Base feature provides the ability to use Simple Network Management Protocol (SNMP) to monitor in real time the number of PPP over Ethernet (PPPoE) sessions configured on permanent virtual circuits (PVCs) and on a router.

The SNMP Traps for PPPoE Session Limits feature provides SNMP MIB support for the PPPoE session limits and generates notifications in case the limits are reached.

This MIB also supports two SNMP traps that generate notification messages when a PPPoE session-count threshold is reached on any PVC or on the router. The PPPoE session-count thresholds can be configured using the **sessions max limit** and **pppoe max-sessions** commands.

Finding Feature Information

For the latest feature information and caveats, see 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 for Monitoring PPPoE Sessions with SNMP](#)” section on page 17.

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

Contents

- [Prerequisites for Monitoring PPPoE Sessions with SNMP, page 2](#)
- [Restrictions for Monitoring PPPoE Sessions with SNMP, page 2](#)
- [Information About Monitoring PPPoE Sessions with SNMP, page 2](#)
- [How to Configure Monitoring of PPPoE Sessions with SNMP, page 4](#)
- [Configuration Examples for Monitoring PPPoE Sessions with SNMP, page 13](#)



Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Prerequisites for Monitoring PPPoE Sessions with SNMP

- [Where to Go Next, page 14](#)
- [Additional References, page 15](#)
- [Feature Information for Monitoring PPPoE Sessions with SNMP, page 17](#)

Prerequisites for Monitoring PPPoE Sessions with SNMP

- You must understand the concepts described in the [Preparing for Broadband Access Aggregation](#) module.
- PPPoE sessions must be established using the procedures in the [Providing Protocol Support for Broadband Access Aggregation of PPPoE Sessions](#) module.

Restrictions for Monitoring PPPoE Sessions with SNMP

The **snmp-server enable traps pppoe** command enables SNMP traps only. It does not support inform requests.

Information About Monitoring PPPoE Sessions with SNMP

In order to perform monitoring of PPPoE sessions with SNMP, you should understand the following concepts:

- [Network Management Protocol, page 2](#)
- [PPPoE Session Count MIB, page 2](#)
- [Benefits of Monitoring PPPoE Sessions with SNMP, page 3](#)

Network Management Protocol

SNMP is a network management protocol used almost exclusively in TCP/IP networks. SNMP provides a means to monitor and control network devices and to manage configurations, statistics collection, performance, and security. SNMP version 2 supports centralized and distributed network management strategies and includes improvements in the Structure of Management Information (SMI), protocol operations, management architecture, and security.

PPPoE Session Count MIB

A MIB is a database of network management information that is used and maintained by a network management protocol, such as SNMP. The value of a MIB object can be changed or retrieved using SNMP commands, usually through a network management system.

The PPPoE Session Count MIB uses two SNMP traps that generate notification messages when a PPPoE session-count threshold is reached on any PVC or on the router. The PPPoE session-count thresholds can be configured using the **sessions max limit** and **pppoe max-sessions** commands. You can also set per-MAC session and IWF limits for a PPPoE session, per-MAC throttle rate limit for a PPPoE session, per-VLAN session configuration limit, per-VLAN throttle rate limit, per-VC session configuration limit, and per-VC throttle rate limit configuration limit.

Table 1 describes the objects and tables supported by the PPPoE Session-Count MIB. For a complete description of the MIB, see the PPPoE Sessions Management MIB file CISCO-PPPOE-MIB.my, available through Cisco.com at the following URL: <http://tools.cisco.com/ITDIT/MIBS/servlet/index>.

Table 1 PPPoE Session Count MIB Objects and Tables

Object or Table	Description
cPppoeSystemCurrSessions	Number of PPPoE sessions active on the router.
cPppoeSystemHighWaterSessions	Highest number of PPPoE sessions configured at a particular time after the system was initialized.
cPppoeSystemMaxAllowedSessions	Number of PPPoE sessions configurable on the router.
cPppoeSystemThresholdSessions	Threshold value of PPPoE sessions configurable on the router.
cPppoeSystemExceededSessionErrors	Accumulated number of errors on the router that have occurred because the cPppoeSystemCurrSessions value exceeded the cPppoeSystemMaxAllowedSessions value.
cPppoeSystemPerMacSessionlimit	Per-MAC session limit for a PPPoE session
cPppoeSystemPerMacIWFSessionlimit	Per-MAC session IWF limit for a PPPoE session
cPppoeSystemPerMacThrottleRatelimit	Per-MAC throttle rate limit for a PPPoE session
cPppoeSystemPerVLANlimit	Per-VLAN session configuration limit
cPppoeSystemPerVLANthrottleRatelimit	Per-VLAN throttle rate limit
cPppoeSystemPerVClimit	Per-VC session configuration limit
cPppoeSystemPerVCThrottleRatelimit	Per-VC throttle rate limit configuration limit
cPppoeVcCfgTable	PPPoE protocol-related configuration information about the virtual channel links (VCLs).
cPppoeVcSessionsTable	Configuration information and statistics about the number of PPPoE sessions on the VCLs.
cPppoeSystemSessionThresholdTrap	Generates a notification message when the number of PPPoE sessions on the router reaches the configured threshold value.
cPppoeVcSessionThresholdTrap	Generates a notification message when the number of PPPoE sessions on the PVC reaches the configured threshold value.

Benefits of Monitoring PPPoE Sessions with SNMP

The monitoring of PPPoE sessions with SNMP provides the following benefits:

- It helps manage the number of PPPoE sessions configured on a router or PVC by sending notification messages when the PPPoE session threshold has been reached.
- It provides a way of tracking PPPoE session information over time.

How to Configure Monitoring of PPPoE Sessions with SNMP

This section contains the following procedures:

- Configuring the PPPoE Session-Count Threshold for the Router, page 4 (optional)
- Configuring the PPPoE Session-Count Threshold for a PVC, page 5 (optional)
- Configuring the PPPoE Session-Count Threshold for a VC Class, page 7 (optional)
- Configuring the PPPoE Session-Count Threshold for an ATM PVC Range, page 8 (optional)
- Configuring the PPPoE Session-Count Threshold for an Individual PVC Within a Range, page 9 (optional)
- Monitoring and Maintaining PPPoE Session Counts and SNMP Notifications, page 11 (optional)

Configuring the PPPoE Session-Count Threshold for the Router

Perform this task to configure the PPPoE session-count threshold for the router.



Note The **sessions max limit** command is available only if you configure the **bba-group pppoe** command using the **global** keyword.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **snmp-server enable traps pppoe**
4. **bba-group pppoe {group-name | global}**
5. **sessions max limit session-number [threshold threshold-value]**
6. **virtual-template template-number**
7. **end**
8. **more system:running-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
	Example: Router> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example: Router# configure terminal	

Command or Action	Purpose
Step 3 <code>snmp-server enable traps pppoe</code>	(Optional) Enables PPPoE session count SNMP notifications.
Example: Router(config)# snmp-server enable traps pppoe	<ul style="list-style-type: none"> This command enables SNMP traps that send notification messages when PPPoE sessions have been reached.
Step 4 <code>bba-group pppoe {group-name global}</code>	Configures a BBA group to be used to establish PPPoE sessions and enters BBA group configuration mode.
Example: Router(config)# bba-group pppoe global	
Step 5 <code>sessions max limit session-number [threshold threshold-value]</code>	Configures the PPPoE global profile with the maximum number of PPPoE sessions permitted on a router and sets the PPPoE session-count threshold at which an SNMP trap will be generated.
Example: Router(config-bba-group)# sessions max limit 4000 threshold 3000	Note This command applies only to the global profile.
Step 6 <code>virtual-template template-number</code>	Specifies the virtual template that will be used to clone the virtual access interfaces (VAI).
Example: Router(config-bba-group)# virtual-template 1	
Step 7 <code>end</code>	Exits BBA group configuration mode and returns to privileged EXEC mode.
Example: Router(config-bba-group)# end	
Step 8 <code>more system:running-config</code>	Displays the running configuration and the PPPoE session-count thresholds.
Example: Router(#) more system:running-config	

Configuring the PPPoE Session-Count Threshold for a PVC

Perform this task to configure the PPPoE session-count threshold for a PVC.

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `snmp-server enable traps pppoe`
4. `interface atm slot/subslot/port[.subinterface] [multipoint | point-to-point]`
5. `pvc [name] vpi/vci`
6. `pppoe max-sessions number-of-sessions [threshold-sessions number-of-sessions]`
7. `protocol pppoe`
8. `end`
9. `more system:running-config`

How to Configure Monitoring of PPPoE Sessions with SNMP

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
	Example: Router> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example: Router# configure terminal	
Step 3	snmp-server enable traps pppoe	(Optional) Enables PPPoE session count SNMP notifications. <ul style="list-style-type: none"> • This command enables SNMP traps that send notification messages when PPPoE session thresholds have been reached.
Step 4	interface atm slot/subslot/port[.subinterface] [multipoint point-to-point]	Configures the ATM interface and enters subinterface configuration mode.
	Example: Router(config)# interface atm 0/0/0.3 point-to-point	
Step 5	pvc [name] vpi/vci	Creates an ATM PVC and enters ATM VC configuration mode.
	Example: Router(config-subif)# pvc 5/120	
Step 6	pppoe max-sessions number-of-sessions [threshold-sessions number-of-sessions]	Sets the maximum number of PPPoE sessions that will be permitted on an ATM PVC, PVC range, VC class, or VLAN, and sets the PPPoE session-count threshold at which an SNMP trap will be generated.
	Example: Router(config-if-atm-vc)# pppoe max-sessions 5 threshold-sessions 3	
Step 7	protocol pppoe	Enables PPPoE sessions to be established on ATM PVCs.
	Example: Router(config-if-atm-vc)# protocol pppoe	
Step 8	end	(Optional) Exits ATM VC configuration mode and returns to sub interface mode.
	Example: Router(config-if-atm-vc)# end	
Step 9	more system:running-config	Displays the running configuration and the PPPoE session-count thresholds.
	Example: Router(#) more system:running-config	

Configuring the PPPoE Session-Count Threshold for a VC Class

Perform this task to configure the PPPoE session-count threshold for a VC class.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **snmp-server enable traps pppoe**
4. **vc-class atm *name***
5. **pppoe max-sessions *number-of-sessions* [threshold-sessions *number-of-sessions*]**
6. **protocol pppoe [group *group-name* | global]**
7. **end**
8. **more system:running-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
	Example: Router> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example: Router# configure terminal	
Step 3	snmp-server enable traps pppoe	(Optional) Enables PPPoE session count SNMP notifications. <ul style="list-style-type: none"> • This command enables SNMP traps that send notification messages when PPPoE session thresholds have been reached.
Step 4	vc-class atm <i>name</i>	Creates a VC class for an ATM PVC, or SVC, or ATM interface and enters VC class configuration mode.
	Example: Router(config)# vc-class atm main	
Step 5	pppoe max-sessions <i>number-of-sessions</i> [threshold-sessions <i>number-of-sessions</i>]	Sets the maximum number of PPPoE sessions that will be permitted on an ATM PVC, PVC range, VC class, or VLAN, and sets the PPPoE session-count threshold at which an SNMP trap will be generated.
	Example: Router(config-vc-class)# pppoe max-sessions 7 threshold-sessions 3	
Step 6	protocol pppoe [group <i>group-name</i> global]	Enables PPPoE sessions to be established.
	Example: Router(config-vc-class)# protocol pppoe group one	

How to Configure Monitoring of PPPoE Sessions with SNMP

	Command or Action	Purpose
Step 7	end	(Optional) Exits VC class configuration mode and returns to privileged EXEC mode.
Step 8	more system:running-config	Displays the running configuration and the PPPoE session-count thresholds.

Configuring the PPPoE Session-Count Threshold for an ATM PVC Range

1. **enable**
2. **configure terminal**
3. **snmp-server enable traps pppoe**
4. **interface atm slot/subslot/port[.subinterface] [multipoint | point-to-point]**
5. **range [range-name] pvc start-vpi/start-vci end-vpi/end-vci**
6. **pppoe max-sessions number-of-sessions [threshold-sessions number-of-sessions]**
7. **protocol pppoe [group group-name | global]**
8. **end**
9. **more system:running-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal	Enters global configuration mode.
Step 3	snmp-server enable traps pppoe	(Optional) Enables PPPoE session count SNMP notifications. <ul style="list-style-type: none"> • This command enables SNMP traps that send notification messages when PPPoE session thresholds have been reached.
Step 4	interface atm slot/subslot/port[.subinterface] [multipoint point-to-point]	Configures the ATM interface and enters the subinterface configuration mode.

Command or Action	Purpose
Step 5 <code>range [range-name] pvc start-vpi/start-vci end-vpi/end-vci</code>	Defines a range of ATM PVCs and enters ATM PVC range configuration mode.
Example: Router(config-subif)# range pvc 3/100 3/105	
Step 6 <code>pppoe max-sessions number-of-sessions [threshold-sessions number-of-sessions]</code>	Sets the maximum number of PPPoE sessions that will be permitted on an ATM PVC, PVC range, VC class, or VLAN, and sets the PPPoE session-count threshold at which an SNMP trap will be generated.
Example: Router(config-if-atm-range)# pppoe max-sessions 20 threshold-sessions 15	
Step 7 <code>protocol pppoe [group group-name global]</code>	Enables PPPoE sessions to be established.
Example: Router(config-if-atm-range)# protocol pppoe group two	
Step 8 <code>end</code>	(Optional) Exits ATM PVC range configuration mode and returns to privileged EXEC mode.
Example: Router(config-if-atm-range)# end	
Step 9 <code>more system:running-config</code>	Displays the running configuration and the PPPoE session-count thresholds.
Example: Router(#) more system:running-config	

Configuring the PPPoE Session-Count Threshold for an Individual PVC Within a Range

Perform this task to configure the PPPoE session-count threshold for an individual PVC within an ATM PVC range.

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `snmp-server enable traps pppoe`
4. `interface atm slot/subslot/port[.subinterface] [multipoint | point-to-point]`
5. `range [range-name] pvc start-vpi/start-vci end-vpi/end-vci`
6. `pvc-in-range [pvc-name] [vpi/vci]`
7. `pppoe max-sessions number-of-sessions [threshold-sessions number-of-sessions]`
8. `end`
9. `more system:running-config`

How to Configure Monitoring of PPPoE Sessions with SNMP

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
	Example: Router> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example: Router# configure terminal	
Step 3	snmp-server enable traps pppoe	(Optional) Enables PPPoE session count SNMP notifications. <ul style="list-style-type: none"> • This command enables SNMP traps that send notification messages when PPPoE session thresholds have been reached.
	Example: Router(config)# snmp-server enable traps pppoe	
Step 4	interface atm slot/subslot/port[.subinterface] [multipoint point-to-point]	Configures the ATM interface and enters subinterface configuration mode.
	Example: Router(config)# interface atm 6/0.110 multipoint	
Step 5	range [range-name] pvc start-vpi/start-vci end-vpi/end-vci	Defines a range of ATM PVCs and enters ATM PVC Range configuration mode.
	Example: Router(config-subif)# range rangel pvc 3/100 4/199	
Step 6	pvc-in-range [pvc-name] [vpi/vci]	Configures an individual PVC within a PVC range and enters ATM PVC-in-range configuration mode.
	Example: Router(config-if-atm-range)# pvc-in-range pvcl 3/104	
Step 7	pppoe max-sessions number-of-sessions [threshold-sessions number-of-sessions]	Sets the maximum number of PPPoE sessions that will be permitted on an ATM PVC, PVC range, VC class, or VLAN, and sets the PPPoE session-count threshold at which an SNMP trap will be generated.
	Example: Router(cfg-if-atm-range-pvc)# pppoe max-sessions 10 threshold-sessions 5	
Step 8	end	(Optional) Exits ATM PVC-in-range configuration mode and returns to privileged EXEC mode.
	Example: Router(cfg-if-atm-range-pvc)# end	
Step 9	more system:running-config	Displays the running configuration and the PPPoE session-count thresholds.
	Example: Router(#) more system:running-config	

Monitoring and Maintaining PPPoE Session Counts and SNMP Notifications

Perform the following task to monitor PPPoE sessions counts and SNMP notifications.

SUMMARY STEPS

1. **enable**
2. **debug snmp packets**
3. **debug pppoe errors [rmac remote-mac-address | interface type number [vc {[vpi]/vci | vc-name}] [vlan vlan-id]]**
4. **debug pppoe events [rmac remote-mac-address | interface type number [vc {[vpi]/vci | vc-name}] [vlan vlan-id]]**
5. **show vpdn session**
6. **show pppoe session**

DETAILED STEPS

Step 1 **enable**

Use this command to enable privileged EXEC mode. Enter your password when prompted.

```
Router> enable
```

Step 2 **debug snmp packets**

Use this command to display information about every SNMP packet sent or received by the router:

```
Router# debug snmp packets
```

```
SNMP: Packet received via UDP from 192.0.2.11 on GigabitEthernet1/0
SNMP: Get-next request, reqid 23584, errstat 0, erridx 0
  sysUpTime = NULL TYPE/VALUE
  system.1 = NULL TYPE/VALUE
  system.6 = NULL TYPE/VALUE
SNMP: Response, reqid 23584, errstat 0, erridx 0
  sysUpTime.0 = 2217027
  system.1.0 = Cisco Internetwork Operating System Software
  system.6.0 =
SNMP: Packet sent via UDP to 192.0.2.11
```

Step 3 **debug pppoe errors [rmac remote-mac-address | interface type number [vc {[vpi]/vci | vc-name}] [vlan vlan-id]]**

Use this command to display PPPoE protocol errors that prevent a session from being established or errors that cause an established session to be closed.

```
Router# debug pppoe errors interface atm 1/0.10
```

```
PPPoE protocol errors debugging is on
Router#
00:44:30:PPPoE 0:Max session count(1) on mac(00b0.c2e9.c470) reached.
00:44:30:PPPoE 0:Over limit or Resource low. R:00b0.c2e9.c470 L:ffff.ffff.ffff 0/101
ATM1/0.10
```

Step 4 **debug pppoe events [rmac remote-mac-address | interface type number [vc {[vpi]/vci | vc-name}] [vlan vlan-id]]**

How to Configure Monitoring of PPPoE Sessions with SNMP

Use this command to display PPPoE protocol messages about events that are part of normal session establishment or shutdown:

```
Router# debug pppoe events interface atm 1/0.10 vc 101

PPPoE protocol events debugging is on
Router#
00:41:55:PPPoE 0:I PADI  R:00b0.c2e9.c470 L:ffff.ffff.ffff 0/101 ATM1/0.10
00:41:55:PPPoE 0:O PADO, R:00b0.c2e9.c470 L:0001.c9f0.0c1c 0/101 ATM1/0.10
00:41:55:PPPoE 0:I PADR  R:00b0.c2e9.c470 L:0001.c9f0.0c1c 0/101 ATM1/0.10
00:41:55:PPPoE :encap string prepared
00:41:55:[3]PPPoE 3:Access IE handle allocated
00:41:55:[3]PPPoE 3:pppoe SSS switch updated
00:41:55:[3]PPPoE 3:AAA unique ID allocated
00:41:55:[3]PPPoE 3:No AAA accounting method list
00:41:55:[3]PPPoE 3:Service request sent to SSS
00:41:55:[3]PPPoE 3:Created R:0001.c9f0.0c1c L:00b0.c2e9.c470 0/101 ATM1/0.10
00:41:55:[3]PPPoE 3:State REQ_NASPORT Event MORE_KEYS
00:41:55:[3]PPPoE 3:O PADS R:00b0.c2e9.c470 L:0001.c9f0.0c1c 0/101 ATM1/0.10
00:41:55:[3]PPPoE 3:State START_PPP Event DYN_BIND
00:41:55:[3]PPPoE 3:data path set to PPP
00:41:57:[3]PPPoE 3:State LCP_NEGO Event PPP_LOCAL
00:41:57:PPPoE 3/SB:Sent vtemplate request on base Vi2
00:41:57:[3]PPPoE 3:State CREATE_VA Event VA_RESP
00:41:57:[3]PPPoE 3:Vi2.1 interface obtained
00:41:57:[3]PPPoE 3:State PTA_BIND Event STAT_BIND
00:41:57:[3]PPPoE 3:data path set to Virtual Access
00:41:57:[3]PPPoE 3:Connected PTA
```

Step 5 show vpdn session

Use this command to display information about active Level 2 Forwarding (L2F) protocol tunnel and message identifiers on a VPDN:

```
Router# show vpdn session

%No active L2TP tunnels

%No active L2F tunnels

PPPoE Session Information Total tunnels 1 sessions 1

PPPoE Session Information
  SID      RemMAC          LocMAC        Intf     VAST      OIntf     VC
  1        0010.7b01.2cd9  0090.ab13.bca8  Vi4       UP        AT6/0    0/10
```

Step 6 show pppoe session

Use this command to display information about the currently active PPPoE sessions:

```
Router# show pppoe session

  3 sessions in LOCALLY_TERMINATED (PTA) State
  3 sessions total

  Uniq  ID  PPPoE  RemMAC          Port                  VT   VA          State
           SID   LocMAC
  1      1  0007.b3dc.a41c  ATM0/3/1.100      1  VA-st       Type
           001a.3045.0331  VC: 99/100          1  Vi2.1        PTA
  2      2  0007.b3dc.a41c  ATM0/3/1.100      1  VA-st       Type
           001a.3045.0331  VC: 99/100          1  Vi2.2        PTA
  3      3  0007.b3dc.a41c  ATM0/3/1.100      1  VA-st       Type
           001a.3045.0331  VC: 99/100          1  Vi2.3        PTA

Router#
```

Configuration Examples for Monitoring PPPoE Sessions with SNMP

This section provides the following configuration examples:

- [Configuring PPPoE Session-Count SNMP Traps: Example, page 13](#)
- [PPPoE Session-Count Threshold for the Router: Example, page 13](#)
- [PPPoE Session-Count Threshold for a PVC: Example, page 13](#)
- [PPPoE Session-Count Threshold for a VC Class: Example, page 14](#)
- [PPPoE Session-Count Threshold for a PVC Range: Example, page 14](#)
- [PPPoE Session-Count Threshold for an Individual PVC Within a PVC Range: Example, page 14](#)

Configuring PPPoE Session-Count SNMP Traps: Example

The following example shows how to enable the router to send PPPoE session-count SNMP notifications to the host at the address 192.10.2.10:

```
snmp-server community public RW
snmp-server enable traps pppoe
snmp-server host 192.10.2.10 version 2c public udp-port 1717
```

PPPoE Session-Count Threshold for the Router: Example

The following example shows a limit of 4000 PPPoE sessions configured for the router. The PPPoE session-count threshold is set at 3000 sessions, so when the number of PPPoE sessions on the router reaches 3000, an SNMP trap will be generated.

```
bba-group pppoe pppoe1
  sessions max limit 4000 threshold 3000
  virtual-template 1
  pppoe limit max-sessions 4000 threshold-sessions 3000
```

PPPoE Session-Count Threshold for a PVC: Example

The following example shows a limit of five PPPoE sessions configured for the PVC. The PPPoE session-count threshold is set at three sessions, so when the number of PPPoE sessions on the PVC reaches three, an SNMP trap will be generated.

```
interface ATM 0/0/0
  ip address 10.0.0.1 255.255.255.0
  no atm ilmi-keepalive
  pvc 5/120
    protocol ip 10.0.0.2 broadcast
    pppoe max-sessions 5 threshold-sessions 3
    protocol pppoe
```

PPPoE Session-Count Threshold for a VC Class: Example

The following example shows a limit of seven PPPoE sessions configured for a VC class called “main.” The PPPoE session-count threshold is set at three sessions, so when the number of PPPoE sessions for the VC class reaches three, an SNMP trap will be generated.

```
vc-class atm main
  protocol pppoe group global

vc-class atm global
  protocol pppoe
  pppoe max-sessions 7 threshold-sessions 3
```

PPPoE Session-Count Threshold for a PVC Range: Example

The following example shows a limit of 20 PPPoE sessions configured for the PVC range. The PPPoE session-count threshold will also be 20 sessions because when the session-count threshold has not been explicitly configured, it defaults to the PPPoE session limit. An SNMP trap will be generated when the number of PPPoE sessions for the range reaches 20.

```
interface ATM 0/0/0.3 point-to-point
range pvc 3/100 3/105
  pppoe max-sessions 20 threshold-sessions 15
  protocol pppoe
```

PPPoE Session-Count Threshold for an Individual PVC Within a PVC Range: Example

The following example shows a limit of ten PPPoE sessions configured for pvc1. The PPPoE session-count threshold is set at three sessions, so when the number of PPPoE sessions for the PVC reaches three, an SNMP trap will be generated.

```
interface atm 6/0.110 multipoint
range rangel pvc 100 4/199
  pvc-in-range pvc1 3/104
    pppoe max-sessions 10 threshold-sessions 3
```

Where to Go Next

- If you want to establish PPPoE session limits for sessions on a specific PVC or VLAN configured on an L2TP access concentrator, refer to the “[Establishing PPPoE Session Limits per NAS Port](#)” module.
- If you want to use service tags to enable a PPPoE server to offer PPPoE clients a selection of service during call setup, refer to the “[Offering PPPoE Clients a Selection of Services During Call Setup](#)” module.
- If you want to enable an L2TP access concentrator to relay active discovery and service selection functionality for PPPoE over an L2TP control channel to a LNS or tunnel switch, refer to the “[Enabling PPPoE Relay Discovery and Service Selection Functionality](#)” module.
- If you want to configure the transfer upstream of the PPPoX session speed value, refer to the “[Configuring Upstream Connection Speed Transfer](#)” module.

- If you want to identify a physical subscriber line for RADIUS communication with a RADIUS server, refer to the “[Identifying the Physical Subscriber Line for RADIUS Access and Accounting](#)” module.
- If you want to configure a Cisco Subscriber Service Switch, refer to the “[Configuring Cisco Subscriber Service Switch Policies](#)” module.

Additional References

The following sections provide references related to monitoring PPPoE sessions with SNMP.

Related Documents

Related Topic	Document Title
Broadband access aggregation concepts	Understanding Broadband Access Aggregation
Tasks for preparing for broadband access aggregation	Preparing for Broadband Access Aggregation
Configuring PPPoE sessions	Providing Protocol Support for Broadband Access Aggregation of PPPoE Sessions
Establishing PPPoE session limits for sessions on a specific PVC or VLAN configured on an L2TP access concentrator	Establishing PPPoE Session Limits per NAS Port
Using service tags to enable a PPPoE server to offer PPPoE clients a selection of service during call setup	Offering PPPoE Clients a Selection of Services During Call Setup
Enabling an L2TP access concentrator to relay active discovery and service selection functionality for PPPoE over an L2TP control channel to a LNS or tunnel switch	Enabling PPPoE Relay Discovery and Service Selection Functionality
Configuring the transfer upstream of the PPPoX session speed value	Configuring Upstream Connection Speed Transfer
Identifying a physical subscriber line for RADIUS communication with a RADIUS server	Identifying the Physical Subscriber Line for RADIUS Access and Accounting
Configuring a Cisco Subscriber Service Switch	Configuring Cisco Subscriber Service Switch Policies

Standards

Standards	Title
None	—

■ Additional References

MIBs

MIBs	MIBs Link
PPPoE Session Count MIB	To locate and download MIBs for selected platforms, Cisco IOS XE software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://tools.cisco.com/ITDIT/MIBS/servlet/index

RFCs

RFCs	Title
None	—

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.	http://www.cisco.com/techsupport
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.	
Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	

Feature Information for Monitoring PPPoE Sessions with SNMP

Table 2 lists the features in this module and provides links to specific configuration information.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS XE software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.



Note

Table 2 lists only the Cisco IOS XE software release that introduced support for a given feature in a given Cisco IOS XE software release train. Unless noted otherwise, subsequent releases of that Cisco IOS XE software release train also support that feature.

Table 2 Feature Information for Monitoring PPPoE Sessions with SNMP

Feature Name	Releases	Feature Configuration Information
PPPoE Session Count MIB, SNMP Traps for PPPoE Session Limits	Cisco IOS XE Release 2.5.0 Cisco IOS XE Release 2.6	<p>This feature was introduced on Cisco ASR 1000 Series Aggregation Routers.</p> <p>This feature provides the ability to use SNMP to monitor in real time the number of PPP over Ethernet sessions configured on PVCs and on a router. You can also retrieve information from the MIB.</p> <p>The SNMP Traps for PPPoE Session Limits feature implements SNMP MIB support for the PPPoE session limits and generates notifications in case the limits are reached.</p> <p>The following sections provide information about this feature:</p> <ul style="list-style-type: none"> • “Information About Monitoring PPPoE Sessions with SNMP” section on page 2 • “How to Configure Monitoring of PPPoE Sessions with SNMP” section on page 4 <p>The following commands were introduced or modified: snmp-server enable traps pppoe</p>

Cisco and the Cisco Logo are trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and other countries. A listing of Cisco's trademarks can be found at www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1005R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2005–2010 Cisco Systems, Inc. All rights reserved.

■ Feature Information for Monitoring PPPoE Sessions with SNMP