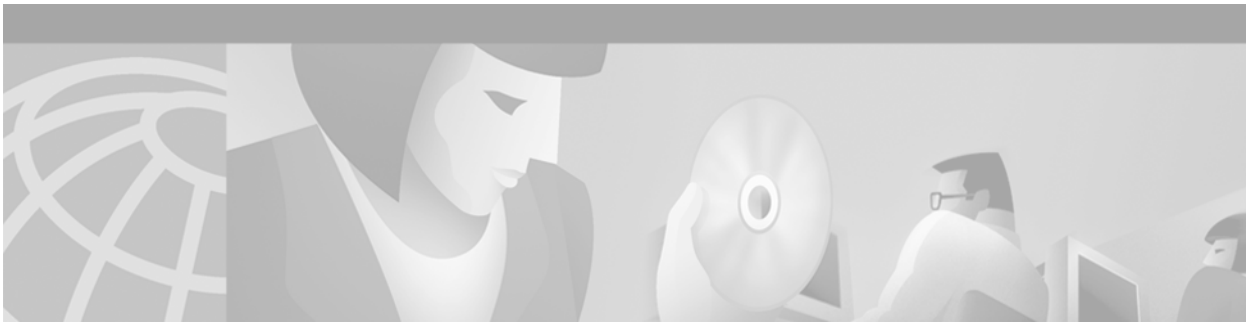

PPPoE Session Limit

Feature History

Release	Modification
12.2(1)DX	This feature was introduced.
12.2(2)DD	This feature was integrated into Cisco IOS Release 12.2(2)DD.
12.2(4)B	This feature was integrated into Cisco IOS Release 12.2(4)B.

This document describes the PPPoE Session Limit feature in Cisco IOS Release 12.2(4)B. It includes the following sections:

Feature Overview

The PPP over Ethernet (PPPoE) Session Limit feature enables you to limit the number of PPPoE sessions that can be created on a router or on an ATM permanent virtual connection (PVC), PVC range, virtual circuit (VC) class, or Ethernet subinterface.

Before the introduction of this feature, there was no way to limit the number of PPPoE sessions that could be created on a router. Not having a limit was potentially a problem because it was possible that the router could create so many PPPoE sessions that it would run out of memory.

To prevent the router from using too much memory for virtual access, the PPPoE Session Limit feature introduces a new command and a modification to an existing command that enable you to specify the maximum number of PPPoE sessions that can be created. The new **pppoe limit max-sessions** command limits the number of PPPoE sessions that can be created on the router. The modified **pppoe max-sessions** command limits the number of PPPoE sessions that can be created on an ATM PVC, PVC range, VC class, or Ethernet subinterface.

Benefits

The PPPoE Session Limit feature prevents the router from using too much memory for virtual access by enabling you to limit the number of PPPoE sessions that can be created on a router or on an ATM PVC, PVC range, VC class, or Ethernet subinterface.

Related Documents

- *Cisco IOS Security Configuration Guide*, Release 12.2
- *Cisco IOS Security Command Reference*, Release 12.2
- *ATM PVC Range and Routed Bridge Encapsulation Subinterface Grouping*, Cisco IOS Release 12.1(5)T feature module
- *PPPoE on ATM*, Cisco IOS Release 12.1(1)T feature module
- *PPPoE on Ethernet*, Cisco IOS Release 12.1(2)T feature module

Supported Platforms

- Cisco 7200 series
- Cisco 7401 ASR router

Determining Platform Support Through Feature Navigator

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Feature Navigator. Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions at http://www.cisco.com/register.

Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Feature Navigator home page at the following URL:

http://www.cisco.com/go/fn

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

No new or modified RFCs are supported by this feature.

Configuration Tasks

To configure PPPoE session limits, complete one or more of the following tasks.

- Limiting the Number of PPPoE Sessions on the Router (optional)
- Limiting the Number of PPPoE Sessions on a PVC (optional)
- Limiting the Number of PPPoE Sessions in a VC Class (optional)
- Limiting the Number of PPPoE Sessions in an ATM PVC Range (optional)
- Limiting the Number of PPPoE Sessions on an Individual PVC Within a PVC Range (optional)

To verify PPPoE session limits, complete the following task:

- Verifying PPPoE Session Limits (optional)

Limiting the Number of PPPoE Sessions on the Router

To specify the maximum number of PPPoE sessions that can be created on a router, use the following command in VPDN group configuration mode:

Command	Purpose
`Router(config-vpdn)# pppoe limit max-sessions` *`number-of-sessions`*	Specifies the maximum number of PPPoE sessions that will be permitted on the router. • *number-of-sessions*—Maximum number of PPPoE sessions that will be permitted on the router. The range is from 0 to the maximum number of interfaces on the router.

PPPoE session limits configured using the **pppoe limit max-sessions** command take precedence over limits configured using the **pppoe limit per-vlan** and **pppoe limit per-mac** commands.

Limiting the Number of PPPoE Sessions on a PVC

To specify the maximum number of PPPoE sessions that can be created on a PVC, use the following command in interface-ATM-VC configuration mode:

Command	Purpose
`Router(config-if-atm-vc)# pppoe max-sessions` *number-of-sessions*	Specifies the maximum number of PPPoE sessions that will be permitted on the PVC. • *number-of-sessions*—Maximum number of PPPoE sessions that will be permitted on the router. The range is from 0 to the maximum number of interfaces on the router.

PPPoE session limits created on a PVC using the **pppoe max-sessions** command take precedence over the limits created with the **pppoe limit per-vc** command.

PPPoE session limits created on a PVC take precedence over limits created in a VC class or ATM PVC range.

Limiting the Number of PPPoE Sessions in a VC Class

To specify the maximum number of PPPoE sessions that can be created in a VC class, use the following command in VC-class configuration mode:

Command	Purpose
`Router(config-vc-class)# pppoe max-sessions` *number-of-sessions*	Specifies the maximum number of PPPoE sessions that will be permitted in the VC class. • *number-of-sessions*—Maximum number of PPPoE sessions that will be permitted on the router. The range is from 0 to the maximum number of interfaces on the router.

PPPoE session limits created in a VC class using the **pppoe max-sessions** command take precedence over the limits created with the **pppoe limit per-vc** command.

PPPoE session limits created on a PVC and ATM PVC range take precedence over limits created in a VC class.

Limiting the Number of PPPoE Sessions in an ATM PVC Range

To specify the maximum number of PPPoE sessions that can be created in an ATM PVC range, use the following command in ATM PVC range configuration mode:

Command	Purpose
`Router(config-if-atm-range)# pppoe max-sessions` *number-of-sessions*	Specifies the maximum number of PPPoE sessions that will be permitted in the range. • *number-of-sessions*—Maximum number of PPPoE sessions that will be permitted on the router. The range is from 0 to the maximum number of interfaces on the router.

PPPoE session limits created in an ATM PVC range using the **pppoe max-sessions** command take precedence over the limits created with the **pppoe limit per-vc** command.

PPPoE session limits created in an ATM PVC range take precedence over limits created in a VC class.

Limiting the Number of PPPoE Sessions on an Individual PVC Within a PVC Range

To specify the maximum number of PPPoE sessions that can be created on an individual PVC within a PVC range, use the following command in ATM PVC-in-range configuration mode:

Command	Purpose
`Router(cfg-if-atm-range-pvc)# pppoe max-sessions` *number-of-sessions*	Specifies the maximum number of PPPoE sessions that will be permitted on the PVC. • *number-of-sessions*—Maximum number of PPPoE sessions that will be permitted on the router. The range is from 0 to the maximum number of interfaces on the router.

PPPoE session limits created on an individual PVC within a range using the **pppoe max-sessions** command take precedence over the limits created with the **pppoe limit per-vc** command.

PPPoE session limits created on an individual PVC within a range take precedence over limits created in a VC class or ATM PVC range.

Verifying PPPoE Session Limits

To verify that PPPoE session limits are configured correctly, use the following command in privileged EXEC mode:

Command	Purpose
`Router# more system:running-configuration`	Displays the running configuration.

Monitoring and Maintaining PPPoE Session Limits

To monitor PPPoE session limits, use the following command in privileged EXEC mode:

Command	Purpose
`Router# debug vpdn pppoe-errors`	Displays PPPoE protocol errors that prevent a session from being established or errors that cause an established session to be closed.

Configuration Examples

This section provides the following configuration examples:

- Limiting the Number of PPPoE Sessions on the Router Example
- Limiting the Number of PPPoE Sessions on a PVC Example
- Limiting the Number of PPPoE Sessions in a VC Class Example
- Limiting the Number of PPPoE Sessions in an ATM PVC Range Example
- Limiting the Number of PPPoE Sessions on an Individual PVC Within a PVC Range Example

Limiting the Number of PPPoE Sessions on the Router Example

The following example shows a limit of 100 PPPoE sessions configured for the router.

```
Router(config)# vpdn enable
Router(config-vpdn)# vpdn-group 1
Router(config-vpdn)# accept dialin
Router(config-vpdn-acc-in)# protocol pppoe
Router(config-vpdn-acc-in)# virtual-template 1
Router(config-vpdn-acc-in)# exit
Router(config-vpdn)# pppoe limit max-sessions 100
```

Limiting the Number of PPPoE Sessions on a PVC Example

The following example shows a limit of 10 PPPoE sessions configured for the PVC.

```
Router(config)# interface ATM1/0.102 multipoint
Router(config-if)# pvc 3/304
Router(config-if-atm-vc)# encapsulation aal5snap
Router(config-if-atm-vc)# protocol pppoe
Router(config-if-atm-vc)# pppoe max-sessions 10
```

Limiting the Number of PPPoE Sessions in a VC Class Example

The following example shows a limit of 20 PPPoE sessions configured for the VC class called “main.”

```
Router(config)# vc-class atm main
Router(config-vc-class)# pppoe max-sessions 20
```

Limiting the Number of PPPoE Sessions in an ATM PVC Range Example

The following example shows a limit of 30 PPPoE sessions configured for the ATM PVC range called "range-1."

```
Router(config)# interface atm 6/0.110 multipoint
Router(config-subif)# range range-1 pvc 100 4/199
Router(config-if-atm-range)# encapsulation aal5snap
Router(config-if-atm-range)# protocol ppp virtual-template 2
Router(config-if-atm-range)# pppoe max-sessions 30
```

Limiting the Number of PPPoE Sessions on an Individual PVC Within a PVC Range Example

The following example shows a limit of 10 PPPoE sessions configured for "pvc1," which is part of the ATM PVC range called "range1."

```
Router(config)# interface atm 6/0.110 multipoint
Router(config-subif)# range range1 pvc 100 4/199
Router(cfg-if-atm-range-pvc)# pvc-in-range pvc1 3/104
Router(cfg-if-atm-range-pvc)# pppoe max-sessions 10
```

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

- **pppoe limit max-sessions**
- **pppoe max-sessions**

pppoe limit max-sessions

To specify the maximum number of PPPoE sessions that will be permitted on a router, use the **pppoe limit max-sessions** command in VPDN group configuration mode. To remove this specification, use the **no** form of this command.

pppoe limit max-sessions *number-of-sessions*

no pppoe limit max-sessions

Syntax Description

number-of-sessions	Maximum number of PPPoE sessions that will be permitted on the router. The range is from 0 to the maximum number of interfaces on the router.

Defaults

There is no default *number-of-sessions*.

Command Modes

VPDN group configuration

Command History

Release	Modification
12.2(1)DX	This command was introduced.
12.2(2)DD	This command was integrated into Cisco IOS Release 12.2(2)DD.
12.2(4)B	This command was integrated into Cisco IOS Release 12.2(4)B.

Usage Guidelines

PPPoE session limits configured using the **pppoe limit per-vc**, **pppoe limit per-vlan**, **pppoe max-sessions**, **pppoe max-sessions** (VC), and **pppoe max-sessions** (subinterface) commands take precedence over limits configured for the router using the **pppoe limit max-sessions** command.

Examples

The following example shows a limit of 100 PPPoE sessions configured for the router.

```
vpdn enable

vpdn-group 1
 accept dialin
  protocol pppoe
  virtual-template 1
 pppoe limit max-sessions 100
```

Related Commands

Command	Description
debug vpdn pppoe-errors	Displays PPPoE protocol errors that prevent a session from being established or errors that cause an established session to be closed.
pppoe limit per-mac	Specifies the maximum number of PPPoE sessions to be sourced from a MAC address.

Command	Description
pppoe limit per-vc	Specifies the maximum number of PPPoE sessions permitted on all VCs.
pppoe limit per-vlan	Specifies the maximum number of PPPoE sessions permitted on a VLAN.
pppoe max-sessions	Specifies the maximum number of PPPoE sessions permitted on an ATM PVC, PVC range, VC class, or Ethernet subinterface.

pppoe max-sessions

To specify the maximum number of PPPoE sessions that will be permitted on an ATM PVC, PVC range, VC class, or Ethernet subinterface, use the **pppoe max-sessions** command in the appropriate command mode. To remove this specification, use the **no** form of this command.

pppoe max-sessions *number-of-sessions*

no pppoe max-sessions

Syntax Description

number-of-sessions	Maximum number of PPPoE sessions that will be permitted.

Defaults

100 sessions

Command Modes

Ethernet subinterface configuration
Interface-ATM-VC configuration
VC-class configuration
ATM PVC range configuration
PVC-in-range configuration

Command History

Release	Modification
12.1(5)T	This command was introduced.
12.2(1)DX	This command was modified to limit PPPoE sessions on ATM PVCs, PVC ranges, and VC classes.
12.2(2)DD	This command was integrated into Cisco IOS Release 12.2(2)DD.
12.2(4)B	This command was integrated into Cisco IOS Release 12.2(4)B.

Usage Guidelines

PPPoE session limits configured on an Ethernet subinterface using the **pppoe max-sessions** command take precedence over limits configured by using the **pppoe limit per-vlan** and **pppoe limit per-mac** commands.

PPPoE session limits configured on a VC by using the **pppoe max-sessions** command take precedence over the limits created with the **pppoe limit per-vc** command.

PPPoE session limits created on an ATM PVC take precedence over limits created in a VC class or ATM PVC range.

PPPoE session limits created in an ATM PVC range take precedence over limits created in a VC class.

Examples

Ethernet Subinterface Example

The following example shows a limit of 200 PPPoE sessions configured for the subinterface:

```
interface FastEthernet 0/0.10
 encapsulation dot1Q 10
 pppoe enable
 pppoe max-sessions 200
```

ATM PVC Example

The following example shows a limit of 10 PPPoE sessions configured for the PVC:

```
interface ATM1/0.102 multipoint
 pvc 3/304
  encapsulation aal5snap
  protocol pppoe
  pppoe max-sessions 10
```

VC Class Example

The following example shows a limit of 20 PPPoE sessions configured for the VC class called “main.”

```
vc-class atm main
 pppoe max-sessions 20
```

ATM PVC Range Example

The following example shows a limit of 30 PPPoE sessions configured for the ATM PVC range called “range-1.”

```
interface atm 6/0.110 multipoint
 range range-1 pvc 100 4/199
  encapsulation aal5snap
  protocol ppp virtual-template 2
  pppoe max-sessions 30
```

Individual PVC Within a PVC Range Example

The following example shows a limit of 10 PPPoE sessions configured for “pvc1,” which is part of the ATM PVC range called “range1.”

```
interface atm 6/0.110 multipoint
 range range1 pvc 100 4/199
  pvc-in-range pvc1 3/104
   pppoe max-sessions 10
```

Related Commands

Command	Description
debug vpdn pppoe-errors	Displays PPPoE protocol errors that prevent a session from being established or errors that cause an established session to be closed.
pppoe limit max-sessions	Specifies the maximum number of PPPoE sessions that will be permitted on a router.
pppoe limit per-mac	Specifies the maximum number of PPPoE sessions to be sourced from a MAC address.
pppoe limit per-vc	Specifies the maximum number of PPPoE sessions permitted on all VCs.
pppoe limit per-vlan	Specifies the maximum number of PPPoE sessions permitted on a VLAN.