



PPPoE Session Limit

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The PPPoE Session Limit feature enables you to limit the number of 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.

History for the PPPoE Session Limit Feature

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(28)SB	This feature was integrated into Cisco IOS Release 12.2(28)SB.

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Corporate Headquarters:

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

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Feature Overview

The PPPoE Session Limit feature enables you to limit the number of PPPoE sessions that can be created on a router or on an ATM 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 command and a modified 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.

Configuration Tasks

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

- [Limiting the Number of PPPoE Sessions on the Router, page 2](#) (optional)
- [Limiting the Number of PPPoE Sessions on a PVC, page 3](#) (optional)
- [Limiting the Number of PPPoE Sessions in a VC Class, page 3](#) (optional)
- [Limiting the Number of PPPoE Sessions in an ATM PVC Range, page 4](#) (optional)
- [Limiting the Number of PPPoE Sessions on an Individual PVC Within a PVC Range, page 4](#) (optional)

To verify PPPoE sessions limits, complete the following task:

- [Verifying PPPoE Session Limits, page 5](#) (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 <i>number-of-sessions</i>	Specifies the maximum number of PPPoE sessions that will be permitted on the router. <ul style="list-style-type: none"> <i>number-of-sessions</i>—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 <i>number-of-sessions</i>	Specifies the maximum number of PPPoE sessions that will be permitted on the PVC. <ul style="list-style-type: none"> <i>number-of-sessions</i>—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 <i>number-of-sessions</i>	Specifies the maximum number of PPPoE sessions that will be permitted in the VC class. <ul style="list-style-type: none"> <i>number-of-sessions</i>—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 <i>number-of-sessions</i>	Specifies the maximum number of PPPoE sessions that will be permitted in the range. <ul style="list-style-type: none"> <i>number-of-sessions</i>—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 <i>number-of-sessions</i>	Specifies the maximum number of PPPoE sessions that will be permitted on the PVC. <ul style="list-style-type: none"> <i>number-of-sessions</i>—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# <code>more system:running-config</code>	Displays the running configuration.

Monitoring and Maintaining PPPoE Session Limits

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

Command	Purpose
Router# <code>debug vpdn pppoe-errors</code>	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, page 5](#)
- [Limiting the Number of PPPoE Sessions on a PVC Example, page 6](#)
- [Limiting the Number of PPPoE Sessions in a VC Class Example, page 6](#)
- [Limiting the Number of PPPoE Sessions in an ATM PVC Range Example, page 6](#)
- [Limiting the Number of PPPoE Sessions on an Individual PVC Within a PVC Range Example, page 6](#)

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
```

Additional References

The following sections provide references related to PPPoE Session Limit.

Related Documents

Related Topic	Document Title
Configuration tasks	<i>Cisco IOS Security Configuration Guide</i> , Release 12.4
Security commands	<i>Cisco IOS Security Command Reference</i> , Release 12.4 T
ATM PVC range and routed bridge encapsulation subinterface grouping	<i>ATM PVC Range and Routed Bridge Encapsulation Subinterface Grouping</i> , Cisco IOS Release 12.1(5)T feature module
PPPoE on ATM	<i>PPPoE on ATM</i> , Cisco IOS Release 12.1(1)T feature module
PPPoE on Ethernet	<i>PPPoE on Ethernet</i> , Cisco IOS Release 12.1(2)T feature module

Standards

Standard	Title
None	—

MIBs

MIB	MIBs Link
None	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
The Cisco Technical Support & Documentation website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport

Command Reference

This section documents modified commands only.

- [pppoe limit max-sessions](#)
- [pppoe max-sessions](#)

pppoe limit max-sessions

To specify the maximum number of PPP over Ethernet (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

<i>number-of-sessions</i>	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.
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Defaults

The maximum *number of sessions* is not set.

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.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.

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.
	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 PPP over Ethernet (PPPoE) sessions that will be permitted on an ATM permanent virtual circuit (PVC), PVC range, virtual circuit (VC) class, or Ethernet subinterface, use the **pppoe max-sessions** command in the appropriate mode. To remove this specification, use the **no** form of this command.

pppoe max-sessions *number-of-sessions*

no pppoe max-sessions

Syntax Description	<i>number-of-sessions</i>	Maximum number of PPPoE sessions that will be permitted.
	Note	The PPPoE session limit in the case of a PVC range applies to <i>each</i> PVC in the range. This limit is not cumulative on <i>all</i> PVCs belonging to the range.

Defaults The maximum number of sessions is not set.

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

Command History	Release	Modification
	12.1(5)T	This command was introduced.
	12.2(4)T	This command was modified to limit PPPoE sessions on ATM PVCs, PVC ranges, and VC classes.
	12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.

Usage Guidelines PPPoE sessions can be limited in the following ways:

- The **pppoe limit max-sessions** command limits the total number of PPPoE sessions on the router, regardless of the type of medium the sessions are using.
- The **pppoe limit per-mac** command limits the number of PPPoE sessions that can be sourced from a single MAC address. This limit also applies to all PPPoE sessions on the router.
- The **pppoe limit per-vc** and **pppoe limit per-vlan** commands limit the number of PPPoE sessions on all PVCs or VLANs on the router.
- The **pppoe max-sessions** command limits the number of PPPoE sessions on a specific PVC or VLAN. Limits created for a specific PVC or VLAN using the **pppoe max-session** command take precedence over the global limits created with the **pppoe limit per-vc** and **pppoe limit per-vlan** commands.

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

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 that will be permitted per PVC in 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 that will be permitted per PVC in the 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.

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.

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