



# Providing Session Limit Support

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The PPP over Ethernet Session Limit feature enables you to limit the number of PPP over Ethernet (PPPoE) sessions that can be created on a router or on a Gigabit Ethernet interface for configuration.

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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 at the end of this module.

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](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

## Information About Providing Session Limit Support

### Benefits of Providing Session Limit Support

The PPPoE Session Limit feature prevents the router from using too much memory for virtual access by limiting the number of PPPoE sessions that can be created on a router or on all Ethernet interfaces and sub-interfaces as well as ATM interfaces and sub-interfaces.

# How to Provide Session Limit Support

## Specifying the Maximum Number of PPPoE Sessions on the Router

Perform this task to specify the maximum number of PPPoE sessions that can be created on a router.

### SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `bba-group pppoe {name | global}`
4. `virtual-template template-number`
5. `sessions per-mac limit per-mac-limit`
6. `sessions per-vlan limit per-vlan-limit [inner vlan-id]`
7. `sessions per-vc limit per-vc-limit [threshold threshold-value]`
8. `sessions max limit number-of-sessions [threshold threshold-value]`
9. `exit`

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<p><code>enable</code></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<p><code>configure terminal</code></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
<b>Step 3</b>	<p><code>bba-group pppoe {name   global}</code></p> <p><b>Example:</b></p> <pre>Router(config)# bba-group pppoe global</pre>	<p>Configures a BBA group to be used to establish PPPoE sessions and enters BBA group configuration mode.</p> <ul style="list-style-type: none"> <li>• <b>name</b> --Identifies the broadband aggregation (BBA) group. You can have multiple BBA groups.</li> <li>• <b>global</b> --PPPoE profile that serves as the default profile for any PPPoE port (Gigabit Ethernet interface or VLAN) that has not been assigned a specific PPPoE profile.</li> </ul>

	Command or Action	Purpose
<b>Step 4</b>	<b>virtual-template</b> <i>template-number</i>  <b>Example:</b> <pre>Router(config-bba-group)# virtual-template 1</pre>	Specifies which virtual template will be used to clone virtual access interfaces for all PPPoE ports that use this PPPoE profile.
<b>Step 5</b>	<b>sessions per-mac limit</b> <i>per-mac-limit</i>  <b>Example:</b> <pre>Router(config-bba-group)# sessions per-mac limit 1000</pre>	(Optional) Sets the maximum number of PPPoE sessions allowed per MAC session limit in a PPPoE profile. The default is 100.
<b>Step 6</b>	<b>sessions per-vlan limit</b> <i>per-vlan-limit</i> [ <b>inner</b> <i>vlan-id</i> ]  <b>Example:</b> <pre>Router(config-bba-group)# session per-vlan limit 4000 inner 3500</pre>	(Optional) Sets the session limit for the inner VLAN on QinQ sub-interface. The default is 100.  <b>Note</b> The per-VLAN limit is only applicable to Gigabit Ethernet subinterfaces (802.1q VLANs).
<b>Step 7</b>	<b>sessions per-vc limit</b> <i>per-vc-limit</i> [ <b>threshold</b> <i>threshold-value</i> ]  <b>Example:</b> <pre>Router(config-bba-group)# sessions per-vc limit 2000</pre>	(Optional) Sets the maximum number of PPPoE sessions allowed per VC session limit in a PPPoE profile. The default is 100.  <b>Note</b> The per-vc limit is applicable only to ATM interfaces and sub-interfaces.
<b>Step 8</b>	<b>sessions max limit</b> <i>number-of-sessions</i> [ <b>threshold</b> <i>threshold-value</i> ]  <b>Example:</b> <pre>Router(config-bba-group)# sessions max limit 32000</pre>	Configures the PPPoE global profile with the maximum number of PPPoE sessions that will be permitted on a router, and sets the PPPoE session-count threshold at which a Simple Network Management Protocol (SNMP) trap will be generated.  <b>Note</b> This command applies only to the global profile.
<b>Step 9</b>	<b>exit</b>  <b>Example:</b> <pre>Router(config-bba-group)# exit</pre>	Returns to global configuration mode.

## Specifying the Maximum Number of PPPoE Sessions on a Gigabit Ethernet Interface

Perform this task to specify the maximum number of PPPoE sessions that can be created on a Gigabit Ethernet interface.

### SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `interface {GigabitEthernet | tenGigabitEthernet} slot / subslot / port[. subinterface]`
4. `pppoe enable [group group-name]`
5. `pppoe max-sessions number`
6. `end`

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<p><code>enable</code></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<p><code>configure terminal</code></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
<b>Step 3</b>	<p><code>interface {GigabitEthernet   tenGigabitEthernet} slot / subslot / port[. subinterface]</code></p> <p><b>Example:</b></p> <pre>Router(config)# interface GigabitEthernet0/0/1</pre>	<p>Specifies a Gigabit Ethernet interface and enters interface configuration mode.</p>
<b>Step 4</b>	<p><code>pppoe enable [group group-name]</code></p> <p><b>Example:</b></p> <pre>Router(config-if)# pppoe enable group one</pre>	<p>Enables PPPoE sessions on a Gigabit Ethernet interface or subinterface.</p> <p><b>Note</b> If a PPPoE profile is not assigned to the interface through use of the <b>group group-name</b> option, the interface will use the global PPPoE profile.</p>

	Command or Action	Purpose
Step 5	<p><b>pppoe max-sessions</b> <i>number</i></p> <p><b>Example:</b></p> <pre>Router(config-if)# pppoe max-sessions 10</pre>	Specifies the maximum number of PPPoE sessions permitted on the interface or subinterface. The default value is 100.
Step 6	<p><b>end</b></p> <p><b>Example:</b></p> <pre>Router(config-if)# end</pre>	(Optional) Exits the configuration mode and returns to privileged EXEC mode.

## Configuration Examples for Providing Session Limit Support

### Specifying the Maximum Number of PPPoE Sessions on a Router Example

The following example shows a limit of 32,000 PPPoE sessions configured for the router:

```
bba-group pppoe global
  virtual-template 1
  sessions per-mac limit 1000
  sessions per-vlan limit 4000 inner 3500
  sessions per-vc limit 2000
```

### Specifying the Maximum Number of PPPoE Sessions on a Gigabit Ethernet Interface Example

The following example shows a limit of ten PPPoE sessions on the Gigabit Ethernet interface:

```
interface GigabitEthernet1/0/0
  pppoe enable
  pppoe max-sessions 10
```

The following example shows a limit of ten PPPoE sessions on the Gigabit Ethernet subinterface using the **encapsulation** command:

```
interface GigabitEthernet0/0/0.1
  encapsulation dot1q 2
  pppoe enable
  pppoe max-sessions 10
```

## Additional References

The following sections provide references related to supporting session limits.

**Related Documents**

Related Topic	Document Title
Broadband access aggregation of PPPoE sessions	Understanding Broadband Access Aggregation
Task for preparing for broadband access aggregation	Preparing for broadband access aggregation
Broadband access commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	<i>Cisco IOS Broadband Access Aggregation and DSL Command Reference</i>
Additional information about commands used in this document	<a href="#">Cisco IOS Master Command List, All Releases</a>

**Standards**

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	--

**MIBs**

MIBs	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified 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:  <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

**RFCs**

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	--

**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>	<p><a href="http://www.cisco.com/techsupport">http://www.cisco.com/techsupport</a></p>

## Feature Information for Providing Session Limit Support

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.

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**Table 1: Feature Information for Providing Session Limit Support**

Feature Name	Releases	Feature Information
<p>PPP over Ethernet (PPPoE) Session Limit</p>	<p>12.2(1)DX 12.2(2)DD 12.2(4)B 12.2(4)T 15.0(1)M 12.2(33)SRE</p>	<p>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 a Gigabit Ethernet interface for configuration.</p> <p>The following commands were introduced or modified:</p> <p><b>sessions per-mac limit, sessions per-vlan limit, sessions per-vc limit, sessions max limit, pppoe max-sessions</b></p>

