



## PPPoE Commands

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This module describes the Cisco IOS XR software commands used to configure the PPPoE commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

To use commands of this module, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using any command, contact your AAA administrator for assistance.

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# pado delay

To set a delay for a PPPoE Active Discovery Offer (PADO) message for a particular PPPoE BBA-Group, use the **pado delay** command in PPPoE BBA-Group configuration mode. To disable the PADO delay configuration, use the **no** form of this command.

**pado delay** *delay*

<b>Syntax Description</b>	<i>delay</i> Delay value for PADO message, in milliseconds. The range is from 0 to 10000.
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<b>Command Default</b>	None
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<b>Command Modes</b>	PPPoE BBA-Group configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.3.1	This command was introduced.

**Usage Guidelines** Setting a value of 0 for *delay* means that no transmission delay is set for PADO message. Setting a value of 10000 means that an infinite delay is set for PADO message or in other words, PADO message is never sent.

<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ppp	read, write

## Example

This example shows how to configure a delay of 1000 milliseconds for the PADO message:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay 1000
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">pado delay circuit-id, on page 3</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Circuit-ID received in PADI message.
	<a href="#">pado delay remote-id, on page 5</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Remote-ID received in PADI message.
	<a href="#">pado delay service-name, on page 7</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Service-Name received in PADI message.

# pado delay circuit-id

To set a delay for a PPPoE Active Discovery Offer (PADO) message for a particular PPPoE BBA-Group, based on the Circuit-ID received in PPPoE Active Discovery Initiator (PADI) message, use the **pado delay circuit-id** command in PPPoE BBA-Group configuration mode. To disable the PADO delay configuration based on the Circuit-ID, use the **no** form of this command.

**pado delay circuit-id** {*delay* | {**string** | **contains**} *string delay*}

Syntax Description		
<i>delay</i>		Delay value for PADO message, in milliseconds, based on the Circuit-ID.  The range is from 0 to 10000.
<b>string</b>		Delays the PADO message, when the Circuit-ID string received in PADI message matches the configured <i>string</i> .
<b>contains</b>		Delays the PADO message, when the Circuit-ID received in PADI message contains the configured <i>string</i> .
<i>string</i>		String received in PADI message, that needs to be exactly matching the Circuit-ID (when used along with <b>string</b> keyword) or the string received in PADI message, that needs to be contained within the Circuit-ID (when used along with the <b>contains</b> keyword).

**Command Default** None

**Command Modes** PPPoE BBA-Group configuration

Command History	Release	Modification
	Release 4.3.1	This command was introduced.

**Usage Guidelines** Setting a value of 0 for *delay* means that no transmission delay is set for the PADO message. Setting a value of 10000 means that an infinite delay is set for PADO message; or, in other words, the PADO message is never sent.

Within the category of Circuit-ID matches, full string matches are preferred to sub-string matches. If more than one sub-string match occur, the selection is based on a random order.

If there is neither a string match nor a sub-string match, the configured Circuit-ID delay is used (if a Circuit-ID is present in the PADI message), followed by the configured Remote-ID delay (if a Remote-ID is present in the PADI message).

If there are no matches, the configured pado delay is used for PADO message.

Task ID	Task ID	Operation
	ppp	read, write

This example shows how to configure a delay of 1000 milliseconds for the PADO message:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay circuit-id 1000
```

This example shows how to configure a delay of 8000 milliseconds for the PADO message, if the Circuit-ID received in the PADI message exactly matches the configured string (**circuit1** in this example):

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay circuit-id string circuit1 8000
```

This example shows how to configure a delay of 5000 milliseconds for the PADO message, if the Circuit-ID received in the PADI message contains the configured string (**circuit2** in this example):

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay circuit-id contains circuit2 5000
```

Related Commands	Command	Description
	<a href="#">pado delay, on page 2</a>	Configures a specific delay for PPPoE PADO message for a PPPoE BBA-Group in BNG.
	<a href="#">pado delay remote-id, on page 5</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Remote-ID received in PADI message.
	<a href="#">pado delay service-name, on page 7</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Service-Name received in PADI message.

# pado delay remote-id

To set a delay for a PPPoE Active Discovery Offer (PADO) message for a particular PPPoE BBA-Group, based on the Remote-ID received in PPPoE Active Discovery Initiator (PADI) message, use the **pado delay remote-id** command in PPPoE BBA-Group configuration mode. To disable the PADO delay configuration based on the Remote-ID, use the **no** form of this command.

**pado delay remote-id** {*delay* | {**string** | **contains**} *string* *delay*}

Syntax Description		
<i>delay</i>		Delay value for PADO message, in milliseconds, based on the Remote-ID.  The range is from 0 to 10000.
<b>string</b>		Delays the PADO message, when the Remote-ID received in PADI message matches the configured <i>string</i> .
<b>contains</b>		Delays the PADO message, when the Remote-ID received in PADI message contains the configured <i>string</i> .
<i>string</i>		String received in PADI message, that needs to be matching the Remote-ID (when used along with <b>string</b> keyword) or the string received in PADI message, that needs to be contained within the Remote-ID (when used along with the <b>contains</b> keyword).

**Command Default** None

**Command Modes** PPPoE BBA-Group configuration

Command History	Release	Modification
	Release 4.3.1	This command was introduced.

**Usage Guidelines** Setting a value of 0 for *delay* means that no transmission delay is set for the PADO message. Setting a value of 10000 means that an infinite delay is set for PADO message; or, in other words, the PADO message is never sent.

Within the category of Remote-ID matches, full string matches are preferred to sub-string matches. If more than one sub-string match occurs, the selection is based on a random order.

If there is neither a string match nor a sub-string match, the configured Circuit-ID delay is used (if a Circuit-ID is present in PADI message), followed by the configured Remote-ID delay (if a Remote-ID is present in PADI message).

If there are no matches, the configured pado delay is used for PADO message.

Task ID	Task ID	Operation
	ppp	read, write

This example shows how to configure a delay of 1000 milliseconds for the PADO message:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay remote-id 1000
```

This example shows how to configure a delay of 8000 milliseconds for the PADO message, if the Remote-ID received in the PADI message exactly matches the configured string (**remote1** in this example):

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay remote-id string remote1 8000
```

This example shows how to configure a delay of 5000 milliseconds for the PADO message, if the remote-id received in the PADI message contains the configured string (**remote2** in this example):

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay remote-id contains remote2 5000
```

Related Commands	Command	Description
	<a href="#">pado delay, on page 2</a>	Configures a specific delay for PPPoE PADO message for a PPPoE BBA-Group in BNG.
	<a href="#">pado delay circuit-id, on page 3</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Circuit-ID received in PADI message.
	<a href="#">pado delay service-name, on page 7</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Service-Name received in PADI message.

# pado delay service-name

To set a delay for a PPPoE Active Discovery Offer (PADO) message for a particular PPPoE BBA-Group, based on the Service-Name received in PPPoE Active Discovery Initiator (PADI) message, use the **pado delay service-name** command in PPPoE BBA-Group configuration mode. To disable the PADO delay configuration based on the Service-Name, use the **no** form of this command.

**pado delay service-name** {string | contains} string delay

Syntax Description		
	<b>string</b>	Delays the PADO message, when the Service-Name string received in PADI message matches the configured <i>string</i> .
	<b>contains</b>	Delays the PADO message, when the Service-Name received in PADI message contains the configured <i>string</i> .
	<i>string</i>	String received in PADI message, that needs to be matching the Service-Name (when used along with <b>string</b> keyword) or the string received in PADI message, that needs to be contained within the Service-Name (when used along with the <b>contains</b> keyword).
	<i>delay</i>	Delay value for PADO message, in milliseconds, based on the Service-Name.  The range is from 0 to 10000.

**Command Default** None

**Command Modes** PPPoE BBA-Group configuration

Command History	Release	Modification
	Release 4.3.1	This command was introduced.

**Usage Guidelines** Setting a value of 0 for *delay* means that no transmission delay is set for the PADO message. Setting a value of 10000 means that an infinite delay is set for PADO message; or, in other words, the PADO message is never sent.

Within the category of service-name matches, full string matches are preferred to sub-string matches. If more than one sub-string match occurs, the selection is based on a random order.

If there is neither a string match nor a sub-string match, the configured Circuit-ID delay is used (if a Circuit-ID is present in PADI message), followed by the configured Remote-ID delay (if a Remote-ID is present in PADI message).

If there are no matches, the configured pado delay is used for the PADO message.

Task ID	Task ID	Operation
	ppp	read, write

This example shows how to configure a delay of 8000 milliseconds for the PADO message, if the Service-Name received in the PADI message exactly matches the configured string (**service1** in this example):

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay service-name string service1 8000
```

This example shows how to configure a delay of 5000 milliseconds for the PADO message, if the Service-Name received in the PADI message contains the configured string (**service** in this example):

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# pado delay service-name contains service 5000
```

Related Commands	Command	Description
	<a href="#">pado delay, on page 2</a>	Configures a specific delay for PPPoE PADO message for a PPPoE BBA-Group in BNG.
	<a href="#">pado delay circuit-id, on page 3</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Circuit-ID received in PADI message.
	<a href="#">pado delay remote-id, on page 5</a>	Configures a delay for PPPoE PADO message for a PPPoE BBA-Group in BNG, based on the Remote-ID received in PADI message.

# pppoe bba-group

To add configuration for a particular BBA-Group and to enter the BBA-Group submode, use the **pppoe bba-group** command in Global Configuration mode. To disable this feature, use the **no** form of this command.

```
pppoe bba-group {bba-group name | global} {ac | name new_name | control-packets | priority priority_bits | service | {name new_name | selection | disable} | sessions | {access-interface | circuit-id | mac | mac-iwf | {access-interface | pair | limit} | max | {access-interface | limit | throttle}} | limit session_limit | tag | {ppp-max-payload | {deny | minimum minimum_payload}}}
```

## Syntax Description

<i>bba-group-name</i>	Specifies the bba group name.
<b>global</b>	Specifies the global bba-group.  <b>Note</b> This is a reserved keyword for IOS XR PPPoE call flow, you must use a different keyword for subscriber redundancy group (SRG).
<b>ac</b>	Enables modification of the access concentrator configuration.
<b>name</b>	Indicates the name change to include in the AC tag.
<i>new_name</i>	Specifies the new name.
<b>control-packets</b>	Enables change of control-packets configuration.
<b>priority</b>	Sets the priority to use in PPPoE and PPP control packets.
<i>priority_bits</i>	Specifies the priority bits for outgoing PPPoE and PPP control packets. This ranges between 0 and 7, where 0 indicates highest priority and 7 indicates the lowest.
<b>service</b>	Enables modification of service configuration.
<b>name</b>	Configures the service name.
<i>new_name</i>	Specifies the new service name.
<b>selection</b>	Specifies the selection of unrequested service names.
<b>disable</b>	Disables the advertising of unrequested service names.
<b>sessions</b>	Enables modification of sessions configuration.
<b>access-interface</b>	Limits PPPoE sessions on any one access interface.
<b>circuit-id</b>	Limits PPPoE sessions with any one circuit-id.
<b>mac</b>	Limits or throttles PPPoE sessions from any one mac-address.

<b>mac-iwf</b>	Limits or throttles IWF PPPoE sessions from any one mac-address.
<b>max</b>	Sets a per-card session limit.
<b>limit</b>	Specifies the action of limiting the PPPoE sessions for various attributes.
<i>session_limit</i>	Specifies the access-interface session limit. The value ranges from 1 to 65535.
<b>tag</b>	Enables modification of tag configuration.
<b>ppp-max-payload</b>	Modifies the ppp-max-payload configuration and allows to configure minimum and maximum payloads.
<b>deny</b>	Ignores the ppp-max-payload tag.
<b>minimum</b>	Configures the minimum payload.
<i>minimum_payload</i>	Specifies the value of the minimum payload. The value ranges from 500 to 2000.

**Command Default** None

**Command Modes** Global Configuration mode

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.
	Release 6.2.1	Modified the command to include <b>global</b> BBA-Group.

**Usage Guidelines** BBA-Groups are configured globally (these are essentially configuration templates), containing the PPPoE configuration settings.

When this configuration changes to use a different BBA-Group, then all existing PPPoE sessions running under the interface are terminated.

Among the various BBA-Groups that can be configured on a router, one BBA-Group can be configured as a global BBA-Group. If the maximum limit for PPPoE sessions is set under **pppoe bba-group global** configuration, it indicates the limit for the total number of sessions on the node.



**Note**

- For RP subscribers, the node is the complete chassis.
- For LC subscribers, the node is the LC. For LC subscribers, each LC considers the maximum limit set by the global limit. But with multiple LC in the chassis, the session count in the chassis can be multiplied by the number of active LC.

To use a BNG-wide limit for LC based subscribers, you can use either bundles or pre authentication.

- For a single member, when you are using bundles, the sessions are maintained on the RP and the control is moved to the RP for all sessions. The bba group limit applies to all sessions regardless to the number of line cards carrying subscribers:

```
interface GigabitEthernet0/0/0/0
bundle id 100 mode on
```

- In a pre authentication method, when PADI is received, an authorization request is sent to AAA . An authorisation request determines the session count on radius for it to accept or reject the request. When the request is accepted, a PADO is sent. When the request is rejected the PADI is discarded and ignored.

Global BBA-Group support in BNG is subjected to these restrictions:

- Currently global BBA-Group supports only configurations related to session limit, except AAA override configuration. For more details, see usage guidelines section of **pppoe sessions limit** command.
- You cannot change the configuration at run time for global BBA-Group.
- The **global** BBA-Group is not valid for subscriber redundancy group (SRG) in BNG, and hence the **pppoe bba-group global** command must not be used in BNG geo redundancy scenarios.

**Task ID**

Task ID	Operation
ppp	read, write

This is an example of configuring the **pppoe bba-group** command in Global Configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group global
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions max limit 250
```

This is an example of configuring maximum PPPoE sessions limit for the entire router, under global PPPoE BBA-Group:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group global
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions max limit 250
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<a href="#">pppoe enable bba-group, on page 13</a>	Enables PPPoE on an interface.

# pppoe enable bba-group

To enable pppoe on an interface, use the **pppoe enable bba-group** command in interface configuration mode. To disable the pppoe on the interface, use the **no** form of this command.

**pppoe enable bba-group** *bba-group name*

<b>Syntax Description</b>	<i>bba-group name</i> Specifies the name of the bba-group.				
<b>Command Default</b>	If no BBA-Group is specified, then the default configuration options are used, else the BBA-Group's configuration is used on this interface.				
<b>Command Modes</b>	Interface configuration				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 4.2.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 4.2.0	This command was introduced.
Release	Modification				
Release 4.2.0	This command was introduced.				
<b>Usage Guidelines</b>	When this configuration changes to use a different BBAGroup, then all existing PPPoE sessions running under the interface are terminated.				
<b>Task ID</b>	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>ppp</td> <td>read, write</td> </tr> </tbody> </table>	Task ID	Operation	ppp	read, write
Task ID	Operation				
ppp	read, write				

This is an example of configuring the **pppoe enable bba-group** command in interface configuration mode:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#interface Bundle-Ether100.10
RP/0/RSP0/CPU0:router(config-if)# pppoe enable bba-group bba1
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">pppoe bba-group, on page 9</a>	Enables you to add configuration for a particular bba-group.

# pppoe in-flight-window

To configure a limit for the number of PPPoE sessions that are in progression towards established state in BNG, use the **pppoe in-flight-window** command in Global Configuration mode. To remove this limit, use the **no** form of this command.

**pppoe in-flight-window** *size*

<b>Syntax Description</b>	<i>size</i> Specifies the window-size for the number of PPPoE sessions that are in progression towards established state in BNG.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Global Configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.3.1	This command was introduced.

<b>Usage Guidelines</b>	The recommended in-flight-window <i>size</i> for RP-based subscribers is 200, and that for LC-based subscribers is 50. Values higher than these are not recommended for production deployment, as it can lead to system instability.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ppp	read, write

This example shows how to configure the in-flight-window size for PPPoE sessions in BNG:

```
RP/0/RSP0/CPU0:router (config) # pppoe in-flight-window 200
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">pppoe sessions limit, on page 15</a>	Configures a limit for PPPoE sessions for a PPPoE BBA-Group in BNG.
	<a href="#">pppoe sessions throttle, on page 18</a>	Configures a throttle value for PPPoE sessions for a PPPoE BBA-Group in BNG.

# pppoe sessions limit

To set the PPPoE sessions limit for a particular PPPoE BBA-Group or for the entire router, use the **sessions limit** command in PPPoE BBA-Group configuration mode. To remove the specified limit for PPPoE sessions, use the **no** form of this command.

```
sessions {access-interface | circuit-id | circuit-id-and-remote-id | inner-vlan | {mac | mac-iwf}
[access-interface] | max | outer-vlan | remote-id | vlan} limit limit-value [threshold threshold-value]
```

Syntax Description		
<b>access-interface</b>	Limits PPPoE sessions on any one access interface.	
<b>circuit-id</b>	Limits PPPoE sessions with any one circuit-ID.	
<b>circuit-id-and-remote-id</b>	Limits PPPoE sessions by circuit-id and remote-id.	
<b>inner-vlan</b>	Limits PPPoE sessions with any one inner-vlan id.	
<b>mac</b>	Limits PPPoE sessions from any one mac address.	
<b>mac-iwf</b>	Limits IWF PPPoE sessions from any one mac address.	
<b>max</b>	Sets a per-card session limit.	
<b>outer-vlan</b>	Limits PPPoE sessions with any one outer-vlan id.	
<b>remote-id</b>	Limits PPPoE sessions with any one remote-id.	
<b>vlan</b>	Limits PPPoE sessions with matching vlan ids.	
<b>limit</b>	Specifies the action of limiting the PPPoE sessions for various attributes.	
<i>limit-value</i>	Specifies the session limit value. The range is from 1 to 65535. The default is 65535.	
<b>threshold</b>	Specifies the action of generating a log message when the threshold has reached.	
<i>threshold-value</i>	Specifies the threshold value. The range is from 1 to 65535.	
<b>Command Default</b>	None	
<b>Command Modes</b>	PPPoE BBA-Group configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.

Release	Modification
Release 4.3.1	The PPPoE sessions limit support was extended for <b>mac access-interface</b> , <b>mac-iwf access-interface</b> , <b>inner-vlan</b> , <b>outer-vlan</b> , <b>vlan</b> , and <b>circuit-id-and-remote-id</b> . Support for the optional argument, <b>threshold</b> was added.
Release 6.2.1	Functionality was included to set a global PPPoE session limit, that is, a session limit for the entire router.

**Usage Guidelines**

If a session limit is configured after the limit has already been exceeded, the existing sessions are torn down until the number of sessions matches the configured limit.

If both mac limit and mac-iwf limit are configured, only IWF limit is used for IWF sessions, so that a higher IWF limit than the limit for non-IWF sessions can be used. The same is the case if both mac access-interface limit and mac-iwf access-interface limit are configured.



**Note** The **sessions outer-vlan limit** command limits the sessions only in single VLAN tag scenarios. You must use the **sessions vlan limit** command, to limit the sessions in double VLAN tag scenarios; this limits the maximum number of sessions allowed for each inner VLAN and outer VLAN, for each access-interface.

In order to set a global PPPoE session limit, use the **sessions max limit** command under **pppoe bba-group global** configuration mode. The combined number of sessions on all individual BBA-Groups cannot exceed this global limit. For example, consider a configuration where the global limit is set as 250, the limit of BBA-Group 1 (say, *bba1*) is set as 100, and the limit of BBA-Group 2 (say, *bba2*) is set as 200. If 100 sessions are already created with *bba1*, then only 150 sessions (that is, 250 - 100) can be created with *bba2*, even though *bba2* has a session limit of 200. Similarly there can be different combinations of sessions with local BBA-Groups as long as the global session limit is not exceeded. For more details, see **pppoe bba-group** command.

**Task ID**

Task ID	Operation
ppp	read, write

This example shows how to configure a pppoe session limit of 1000, for each access-interface in a PPPoE BBA-Group:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions access-interface limit 1000
```

This example shows how to configure a pppoe session limit of 5000 and a threshold value of 4900, for each peer mac-address under individual access-interface in a PPPoE BBA-Group:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions mac access-interface limit 5000 threshold
```

4900

This example shows how to set the global PPPoE session limit for a router as 250:

```
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# pppoe bba-group global  
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions max limit 250
```

Related Commands	Command	Description
	<a href="#">pppoe bba-group, on page 9</a>	Adds configuration for a particular BBA-Group and enters the BBA-Group submode.
	<a href="#">pppoe sessions throttle, on page 18</a>	Configures a throttle value for PPPoE sessions for a PPPoE BBA-Group in BNG.
	<a href="#">show pppoe limits, on page 24</a>	Shows the PPPoE session limit information.

# pppoe sessions throttle

To set a throttle value for the PPPoE sessions for a particular PPPoE BBA-Group, use the **sessions throttle** command in PPPoE BBA-Group configuration mode. To remove the specified throttle value for PPPoE sessions, use the **no** form of this command.

**sessions** {**circuit-id** | **circuit-id-and-remote-id** | **inner-vlan** | **mac** [**access-interface**] | **mac-iwf** | **access-interface** | **outer-vlan** | **remote-id** | **vlan**} **throttle** *request-count request-period blocking-period*

**Syntax Description**

<b>access-interface</b>	Throttles PPPoE sessions based on any one access interface
<b>circuit-id</b>	Throttles PPPoE sessions with any one circuit-id.
<b>circuit-id-and-remote-id</b>	Throttles PPPoE sessions by circuit-id and remote-id.
<b>inner-vlan</b>	Throttles PPPoE sessions with any one inner-vlan id.
<b>mac</b>	Throttles PPPoE sessions from any one mac address.
<b>mac-iwf</b>	Throttles Inter-Working Function (IWF) sessions from any one mac address.
<b>outer-vlan</b>	Throttles PPPoE sessions with any one outer-vlan id.
<b>remote-id</b>	Throttles PPPoE sessions with any one remote-id.
<b>vlan</b>	Throttles PPPoE sessions with matching vlan ids.
<b>throttle</b>	Specifies the action of throttling the PPPoE sessions for various attributes.
<i>request-count</i>	Specifies the number of session requests allowed before throttling.
<i>request-period</i>	Specifies the time interval during which the session requests are counted.
<i>blocking-period</i>	Specifies the time interval during which no more requests from the subscriber are accepted, when the subscriber has already been throttled.

**Command Default**

Sessions throttle is disabled by default.

**Command Modes**

PPPoE BBA-Group configuration

**Command History**

Release	Modification
Release 4.2.0	This command was introduced.

Release	Modification
Release 4.3.1	The pppoe sessions throttle support was extended for <b>circuit-id</b> , <b>remote-id</b> , <b>inner-vlan</b> , <b>outer-vlan</b> , <b>vlan</b> and <b>circuit-id-and-remote-id</b> . Support for the variables, <i>request-count</i> , <i>request-period</i> and <i>blocking-period</i> was added.

**Usage Guidelines**

If both mac access-interface throttle and mac-iwf access-interface throttle are configured, only IWF throttle is used for IWF sessions, so that different throttling can be applied to IWF and non-IWF sessions.

**Task ID**

Task ID	Operation
ppp	read, write

This example shows how to configure a throttle for pppoe sessions for each circuit-id in a PPPoE BBA-Group:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions circuit-id throttle 1000 50 25
```

This example shows how to configure a throttle for IWF session requests for each peer mac-address under individual access-interface in a PPPoE BBA-Group:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# pppoe bba-group bba1
RP/0/RSP0/CPU0:router(config-bbgroup)# sessions mac-iwf access-interface throttle 5000 100 50
```

**Related Commands**

Command	Description
<a href="#">pppoe sessions limit, on page 15</a>	Configures a limit for PPPoE sessions for a PPPoE BBA-Group in BNG.
<a href="#">show pppoe throttles, on page 33</a>	Shows the throttle information for the PPPoE sessions.

# clear pppoe statistics

To clear the statistics of packets received and sent by the PPPoE sessions in BNG, use the **clear pppoe statistics** command in the EXEC mode.

**clear pppoe statistics** [**internal**] **location** *node-id*

Syntax Description		
	<b>internal</b>	Clears internal PPPoE statistics.
	<b>location</b>	Clears PPPoE statistics for a given node.
	<i>node-id</i>	Specifies the node ID.  The node-id argument is entered in the rack/slot/module notation.

**Command Default** None

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ppp	read, write

This example shows the sample output before and after clearing the PPPoE statistics:

```
RP/0/RSP0/CPU0:router# show pppoe statistics
Tue Feb  5 21:17:36.137 UTC

0/RSP1/CPU0
-----
Packets                Sent          Received      Dropped
-----
PADI                   0             16163         60
PADO                  16103         0              0
PADR                   0             16103         0
PADS (success)        16102         0              0
PADS (error)          1              0              0
PADT                  28173         19             0
Session-stage         0             8200          0
Other                  0              0              0
-----
TOTAL                  60379         40485         60
```

```

Packet Error                                Count
-----
Session-stage packet for unknown session    4097
Session-stage packet with no error         6
-----
TOTAL                                       4103
    
```

RP/0/RSP0/CPU0:router# **clear pppoe statistics location 0/RSP1/CPU0**

RP/0/RSP0/CPU0:router# **show pppoe statistics**  
 Tue Feb 5 21:18:10.509 UTC

0/RSP1/CPU0

```

Packets                                Sent          Received       Dropped
-----
PADI                                    0              0              0
PADO                                    0              0              0
PADR                                    0              0              0
PADS (success)                         0              0              0
PADS (error)                           0              0              0
PADT                                    0              0              0
Session-stage                          0              0              0
Other                                   0              0              0
-----
TOTAL                                  0              0              0
    
```

```

Packet Error                                Count
-----
TOTAL                                       0
    
```

RP/0/RSP0/CPU0:router#

**Related Commands**

Command	Description
<a href="#">show pppoe statistics, on page 28</a>	Shows the counters for packets received and sent by the PPPoE sessions.

# show pppoe interfaces

To display a summary of the protocol state for the specified PPPoE interface filtered by circuit-id, remote-id, interface or location, use the **show pppoe interfaces** command in the EXEC mode mode.

**show pppoe interfaces** [{**circuit-id** *circuit\_id* | **remote-id** *remote\_id* | **access-interface** *type interface-path-id* | **location** *node* | **all**}]

Syntax Description		
<b>circuit-id</b>	Shows information for a given circuit-id.	
<i>circuit_id</i>	Specifies the circuit-id to show data for.	
<b>remote-id</b>	Show information for a given remote-id.	
<i>remote_id</i>	Specifies the remote-id to show data for.	
<b>access-interface</b>	Shows PPPoE status for all sessions on a single access interface.	
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.	
<i>interface-path-id</i>	Physical interface or virtual interface.	
	<b>Note</b>	Use the <b>show interfaces</b> command to see a list of all interfaces currently configured on the router.
		For more information about the syntax for the router, use the question mark (?) online help function.
<b>location</b>	Shows PPPoE status for all sessions at a location.	
<i>node</i>	Specifies the fully qualified location specification.	
<b>all</b>	Shows PPPoE status for all sessions.	

**Command Default** None

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.0	This command was introduced.
	Release 5.3.2	The command was modified to include a new output display field, <b>SRG-state</b> , as part of geo redundancy support for PPPoE sessions.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ppp	read

This is a sample output of the **show pppoe interfaces** command:

```
RP/0/RSP0/CPU0:router# show pppoe interfaces Loopback1
Loopback1 is Complete
Session id: 1
Access interface: Loopback1
BBA-Group: blue
Local MAC address: aabb.cc00.8301
Remote MAC address: aabb.cc00.8201
Tags:
Service-Name: servicel
Max-Payload: 1500
IWF
Circuit-ID: circuit1
Remote-ID: remotel
```

This is a sample output of the **show pppoe interfaces** command, with geo redundancy enabled for PPPoE sessions:

```
RP/0/RSP0/CPU0:router# show pppoe interfaces
Bundle-Ether2.1.pppoe16534 is Complete
Session id: 16534
Parent interface: Bundle-Ether2.1
BBA-Group: BBA1
Local MAC address: 0002.0003.0004
Remote MAC address: 0000.6201.0103
Outer VLAN ID: 10
Tags:
Service name: AGILENT
Host-Uniq: 4 bytes, (000e0000)
SRG-state: SRG-Standby
```

# show pppoe limits

To show the PPPoE session limit information, use the **show pppoe limits** command in the EXEC mode mode.

```
show pppoe limits [active] [{access-interface type interface-path-id | bba-group bba-group-name
| location node}]
```

## Syntax Description

<b>active</b>	Shows only those throttles that are currently blocking packets.
<b>access-interface</b>	Shows PPPoE status for all sessions on a single access interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface.
<b>Note</b>	Use the <b>show interfaces</b> command to see a list of all interfaces currently configured on the router.
	For more information about the syntax for the router, use the question mark (?) online help function.
<b>bba-group</b>	Shows throttles for all interfaces with a given bba-group.
<i>bba_group_name</i>	Specifies the bba-group to show throttle for.
<b>location</b>	Shows PPPoE status for all sessions at a location.
<i>node</i>	Specifies the fully qualified location specification.

## Command Default

None

## Command Modes

EXEC mode

## Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.3.1	The command output was extended for the session limits of <b>mac access-interface</b> , <b>mac-iwf access-interface</b> , <b>inner-vlan</b> , <b>outer-vlan</b> , <b>vlan</b> and <b>circuit-id-and-remote-id</b>

## Usage Guidelines

No specific guidelines impact the use of this command.

## Task ID

Task ID	Operation
ppp	read

This is a sample output of the **show pppoe limits** command:

```
RP/0/RSP0/CPU0:router# show pppoe limits active access-interfaces loopback 45
BBA-Group TEST
-----
Card session limit information:
Maximum session limit: 50 sessions
Warning threshold: 40 sessions
State #Sessions
-----
Block 50
Access-interface session limits not configured.
MAC session limits not configured.
MAC-IWF session limits not configured.
Circuit-ID session limit information:
Maximum session limit: 50 sessions
Warning threshold: 40 sessions
Circuit-ID State #Sessions
-----
circuit_id1 Block 50
circuit_id_field which_can_be_up_to_sixty_four_chars_long Warn 45
circuit_id2 OK 32
circuit_id,/[*] OK 1
BBA-Group TEST2
-----
Card session limits not configured.
Access-interfaces session limit information:
Maximum session limit: 50 sessions
Warning threshold: 40 sessions
Access-Interface State #Sessions
-----
GEO/1/0/0/0 Block 50
GEO/1/0/0/1 Warn 45
GEO/1/0/0/2 OK 32
GEO/1/0/0/0.12 OK 1
MAC session limits not configured.
MAC-IWF session limits not configured.
Circuit-ID session limits not configured.
```

This is another sample output of **show pppoe limits** command:

```
RP/0/RSP0/CPU0:router# show pppoe limits
Tue Feb 5 21:09:40.823 UTC

0/RSP1/CPU0
-----
BBA-Group BNG_BBA
-----
Card session limits not configured.

Access-interface session limits not configured.

MAC session limits not configured.

MAC-IWF session limits not configured.

Circuit-ID session limit information:
Maximum session limit: 10 sessions
Warning threshold: 8 sessions

Circuit-ID State #Sessions
-----
circuit0 Block 10

Remote-ID session limit information:
```

show pppoe limits

```

Maximum session limit: 10 sessions
Warning threshold:      8 sessions

Remote-ID                State    #Sessions
-----                -
remote10                 Block    10

MAC-Access-Interface session limits not configured.

MAC-IWF-Access-Interface session limits not configured.

Inner-VLAN-ID session limit information:
Maximum session limit: 10 sessions
Warning threshold:      8 sessions

Access-Int              Inner VLAN ID          State    #Sessions
-----                -
BE2.10                  10                     Block    10

Outer-VLAN-ID session limit information:
Maximum session limit: 10 sessions
Warning threshold:      8 sessions

Access-Int              Outer VLAN ID          State    #Sessions
-----                -
BE2.10                  10                     Block    10

VLAN-ID session limit information:
Maximum session limit: 10 sessions
Warning threshold:      8 sessions

Access-Int              Outer, Inner VLAN ID   State    #Sessions
-----                -
BE2.10                  10, 10                 Block    10

Circuit-ID-and-Remote-ID session limit information:
Maximum session limit: 10 sessions
Warning threshold:      8 sessions

Circuit-ID              State    #Sessions
  Remote-ID              (/Max)
-----                -
circuit0                 Block    10
  remote10

```

This table describes the significant fields displayed in the **show pppoe limits** command output :

Field	Description
Block	Specifies that the number of sessions is at the maximum limit.
OK	Specifies that the number of sessions is below the maximum limit and the warning threshold (if configured).

Field	Description
Warn	Specifies that the number of sessions is at or above the warning threshold (if configured). No warning threshold is used when a limit is overridden.

**Related Commands**

Command	Description
<a href="#">pppoe sessions limit, on page 15</a>	Configures a limit for PPPoE sessions for a PPPoE BBA-Group in BNG.
<a href="#">show pppoe throttles, on page 33</a>	Shows the throttle information for the PPPoE sessions.
<a href="#">show pppoe interfaces, on page 22</a>	Shows a summary of the protocol state for the specified PPPoE interface filtered by circuit-id, remote-id, interface, or location.
<a href="#">show pppoe statistics, on page 28</a>	Shows the counters for packets received and sent by the PPPoE sessions.
<a href="#">show pppoe summary, on page 31</a>	Shows summary information of the PPPoE sessions.

# show pppoe statistics

To show the counters for packets received and sent by the PPPoE sessions, use the **show pppoe statistics** command in the EXEC mode mode.

**show pppoe statistics** {**access-interface***typeinterface-path-id* | **internal** | { **location***node*} | **location***node*}

Syntax Description	
<b>access-interface</b>	Shows PPPoE status for all sessions on a single access interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface.
<b>Note</b>	Use the <b>show interfaces</b> command to see a list of all interfaces currently configured on the router.
	For more information about the syntax for the router, use the question mark (?) online help function.
<b>internal</b>	Shows internal PPPoE statistics.
<b>location</b>	Shows PPPoE status for all sessions at a location.
<i>node</i>	Specifies the fully qualified location specification.

**Command Default** None

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.0	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ppp	read

This is the sample output of the **show pppoe statistics** command:

```
RP/0/RSP0/CPU0:router# show pppoe statistics access-interfaces Loopback 156

Packets Sent Received Dropped
-----
PADI 0 3723 18
PADO 3182 0 0
PADR 0 1732 93
PADS (success) 1601 0 0
```

```
PADS (error) 38 0 0
PADT 158 552 9
Session-stage 0 18 17
Other 0 2 2
-----
TOTAL 3979 6063 139
```

RP/0/RSP0/CPU0:router# **show pppoe statistics location 0/2/cpu0**

Packets Sent Received Dropped

```
-----
PADI 0 3723 18
PADO 3182 0 0
PADR 0 1732 93
PADS (success) 1601 0 0
PADS (error) 38 0 0
PADT 158 552 9
Session-stage 0 18 17
Other 0 2 2
-----
TOTAL 3979 6063 139
Packet Error Count
```

```
-----
No interface handle 1
No packet payload 1
No packet mac-address 1
Invalid version-type value 3
Bad packet length 7
Unknown interface 11
PADO receive
ed 1
PADS received 1
Unknown packet type received 1
Unexpected Session-ID in packet 1
No Service-Name Tag 11
PADT for unknown session 13
PADT with wrong peer-mac 7
PADT before PADS sent 1
Session-stage packet for unknown session 13
Session-stage packet with wrong mac 19
Session-stage packet with no error 1
Tag too short 1
Bad tag-length field 1
Multiple Service-Name tags 1
Multiple Max-Payload tags 1
Invalid Max-Payload tag 1
Multiple Vendor-specific tags 1
Unexpected AC-Name tag 1
Unexpected error tags 3
Unknown tag received 1
No IANA code in vendor tag 1
Invalid IANA code in vendor tag 1
Vendor tag too short 1
Bad vendor tag length field 1
Multiple Host-Uniq tags 1
Multiple Circuit-ID tags 1
Multiple Remote-ID tags 1
Invalid DSL tag 1
Multiple of the same DSL tag 1
Invalid IWF tag 1
Multiple IWF tags 1
Unknown vendor-tag 11
No space left in packet 1
Duplicate Host-Uniq tag received 1
```

```
show pppoe statistics
```

```
Packet too long 1  
-----  
TOTAL 140
```

# show pppoe summary

To show the summary information for the PPPoE sessions, use the **show pppoe summary** command in the EXEC mode mode.

**show pppoe summary** {**per-access-interface** | **total**} { **location***node*}

<b>Syntax Description</b>	<b>per-access-interface</b>	Summarizes PPPoE sessions running on each access-interface.
	<b>total</b>	Shows the overall summary information of access-interfaces and sessions.
	<b>location</b>	Shows PPPoE status for all sessions at a location.
	<i>node</i>	Specifies the fully qualified location specification.

**Command Default** None

**Command Modes** EXEC mode

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ppp	read

This is the sample output of the **show pppoe summary** command:

```
RP/0/RSP0/CPU0:router# show pppoe summary per-access-interfaces location 0/1/cpu0

COMPLETE: Complete PPPoE Sessions
INCOMPLETE: PPPoE sessions being brought up or torn down
Interface BBA-Group READY TOTAL COMPLETE INCOMPLETE
-----
Fa0/1/0/0 blue Y 20 18 2
Fa0/1/0/1.1 red Y 128000 100010 27990
Fa0/1/0/1.2 green N 0 0 0
-----
TOTAL 2 128020 100028 27992
RP/0/0/CPU0:demo#show pppoe summary total location 0/5/cpu0
=====
Configured Access Interfaces
=====
Ready 300
Not-Ready 15
-----
TOTAL 315
```

```
show pppoe summary
```

```
=====
PPPoE Sessions
=====
Complete 3812
Incomplete 302
-----
TOTAL 4114
=====
Flow Control
=====
Limit 1000
In Flight 12
Dropped 212
Disconnected 6
Successful 1021
```

# show pppoe throttles

To show the throttle information for the PPPoE sessions, use the **show pppoe throttles** command in the EXEC mode mode.

**show pppoe throttles** [**active**] [{**access-interface** *type interface-path-id* | **bba-group** *bba-group-name* | **location** *node*}]

Syntax Description		
<b>active</b>	Shows only those throttles that are currently blocking packets.	
<b>access-interface</b>	Shows PPPoE status for all sessions on a single access interface.	
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.	
<i>interface-path-id</i>	Physical interface or virtual interface.	
	<b>Note</b>	Use the <b>show interfaces</b> command to see a list of all interfaces currently configured on the router.
		For more information about the syntax for the router, use the question mark (?) online help function.
<b>bba-group</b>	Shows throttles for all interfaces with a given bba-group.	
<i>bba_group_name</i>	Specifies the bba-group name.	
<b>location</b>	Shows PPPoE status for all sessions at a location.	
<i>node</i>	Specifies the fully qualified location specification.	

**Command Default** None

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.0	This command was introduced.
	Release 4.3.1	The command output was extended for the throttle for <b>circuit-id</b> , <b>remote-id</b> , <b>inner-vlan</b> , <b>outer-vlan</b> , <b>vlan</b> and <b>circuit-id-and-remote-id</b> .

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ppp	read

This is the sample output of the **show pppoe throttles** command:

```
RP/0/RSP0/CPU0:router# show pppoe throttles location 0/2/cpu0
```

```
BBA-Group TEST
-----
MAC throttle information:
Max packets per request period: 5
Request period duration: 20s
Blocking period duration: 5s
Time Since
MAC Address State left reset PADI PADR
-----
aabb.ccdd.1123 Idle 30s 16s 0 0
7582.1352.e29a Monitor 3s 20s 5 5
7582.1352.e29a Block 4s 17s 6 5
MAC Access-interface throttle information:
Max packets per request period: 5
Request period duration: 20s
Blocking period duration: 5s
Time Since
Access-Int MAC Address State left reset PADI PADR
-----
GEO/1/0/0 aabb.ccdd.1123 Idle 30s 16s 0 0
GEO/1/0/0 7582.1352.e29a Monitor 3s 20s 5 5
GEO/1/0/0 7582.1352.e29a Block 4s 17s 6 5
MAC IWF throttle information:
Max packets per request period: 5
Request period duration: 20s
Blocking period duration: 5s
Time Since
MAC Address State left reset PADI PADR
-----
aabb.ccdd.1123 Idle 30s 16s 0 0
7582.1352.e29a Mon 3s 20s 5 5
7582.1352.e29a Block 4s 17s 6 5
BBA-Group TEST2
-----
MAC throttling is not configured.
MAC Access-interface throttling is not configured.
MAC IWF throttling is not configured.
```

Another sample output of the **show pppoe throttles** command:

```
RP/0/RSP0/CPU0:router# show pppoe throttles
BBA-Group BNG_BBA1
-----
MAC throttles not configured.

MAC-Access-interface throttles not configured.

MAC-IWF-Access-interface throttles not configured.

Circuit-ID throttle information:
Max packets per request period: 10
Request period duration: 10s
Blocking period duration: 100s

Circuit-ID State Time Since PADI PADR
-----
circuit0 Block 91s 8s 10 10

Remote-ID throttle information:
```

```
Max packets per request period: 10
Request period duration:      10s
Blocking period duration:    100s
```

```
Remote-ID                      State      Time   Since
-----                      -
remotel0                       Block     91s   8s    10   10
```

```
Inner-VLAN-ID throttle information:
Max packets per request period: 10
Request period duration:      10s
Blocking period duration:    100s
```

```
Access-Int                      Inner VLAN ID  State      Time   Since
-----                      -
BE2.10                          10          Block     91s   8s    10   10
```

```
Outer-VLAN-ID throttle information:
Max packets per request period: 10
Request period duration:      10s
Blocking period duration:    100s
```

```
Access-Int                      Outer VLAN ID  State      Time   Since
-----                      -
BE2.10                          10          Block     91s   8s    10   10
```

```
VLAN-ID throttle information:
Max packets per request period: 10
Request period duration:      10s
Blocking period duration:    100s
```

```
Access-Int                      Outer, Inner VLAN ID  State      Time   Since
-----                      -
BE2.10                          10, 10          Block     91s   8s    10   10
```

```
Circuit-ID-and-Remote-ID throttle information:
Max packets per request period: 0
Request period duration:      0s
Blocking period duration:    0s
```

```
Circuit-ID                      State      Time   Since
Remote-ID                      -
circuit0                       Block     91s   8s    10   10
remotel0
```

This table describes the significant fields displayed in the **show pppoe throttles** command output :

Field	Description
Block	Specifies that the throttle is active and that packets are dropped.
Idle	Specifies that the packets relevant to the throttle are not yet received.
Monitor	Specifies that the packets are counted, but the throttle is not yet active.

Field	Description
Time left	Specifies the time remaining until the throttle enters idle state, or if the throttle is already in idle state, the time until the throttle entry is removed.
Since reset	Specifies the time since the throttle counters were last reset. Throttle counters are reset upon entering the idle state.
PADI	Specifies the number of PADI messages received which match the entry criteria (say, mac address).
PADR	Specifies the number of PADR messages received which match the entry criteria (say, mac address).

**Related Commands**

Command	Description
<a href="#">pppoe sessions throttle, on page 18</a>	Configures a throttle value for PPPoE sessions for a PPPoE BBA-Group in BNG.
<a href="#">show pppoe limits, on page 24</a>	Shows the PPPoE session limit information.
<a href="#">show pppoe interfaces, on page 22</a>	Shows a summary of the protocol state for the specified PPPoE interface filtered by circuit-id, remote-id, interface, or location.
<a href="#">show pppoe statistics, on page 28</a>	Shows the counters for packets received and sent by the PPPoE sessions.
<a href="#">show pppoe summary, on page 31</a>	Shows summary information of the PPPoE sessions.