PPPoE on Bridge Domain Interface

The PPPoE on Bridge Domain Interface feature enables configuration and initiation over a VLAN domain. PPPoE over BDI allows clients to establish an authentic and secured PPPoE session with the remote PPPoE server over a VLAN domain.

Prerequisites for PPPoE on BDI

Before you can configure the PPPoE on BDI feature, enable PPPoE, and specify a virtual template for PPPoE sessions.

Restrictions for PPPoE on BDI

- PPPoE is supported only on BDIs created over the Ethernet ports.

- PPPoE is *not* supported on the Cisco ASR 900 Series RSP3 module.

- One PPPoE client is supported per node/router.

- PPPoE client over BDI is used to get configuration file from server over vlan domain. The BDI or the virtual interface used by PPPoE client should not be used for routing.

- PPPoE server is *not* supported.

- PAP and CHAP are the supported authentication methods.

- Traceback messages appear when PPPoE session is initiated over the BDI tagged interface. You need to clear the PPPoE traceback error messages from the server side.

How to Enable and Configure PPPoE on BDI

Limiting PPPoE Sessions from a MAC Address

To set the limit of sessions to be sourced from a MAC address, use the following command in VPDN configuration mode:

Command	Purpose
`Router(config-if)# ` **`pppoe session-limit per-mac`** `number`	Sets the limit of sessions to be sourced from a MAC address.

Creating and Configuring a Virtual Template

The Virtual Template Interface Service feature provides a generic service that can be used to apply predefined interface configurations (virtual template interfaces).

For example you can enable PPP authentication on the virtual template using the **ppp authentication chap** command to be used for PPPoE session.

PPPoE session can be enabled using virtual template or using Dialer interface

To create and configure a virtual template, use the following commands beginning in global configuration mode:

Procedure

	Command or Action	Purpose
Step 1	Router(config)# **interface virtual-template** *number*	Creates a virtual template, and enters interface configuration mode.
Step 2	Router(config-if)# **mtu** *bytes*	Sets the maximum transmission unit (MTU) size for the interface.
Step 3	Router(config-if)# **ip address** *negotiated*	Obtains IP address via PPP/IPCP negotiation.
Step 4	Router(config-if)# **ppp authentication** *chap*	Sets the maximum transmission unit (MTU) size for the interface.

Creating and Configuring Dialer Interface

Use pppoe client dialer interface to initiate the pppoe session.

Command	Purpose
`Router(config)# `**`interface dialer`** *`interface-number`*	Creates a Dialer interface.
`Router(config-if)# `**`ip address negotiated`**	Specifies the IP address Dialer interface as a node in the destination network to be called. The IP address can be obtained during IPCP negotiation.
`Router(config-if)# `**`encapsulation ppp`**	Specifies the PPP encapsulation.
`Router(config-if)# `**`dialer pool`** *`pool-number`*	Specifies the dialing pool to use for calls to this destination.
`Router(config-if)# `**`dialer-group`** *`group-number`*	Assigns the Dialer interface to a dialer group. This applies the specified traffic definition to the interface.
`Router(config-if)# `**`[no] cdp enable`**	Enables Cisco Discovery Protocol (CDP) on the interface.
`Router(config-if)# `**`ppp authentication pap chap`**`[`**`callin`**`]`	Specifies the PPP authentication method. This is only needed if you are not doing CLID or DNIS-based binding.
`Router(config-if)# `**`ppp pap sent-username`** *`user-name`***`password`** *`password`*	Specifies the PPP user-name and password for the Password Authentication Protocol (PAP).
`Router(config-if)# `**`ppp chap hostname`** *`hostname`*	Specifies the PPP Challenge Handshake Authentication Protocol (CHAP) hostname.
`Router(config-if)# `**`ppp chap password`** *`password`*	Specifies the PPP CHAP password.

Enabling PPPoE on a BDI

To enable PPPoE on BDI, use the following command in global configuration mode:

Command	Purpose
`Router# `**`interface bdi1`**	Specifies a bridge domain interface on the router.
`Router# `**`pppoe enable`**	Specifies the group to be used for establishing PPPoE sessions.
`Router# `**`pppoe-client dial-pool-number 1`**	Configures a PPP over Ethernet (PPPoE) client and specifies the dialer interface. **Note** If a PPPoE profile is not assigned to the interface by using the group group-name option, then interface use the default global PPPoE profile.

Displaying the PPPoE Session Information

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

Command	Purpose
Router# **show pppoe session**	Displays PPPoE session details with remote as well as local MAC and session count details.

Configuration Examples for PPPoE on BDI

Specifying Dialer Interface for PPPoE Session

```
interface Dialer1
 ip address negotiated
 encapsulation ppp
 dialer pool 1
 dialer-group 1
 no cdp enable
 ppp authentication pap chap callin
 ppp pap sent-username r1 password r2
 ppp chap hostname r1
 ppp chap password r2
```

Enabling PPPoE on a BDI—Example

The following example enables PPPoE on a BDI:

```
interface bdi1
 pppoe enable
 pppoe-client dial-pool-number 1
```

Specifying Virtual Template for PPPoE Session—Example

The following example specifies virtual template for PPPoE session:

```
bba-group pppoe global
virtual-template 1

interface Virtual-Template1
mtu 1492
ip address negotiated
ppp authentication pap
ppp pap sent-username r1 password 0 r2

inter BDI10
pppoe enable group global
no shut
```

Additional References

The following sections provide references related to the PPPoE on BDI feature.

Related Documents

Related Topic	Document Title
Configuring PPPoE on ATM	PPPoE over ATM
Configuring PPPoE on IEEE 802.1Q encapsulation	PPPoE Over IEEE 802.1Q VLANs

Standards

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

MIBs

MIB	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 XE releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
RFC 2516	*A Method for Transmitting PPPoE*
RFC 4813	Multiprotocol Encapsulation over ATM Adaptation Layer 5

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/techsupport