PPPoE Relay

The PPPoE Relay feature enables an L2TP access concentrator (LAC) to relay active discovery and service selection functionality for PPP over Ethernet (PPPoE), over a Layer 2 Tunneling Protocol (L2TP) control channel, to an L2TP network server (LNS) or tunnel switch (multihop node). The relay functionality of this feature allows the LNS or tunnel switch to advertise the services it offers to the client, thereby providing end-to-end control of services between the LNS and a PPPoE client.

Feature Specifications for the PPPoE Relay Feature

Release	Modification
12.3(4)T	This feature was introduced.
12.2(27)SBA	This feature was integrated into Cisco IOS Release 12.2(27)SBA.

Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at http://www.cisco.com/go/fn. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

Contents

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

Prerequisites for Using PPPoE Relay

This document assumes you understand how to configure a virtual private dial-up network (VPDN) tunnel and a tunnel switch. See the "Related Documents" section on page 12 for more information about these features.

Information About PPPoE Relay

To configure PPPoE relay, you need to understand the following concept:

- L2TP Active Discovery Relay for PPPoE, page 2

L2TP Active Discovery Relay for PPPoE

The PPPoE protocol described in RFC 2516 defines a method for active discovery and service selection of devices in the network by a LAC. A PPPoE client uses these methods to discover an access concentrator in the network, and the access concentrator uses these methods to advertise the services it offers.

The PPPoE Relay feature introduced in Cisco IOS Release 12.3(4)T allows the active discovery and service selection functionality to be offered by the LNS, rather than just by the LAC. The PPPoE Relay feature implements the Network Working Group Internet-Draft titled *L2TP Active Discovery Relay for PPPoE*. The Internet-Draft describes how to relay PPPoE Active Discovery (PAD) and Service Relay Request (SRRQ) messages over an L2TP control channel (the tunnel). (See the "RFCs" section on page 13 for information on how to access Network Working Group Internet-Drafts.)

The key benefit of the PPPoE Relay feature is end-to-end control of services between the LNS and a PPPoE client.

How to Configure PPPoE Relay

This section contains the following procedures:

- Configuring the LAC and Tunnel Switch for PPPoE Relay, page 2 (required)
- Configuring the LNS (or Multihop Node) to Respond to Relayed PAD Messages, page 4 (required)
- Monitoring PPPoE Relay: Example, page 12 (optional)

Configuring the LAC and Tunnel Switch for PPPoE Relay

To configure the LAC and tunnel switch for PPPoE Relay, you configure a subscriber profile that directs PAD messages to be relayed on an L2TP tunnel. The subscriber profile also will contain an authorization key for the outgoing L2TP tunnel.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **subscriber profile** *profile-name*
4. **service relay pppoe vpdn group** *vpdn-group-name*
5. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**subscriber profile** *profile-name* **Example:** `Router(config)# subscriber profile profile-1`	Configures the subscriber profile name and begins subscriber profile configuration mode. • *profile-name*—Is referenced from a PPPoE profile configured by the **bba-group pppoe** global configuration command, so that all the PPPoE sessions using the PPPoE profile defined by the **bba-group pppoe** command would be treated according to the defined subscriber profile.
Step 4	**service relay pppoe vpdn group** *vpdn-group-name* **Example:** `Router(config-sss-profile)# service relay pppoe vpdn group Group-A`	Provides PPPoE relay service using a VPDN L2TP tunnel for the relay. The VPDN group name specified is used to obtain outgoing L2TP tunnel information. • See the "RADIUS Subscriber Profile Entry for the LAC" section for the equivalent RADIUS profile entry.

RADIUS Subscriber Profile Entry for the LAC

The following example shows how to enter Subscriber Service Switch subscriber service attributes in a AAA RADIUS server profile.

```
profile-1 = profile-name
.
.
.
   Cisco:Cisco-Avpair = "sss:sss-service=relay-pppoe"
```

What to Do Next

Configure the LNS side of the configuration by performing the tasks described in the "Configuring the LNS (or Multihop Node) to Respond to Relayed PAD Messages" section.

Configuring the LNS (or Multihop Node) to Respond to Relayed PAD Messages

On the router that responds to relayed PAD messages, you must configure a PPPoE group and attach it to a VPDN group that accepts dial in calls for L2TP. The relayed PAD messages will be passed from the VPDN L2TP tunnel and session to the PPPoE broadband group for receiving the PAD responses.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **vpdn-group** *vpdn-group-name*
4. **accept-dialin**
5. **protocol l2tp**
6. **virtual-template** *template-name*
7. **exit**
8. **terminate-from hostname** *host-name*
9. **relay pppoe bba-group** *pppoe-bba-group-name*
10. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**vpdn-group** *vpdn-group-name* **Example:** `Router(config)# vpdn-group Group-A`	Creates a VPDN group and enters VPDN group configuration mode.
Step 4	**accept-dialin** **Example:** `Router(config-vpdn)# accept-dialin`	Configures the LNS to accept tunneled PPP connections from a LAC and creates an accept-dialin VPDN subgroup.

	Command or Action	Purpose
Step 5	**protocol l2tp** **Example:** `Router(config-vpdn-req-in)# protocol l2tp`	Specifies the L2TP tunneling protocol.
Step 6	**virtual-template** *template-number* **Example:** `Router(config-vpdn-req-in)# virtual-template 2`	Specifies which virtual template will be used to clone virtual access interfaces.
Step 7	**exit** **Example:** `Router(config-vpdn-req-in)# exit`	Exits to VPDN group configuration mode.
Step 8	**terminate-from hostname** *host-name* **Example:** `Router(config-vpdn)# terminate-from hostname LAC-1`	Specifies the LAC host name that will be required when the VPDN tunnel is accepted.
Step 9	**relay pppoe bba-group** *pppoe-bba-group-name* **Example:** `Router(config-vpdn)# relay pppoe bba-group group-2`	Specifies the PPPoE BBA group that will respond to the PAD messages. • The PPPoE BBA group name is defined with the **bba-group pppoe** *group-name* global configuration command. • See the "RADIUS VPDN Group User Profile Entry for the LNS" section for the equivalent RADIUS profile entry.
Step 10	**exit** **Example:** `Router(config-vpdn)# exit`	Exits to global configuration mode.

RADIUS VPDN Group User Profile Entry for the LNS

The following example shows how to enter the VPDN group attributes in a AAA RADIUS server profile.

```
profile-1 = profile-name
.
.
.
   Cisco:Cisco-Avpair = "vpdn:relay-pppoe-bba-group=group-name"
```

Monitoring PPPoE Relay

Perform this task to monitor PPPoE Relay.

SUMMARY STEPS

1. **enable**
2. **show pppoe session**
3. **show pppoe relay context all**
4. **clear pppoe relay context**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**show pppoe session** **Example:** `Router# show pppoe session`	Displays information about currently active PPPoE sessions.
Step 3	**show pppoe relay context all** **Example:** `Router# show pppoe relay context all`	Displays the PPPoE relay context created for relaying PAD messages.
Step 4	**clear pppoe relay context** **Example:** `Router(config)# clear pppoe relay context`	Clears the PPPoE relay context created for relaying PAD messages.

Troubleshooting Tips

Use the following privileged EXEC commands to help you troubleshoot the PPPoE Relay feature:

- **debug ppp forwarding**
- **debug ppp negotiation**
- **debug pppoe events**
- **debug pppoe packets**
- **debug vpdn l2x-events**
- **debug vpdn l2x-packets**

Configuration Examples for PPPoE Relay

This section contains the following examples:

PPPoE Relay on LAC Configuration: Example

The following is an example of a standard LAC configuration with the commands to enable PPPoE relay added:

```
hostname User2
!
username User1 password 0 field
username User2 password 0 field
username user-group password 0 field
username User5 password 0 field
username User2-lac-domain password 0 field
username User1-client-domain@cisco.net password 0 field
username User3-lns-domain password 0 field
!
ip domain-name cisco.com
!
vpdn enable
vpdn source-ip 10.0.195.151
!
vpdn-group User2-vpdn-group-domain
 request-dialin
  protocol l2tp
  domain cisco.net
 initiate-to ip 10.0.195.133
 local name User2-lac-domain
!
!
interface Loopback123
 ip address 10.22.2.2 255.255.255.0
!
interface Ethernet0/0
 ip address 10.0.195.151 255.255.255.0
 no keepalive
 half-duplex
 pppoe enable group group_1
 no cdp enable
!
interface Virtual-Template1
 mtu 1492
 ip unnumbered Loopback123
 ppp authentication chap
 ppp chap hostname User2-lac-domain
!
```

```
ip route 0.0.0.0 0.0.0.0 10.0.195.1
!
!
subscriber profile Profile1
 service relay pppoe vpdn group User2-vpdn-group-domain
!
bba-group pppoe group_1
 virtual-template 1
 service profile Profile1
!
```

Basic LNS Configured for PPPoE Relay: Example

The following example shows the basic configuration for an LNS with commands added for PPPoE relay:

```
hostname User5
!
!
username User5 password 0 field
username user-group password 0 field
username User1 password 0 field
username User2 password 0 field
username User3 password 0 field
username User3-dialout password 0 cisco
username User2-dialout password 0 cisco
username abc password 0 cisco
username dial-7206a password 0 field
username mysgbpgroup password 0 cisco
username User3-lns-domain password 0 field
username User2-lac-domain password 0 field
username User1-client-domain@cisco.net password 0 field
username User5-mh password 0 field
username User1@domain.net password 0 field
ip subnet-zero
!
!
ip domain-name cisco.com
!
vpdn enable
vpdn multihop
vpdn source-ip 10.0.195.133
!
vpdn-group 1
 request-dialin
  protocol l2tp
!
vpdn-group 2
! Default L2TP VPDN group
 accept-dialin
  protocol l2tp
!
vpdn-group User5-mh
 request-dialin
  protocol l2tp
  domain cisco.net
 initiate-to ip 10.0.195.143
 local name User5-mh
!
vpdn-group User3-vpdn-group-domain
 accept-dialin
  protocol l2tp
```

```
  virtual-template 2
 terminate-from hostname User2-lac-domain
 local name User3-lns-domain
 relay pppoe group group_1
!
!
interface Loopback0
 no ip address
!
!
interface Loopback123
 ip address 10.23.3.2 255.255.255.0
!
!
interface FastEthernet0/0
 ip address 10.0.195.133 255.255.255.0
 duplex auto
 speed auto
 no cdp enable
!
!
interface Virtual-Template2
 mtu 1492
 ip unnumbered Loopback123
 ip access-group virtual-access3#234 in
 ppp mtu adaptive
 ppp authentication chap
 ppp chap hostname User3-lns-domain
!
!
ip default-gateway 10.0.195.1
ip classless
ip route 0.0.0.0 0.0.0.0 10.0.195.1
!
!
bba-group pppoe group_1
 virtual-template 2
!
```

Tunnel Switch (or Multihop Node) Configured to Respond to PAD Messages: Example

The following is an example of a standard tunnel switch configuration with the commands to enable response to PPPoE relay messages added:

```
hostname User3
!
!
username User1 password 0 room1
username User2 password 0 room1
username User3 password 0 room1
username User1@domain.net password 0 room1
username User3-lns-dnis password 0 cisco
username User3-lns-domain password 0 room1
username User2-lac-dnis password 0 cisco
username User2-lac-domain password 0 room1
username User5 password 0 room1
username User5-mh password 0 room1
username user-group password 0 room1
username User3-dialout password 0 cisco
username User2-dialout password 0 cisco
```

```
username abc password 0 cisco
username dial-7206a password 0 room1
username mysgbpgroup password 0 cisco
username User1-client-domain@cisco.net password 0 room1
username User4-lns-domain password 0 room1
!
ip domain-name cisco.com
!
vpdn enable
!
vpdn-group User3-mh
 accept-dialin
  protocol l2tp
  virtual-template 1
 terminate-from hostname User5-mh
 relay pppoe bba-group group_1
!
interface Loopback0
 ip address 10.4.4.2 255.255.255.0
!
interface Loopback1
 ip address 10.3.2.2 255.255.255.0
!
interface Ethernet2/0
 ip address 10.0.195.143 255.255.0.0
 half-duplex
 no cdp enable
!
interface Virtual-Template1
 mtu 1492
 ip unnumbered Loopback0
 no keepalive
 ppp mtu adaptive
 ppp authentication chap
 ppp chap hostname User3-lns-domain
!
ip default-gateway 10.0.195.1
ip route 0.0.0.0 0.0.0.0 10.0.195.1
!
!
bba-group pppoe group_1
 virtual-template 1
!
```

Tunnel Switch Configured to Relay PAD Messages: Example

The following partial example shows a configuration that allows the tunnel switch to relay PAD messages:

```
subscriber profile profile-1
! Configure profile for PPPoE Relay
 service relay pppoe vpdn group Sample1.net
.
.
.
vpdn-group Sample2.net
! Configure L2TP tunnel for PPPoE Relay
 accept-dialin
  protocol l2tp
.
.
.
```

```
 terminate-from host Host1
 relay pppoe bba-group group-1
.
.
.
vpdn-group Sample1.net
! Configure L2TP tunnel for PPPoE Relay
 request-dialin
  protocol l2tp
.
.
.
 initiate-to ip 10.17.1.3
.
.
.
! PPPoE-group configured for relay
bba-group pppoe group-1
.
.
.
service profile profile-1
```

RADIUS Subscriber Profile Entry for the LAC: Example

The following is an example of a typical RADIUS subscriber profile entry for a LAC:

```
cisco.com Password = "password"
    Cisco:Cisco-Avpair = "sss:sss-service=relay-pppoe",
    Tunnel-Type = L2TP,
    Tunnel-Server-Endpoint = .....,
    Tunnel-Client-Auth-ID = "client-id",
    Tunnel-Server-Auth-ID = "server-id",
    Cisco:Cisco-Avpair = "vpdn:l2tp-tunnel-password=password",
    Cisco:Cisco-Avpair = "vpdn:l2tp-nosession-timeout=never",
    Tunnel-Assignment-Id = assignment-id
```

RADIUS VPDN Group User Profile Entry for the LNS: Example

The following is an example of a typical RADIUS subscriber profile entry for an LNS:

```
cisco.com Password = "password"
    Tunnel-Type = L2TP,
    Tunnel-Server-Endpoint = .....,
    Tunnel-Client-Auth-ID = "client-id",
    Tunnel-Server-Auth-ID = "server-id",
    Cisco:Cisco-Avpair = "vpdn:l2tp-tunnel-password=password",
    Cisco:Cisco-Avpair = "vpdn:l2tp-nosession-timeout=never",
    Cisco:Cisco-Avpair = "vpdn:relay-pppoe-bba-group=group-name"
    Tunnel-Assignment-Id = assignment-id
```

Monitoring PPPoE Relay: Example

The following examples show sample output from the **show pppoe relay context all** and **show pppoe session** commands:

```
Router# show pppoe relay context all

Total PPPoE relay contexts 1
UID    ID     Subscriber-profile      State
25     18     cisco.com                 RELAYED


Router# show pppoe session

     1 session  in FORWARDED (FWDED) State
     1 session  total

Uniq ID  PPPoE  RemMAC          Port                    VT  VA         State
           SID  LocMAC                                      VA-st
     26     19  0001.96da.a2c0  Et0/0.1                  5  N/A RELFWD
                000c.8670.1006  VLAN:3434
```

Additional References

The following sections provide referenced related to the PPPoE Relay feature.

Related Documents

Related Topic	Document Title
VPDN tunnels	*Cisco IOS Dial Technologies Configuration Guide;* refer to the "Configuring Virtual Private Networks" chapter in the "Virtual Templates, Profiles, and Networks" part
VPDN tunnel commands	*Cisco IOS Dial Technologies Command Reference*
Tunnel switching	*L2TP Tunnel Switching* feature module
PPPoE broadband groups	*Cisco IOS Wide-Area Networking Configuration Guide*; refer to the chapters in the "Broadband Access" part
PPPoE broadband commands	*Cisco IOS Wide-Area Networking Command Reference*

Standards

Standards	Title
None	—

MIBs

MIBs	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

RFCs	Title
RFC 2516	"Method for Transmitting PPP Over Ethernet (PPPoE)"
L2TP Active Discovery Relay for PPPoE	Network Working Group Internet-Draft, *L2TP Active Discovery Relay for PPPoE*, which can be seen at http://www.ietf.org/internet-drafts/draft-dasilva-l2tp-relaysvc-06.txt

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 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/public/support/tac/home.shtml

Command Reference

This section documents new commands. All other commands used with this feature are documented in the Cisco IOS Release 12.3T command reference publications.

New Commands

- **clear pppoe relay context**
- **relay pppoe bba-group**
- **service relay**
- **show pppoe relay context all**
- **show pppoe session**

clear pppoe relay context

To clear the PPP over Ethernet (PPPoE) relay context created for relaying PPPoE Active Discovery (PAD) messages, use the **clear pppoe relay context** command in privileged EXEC mode.

clear pppoe relay context {**all** | **id** *session-id*}

Syntax Description

all	Clears all relay contexts.
id *session-id*	Clears a specific relay context identified in the output of the **show pppoe relay context all** command.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(4)T	This command was introduced.
12.2(27)SBA	This command was integrated into Cisco IOS Release 12.2(27)SBA.

Usage Guidelines

Use this command to clear relay contexts created for relaying PAD messages.

Examples

The following example clears all PPPoE relay contexts created for relaying PAD messages:

```
Router# clear pppoe relay context all
```

Related Commands

Command	Description
show pppoe relay context all	Displays PPPoE relay contexts created for relaying PAD messages.
show pppoe session	Displays information about currently active PPPoE sessions.

relay pppoe bba-group

To configure the PPP over Ethernet (PPPoE) broadband access (BBA) group that responds to PPPoE Active Discovery (PAD) messages, use the **relay pppoe bba-group** command in VPDN group configuration mode. To unconfigure the group, use the **no** form of this command.

relay pppoe bba-group *pppoe-bba-group-name*

no relay pppoe bba-group *pppoe-bba-group-name*

Syntax Description

pppoe-bba-group-name	Name of the PPPoE BBA group.

Defaults

This command is disabled by default.

Command Modes

VPDN group configuration

Command History

Release	Modification
12.3(4)T	This command was introduced.
12.2(27)SBA	This command was integrated into Cisco IOS Release 12.2(27)SBA.

Usage Guidelines

On the router that responds to relayed PAD messages, this command configures a PPPoE group and attaches it to a virtual private dial-up network (VPDN) group that accepts dial-in calls for Layer 2 Tunnel Protocol (L2TP). The relayed PAD messages will be passed from the VPDN L2TP tunnel or session to the PPPoE broadband group for receiving the PAD response.

Examples

The following partial example shows how to configure a tunnel switch (or L2TP network server) to respond to PAD messages. The **relay pppoe bba-group** command configures PPPoE "group-1", which is attached to accept dial-in VPDN group "Group-A".

```
.
.
.
vpdn-group Group-A
! Configure an L2TP tunnel for PPPoE Relay
 accept-dialin
  protocol l2tp
.
.
.
 terminate-from hostname LAC-1
 relay pppoe bba-group group-1
.
.
.
! Configure the PPPoE group to respond to the relayed PAD messages
bba-group pppoe group-1
```

```
service profile profile-1
```

Related Commands

Command	Description
bba-group pppoe	Creates a PPPoE profile.
vpdn-group	Associates a VPDN group with a customer or VPDN profile.

service relay

To enable relay of PPPoE Active Discovery (PAD) messages over a Layer 2 Tunnel Protocol (L2TP) tunnel, use the **service relay** command in subscriber profile configuration mode. To disable message relay, use the **no** form of this command.

service relay pppoe vpdn group *vpdn-group-name*

no service relay pppoe vpdn group *vpdn-group-name*

Syntax Description

pppoe	Provides relay service using PPP over Ethernet (PPPoE) using a virtual private dialup network (VPDN) L2TP tunnel for the relay.
vpdn group *vpdn-group-name*	Provides VPDN service by obtaining the configuration from a predefined VPDN group.

Defaults

This command is disabled by default.

Command Modes

Subscriber profile configuration

Command History

Release	Modification
12.3(4)T	This command was introduced.
12.2(27)SBA	This command was integrated into Cisco IOS Release 12.2(27)SBA.

Usage Guidelines

The **service relay** command is configured as part of a subscriber profile. The subscriber profile name is obtained based on the authorization key specified in the **service profile** PPPoE broadband access (BBA) group configuration command. See the “Examples” section for clarification.

Examples

The following example configures the group named Sample1.net to contain outgoing tunnel information for the relay of PAD messages over an L2TP tunnel:

```
subscriber profile profile-1
! Configure profile for PPPoE Relay
 service relay pppoe vpdn group Sample1.net
!
bba-group pppoe group-1
 virtual-template 1
 service profile profile-1
```

Related Commands

Command	Description
bba-group pppoe	Creates a PPPoE profile.
service	Configures the type of service that will be granted to a subscriber.

Command	Description
service profile	Assigns a subscriber profile to a PPPoE profile.
subscriber profile	Defines the SSS policy for searches of a subscriber profile database.

show pppoe relay context all

To display PPPoE relay contexts created for relaying PPPoE Active Discovery (PAD) messages, use the **show pppoe relay context all** command in privileged EXEC mode.

show pppoe relay context all

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(4)T	This command was introduced.
12.2(27)SBA	This command was integrated into Cisco IOS Release 12.2(27)SBA.

Usage Guidelines

Use this command to display relay contexts created for relaying PAD messages.

Examples

The following is sample output from the **show pppoe relay context all** command:

```
Router# show pppoe relay context all

Total PPPoE relay contexts 1
UID     ID      Subscriber-profile      State
25      18      Profile-1               RELAYED
```

Table 1 describes the significant fields shown in the **show pppoe relay context all** command output.

Table 1 show pppoe relay context all Field Descriptions

Field	Description
Total PPPoE relay contexts	PPPoE relay contexts created for relaying PAD messages.
UID	Unique identifier for the relay context.
ID	PPPoE session identifier for the relay context.
Subscriber-profile	Name of the subscriber profile that is used by the PPPoE group associated with the relay context.
State	Shows the state of the relay context, which will be one of the following: • INVALID—Not valid. • RELFWD—PPPoE relay context was forwarded. • REQ_RELAY—Relay has been requested.

Related Commands

Command	Description
clear pppoe relay context	Clears PPPoE relay contexts created by PAD messages.
show pppoe session	Displays information about currently active PPPoE sessions.

show pppoe session

To display information about currently active PPPoE sessions, use the **show pppoe session** command in privileged EXEC mode.

show pppoe session [{**all** | **packets**}]

Syntax Description

all	(Optional) Displays detailed information about the PPP over Ethernet (PPPoE) session.
packets	(Optional) Displays packet statistics for the PPPoE session.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(4)YG	This command was introduced on the Cisco SOHO 76, 77, and 77H routers.
12.3(4)T	This command was integrated into Cisco IOS Release 12.3(4)T and was enhanced to display information about relayed PPPoE Active Discovery (PAD) messages.
12.2(27)SBA	This command was integrated into Cisco IOS Release 12.2(27)SBA.

Examples

The following is sample output for the **show pppoe session** command:

```
Router# show pppoe session

     1 session  in FORWARDED (FWDED) State
     1 session  total

Uniq ID  PPPoE  RemMAC          Port                    VT  VA         State
           SID  LocMAC                                      VA-st
     26     19  0001.96da.a2c0  Et0/0.1                  5  N/A RELFWD
                000c.8670.1006  VLAN:3434
```

Table 2 describes the significant fields shown in the **show pppoe session** command output.

Table 2 show pppoe session Field Descriptions

Field	Description
State	Displays the state of the session, which will be one of the following: • FORWARDED • FORWARDING • LCP_NEGOTIATION • LOCALLY_TERMINATED • PPP_START • PTA_BINDING • RELFWD (a PPPoE session was forwarded for which the Active discovery messages were relayed) • SHUTTING_DOWN • VACCESS_REQUESTED
Uniq ID	Unique identifier for the PPPoE session.
PPPoE SID	PPPoE session identifier.
RemMAC	Remote MAC address.
LocMAC	Local MAC address.
Port	Port type and number.
VT	Virtual template interface.
VA	Virtual access interface.

Related Commands

Command	Description
clear pppoe relay context	Clears PPPoE relay contexts created for relaying PAD messages.
show pppoe relay context all	Displays PPPoE relay contexts created for relaying PAD messages.