VPDN (L2TP,PPTP,PPPoE) Configuration Commands

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Chapter 1 **VPDN Configuration Command**

1.1 VPDN Configuration Commands

VPDN sub-module is a sub-module to deal with VPDN group in L2TP or PPTP module, its major function is to create and manage VPDN group information, Both NAC (Network Access Concentrator) and NS (Network Server) need to get related information from VPDN,to create channel and session. When VPDN binded with L2TP protocol, NAC is also called LAC (L2TP Access Concentrator) and NS is called LNS (L2TP Network Server); When VPDN binded with PPTP protocol, NAC is also called PAC (PPTP Access Concentrator) and NS is called PNS (PPTP Network Server).

1.1.1 Accept-dialin

Setting VPDN group as NS

Syntas

accept-dialin

no accept-dialin

Parameter

none

Default

none

Command mode

Configuration mode of VPDN group

Explanation

The command sets VPDN group as NS

Example

The example below creates a VPDN and sets it as NS

router>enable
router#config

```
router_config#vpdn-group 1
router_config-vpdn#accept-dialin
```

1.1.2 Domain

Setting the domain name of NAC

Syntas

domain *domain-name*

no domain *domain-name*

Parameter

Parameter	Description
domain-name	the maximum length is 255 characters.

Default

none

Command mode

Configuration mode of VPDN group

Explanation

The command can only be executed on NAC, the user is divided by the symbol @, after the symbol @ is the domain name.

Example

The example below creates a VPDN group and sets it as NAC and also sets a domain name.

```
router>enable
router#config router_config#vpdn-
group 1 router_config-
vpdn#request-dialin
router_config-vpdn#domain QTECH.com.net
```

1.1.3 Force-local-chap

Setting NS and re-authentication of CLIENT.

Syntas

force-local-chap

no force-local-chap

Parameter

none

Default

no force-local-chap

Command mode

Configuration mode of VPDN group

Explanation

When PPP protocol interactive starts, LAC will act as proxy for NS to authenticate Client. The command is used for setting a second authentication made by NS to Client after the channel is created. The command can only be executed on NS. Only when VPDN binded with L2TP, this command will works.

Example

The example below creates a VPDN group and sets it as NS and sets the re-authentication.

router>enable
router#config router_config#vpdn-
group 1 router_config-vpdn#accept-
dialin router_config-vpdn#force-
local-chap

1.1.4 L2tp hidden

Setting the conceal of sensitive attribute

Syntas

l2tp hidden

no l2tp hidden

Parameter

none

Default

no L2tp hidden

Command mode

Configuration mode of VPDN group

Explanation

The command can only takes effect when the tunnel password is configured in the router.

Example

The example below creates a VPDN group and sets it as LAC, configures channel authentication and password and sets the attribute hide.

router>enable
router#config router_config#vpdn-
group 1 router_config-vpdn#request-
dialin router_config-vpdn#l2tp tunnel
authen
router_config-vpdn#l2tp tunnel password
123456 router_config-vpdn#l2tp hidden

1.1.5 L2tp tunnel authentication

It is used to enable L2TP tunnel authentication.

Syntas

l2tp tunnel authentication

no l2tp tunnel authentication

Parameter

none

Default

no l2tp tunnel authentication

Command mode

Configuration mode of VPDN group

Explanation

When the tunnel is created, two parties can authenticate each other. If the channel authentication is configured, the password shall be set.

Example

The example below creates a VPDN group on two routers separately, one is used as LAC, the other as LNS. They are all configured with channel authentication and the same password.

routerA>enable
routerA#config routerA_config#vpdn-
group 1 routerA_config-vpdn#request-
dialin routerA_config-vpdn#l2tp tunnel
authen
routerA_config-vpdn#l2tp tunnel password
123456 routerB#config
routerB_config#vpdn-group 2 routerB_config-
vpdn#accept-dialin routerB_config-vpdn#l2tp
tunnel authen routerB_config-vpdn#l2tp tunnel
password 123456

1.1.6 L2tp tunnel hello

It is used to set the time interval of sending HELLO packets.

Syntas

l2tp tunnel hello *hello-interval*

no l2tp tunnel hello *hello-interval*

Parameter

Parameter	Description
hello-interval	numeric area ranges from 5 to 100 second

Default

60

Command mode

Configuration mode of VPDN group

Explanation

After the dialogue between LAC and LNS is created, HELLO packet shall be sent periodically to detect whether the link is normal. Only when binded with L2TP protocol, this command can be configured.

Example

The example below creates a VPDN group, the time interval of sending HELLO packet is 10 seconds.

router>enable
router#config router_config#vpdn-
group 1 router_config-vpdn#request-
dialin router_config-vpdn#protocol l2tp
router_config-vpdn#l2tp tunnel hello 10

1.1.7 L2tp tunnel receive-window

Setting the size of sliding window for receiving

Syntas

l2tp tunnel receive-window *receive-window-size*

no l2tp tunnel receive-window *receive-window-size*

Parameter

Parameter	Description
receive-window-size	the numeric area is from 4 to 100.

Default

4

Command mode

Configuration mode of VPDN group

Explanation

The command is used for designating the size of BUFFER received by the local and informing the opposite terminal the size at the same of L2TP tunnel negotiation simultaneously so as to enable the opposite terminal to set the size of sliding window for sending the corresponding packet according to the value.

Example

The example below creates a VPDN group and sets the size of sliding window received by it as 5.

router>enable

router#config router_config#vpdn-

group 1

router_config_vpdn#protocol l2tp

router_config-vpdn#l2tp tunnel receive-window 5

1.1.8 L2tp tunnel password

Setting the sensitive attribute hide

Syntas

l2tp tunnel password *password*

no l2tp tunnel password *password*

Parameter

Parameter	Description
password	The maximum length of channel password is 254 characters in non encrpytion text.

Default

none

Command mode

Configuration mode of VPDN group

Explanation

If channel authentication is configured, the password shall be configured.

Example

The example below creates a VPDN group and sets it as LAC, configures channel authentication and password.

```
router>enable
router#config router_config#vpdn-
group 1 router_config-vpdn#request-
dialin router_config_vpdn#protocol
l2tp router_config-vpdn#l2tp tunnel
authen
router_config-vpdn#l2tp tunnel password 123456
```

1.1.9 l2tp sequencing

To drop the disordered packets, run **l2tp sequencing**.

l2tp sequencing

no l2tp sequencing

Parameter

None

Default

None

Command mode

VPDN group configuration mode

Explanation

This command is used to enable the sequence of the packet to cushion the disordered packets.

Example

The following example shows how to establish a VPDN group, set the VPDN group to LAC and enable the sequence of the packet.

```
router>enable
router#config router_config#vpdn-
group 1
router_config_vpdn_1#request-dialin
router_config_vpdn_1#protocol l2tp
```

router_config_vpdn_1#l2tp sequencing

1.1.10 l2tp drop out-of-order

To drop the disordered packets, run **l2tp drop out-of-order**.

l2tp drop out-of-order

no l2tp drop out-of-order

Parameter

None

Default

None

Command mode

VPDN group configuration mode

Explanation

If the sequence of the packet is enabled, the disordered packets will be directly dropped without waiting for retransmission.

Example

The following example shows how to establish a VPDN group, set the VPDN group to LAC and enable the sequence of the packet.

router>enable
router#config router_config#vpdn-group
1 router_config_vpdn_1#request-dialin
router_config_vpdn_1#protocol l2tp
router_config_vpdn_1#l2tp sequencing

router_config_vpdn_1#l2tp drop out-of-order

1.1.11 lcp-renegotiation

To enable LCP renegotiation between NS and CLIENT, run **icp-renegotiation**.

Syntas

lcp-renegotiation

no lcp-renegotiation

Parameter

none

Default

none

Command mode

Configuration mode of VPDN group

Explanation

Under a general condition, NAC executes the proxy function in the phase of LCP and authentication of PPP. When NS wishes to restart LCP negotiation of PPP with Client and the consequent process, it can be realized through configuring this command. The command can be executed exclusively on NS.

Example

The example below creates a VPDN group and sets it as NS and restarts LCP negotiation.

router>enable

router#config router_config#vpdn-
group 1 router_config-vpdn#accept-
dialin router_config-vpdn#lcp-
renegotiation

1.1.12 idle-timeout

To set the idle timeout time of the NAC terminal when the client and NAC merge, run **idle-timeout *time-out***.

idle-timeout *time-out*

no idle-timeout

Parameter

Parameter	Description
Time-out	Its value ranges between 0 and 65535 seconds. When it is 0, it means there is no idle timeout.

Default

0

Command mode

VPDN group configuration mode

Explanation

It is used to set the idle timeout time when the client and NAC merges. When timeout occurs, the PPP is disconnected. This command can be executed only on NAC.

Example

The following example is to create a VPDN group, set it to NAC and set **idle-timeout** to 3 minutes.

router>enable

router#config router_config#vpdn-group

1 router_config_vpdn_1#request-dialin

router_config_vpdn_1#idle-timeout 180

1.1.13 Local-name

Setting the local name of VPDN group.

Syntas

Local-name *local_name* **no**

Local-name *local_name*

Parameter

Parameter	Description
local_name	the maximum length of channel password is 254 characters.

Default

QTECH

Command mode

Configuration mode of VPDN group

Explanation

Each vpdn group shall have a name of a local tunnel so as to facilitate the remote terminal to find a match for VPDN group.

Example

The example below creates a VPDN group and sets it as NAC and configures the name of local tunnel as lac.

router>enable
router#config router_config#vpdn-
group 1 router_config-
vpdn#request-dialin router_config-
vpdn#local lac

1.1.14 Initiate-to ip

Setting IP address of NS communicable to NAC group

Syntas

Initiate-to ip *ipaddr* **priority** *priority_num*

no Initiate-to ip *ipaddr* **priority** *priority_num*

Parameter

Parameter	Description
ipaddr	Ip address of remote NS
priority_num	Priority level, 0—4, the smaller the value is, the higher the priority level will be.

Default

none

Command mode

Configuration mode of VPDN group

Explanation

The command can be executed exclusively on NAC. The command is used to specify the remote NS by IP address. when such command executed, first judg whether IP address has been configured. If IP address has been configured, the system will return to the configuration mode directly, If not so, the IP address will be added to NS group, which may be in way of domain name of NS(see command Initiate-to host-name).

One NAC can be configured with 5 NS in way of IP address or in way of domain name, in order to ensure that backup NS can work normally when main NS fails.

Example

The example below creates a VPDN group, sets the VPDN group as NAC and sets IP address of NS communicable to it on the sequence of priority level from high to low, which is arranged as follows: 192.168.20.200，192.168.20.201，192.168.20.202，192.168.20.203，192.168.20.204.

```
router>enable
router#config router_config#vpdn-
group 1 router_config-
vpdn#request-dialin
router_config-vpdn#initiate-to ip 192.168.20.200 priority 0
router_config-vpdn#initiate-to ip 192.168.20.201 priority 1
router_config-vpdn#initiate-to ip 192.168.20.202 priority 2
router_config-vpdn#initiate-to ip 192.168.20.203 priority 3
router_config-vpdn#initiate-to ip 192.168.20.204 priority 4
```

1.1.15 Initiate-to host

It is used to set the domain name of NS that are to communicate with NAC.

Syntas

Initiate-to host-name *name* priority *priority_num*

no Initiate-to host-name *name* priority *priority_num*

Parameter

Parameter	Description
name	domain name of remote NS
priority_num	Priority level, 0—4, the smaller the value is, the higher the priority level will be.

Default

none

Command mode

Configuration mode of VPDN group

Explanation

The command can be executed exclusively on NAC. The command is used to specify the remote NS by the doman name other than by IP address(See command:initiate-to ip).When such command executed, first judg whether domain name has been configured before. If it has been configured, the system will return to the configuration mode directly, If not so, the IP address will be added to NS group, which may be in way of domain name of NS(see command Initiate-to ip). One NAC can be configured with 5 NS in way of IP address or in way of domain name, in order to ensure that backup NSs can work normally when main NS fails.

Example

The example below creates a VPDN group, sets the VPDN group as NAC and sets the domain name of NS as test.QTECH.net.

router>enable

router#config router_config#vpdn-

group 1 router_config-

vpdn#request-dialin

router_config-vpdn#initiate-to host-name test.QTECH.net priority 0

If domain "test.QTECH.net" is an new domain, other commands concernd with DNS have to be configured. Assure that the name server of DNS be 192.168.1.8 and Primary server be 192.168.1.8, the following configuration is necessary:

router_config#ip domain name-server 192.168.1.8

router_config#ip domain dynamic enable router_config#ip

domain primary-server 192.168.1.8 router_config#ip

domain bind test.QTECH.net 172.168.20.23

For more information，refer to the detailed decription of DNS configuration.

1.1.16 Protocol

Setting protocol type of VPDN group

Syntas

Protocol *protocol-type*

no Protocol *protocol-type*

Parameter

Parameter	Description
protocol-type	it can only be 12tp and pptp currently.

Default

none

Command mode

Configuration mode of VPDN group

Explanation

Binding VPDN group and protocol

Example

The example below creates a VPDN group and binds VPDN group and L2TP protocol

router>enable
router#config router_config#vpdn-
group 1 router_config-
vpdn#protocol l2tp

1.1.17 pptp tunnel echo

Setting time interval of sending "echo request" packet

Syntas

pptp tunnel echo *echo_interval*

no pptp tunnel echo *echo_interval*

Parameter

Parameter	Description
echo_interval	range from 5-1000 seconds

Default

60 seconds

Command mode

Configuration mode of VPDN group

Explanation

Setting time interval of sending "echo request" packet

Example

The example below creates a VPDN group and binds VPDN group and PPTP protocol

router>enable
router#config router_config#vpdn-group
1 router_config-vpdn#protocol pptp
router_config-vpdn#pptp tunnel echo
55

1.1.18 pppoe bind

To bind the VPDN group of the PPPOE protocol to an Ethernet port, run **pppoe bind *ether-port-name***.

pppoe bind *ether-port-name*

no pppoe bind *ether-port-name*

Parameter

None

Default

None

Command mode

VPDN group configuration mode

Explanation

The Ethernet port is needed when PPPOE creates a link. One Ethernet port can be bound to only one VPDN group.

Example

The following example shows how to establish a VPDN group and bind it to port **FastEthernet0**.

router>enable
router#config

router_config#vpdn-group 1
router_config_vpdn_1#request-dialin
router_config_vpdn_1#protocol pppoe
router_config_vpdn_1#pppoe bind FastEthernet0

1.1.19 Request-dialin

Setting VPDN group as NAC

Syntas

Request-dialin

no Request-dialin

Parameter

none

Default

none

Command mode

Configuration mode of VPDN group

Explanation

If the former role of the group is NAC, the system will return to the configuration mode directly. If the original function role of the VPDN group is NS, the role will be cancelled and the function role of VPDN will be set as NAC.

Example

The example below creates a VPDN group and sets the VPDN group as NAC.

router>enable
router#config router_config#vpdn-
group 1 router_config-
vpdn#request-dialin

1.1.20 Terminate-from

Setting the name of remote NAC tunnel responsive to NS

Syntas

Terminate-from *remote_lac_name*

no Terminate-from *remote_lac_name*

Parameter

Parameter	Description
remote_lac_name	The channel name of remote NAC, the maximum length is 254 characters.

Default

none

Command mode

Configuration mode of VPDN group

Explanation

After this command is configured, the VPDN group can be used exclusively for making the response to NAC specified by the parameter “lac_name” and it cannot be used by other NAC names. If a VPDN group is not configured with the command “Terminate-from”, it will serve as the default group and its information will be applied when no other VPDN groups can be matched. The command can be executed exclusively on NS.

Example

The example below creates a VPDN group and sets the VPDN group as NS. The name of the responsive remote tunnel is lac.

router>enable
router#config router_config#vpdn-
group 1 router_config-vpdn#accept-
dialin router_config-vpdn#terninate-
from lac

1.1.21 port

To connect the VPDN group and the specified interface, run **port *interface-name***.

port *interface-name*

no port *interface-name*

Parameter

Parameter	Description
Interface-name	Name of the to-be-connected interface

Default

None

Command mode

VPDN group configuration mode

Explanation

This command is used to specify a port to connect the VPDN group. If it is NAC, the virtual- tunnel port or the synchronous/asynchronous serial port can be configured. If it is NS, the virtual-template port can be configured. The created VPDN connection will use the virtual -access port cloned by the virtual-template port for communications. If this command is configured in the NAC VPDN group, the **domain** command is invisible and the VPDN group functions at the VPDN connection which is triggered by the specified port.

Example

The following example shows how to establish a VPDN group, set it to NAC and connect it and the virtual tunnel interface.

router>enable
router#config router_config#vpdn-
group 1
router_config_vpdn_1#accep-dialin
router_config_vpdn_1#port Virtual-tunnel1
router_config#int virtual-tunnel 1
router_config_vn1#ip addr 2.1.1.1 255.255.255.0
router_config_vn1#enca ppp
router_config_vn1#ppp authen chap
router_config_vn1#ppp chap hostname user@aaa.com.net

The following example shows how to establish a VPDN group, set it to NS and connect it and the virtual template interface.

router>enable
router#config router_config#vpdn-
group 2
router_config_vpdn_2#accep-dialin
router_config_vpdn_2#port Virtual-template1
router_config#int virtual-template 1
router_config_vt1#ip addr 2.1.1.1 255.255.255.0

router_config_vt1#enca ppp
router_config_vt1#ppp authen chap
router_config_vt1#ppp chap hostname user@aaa.com.net

1.1.22 Vpdn enable

Activating or closing down VPDN subsystem

Syntas

Vpdn enable

no Vpdn enable

Parameter

none

Default

no Vpdn enable

Command mode

Configuration mode

Explanation

Under a default state, the function of system VPDN is shut down. Only when the command “VPDN enable” is executed, the function of VPDN will be opened. The command “NO” shuts down the sub-function of VPDN.

Example

The example below creates a VPDN group and sets the group as NS and relates it to the virtual interface 1.

router>enable
router#config
router_config#vpdn enable

1.1.23 vpdn-group

Creating VPDN group

Syntas

vpdn-group *name*

no vpdn-group *name*

Parameter

name

Default

none

Command mode

Configuration mode of VPDN group

Explanation

When the name of the VPDN group does not exist, the VPDN group should be created and the configuration mode of VPDN group shall be accessed. If the VPDN group has already existed, the configuration status of VPDN can be accessed directly. 300 VPDN groups can be created at the most.

Example

The example below creates a VPDN group

router>enable

router#config

router_config#vpdn-group 1

L2TP configuration command directory

1.1.24 show l2tp

Showing the channel of 12tp and statistic information of sessions.

Syntas

show l2tp [**tunnel** | **session**]

Parameter

Parameter	Description
tunnel	Showing statistic information of channel

session	Showing statistic information of sessions

Command mode

Non-user mode

Explanation

Showing the existing channel and the related statistic information of the sessions.

Example

```
37DE#show l2tp tunnel
L2TP Tunnel Information Total tunnels 1 sessions 1
LocID   RemID   Remote Name          State  Remote Address   Port    Sessions
2       27204   cisco26              Est    192.168.20.156   1701    1
```

The first line is the number of the tunnels and the sessions.

Area	Description
LocID	Local ID of the channel
RemID	Remote ID of the channel
Remote Name	Name of remote channel of the channel
State	Current channel status
Remote Address	Remote IP address of the channel
Port	Remote port number of the channel
sessions	The number of the session contained in the channel.

1.1.25 clear l2tp

At the time of clearing the tunnel, the tunnel of the designated tunnel ID is cleared (all the sessions under the tunnel will also be cleared.). At the time of clearing session, the session of the designated session ID under the tunnel of the designated tunnel ID is cleared.

Syntas

clear l2tp [**tunnel tunnelID** *tunnelID-number* | **session tunnelID** *tunnelID-number* **sessionID** *sessionID-number*]

Parameter

Parameter	Description
tunnel	Clearing the channel
session	Clearing the session

Command mode

Supervisor mode

Explanation

Clearing the channel of the designated tunnel ID or clearing the session of the designated session ID under the designated tunnel ID channel. The numeric area of tunnel ID and session ID is <1-65535>.

Example

Observing the existed channel and session before clearing (including a channel and a session)

```
37DE#show l2tp tunnel
L2TP Tunnel Information Total tunnels 1 sessions 1

LocID   RemID   Remote Name          State  Remote Address   Port    Sessions
2       14914   cisco26              Est        192.168.20.156   1701    1

37DE#show l2tp session
L2TP Session Information Total tunnels 1 sessions 1

LocID   RemID   TunnelID Intf        Username                State
1       3391    2        vn1         (null)                  Est
```

Clearing session 1 in channel 2.

```
37DE#clear l2tp session tunnelID 2 sessionID 1
```

Observing the remaining channel and session after clearing. The session has been cleared and the channels still exists.

```
37DE#show l2tp tunnel
L2TP Tunnel Information Total tunnels 1 sessions 0
LocID   RemID   Remote Name          State  Remote Address   Port    Sessions
2       14914   cisco26              Est        192.168.20.156   1701    0
37DE#show l2tp session
L2TP Session Information Total tunnels 1 sessions 0
```

1.1.26 debug l2tp

The abnormal operation of the module or error occurrence at the time of printing or the erroneous information; printing the event information when the module operation triggers the event, printing the content of the data packet received or sent by the module.

Syntas

[**no**] **debug l2tp** [**error** | **event** | **packets** [**control-packets** | **data-packets** | **detail**]]

The command “no debug l2tp” is used for stopping the display of information

Parameter

Parameter	Description
Error	Showing the abnormity of l2tp module operation
Event	Showing event triggering information of l2tp module.
Packets	Showing the content of the data packet received and sent by l2tp module (including control packet and data packet.
control-packets	Showing the content of the control packet received and sent by L2TP module.
data_packets	Showing the content of the data packet received and sent by L2TP module.
Detail	Opening the switch of printing the detailed content of the packet received by the module.

Note: Executing the command:

debug l2tp packets

equaling to execute the two commands below:

debug l2tp packets control-packets

debug l2tp packets data-packets

Executing the command:

no debug l2tp packets

Equaling to execute the two commands below:

no debug l2tp packets control-packets

no debug l2tp packets data-packets

The command “debug l2tp packets detail” is only a switch. Opening the “debug” along is not able to print the content of the data packet. If the command “debug l2tp packets control-packets” is configured simultaneously, the detailed information of the control packet will be printed. Similarly, if the command “debug l2tp packets data-packets” is configured simultaneously, the detailed information of the data packet will be printed. If the “debug” is not configured, only the summary information of debug control packet and data packet will be printed.

Command mode

Supervisor mode

Explanation

After l2tp debug information is opened, the erroneous information of l2tp module, event triggering information and the content of the data packet received and sent can be exported to help the user diagnose l2tp trouble.

Example

Configuration Command:

37DE#debug l2tp packets control-
packets 37DE#debug l2tp packets detail
Print Information:
2003-1-14 11:19:23
L2TP TX -> ctrl packet: flg TLS,ver 2,len 55,TunlID 0,SesnID 0,Ns 0,Nr 0
:SCCRQ 2003-1-14 11:19:23
L2TP Control Packet Header :
C8 02 00 37 00 00 00 00 00 00 00 00 ...7.....
2003-1-14 11:19:23
L2TP avp Message Type :
80 08 00 00 00 00 00 01 .....
2003-1-14 11:19:24
L2TP avp Protocol Version :
80 08 00 00 00 02 01 00 .....
2003-1-14 11:19:24
L2TP avp Framing Capabilities :
80 0A 00 00 00 03 00 00 00 00 .....
2003-1-14 11:19:24
L2TP avp Assigned Tunnel ID :
80 08 00 00 00 09 00 02 .....
2003-1-14 11:19:24
L2TP avp Host name :
80 09 00 00 00 07 6C 61 63 .....lac

When the module receives SCCRQ control packet, it divides the packet into L2TP header and some AVPs and shows the specific content of each AVP. (If the command “debug l2tp packets detail” is not configured, the content of the packet will not be divided).

Area	Description
L2TP	Name of protocol
TX ->	Direction of packet transmission (it means outward transmission here) .
ctrl packet	Packet type (It is classified into control packet and data packet)
flg	The flags contained in L2TP header.
ver	Protocol version of L2T pprotocol
len	Length of the whole packet
TunlID	The channel ID number contained in L2TP header.
SesnID	The session ID number contained in L2TP header.

Ns	Sequence number of sending the channel
Nr	Sequence number of receiving the channel
SCCRQ	Type of the control packet
L2TP Control Packet Header:	Content of L2TP header of the control packet.
L2TP avp	AVP contained in the control packet (AVP type and content followed)

The following is the event information of l2tp negotiation process.

37DE#debug l2tp event
2003-1-14 10:58:51 L2TP: Tunl 6 be created.
2003-1-14 10:58:51 Tunl 6 L2TP: status changed into
IDLE 2003-1-14 10:58:51 Tunl 6 L2TP: Sesn 1 be created.
2003-1-14 10:58:51 Tunl/Sesn 6/1 L2TP: status changed into IDLE
2003-1-14 10:58:51 Tunl 6 L2TP: TX -> SCCRQ to Tunl 0 2003-1-
14 10:58:51 Tunl 6 L2TP: status changed into WAIT REPLY
2003-1-14 10:58:51 Tunl 6 L2TP: RX <- SCCRP from cisco26 Tunl 12871
2003-1-14 10:58:51 Tunl 6 L2TP: TX -> SCCCN to cisco26 Tunl 12871 2003-
1-14 10:58:51 Tunl 6 L2TP: status changed into ESTABLISHED
2003-1-14 10:58:51 Tunl/Sesn 6/1 L2TP: TX -> ICRQ to cisco26 Tunl/Sesn
12871/0 2003-1-14 10:58:51 Tunl/Sesn 6/1 L2TP: status changed into WAIT
REPLY 2003-1-14 10:58:51 Tunl 6 L2TP: RX <- ZLB from cisco26 Tunl 12871
2003-1-14 10:58:51 Tunl/Sesn 6/1 L2TP: RX <- ICRP from cisco26 Tunl/Sesn
12871/3387 2003-1-14 10:58:51 Tunl/Sesn 6/1 L2TP: TX -> ICCN to cisco26 Tunl/Sesn
12871/3387 2003-1-14 10:58:51 Tunl/Sesn 6/1 L2TP: status changed into ESTABLISHED
2003-1-14 10:58:51 Line on Interface Virtual-tunnel1, changed state to up
2003-1-14 10:58:51 Tunl 6 L2TP: RX <- ZLB from cisco26 Tunl 12871

Area	Description
Tunl/Sesn	Local channel and ID number of the session (if the control packet of the channel is sent, there will be only an ID number of the channel. The same below.).
L2TP	Name of protocol
TX ->	Direction of packet transmission (it means outward transmission here) .
ICCN	Type of control packet
Cisco26	Name of remote channel
Tunl/Sesn	Remote channel and ID number of the session.

1.1.27 show pptp

Showing the channel of pptp and statistic information of sessions.

Syntas

show pptp [**tunnel** | **session**| **traffic**]

Parmeter

Parameter	Description
tunnel	Showing statistic information of tunnel
session	Showing statistic information of session
traffic	Showing statistic information of traffic

Command mode

Non-user mode

Explanation

Showing the existing channel and the related statistic information of the sessions.

Example

1.Show pptp tunnel Example：

21#show pptp tunnel
PPTP Tunnel Information Total tunnels 1 sessions 1

Socket	TunlID	Remote Name	State	Remote Address	Sessions
14	1	204	Established	192.168.20.204	1

The first line is the number of the tunnels and the sessions.

Parameter	Description
field	Description
Socket	Socket ID of tunnel
TunnelID	Local Tunnel ID
Remote Name	remote name of tunnel
State	tunnel state
Remote Address	remote address of tunnel
Port	tcp port of tunnel
sessions	the number of sessions in the tunnel 1

2.Show pptp session Example：

21#show pptp se
PPTP Session Information Total tunnels 1 sessions 1

LocID	PeerID	TunlID	Intf	State
4	18261	1	s2/0:1	Established

field	Description
LocID	local session ID
PeerID	peer session ID

TunlID	tunnel ID
Intf	interface name
State	session state

3.Show pptp traffic example：

21#show pptp tr
PPTP Traffic Statistics
Information: Tunl/sesn: 1/4:
TxQueueFulls: 0
AckQueueFulls:
0 Congs: 0
PktSents: 111
PktRecvs: 111
InPktDrops: 0
OutPktDrops: 0
FmtErrors: 0

Explanation：

field	Description
Tunl/sesn:	tunnel ID and local session ID
TxQueueFulls	the number of waiting-tx queue full events
AckQueueFulls	the number of waiting-ack queue full events
Congs	the number the congestion events
PktSents	the number of packets that have sent to peer
PktRecvs	the number of packets that have received from peer
InPktDrops	the number of received packets that have dropped
OutPktDrops	the number of sent packets that have dropped
FmtErrors	the number of packets of error format

1.1.28 clear pptp

At the time of clearing the tunnel, the tunnel of the designated tunnel ID is cleared (all the sessions under the tunnel will also be cleared.). At the time of clearing session, the session of the designated session ID under the tunnel of the designated tunnel ID is cleared.

Syntas

clear PPTP [**tunnel tunlID** *tunnelID-number* | **session tunlID** *tunlID-number* **sessionID** *sessionID-number*]

Parameter

Parameter	Description
tunnel	clear tunnel

session	clear session

Command mode

Supervisor mode

Explanation

Clearing the channel of the designated tunnel ID or clearing the session of the designated session ID under the designated tunnel ID channel. The numeric area of tunnel ID is <1-300> and session ID is <1-65535>

Example

Observing the existed channel and session before clearing (including 2 channel and 2 session)

```
21#show pptp tun
PPTP Tunnel Information Total tunnels 2 sessions 2

Socket    TunlID  Remote Name   State          Remote Address  Sessions
17        1       204           Established    192.168.20.204  1
21        2       pns2          Established    192.168.20.26   1
21#show pptp se
PPTP Session Information Total tunnels 2 sessions 2
 LocID  PeerID TunlID      Intf        State
4       18261  1           s2/0:1      Established
6       70     2           vn1         Established
clear session 6 of tunnel 2:
```

Observing the remaining channel and session after clearing.

The session 6 has been cleared and the others still exists.

```
21#clear pptp se tun 2 se 6
21#show ppt tu
PPTP Tunnel Information Total tunnels 2 sessions 1
Socket   TunlID  Remote Name      State          Remote Address  Sessions
17       1       204              Established    192.168.20.204  1
21       2       pns2             Established    192.168.20.26   0
21#show ppt se
PPTP Session Information Total tunnels 2 sessions 1
LocID   PeerID TunlID      Intf        State
4       18261  1           s2/0:1      Established
```

1.1.29 debug pptp

The abnormal operation of the module or error occurrence at the time of printing or the erroneous information; printing the event information when the module operation

triggers the event, printing the content of the data packet received or sent by the module.

Syntas

[**no**] **debug PPTP** [**error** | **event** | **packets** [**control-packets** | **data-packets**]

The command “no debug PPTP” is used for stopping the display of information.

Parameter

Parameter	Description
error	Showing the abnormity of PPTP module operation.
event	Showing event triggering information of PPTP module.
packets	Showing the content of the data packet received and sent by PPTP module (including control packet and data packet.)
control-packets	Showing the content of the control packet received and sent by PPTP module.
data_packets	Showing the content of the data packet received and sent by PPTP module

Note: Executing the command:

debug PPTP packets

equaling to execute the two commands below:

debug PPTP packets control-packets

debug PPTP packets data-packets

Executing the command:

no debug PPTP packets

Equaling to execute the two commands below:

no debug PPTP packets control-packets

no debug PPTP packets data-packets

Command mode

Supervisor mode

Explanation

After PPTP debug information is opened, the erroneous information of PPTP module, event triggering information and the content of the data packet received and sent can be exported to help the user diagnose PPTP trouble.

Example

1. debug pptp packet control-packets

example Configuration Command:

```
21#debug pptp packets ctrl-
        packets Print Information:
PPTP TX -> ctrl packet: Tunl 1 SCCRQ: Ver 256,Frm 3,Bear 3,Host pac21,len 156
 009C 00 01 1A 2B 3C 4D 00 01 00 00 01 00 00 00     .....+<M........
 0000 00 03 00 00 00 03 00 00 01 00 70 61 63 32     ............pac2
 3100 00 00 00 00 00 00 00 00 00 00 00 00 00 00     1..............
2003-11-15 00:52:06   00 00 00 00 00 00 00 00 00     .............
2003-11-15 00:52:06
PPTP RX <- ctrl packet: Tunl 1 SCCRP: Ver 256,Frm 3,Bear 3,Host 204,RstCode 1,ErrCode
0,len 156
00 9C 00 01 1A 2B 3C 4D 00 02 04 EB 01 00 01 00     .....+<M........
00 00 00 03 00 00 00 03 00 00 12 00 32 30 34 00     ............204.
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00     ................
2003-11-15 00:52:06     00 00 00 00 00 00 00 00 00     .............
2003-11-15 00:52:06
PPTP TX -> ctrl packet: Tunl 1 OCRQ: CallID 2,CallSerial 10001,MinBps 0,MaxBps 0,Frm
3,Bear 3,RcvWin 64,len 168
00 A8 00 01 1A 2B 3C 4D 00 07 00 00 00 02 27 11     .....+<M......    '.
00 00 00 00   00 00 00 00 00 00 00 03 00 00 00 03   ................
00 40 00 00   00 00 00 00 00 00 00 00 00 00 00 00   .@..............
2003-11-15 00:52:06    00 00 00 00 00 0000 00 00     .............
2003-11-15 00:52:06
  PPTP RX <- ctrl packet: Tunl 1  OCRP: CallID 18250,PeerID 2,RstCode 1,ErrCode 0,CauCode
0,ConnBps 64000,RcvWin 64,len 32
00 20 00 01  1A 2B 3C 4D 00 08 00 00 47 4A 00 02     . ...+<M....  GJ..
2003-11-15 00:52:06    00 00 40 00 00 0000 00 00     .....@.....
```

Description of fields of SCCRQ ctrl packet:

field	Description
PPTP	Name of protocol
TX ->	Direction of packet transmission (it means outward transmission here) .
ctrl packet	Packet type (It is classified into control packet and data packet)
Ver	Protocol version of PPTP pprotocol
Len	Length of the whole packet
SCCRQ	Type of the control packet
Frm	frame capability supported by host sending the packet
Bear	bear capability supported by host sending the packet
Host	name of the host that sending the packet

Decription of fields of SCCRP (the same field refer to forgoing description):

field	Description

SCCRP	type of the ctrl packet
RstCode	result code. If the value is 1, then the tunnel is created.
ErrCode	If result code is not 1，it represents Error code

Decription of fields of OCRQ (the same field refer to forgoing description):

field	Description
OCRQ	type of packet
CallID	Local session ID in the PPTP packet header
CallSerial	Call serial number in the PPTP packet header
MinBps	minimal Bps. No use currently
MaxBps	Maxmal Bps. No use currently
RecvWin	receiving window size

Decription of fields of OCRP (the same field refer to forgoing description):

field	Description
OCRP	type of packet
CallID	Local session ID in the PPTP packet header
PeerID	Peer session ID in the PPTP packet header
connBps	connect speed
RstCode	result code. If 1, then session is created
ErrCode	if result code not 1，represents Error code

2. debug pptp packet data-packets example

Configure command

```
21#debug pptp packets data-
        packets Print information：
21#ping 10.0.0.1
PING 10.0.0.1 (10.0.0.1): 56 data bytes
!!!!!
--- 10.0.0.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet
loss round-trip min/avg/max = 0/8/10 ms
2003-11-18 16:18:37
PPTP TX -> data packet: TunlID1, LocID 1, PeerID 89, Len 85, Fls S, Seq 9,
21 45 00 00 54 00 8B 00 00 FF 01 A7 1B 0A 00 00     !E..T.....
02 0A 00 00 01 08 00 F6 F2 00 10 00 00 00 01 0B   ................
ED 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12   ................
2003-11-18 16:18:37  1A 1B 1C 1D 1E 1F 20 21 22      ..... !"
PPTP TX -> data packet: TunlID1, LocID 1, PeerID 89, Len 85, Fls SA, Seq 10, ACK 9
21 45 00 00 54 00 8D 00 00 FF 01 A7 19 0A 00 00     !E..T.....
02 0A 00 00 01 08 00 F6 F0 00 10 00 01 00 01 0B   ................
EE 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12   ................
2003-11-18 16:18:37  1A 1B 1C 1D 1E 1F 20 21 22      ..... !"
PPTP TX -> data packet: TunlID1, LocID 1, PeerID 89, Len 85, Fls SA, Seq 11, ACK 10
```

```
21 45 00 00 54 00 8F 00 00 FF 01 A7 17 0A 00 00     !E..T.....
02 0A 00 00 01 08 00 F6 EE 00 10 00 02 00 01 0B     ................
EF 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12     ................
2003-11-18 16:18:37 1A 1B 1C 1D 1E 1F 20 21 22      ..... !"
PPTP TX -> data packet: TunlID1, LocID 1, PeerID 89, Len 85, Fls SA, Seq 12, ACK 11
21 45 00 00 54 00 91 00 00 FF 01 A7 15 0A 00 00     !E..T.....
02 0A 00 00 01 08 00 F6 ED 00 10 00 03 00 01 0B     ................
EF 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12     ................
2003-11-18 16:18:37 1A 1B 1C 1D 1E 1F 20 21 22      ..... !"
PPTP TX -> data packet: TunlID1, LocID 1, PeerID 89, Len 85, Fls SA, Seq 13, ACK 12
21 45 00 00 54 00 93 00 00 FF 01 A7 13 0A 00 00     !E..T.....
02 0A 00 00 01 08 00 F6 EB 00 10 00 04 00 01 0B     ................
F0 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12     ................
2003-11-18 16:18:37 1A 1B 1C 1D 1E 1F 20 21 22      ..... !"
PPTP TX -> data packet: TunlID1, LocID 1, PeerID 89, Len 24, Fls SA, Seq 14, ACK 13
FF 03 C0 21 09 05 00 14 56 12 05 B2 00 00 00 00     ...!....V.....
2003-11-18 16:18:37 31                               -18 16:1
PPTP TX -> data packet: TunlID1, LocID 1, PeerID 89, Len 24, Fls SA, Seq 15, ACK 15
FF 03 C0 21 0A 05 00 14 56 12 05 B2 00 00 00 00     ...!....V.....
FF 2F 92 8E C0 A8 14 1A                              ./.....
```

Description of key fields

field	Description
PPTP	Name of protocol
TX ->	Direction of packet transmission (it means outward transmission here) .
data packet	Packet type (It is classified into control packet and data packet)
Fls	Flags contained in GRE header，The value can be S and A
S	If present, Seq field exist in GRE header
A	If present, Ack field exist in GRE header
Len	Length of whole packet
TunlID	Local Tunnel ID
LocID	Local session ID
PeerID	Peer session ID
Seq	Sequence number of packet
ACK	ACK number of packet for peer

3．Debug pptp event Example：

26# debug pptp event

Print information：

```
26#debug pptp event
2002-1-1 16:18:43 PPTP: Tunl 2 created.
2002-1-1 16:18:43 Tunl 2 PPTP: status changed into IDLE
2002-1-1 16:18:43 Tunl 2 PPTP: RX <- SCCRQ from 2002-1-
1 16:18:43 Tunl 2 PPTP: TX -> SCCRP to lac3
2002-1-1 16:18:43 Tunl 2 PPTP: status changed into ESTABLISH
```

2002-1-1 16:18:43 Tunl 2 PPTP: Sesn 83 created.
2002-1-1 16:18:43 Tunl/Sesn 2/83 PPTP: Call state changed into
IDLE 2002-1-1 16:18:43 Sesn 83 PPTP: RX <- OCRQ from lac3 Sesn
2 2002-1-1 16:18:43 Sesn 83 PPTP: TX -> OCRP-Ok to lac3 Sesn 2
2002-1-1 16:18:43 Tunl/Sesn 2/83 PPTP: call state changed into ESTABLISHED
2002-1-1 16:18:43 Line on Interface Virtual-access1, changed state to up 2002-1-
1 16:18:43 Line on Interface Virtual-access1, changed state to up 2002-1-1
16:18:49 Line protocol on Interface Virtual-access1, changed state to up 2002-1-1
16:18:49 Tunl 1 PPTP: RX <- ECHO REQ from lac2
2002-1-1 16:18:49 Tunl 1 PPTP: TX -> ECHO REP to lac2
2002-1-1 16:18:50 Tunl 1 PPTP: TX -> ECHO REQ to lac2

Description of key fields：

field	Description
PPTP	Name of protocol
Tunl 2	Local Tunnel ID
IDLE/ESTABLISHED.etc.	State of tunnel or Session
TX ->	Direction of packet transmission (it means outward transmission here) .
RX <-	Direction of packet transmission (it means inward transmission here) .
SCCRQ/SCCRP .etc.	Type of ctrl packet
Sesn 83	Local session ID
Call state	Session state
Lac2	Name of remote host of tunnel
Tunl/Sesn 2/83	Local Tunnel ID and Local Session ID

1.1.30 show pppoe

To display the statistics information about PPPOE sessions, run the following command:

show pptp session

Parameter

None

Command mode

All modes except the user mode

Usage explanation

This command is used to display the statistics information about current sessions.

Example

Router#show pppoe session

PPPOE Session Information:

Total sessions 1

ID	Local_Address	Remote_Address	State	Role	Interface	Bind_Ether
3	00:e0:0f:08:02:c2	00:e0:0f:0c:05:31	Established	client	vn1	e0/0

The first information line indicates the number of current sessions.

Domain	Description
ID	Index number of the session
Local_Address	Local MAC address
Remote_Address	Remote MAC address
State	State of the current session
Role	A role of the client or a role of the server
Interface	PPP interface
Bind_Ether	Name of the bound Ethernet interface

1.1.31 clear pppoe

To delete a session, delete the session ID.

clear pppoe session ID *sessionID-number*

Parameter

Parameter	Description
sessionID-number	Index number of the session, which is obtained from the ID domain displayed by the **show pppoe session** command

Command mode

EXEC

Usage explanation

It is to delete the ID-specified session. The session ID ranges between 1 and 300.

Example

The following example shows how to browse the existing sessions before they are cleared:

Router#show pppoe session

PPPOE Session Information:

Total sessions 1

ID	Local_Address	Remote_Address	State	Role	Interface	Bind_Ether
3	00:e0:0f:08:02:c2	00:e0:0f:0c:05:31	Established	client	vn1	e0/0

Session 6 in tunnel 2 has been cleared.

Check the uncleared tunnel and the session and you will find that the session is cleared and the tunnel still exists.

Router#clear pppoe session ID 3

Router#show pppoe session

No active sessions

1.1.32 debug pppoe

To export error information about the PPPOE module, run **debug pppoe**.

[**no**] **debug pppoe** [**error** | **event** | **packets** [**discovery** | **session** | **detail**]]

You can run **no debug pppoe** to stop displaying the error information about the PPPOE module.

Parameter

Parameter	Description
error	Displays abnormities and errors occurred during PPPOE running.
event	Displays the information about triggering PPPOE module.
packets	Displays the content of the packets (control packets and data packets) received or transmitted by PPPOE module.

The subcommands related to packets are shown in the following table:

Parameter	Description
discovery	Displays the content of the control packets received and transmitted by the PPPOE module.
session	Displays the content of the data packets received and transmitted by the PPPOE module.
detail	Opens or shuts down the content switch of the packets received by the printing module.

Note:

1) Run the following command:

debug pppoe packets

You can achieve the same result if you run the following two commands:

debug pppoe packets discovery

debug pppoe packets session

2) Run the following command:

no debug pppoe packets

You can achieve the same result if you run the following two commands:

no debug pppoe packets discovery

no debug pppoe packets session

debug pppoe packets detail is just a switch. The content of the data packet cannot be printed if the switch is uniquely openned. If **debug pppoe packets discovery** is configured at the same time, the details of the control packet will be printed; if **debug pppoe packets session** is configured at the same time, the details of the data packet will be printed. If the debug is not configured, only the summary information about the control packet and the data packet will be printed.

Command mode

EXEC

Usage explanation

After **pppoe debug** is opened, the error information about PPPOE module, event trigger information and content of the received/transmitted packets can be exported, which help detecting faults on the PPPOE module.

Example

(1) Example for debugging the control packets:

The configuration command is shown as follows:

Router#debug pppoe packets discovery

Printing information:

[PPPOE]: TX -> discovery packet: Rremote address 00:e0:0f:08:02:c2, ver 1,type 1,code 9,session id 0,length 12 : PADI

FF FF FF FF FF FF 00 E0 0F 08 02 C2 88 63 11 09 .....c..

00 00 00 0C 01 01 00 00 01 03 00 04 02 C0 64 12 .....d.

2006-3-23 19:26:46

[PPPOE]: RX <- discovery packet: Rremote address 00:e0:0f:0c:05:31, ver 1,type 1,code 7,session id 0,length 26 : PADO

00E0 0F 08 02 C2 00 E0 0F 0C 05 31 88 63 11 07 .....1.c..
0000 00 1A 01 01 00 00 01 02 00 0A 44 65 66 61 .....Defa
756C 74 2D 41 43 01 03 00 04 02 C0 64 12 88 88 ult-AC.....d...
8888 88 88 88 88 88 88 88 88 88 88 .....
2006-3-23 19:26:46
[PPPOE]: TX -> discovery packet: Rremote address 00:e0:0f:08:02:c2, ver 1,type 1,code 25,session id 0,length 12 : PADR
00E0 0F 0C 05 31 00 E0 0F 08 02 C2 88 63 11 19 .....1..... c..
0000 00 0C 01 01 00 00 01 03 00 04 02 C0 64 13 ..... d.
2006-3-23 19:26:46
[PPPOE]: RX <- discovery packet: Rremote address 00:e0:0f:0c:05:31, ver 1,type 1,code 101,session id 18,length 12 : PADS
00E0 0F 08 02 C2 00 E0 0F 0C 05 31 88 63 11 65 .....1.c.e
0012 00 0C 01 01 00 00 01 03 00 04 02 C0 64 13 ..... d.
8888 88 88 88 88 88 88 88 88 88 88 88 88 88 88 .....
8888 88 88 88 88 88 88 88 88 88 88.....

Each domain of the PADI control packet is explained in the following table:

Domain	Description
[PPPOE]	Protocol name
TX ->	Transmission direction of the packet (here it means packet transmitting)
discovery packet	Type of the packet (including control packets and data packets)
Rremote address	MAC address of the remote terminal
Ver,type	Protocol version and type
Code	Message type of the control packet
Session id	ID of the session (different from the session ID displayed by the **show pppoe session** command)
length	Length of the packet
PADI	Type of the message

(2) Example for debugging the data packets:

The configuration command is shown as follows:

Router#debug pppoe packets session

The following information is printed:

[PPPOE]: RX <- session packet: Rremote address 00:e0:0f:0c:05:31, session id 15, length 22

00E0 0F 08 02 C2 00 E0 0F 0C 05 31 88 64 11 00 .....1.d..
000F 00 16 C0 21 09 A9 00 14 05 30 01 83 00 00 .....!.....0....
0000 75 6E 6E 65 6C 20 49 6E 88 88 88 88 88 88 ..unnel In.....
8888 88 88 88 88 88 88 88 88 88 88 .....
2006-3-23 19:14:48

[PPPOE]: TX -> session packet: Rremote address 00:e0:0f:08:02:c2, session id 15, length 22

00 E0 0F 0C 05 31 00 E0 0F 08 02 C2 88 64 11 00 .....1.....d..

00 0F 00 16 C0 21 0A A9 00 14 02 C0 05 D8 00 00 .....!.....

00 00 75 6E 6E 65 6C 20 49 6E ..unnel In

2006-3-23 19:14:48

[PPPOE]: TX -> session packet: Rremote address 00:e0:0f:08:02:c2, session id 15, length 22

00 E0 0F 0C 05 31 00 E0 0F 08 02 C2 88 64 11 00 .....1.....d..

00 0F 00 16 C0 21 09 AD 00 14 02 C0 05 D8 00 00 .....!.....

00 00 70 6F 65 20 70 61 63 6B ..poe pack

2006-3-23 19:14:48

[PPPOE]: RX <- session packet: Rremote address 00:e0:0f:0c:05:31, session id 15, length 22

00 E0 0F 08 02 C2 00 E0 0F 0C 05 31 88 64 11 00 .....1.d..

00 0F 00 16 C0 21 0A AD 00 14 05 30 01 83 00 00 .....!.....0....

00 00 70 6F 65 20 70 61 63 6B 88 88 88 88 88 88 ..poe pack......

88 88 88 88 88 88 88 88 88 88 88 88 .....

Each domain of the packet is explained in the following table:

Domain	Description
[PPPOE]	Protocol name
TX ->	Transmission direction of the packet (here it means transmitting packet)
session packet	Type of the packet (including control packets and data packets)
Rremote address	MAC address of the remote terminal
session id	ID of the session
length	Length of the packet

(3) Event debugging example:

The following configuration command is used:

Router# debug pppoe event

The following information is printed:

2006-3-23 19:22:04 [PPPOE]: session 3 to be created. 2006-3-23 19:22:04 [PPPOE] S3: state changed into Client-Idle 2006-3-23 19:22:04 [PPPOE] S3: TX -> PADI to ff:ff:ff:ff:ff:ff 2006-3-23 19:22:04 [PPPOE] S3: state changed into PADI-sent

2006-3-23 19:22:04 [PPPOE] S3: RX <- PADO from 00:e0:0f:0c:05:31

2006-3-23 19:22:04 [PPPOE] S3: TX -> PADR to 00:e0:0f:0c:05:31 2006-3-23 19:22:04 [PPPOE] S3: state changed into PADR-sent 2006-3-23 19:22:04 [PPPOE] S3: RX <- PADS from 00:e0:0f:0c:05:31 2006-3-23 19:22:04 [PPPOE] S3: state changed into Established

Each domain of the packet is explained in the following table:

Domain	Description
[PPPOE]	Protocol name
S 3	Index of the session (same to the ID domain of **show pppoe session**)
Client-Idle / PADI-sent.etc.	State of the session
TX ->	Transmission direction of the control packet (here it means transmitting packet)
RX <-	Transmission direction of the control packet (here it means receiving packet)
PADI / PADO .etc.	Type of the received message
00:e0:0f:0c:05:31	MAC address of the remote terminal