

## VPN Configuration Command



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# Chapter 1 VPN Configuration Command

## 1.1 VPN Configuration Command

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
<i>domain-name</i>	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 bdc.com.cn
```

**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 authen

Configuring the enable of tunnel authentication

#### Syntas

**l2tp tunnel authen**  
**no l2tp tunnel authen**

#### Parameter

none

#### Default

no l2tp tunnel authen

#### 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

Setting the time interval of sending HELLO packet



**Syntas**

**l2tp tunnel hello** *hello-interval*

**no l2tp tunnel hello** *hello-interval*

**Parameter**

Parameter	Description
<i>hello-interval</i>	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
<i>receive-window-size</i>	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
<i>password</i>	The maximum length of channel password is 254 characters in non encryption 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 lcp-renegotiation**

Setting whether LCP re-negotiation should be made between NS and CLIENT.

**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
```

### 1.1.10 Local-name

Setting the local name of VPDN group.

#### Syntas

**Local-name** *local\_name*

**no Local-name** *local\_name*

#### Parameter

Parameter	Description
<i>local_name</i>	the maximum length of channel password is 254 characters.

#### Default

bdcom

#### 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
```

### 1.1.11 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
<i>ipaddr</i>	Ip address of remote NS

<i>priority_num</i>	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 judge 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
```

### 1.1.12 Initiate-to host-name

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
<i>name</i>	domain name of remote NS

<i>priority_num</i>	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 domain name other than by IP address (See command: initiate-to ip). When such command is executed, first judge 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.bdcom.cn.

```
router>enable
router#config
router_config#vpdn-group 1
router_config-vpdn#request-dialin
router_config-vpdn#initiate-to host-name test.bdcom.cn priority 0
```

If domain "test.bdcom.cn" is a new domain, other commands concerned with DNS have to be configured. Assume 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.bdcom.cn 192.168.20.23
```

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

**1.1.13 Protocol**

Setting protocol type of VPDN group

**Syntax**

**Protocol** *protocol-type*

**no Protocol** *protocol-type*

**Parameter**

Parameter	Description
<i>protocol-type</i>	it can only be l2tp 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

```

**1.1.14 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
<i>echo_interval</i>	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
```

**1.1.15 pptp flow-control enable**

enable the function of PPTP flow controlling

**Syntas**

**pptp flow- control enable**  
**no pptp flow- control enable**

**Parameter**

none

**Default**

disabled

**Command mode**

Configuration mode of VPDN group

**Explanation**

Because such function will bring about extra cost to CPU of router, such function is recommended to be disabled.

**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 pptp
router_config-vpdn#pptp flow- control enable
```

**1.1.16 pptp flow-control static-rtt**

Setting round trip time of data packet of PPTP session



**Syntas**

**pptp flow-control static-rtt** *rtt*  
**no pptp flow-control static-rtt** *rtt*

**Parameter**

Parameter	Description
<i>rtt</i>	range from 100 -5000 milliseconds

**Default**

300 milliseconds

**Command mode**

Configuration mode of VPDN group

**Explanation**

The time interval is used to initialize acknowledging time-out time. Only when VPDN group binded with PPTP, this command can be configured.

**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 flow-control static-rtt 500

```

**1.1.17 pptp flow-control receive-window**

Setting size of receive-window for PPTP session

**Syntas**

**pptp flow-control receive-window** *recv-wins*  
**no pptp flow-control receive-window** *recv-wins*

**Parameter**

Parameter	Description
<i>recv-wins</i>	range from 4 -100

**Default**

4

**Command mode**

Configuration mode of VPDN group

**Explanation**

The size will be notified to peer when is session creating so that peer can initialize the size of sliding sending window. Only when VPDN group binded with PPTP, this command can be configured.

**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 flow-control receive-window 64
```

**1.1.18 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
```

### 1.1.19 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
<i>remote_lac_name</i>	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
```

### 1.1.20 virtual-template

NS workgroup relates to the virtual interface

#### Syntas

**virtual-template** *virtual-temp-num*

**no virtual-template** *virtual-temp-num*

**Parameter**

Parameter	Description
<i>virtual-temp-num</i>	From 0 to the maximum value of integer

**Default**

none

**Command mode**

Configuration mode of VPDN group

**Explanation**

The interface number can be the interface of the created virtual module. If the port is not created, the interface should be created. The command can be executed exclusively on NS.

**Example**

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

```

router>enable
router#config
router_config#vpdn-group 1
router_config-vpdn#accep-dialin
router_config-vpdn#virtual-template 1
router_config#int virtual-template 1
router_config#ip addr 2.1.1.1 255.255.255.0
router_config#enca ppp
router_config#ppp authen chap
router_config#ppp chap hostname ht@bdcom.com.cn

```

**1.1.21 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
```

**1.1.22 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
```

### 1.1.23 show l2tp

Showing the channel of l2tp and statistic information of sessions.

#### Syntas

**show l2tp [tunnel | session]**

#### Parameter

Parameter	Description
<b>tunnel</b>	Showing statistic information of channel
<b>session</b>	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.

### 1.1.24 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
<b>tunnel</b>	Clearing the channel
<b>session</b>	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
```

### 1.1.25 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
<b>Error</b>	Showing the abnormality of l2tp module operation
<b>Event</b>	Showing event triggering information of l2tp module.
<b>Packets</b>	Showing the content of the data packet received and sent by l2tp module (including control packet and data packet.
<b>control-packets</b>	Showing the content of the control packet received and sent by L2TP module.
<b>data_packets</b>	Showing the content of the data packet received and sent by L2TP module.
<b>Detail</b>	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 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
TunIID	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 I2tp negotiation process.

```
37DE#debug l2tp event
```

2003-1-14 10:58:51 L2TP: Tunnel 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: Sesi 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.

### 1.1.26 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

### 1.1.27 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
<b>tunnel</b>	clear tunnel
<b>session</b>	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	TunIID	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	TunIID	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	TunIID	Intf	State
4	18261	1	s2/0:1	Established

### 1.1.28 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 abnormality 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

00 9C 00 01 1A 2B 3C 4D 00 01 00 00 01 00 00 00 .....+<M.....

00 00 00 03 00 00 00 03 00 00 01 00 70 61 63 32 .....pac2

31 00 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

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

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 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 00 00 00 00 .....  
2003-11-15 00:52:06

2003-11-15 00:52:06

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 00 00 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: TunID1, 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 <- SCCRP 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