

Cisco – PPTP Frequently Asked Questions

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PPTP Frequently Asked Questions

The following are frequently asked questions about Point-to-Point Tunnel Protocol (PPTP).

Questions

- What are the known Cisco IOS® Software PPTP bugs?
- What ports should I open on a firewall in order to accommodate PPTP tunnels?
- What Cisco IOS code initially supported PPTP?
- What are some limitations to PPTP?
- Are there details about MPPE of which I should be aware?
- What significant debugging events should I look for when troubleshooting PPTP on a router?
- What does it mean when I receive the message "Error 734" and then get disconnected?
- What does "Error 742" mean?
- I think I have a split tunneling issue. What should I do when a PPTP tunnel comes up on a PC and the PPTP router has a higher metric than the previous default, thus losing connectivity?
- How can I determine what platforms support PPTP?
- When was PPTP first introduced in the Cisco Secure PIX Firewall?
- What are some known compatibility issues with Microsoft's PPTP products and the VPN 3000 Concentrator?

- **Tools Information**

- **Related Information**

Q. What are the known Cisco IOS® Software PPTP bugs?

A. The bugs are:

- ◆ CSCdt11570 – 128-bit Microsoft Point-to-Point Encryption (MPPE) does not work on hardware Integrated Services Module (ISM).
- ◆ CSCdt66607 – PPTP 128-bit MPPE does not work with Cisco Secure ACS for Windows NT (CSNT).
- ◆ CSCdu19654 – PPTP fails.
- ◆ CSCdv50861 – MPPE will not negotiate with Windows 2000.

For additional information, registered users can access the Bug Toolkit from the TAC Tools for Security Technologies.

Q. What ports should I open on a firewall in order to accommodate PPTP tunnels?

A. The ports you should open are:

TCP/1723
TCP/139
UDP/Netbios-NS
UDP/Netbios-DGM
IP/47 GRE

Q. What Cisco IOS code initially supported PPTP?

A. PPTP was initially supported in Cisco IOS Software Release 12.0(5)XE5 on the Cisco 7100/7200 routers. It then moved to Cisco IOS general platform support in software release 12.1(5)T.

Q. What are some limitations to PPTP?

A. Some limitations to PPTP are as follows:

- ◆ PPTP only supports Cisco Express Forwarding (CEF) and process-switching; fast switching is not supported.
- ◆ Cisco IOS only supports voluntary tunneling as PPTP Network Server (PNS).
- ◆ You need crypto images for MPPE support. MPPE requires Microsoft Challenge Authentication Protocol (MS-CHAP) authentication, and MPPE is not supported with TACACS+.

Q. Are there details about MPPE of which I should be aware?

A. MPPE requires MS-CHAP. It only works with RADIUS or local authentication, and the RADIUS server must support the MPPE-Keys attribute value.

The following is a list of platforms and their compatibility with MPPE:

- ◆ Cisco Secure ACS for UNIX (CSUNIX) – No
- ◆ Access Registrar – No
- ◆ Funk RADIUS – Yes
- ◆ CiscoSecureNT (CSNT)

Q. What significant debugging events should I look for when troubleshooting PPTP on a router?

A. Debugs:

- ◆ debug aaa authentication
- ◆ debug aaa authorization
- ◆ debug radius
- ◆ debug ppp negotiation
- ◆ debug ppp authentication
- ◆ debug vpdn events
- ◆ debug vpdn errors
- ◆ debug vpdn l2x-packet
- ◆ debug ppp mppe events

Look for the following significant events:

```
SCCRQ = Start-Control-Connection-Request - message code bytes 9 and 10 = 0001
SCCRP = Start-Control-Connection-Reply
OCRQ = Outgoing-Call-Request - message code bytes 9 and 10 = 0007
OCRP = Outgoing-Call-Reply
```

Q. What does it mean when I receive the message "Error 734" and then get disconnected?

A. This means that the router and the PC cannot negotiate authentication. For example, if you set the PC authentication protocols for Shiva PAP (SPAP) and MS-CHAP version 2 (when the router can't do version 2), and you set the router for CHAP, then the **debug ppp negotiation** command on the router will show the following:

```
04:30:55: Vi1 LCP: Failed to negotiate with peer
```

Another example is if the router is set for "vpdn group 1 ppp encrypt mppe 40 required" and the PC is set for "no encryption allowed." The PC would not connect, producing an "Error 734" and the **debug ppp negotiation** command on the router shows:

```
04:51:55: Vi1 LCP: I PROTREJ
[Open] id 3 len 16 protocol CCP (0x80FD0157000A120601000020)
```

Q. What does "Error 742" mean?

A. This error means that the remote computer does not support the required data encryption type. For example, if you set the PC for "encrypted only" and delete the **pptp encrypt mppe auto** command from the router, then the PC and the router would not be able to agree on encryption. The **debug ppp negotiation** command shows the following:

```
04:41:09: Vi1 LCP: O PROTREJ [Open] id 5 len 16 protocol CCP (0x80FD0102000A120601000020)
```

Another example involves the router MPPE RADIUS problem. If you set the router for "ppp encrypt mppe auto required" and the PC for "encryption allowed with authentication to a RADIUS server not returning the MPPE key," then you get the following error on the PC: "Error 742: The remote computer does not support the required data encryption type." The router debug shows a "Call-Clear-Request" (bytes 9 and 10 = 0x000C = 12 = Call-Clear-Request per RFC):

```
00:45:58: Tn1 17 PPTP: CC I 001000011A2B3C4D000C000000000000
00:45:58: Vi1 Tn1/Cl 17/17 PPTP: CC I ClearRQ
```

Q. I think I have a split tunneling issue. What should I do when a PPTP tunnel comes up on a PC and the PPTP router has a higher metric than the previous default, thus losing connectivity?

A. In order to remedy this problem, run a batch file (batch.bat) to modify the Microsoft routing. Delete the default and reinstall the default route (you must know the IP address the PPTP client was assigned, such as 192.168.1.1). For this example, the network inside the router was 10.13.1.X:

```
route delete 0.0.0.0
route add 0.0.0.0 mask 0.0.0.0 161.44.17.1 metric 1
route add 10.13.1.0 mask 255.255.255.0 192.168.1.1 metric 1
```

Q. How can I determine what platforms support PPTP?

A. The Feature Navigator tool can tell you which Cisco IOS releases support PPTP. Registered users can access this tool from the TAC Tools for Security Technologies.

Q. When was PPTP first introduced in the Cisco Secure PIX Firewall?

A. PPTP was first introduced in Cisco Secure PIX firewall version 5.1.

Q. What are some known compatibility issues with Microsoft's PPTP products and the VPN 3000 Concentrator?

A. The following information is based on VPN 3000 Series Concentrator software Release 3.5 and later; VPN 3000 Series Concentrators, Models 3005, 3015, 3030, 3060, 3080; and Microsoft Operating Systems Windows 95 and later.

◇ **Windows 95 Dial-Up Networking (DUN) 1.2**

MPPE (Microsoft Point-to-Point Encryption) is not supported under DUN 1.2. To connect using MPPE, install Windows 95 DUN 1.3. You can download the Microsoft DUN 1.3 upgrade from the Microsoft web site.

◇ **Windows NT 4.0**

Windows NT is fully supported for PPTP connections to the VPN Concentrator. Service Pack 3 (SP3) or later is required. If you are running SP3, you should install the PPTP Performance and Security patches. Please refer to Microsoft's web site for information about the Microsoft PPTP Performance and Security Upgrade for WinNT 4.0.

Note that the 128-bit Service Pack 5 does not handle MPPE keys correctly, and PPTP can fail to pass data. When this occurs, the event log shows the following message:

```
103 12/09/1999 09:08:01.550 SEV=6 PPP/4 RPT=3 80.50.0.4
User [ testuser ]
disconnected. Experiencing excessive packet decrypt failure.
```

To solve this problem, download the upgrade for Windows NT Service Pack 6a. For more information, see Microsoft's article [MPPE Keys Not Handled Correctly for a 128-Bit MS-CHAP Request](#).

Tools Information

For additional resources, refer to [Cisco TAC Tools for VPN Technologies](#) and [TAC Tools for Security Technologies](#).

Related Information

- [Cisco Secure PIX Firewall Top Issues](#)
- [Security Technical Tips](#)
- [Cisco Secure PIX Firewall Product Support Pages](#)
- [RFC 2637 – PPTP](#)

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