Configuring PPP Callback

This chapter describes how to configure PPP callback for dial-on-demand routing (DDR). It includes the following main sections:

- PPP Callback for DDR Overview
- How to Configure PPP Callback for DDR
- MS Callback Overview
- How to Configure MS Callback
- Configuration Examples for PPP Callback

This feature implements the following callback specifications of RFC 1570:

- For the client—Option 0, location is determined by user authentication.
- For the server—Option 0, location is determined by user authentication; Option 1, dialing string; and Option 3, E.164 number.

Return calls are made through the same dialer rotary group but not necessarily the same line as the initial call.

To identify the hardware platform or software image information associated with a feature, use the Feature Navigator on Cisco.com to search for information about the feature or refer to the software release notes for a specific release. For more information, see the "Identifying Supported Platforms" section in the "Using Cisco IOS Software" chapter.

For a complete description of the PPP callback commands mentioned in this chapter, refer to the *Cisco IOS Dial Technologies Command Reference*. To locate documentation of other commands that appear in this chapter, use the command reference master index or search online.

PPP Callback for DDR Overview

PPP callback provides a client/server relationship between the endpoints of a point-to-point connection. PPP callback allows a router to request that a dialup peer router call back. The callback feature can be used to control access and toll costs between the routers.

When PPP callback is configured on the participating routers, the calling router (the callback client) passes authentication information to the remote router (the callback server), which uses the host name and dial string authentication information to determine whether to place a return call. If the authentication is successful, the callback server disconnects and then places a return call. The remote username of the return call is used to associate it with the initial call so that packets can be sent.

Both routers on a point-to-point link must be configured for PPP callback; one must function as a callback client and one must be configured as a callback server. The callback client must be configured to initiate PPP callback requests, and the callback server must be configured to accept PPP callback requests and place return calls.

See the section "MS Callback Overview" later in this chapter if you are using PPP callback between a Cisco router or access server and client devices configured for Windows 95 and Windows NT.

> **Note** If the return call fails (because the line is not answered or the line is busy), no retry occurs. If the callback server has no interface available when attempting the return call, it does not retry.

How to Configure PPP Callback for DDR

To configure PPP callback for DDR, perform the following tasks:

- Configuring a Router as a Callback Client (Required)
- Configuring a Router as a Callback Server (Required)

For an example of configuring PPP callback, see the section "Configuration Examples for PPP Callback" at the end of this chapter.

Configuring a Router as a Callback Client

To configure a router interface as a callback client, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# **interface** *type number*	Specifies the interface and enters interface configuration mode.
Step 2	Router(config-if)# **dialer in-band** [**no-parity** | **odd-parity**]	Enables DDR. Specifies parity, if needed, on synchronous or asynchronous serial interfaces.
Step 3	Router(config-if)# **encapsulation ppp**	Enables PPP encapsulation.
Step 4	Router(config-if)# **ppp authentication** {**chap** | **pap**}	Enables CHAP or PAP authentication.
Step 5	Router(config-if)# **dialer map** *protocol next-hop-address* **name** *hostname dial-string*	Maps the next hop address to the host name and phone number.
Step 6	Router(config-if)# **ppp callback request**	Enables the interface to request PPP callback for this callback map class.
Step 7	Router(config-if)# **dialer hold-queue** *packets* **timeout** *seconds*	(Optional) Configures a dialer hold queue to store packets for this callback map class.

Configuring a Router as a Callback Server

To configure a router as a callback server, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# **interface** *type number*	Specifies the interface and enters interface configuration mode.
Step 2	Router(config-if)# **dialer in-band** [**no-parity** | **odd-parity**]	Enables DDR. Specifies parity, if needed, on synchronous or asynchronous serial interfaces.
Step 3	Router(config-if)# **encapsulation ppp**	Enables PPP encapsulation.
Step 4	Router(config-if)# **ppp authentication** {**chap** | **pap**}	Enables CHAP or PAP authentication.
Step 5	Router(config-if)# **dialer map** *protocol next-hop-address* **name** *hostname* **class** *classname dial-string*	Maps the next hop address to the host name and phone number, using the name of the map class established for PPP callback on this interface.
Step 6	Router(config-if)# **dialer hold-queue** *number* **timeout** *seconds*	(Optional) Configures a dialer hold queue to store packets to be transferred when the callback connection is established.
Step 7	Router(config-if)# **dialer enable-timeout** *seconds*	(Optional) Configures a timeout period between calls.
Step 8	Router(config-if)# **ppp callback accept**	Configures the interface to accept PPP callback.
Step 9	Router(config-if)# **isdn fast-rollover-delay** *seconds*	(ISDN only) Configures the time to wait before another call is placed on a B channel to allow the prior call to be torn down completely.
Step 10	Router(config-if)# **dialer callback-secure**	(Optional) Enables callback security, if desired.
Step 11	Router(config-if)# **exit**	Returns to global configuration mode.
Step 12	Router(config-map-class)# **map-class dialer** *classname*	Configures a dialer map class for PPP callback.
Step 13	Router(config-map-class)# **dialer callback-server** [**username**]	Configures a dialer map class as a callback server.

> **Note** On the PPP callback server, the **dialer enable-timeout** command functions as the timer for returning calls to the callback client.

MS Callback Overview

MS Callback provides client/server callback services for Microsoft Windows 95 and Microsoft Windows NT clients. MS Callback supports the Microsoft Callback Control Protocol (MSCB). MSCB is a Microsoft proprietary protocol that is used by Windows 95 and Windows NT clients. MS Callback supports negotiated PPP Link Control Protocol (LCP) extensions initiated and agreed upon by the Microsoft client. The MS Callback feature is added to existing PPP Callback functionality. Therefore, if you configure your Cisco access server to perform PPP Callback using Cisco IOS Release 11.3(2)T or later, MS Callback is automatically available.

MS Callback supports authentication, authorization, and accounting (AAA) security models using a local database or AAA server.

MSCB uses LCP callback options with suboption type 6. The Cisco MS Callback feature supports clients with a user-specified callback number and server specified (preconfigured) callback number.

MS Callback does not affect non-Microsoft machines that implement standard PPP LCP extensions as described in RFC 1570. In this scenario, MS Callback is transparent.

The following are restrictions of the MS Callback feature:

- The Cisco access server and client must be configured for PPP and PPP callback.
- The router or access server must be configured to use CHAP or PAP authorization.
- MS Callback is only supported on the Public Switched Telephone Network (PSTN) and ISDN links.
- MS Callback is only supported for IP.

How to Configure MS Callback

If you configure the Cisco access server for PPP callback, MS Callback is enabled by default. You need not configure additional parameters on the Cisco access server. If an interface is configured to accept PPP callbacks, and a client attempts to cancel the callback, Cisco IOS software will refuse the request and disconnect the client. If a client is allowed to cancel callbacks, the **ppp callback permit** command must be configured on the interface.

To debug PPP connections using MS Callback, see the **debug ppp cbcp** command in the *Cisco IOS Debug Command Reference* publication.

For more information on configuring MS Callback, see the following URL.

http://www.cisco.com/en/US/customer/tech/tk801/tk36/
technologies_configuration_example09186a0080094338.shtml

Configuration Examples for PPP Callback

The following example configures a PPP callback server and client to call each other. The PPP callback server is configured on an ISDN BRI interface in a router in Atlanta. The callback server requires an enable timeout and a map class to be defined. The PPP callback client is configured on an ISDN BRI interface in a router in Dallas. The callback client does not require an enable timeout and a map class to be defined. The **dialer map** command is not required on the Cisco access server when MS Callback is enabled.

PPP Callback Server

```
interface bri 0
 ip address 10.1.1.7 255.255.255.0
 encapsulation ppp
 dialer callback-secure
 dialer enable-timeout 2
 dialer map ip 10.1.1.8 name class1 class dial1 81012345678901
 dialer-group 1
 ppp callback accept
 ppp authentication chap
!
map-class dialer dial1
 dialer callback-server user1
```

PPP Callback Client

```
interface bri 0
 ip address 10.1.1.8 255.255.255.0
 encapsulation ppp
 dialer map ip 10.1.1.7 name class2 81012345678902
 dialer-group 1
 ppp callback request
 ppp authentication chap
```