

---

# Configuring PPP Callback for DDR

---

PPP callback provides a client-server relationship between the end points of a point-to-point connection. PPP callback allows a router to request that a dial-up 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 transmitted.

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.

---

**Note** Refer to the “MS Callback” section 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

---

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.

---

**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.

---

For an example of configuring PPP callback, see the “PPP Callback Examples” section later in this chapter.

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

## Configure a Router as a Callback Client

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

Step	Command	Purpose
1	<b>interface</b> <i>type number</i>	Specify the interface.
2	<b>dialer in-band</b> [ <b>no-parity</b>   <b>odd-parity</b> ]	Enable DDR. Set parity on synchronous serial interfaces and asynchronous interfaces.
3	<b>encapsulation ppp</b>	Enable PPP encapsulation.
4	<b>ppp authentication chap</b> or <b>ppp authentication pap</b>	Enable CHAP or Password Authentication Protocol (PAP) authentication.
5	<b>dialer map</b> <i>protocol next-hop-address name</i> <i>hostname dial-string</i>	Map the next hop address to the host name and phone number.
6	<b>ppp callback request</b>	Enable the interface to request PPP callback for this callback map class.
7	<b>dialer hold-queue</b> <i>packets timeout seconds</i>	(Optional) Configure a dialer hold queue to store packets for this callback map class.

## Configure a Router as a Callback Server

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

Step	Command	Purpose
1	<b>interface</b> <i>type number</i>	Specify the interface and enter interface configuration mode.
2	<b>dialer in-band</b> [ <b>no-parity</b>   <b>odd-parity</b> ]	Enable DDR. Specify parity, if needed, on synchronous or asynchronous serial interfaces.
3	<b>encapsulation ppp</b>	Enable PPP encapsulation.
4	<b>ppp authentication</b> { <b>chap</b>   <b>pap</b> }	Enable CHAP or PAP authentication.
5	<b>dialer map</b> <i>protocol next-hop-address name</i> <i>hostname class classname dial-string</i>	Map 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.
6	<b>dialer hold-queue</b> <i>number timeout seconds</i>	(Optional) Configure a dialer hold queue to store packets to be transferred when the callback connection is established.
7	<b>dialer enable-timeout</b> <i>seconds</i>	(Optional) Configure a timeout period between calls.
8	<b>ppp callback accept</b>	Configure the interface to accept PPP callback.
9	<b>isdn fast-rollover-delay</b> <i>seconds</i>	(ISDN only) Configure the time to wait before another call is placed on a B channel, to allow prior call to be torn down completely.
10	<b>dialer callback-secure</b>	(Optional) Enable callback security, if desired.

Step	Command	Purpose
11	<code>exit</code>	Return to global configuration mode.
12	<code>map-class dialer <i>classname</i></code>	Configure a dialer map class for PPP callback.
13	<code>dialer callback-server [username]</code>	Configure a dialer map class as a callback server.

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

## MS Callback

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 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 PSTN and ISDN links.
- MS Callback is only supported for IP.

## Configuration Tasks

If you configure the Cisco access server for PPP Callback using Cisco IOS Release 11.3(2)T, MS Callback is enabled by default. You do not need to configure additional parameters on the Cisco access server. To debug PPP connections using MS Callback see the `debug ppp cbcp` command in the *Cisco IOS Release 12.0 Debug Command Reference*.

## PPP Callback Examples

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.

### PPP Callback Server

```
interface bri 0
 ip address 7.1.1.7 255.255.255.0
 encapsulation ppp
 dialer callback-secure
 dialer enable-timeout 2
 dialer map ip 7.1.1.8 name atlanta class dial1 81012345678901
 dialer-group 1
 ppp callback accept
 ppp authentication chap
 !
 map-class dialer dial1
 dialer callback-server username
```

### PPP Callback Client

```
interface bri 0
 ip address 7.1.1.8 255.255.255.0
 encapsulation ppp
 dialer map ip 7.1.1.7 name dallas 81012345678902
 dialer-group 1
 ppp callback request
 ppp authentication chap
```