Title:
Cisco CCNA / CCNP Certification Exam Tutorial: Configuring PPP Callback

Word Count:
568

Summary:
Configuring and testing PPP Callback is an important part of passing the Cisco
CCNA and CCNP exams - but it's also important in production networks. Learn the
"hows" and "whys" of PPP Callback from Chris Bryant, CCIE #12933.

Keywords:
ccna, ccnp, free, exam, ppp, callback, isdn, caller, client, server, pass,
bcran, tutorial, bryant

Article Body:
You may run into situations where a router in a remote location needs to dial in
to a central router, but the toll charges are much higher if the remote router
makes the call. This scenario is perfect for PPP Callback, where the callback
client places a call to a callback server, authentication takes place, and the
server then hangs up on the client! This ensures that the client isn't charged
for the call. The server then calls the client back.

In the following example, R2 has been configured as the client and R1 is the
callback server. Let's look at both configurations and the unique commands PPP
Callback requires.

Client:

username R1 password CCIE

interface BRI0

ip address 172.12.12.2 255.255.255.0

encapsulation ppp

dialer map ip 172.12.12.1 name R1 broadcast 5557777

dialer-group 1

```
isdn switch-type basic-ni

ppp callback request

ppp authentication chap
```

Most of that configuration will look familiar to you, but the ppp callback request command might not. This command enables the BRI interface to request the callback.

Simple enough, right? The PPP Callback Server config requires more configuration and an additional map-class as well.

Server:

```
username R2 password CCIE
interface BRI0

ip address 172.12.12.1 255.255.255.0

encapsulation ppp

dialer callback-secure

dialer map ip 172.12.12.2 name R2 class CALL_R2_BACK broadcast 5558888

dialer-group 1

isdn switch-type basic-ni

ppp callback accept

ppp authentication chap

map-class dialer CALL_R2_BACK

dialer callback-server username
```

Examining the PPP Callback Server command from the top down...

dialer callback-secure enables security on the callback. If the remote router

cannot be authenticated for callback, the incoming call will be disconnected.

The dialer map statement now calls the class CALL_R2_BACK, shown at the bottom of the config excerpt.

ppp callback accept enables PPP callback on this router.

dialer callback-server username tells the callback server that the device referenced in the dialer map statement is a callback client.

The only way to find out if the config works is to test it, so let's send a ping from R2 to R1 and see if the callback takes place.

R2#ping 172.12.12.1

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 172.12.12.1, timeout is 2 seconds:

02:45:42: BR0 DDR: Dialing cause ip (s=172.12.12.2, d=172.12.12.1)

02:45:42: BR0 DDR: Attempting to dial 5557777

02:45:42: %LINK-3-UPDOWN: Interface BRI0:1, changed state to up

02:45:42: BR0:1 DDR: Callback negotiated - Disconnecting now

02:45:42: BR0:1 DDR: disconnecting call

02:45:42: %ISDN-6-CONNECT: Interface BRI0:1 is now connected to 5557777 R1

02:45:42: %LINK-3-UPDOWN: Interface BRI0:1, changed state to down

02:45:42: DDR: Callback client for R1 5557777 created

02:45:42: BR0:1 DDR: disconnecting call.....

Success rate is 0 percent (0/5)

R2#

02:45:57: %LINK-3-UPDOWN: Interface BRI0:1, changed state to up

R2#

02:45:57: BR0:1 DDR: Callback received from R1 5557777

02:45:57: DDR: Freeing callback to R1 5557777

02:45:57: BR0:1 DDR: dialer protocol up

02:45:58: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:1, changed state to up

The callback was successfully negotiated, and the call then disconnected. R1 then called R2 back, and show dialer on R1 confirms the purpose of the call.

R1#show dialer

BRI0 - dialer type = ISDN

Dial String   Successes   Failures   Last DNIS   Last status

5558888   2   4   00:00:20   successful

0 incoming call(s) have been screened.

0 incoming call(s) rejected for callback.

BRI0:1 - dialer type = ISDN

Idle timer (120 secs), Fast idle timer (20 secs)

Wait for carrier (30 secs), Re-enable (15 secs)

Dialer state is data link layer up

Dial reason: Callback return call

Time until disconnect 99 secs

Connected to 5558888 (R2)

Pretty cool! PPP Callback isn't just important for passing your CCNA and CCNP exams – in circumstances such as shown in this example, it can save your organization quite a bit of money!