

Cisco Router – Troubleshooting for LAN-ISDN Service

After the router configuration is complete, check the status of the ISDN line by issuing the show isdn status command:

```
Router1#show isdn status
The current ISDN Switchtype = basic-ni1
ISDN BRI0 interface
  Layer 1 Status:
    ACTIVE
  Layer 2 Status:
    TEI = 70, State = MULTIPLE_FRAME_ESTABLISHED
    TEI = 71, State = MULTIPLE_FRAME_ESTABLISHED
  Layer 3 Status:
    No Active Layer 3 Call(s)
  Activated dsl 0 CCBs = 0
  Total Allocated ISDN CCBs = 0
```

If layer 1 is not showing ACTIVE, check all cabling from the router to the ISDN jack. Make sure the NT1 has no error lights. Failure to bring up layer 1 means that the router is not detecting a physical link. This could be the result of:

1. A bad cable
2. An out-of-service ISDN line
3. A malfunctioning NT1
4. A bad BRI interface on the router

If layer 1 is ACTIVE, check Layer 2 status to see if the unit is synchronized with the telco ISDN switch. If you do not see an established frame (as shown above) for each B-Channel, check to see that the SPID numbers and switch type in the router config are in the exact format provided by your telco. You may have to contact your telco to re-verify these parameters.

Layer 3 shows any established connections. If layers 1 and 2 have proper status, you are now ready to establish a connection. From the router, issue a ping to force a call:

```
Router1#ping 38.9.211.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 38.9.211.2, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Router1#
```

The first set of pings will most likely timeout while the router is establishing a connection. The router will signal when the BRI interface is connected:

```
%LINK-3-UPDOWN: Interface BRI0: B-Channel 1, changed state to up..
%ISDN-6-CONNECT: Interface BRI0: B-Channel 1 is now connected to
2707020
%LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0: B-Channel 1, changed
state to up..
```

Cisco Router – Troubleshooting for LAN-ISDN Service (cont'd)

Following the established call and authentication, you should have successful pings:

```
Router1#ping 38.9.211.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 38.9.211.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 52/188/712 ms
Router1#
```

If the connection fails and you are still unable to ping out, check all PPP settings. Make sure the login ID and password are entered correctly in your router configuration (BOTH ARE CASE SENSITIVE). Turn on PPP debugging and try to ping out again. Look for errors in the debug output:

```
Router1#clear counters
Router1#debug ppp negotiation
PPP protocol negotiation debugging is on
Router1#ping 38.9.211.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 38.9.211.2, timeout is 2 seconds:
```

If there are no errors, yet the pings still fail, try connecting at 56k instead of 64k:

```
Router1#config t
```

Enter configuration commands, one per line. End with Ctrl/Z.

```
Router1(config)#no dialer map ip 38.1.1.1 speed 64 name <ACCT ID> <phone #>
Router1(config)#dialer map ip 38.1.1.1 speed 56 name <ACCT ID> < phone#>
Router1(config)#^Z
Router1#wr mem
```