

Establishing a Reverse Telnet Session to a Modem

This chapter describes how to communicate with the modem by establishing a reverse Telnet session from an access server's or router's asynchronous line to a modem.

Note This process is sometimes referred to as *direct Telnet*. The term reverse Telnet means that you are initiating a Telnet session out the asynchronous line, instead of accepting a connection into the line (which is a *forward* connection).

To establish a reverse Telnet session to a modem, determine the IP address of your LAN (Ethernet) interface, then enter a Telnet command to port 2000 + *n* on the access server, where *n* is the line number to which the modem is connected. For example, to connect to the modem attached to line 1, enter the following command from an EXEC session on the access server:

```
router# telnet 172.16.1.10 2001
Trying 172.16.1.10, 2001 ... Open
```

This example enables you to communicate with the modem on line 1 using the **AT** (attention) command set defined by the modem vendor.



Timesaver Use the **ip host** configuration command to simplify reverse Telnet sessions with modems. The **ip host** command maps an IP address of a port to a device name.

If you are unable to connect to the modem, check the following:

- 1 Issue the **show users** EXEC command. It should not indicate the line is in use.
- 2 Verify that the line is configured for **modem inout**.
- 3 Issue the **show line** EXEC command. The output should contain the following two lines:

```
Modem state: Idle
Modem hardware state: CTS noDSR DTR RTS
```

- 4 Check to see if the virtual terminal connections to lines in the access server require passwords. See the *Security Configuration Guide* for additional information about assigning passwords to virtual terminals.
- 5 Check to see if the speed between the modem and the access server are the same. They are likely to be different. If they are different, switch off the modem, then switch it back on. This should match the speed of the modem with the speed of the access server.

Test the Modem Connection

After you make a reverse Telnet connection to the modem, you need to test the connection. Send the modem the **AT** command to request its attention. It should respond with OK. For example:

```
at
OK
```

If the modem does not reply to the **AT** command, check the following:

- 1 Look at the output of the **show line 1** command. If it displays “no CTS” for the modem hardware state, the modem is not connected or powered on, and is waiting for data; or the modem might not be configured for hardware flow control.
- 2 Check your cabling and the modem configuration (echo or result codes might be off). Enter the appropriate **AT** modem command to view the modem configuration, or enter the command **at&f** to return to factory defaults. Refer to your modem documentation to learn the appropriate **AT** command to view your modem configuration.

Suspend and Terminate Telnet Sessions

The reverse Telnet session must be terminated before the line can accept incoming calls. If you do not terminate the session, it will be indicated in the output of the **show users** command when it returns a modem state of ready if the line is still in use. If the line is no longer in use, the output of the **show line value** command will return a state of idle.

Terminating the Telnet session requires first suspending it, then disconnecting it. To suspend a Telnet session, enter the escape sequence **Ctrl-Shift-6 x** (press **Control-Shift-6**, let go, then press **x**). Enter the **disconnect EXEC** command to terminate the Telnet session.

Note Ensure that you can reliably issue the escape sequence to suspend a Telnet session. Some terminal emulator packages have difficulty sending the **Ctrl-Shift-6 x** sequence. Refer to your terminal emulator documentation for more information about escape sequences.

To suspend and then disconnect a Telnet session, perform the following steps:

Step 1 Suspend the Telnet session by entering **Ctrl-Shift-6 x**:

```
- suspend keystroke -
router#
```

Step 2 Enter the **where EXEC** command to check for open sessions:

```
router# where
Conn Host                Address                Byte  Idle Conn Name
*  1 172.16.1.10          172.16.1.10           0    0 172.16.1.10
   2 172.16.1.11          172.16.1.11           0   12 modem2
```

Step 3 After suspending a session with one modem, you can connect to another modem (then suspend it):

```
router# telnet modem2
Trying modem2 (172.16.1.11, 2002) ... Open

- suspend keystroke -
router#
```

Step 4 To disconnect (completely close) a session, issue the **disconnect EXEC** command:

```
router# disconnect line 1
Closing connection to 172.16.1.10 [confirm] y
router# disconnect line 2
Closing connection to 172.16.1.11 [confirm] y
router#
```

Note Before attempting to allow inbound connections, make sure you close all open connections to the modems attached to the access server. If you have a modem port in use, the modem will not accept a call properly.
