



## Troubleshooting

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Use the information in this chapter to help isolate problems you might encounter or to rule out the router as the source of the problem. This chapter contains the following sections:

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Before troubleshooting a software problem, you must connect a terminal or PC to the router via the light-blue console port. (For information on making this connection, see the documentation listed in the [“Related Documents” section on page -xiii.](#)) With a connected terminal or PC, you can read status messages from the router and enter commands to troubleshoot a problem.

You can also remotely access the interface (Ethernet, ADSL, or telephone) by using Telnet. The Telnet option assumes that the interface is up and running.

## Before Contacting Cisco or Your Reseller

If you cannot locate the source of a problem, contact your local reseller for advice. Before you call, you should have the following information ready:

- Chassis type and serial number
- Maintenance agreement or warranty information
- Type of software and version number
- Date you received the hardware
- Brief description of the problem
- Brief description of the steps you have taken to isolate the problem

## ADSL Troubleshooting

This section describes some asymmetric digital service line (ADSL) troubleshooting checks that you can perform if the router is not working properly. If you experience trouble with the ADSL connection, make sure to verify the following:

- That the ADSL line is connected and is using pins 3 and 4. For more information on the ADSL connection, see the hardware guide for your router.
- That the ADSL CD LED is on. If it is not on, the router may not be connected to the digital subscriber line access multiplexer (DSLAM). For more information on the ADSL LEDs, see the hardware installation guide specific to your router.
- That you are using the correct Asynchronous Transfer Mode (ATM) variable path identifier/variable circuit identifier (VPI/VCI).
- That the DSLAM supports discrete multi-tone (DMT) Issue 2.

## ADSL Cable Requirements

The ADSL cable that you connect to the Cisco router must be 10BaseT Category 5, unshielded twisted-pair (UTP) cable. Using regular telephone cable can introduce line errors.

## G.SHDSL Troubleshooting

Symmetrical high-data-rate digital subscriber line (G.SHDSL) is available on Cisco 828 and Cisco SOHO 78 routers. This section describes some G.SHDSL troubleshooting checks that you can perform if the router is not working properly. If you experience trouble with the G.SHDSL connection, verify the following:

- That the G.SHDSL line is connected and using pins 3 and 4 — For more information on the G.SHDSL connection, see the *Cisco 828 Router and SOHO 78 Router Hardware Installation Guide*.
- That the G.SHDSL CD LED is on — If it is not on, the router may not be connected to the digital subscriber line access multiplexer (DSLAM). For more information on the G.SHDSL LEDs, see the *Cisco 828 Router and SOHO 78 Router Hardware Installation Guide*.
- That you are using the correct asynchronous transfer mode (ATM) variable path identifier/variable circuit identifier (VPI/VCI).
- That the DSLAM supports G.SHDSL.

## show dsl interface Command

Use the **show dsl interface** command to display the status of a G.SHDSL physical port on the router.

Following is example output for the **show dsl interface** command:

```
_Router# show dsl interface atm0

Globespan G.SHDSL/SDSL Chipset Information

Equipment Type:      Customer Premise
Operating Mode:      G.SHDSL Annex A
Clock Rate Mode:     Fixed rate Mode
```

```

Reset Count:          1
Requested rate:       72 Kbps
Actual rate:          72 Kbps
Modem Status:         Data (0x1)
Noise Margin:         37 dB
Loop Attenuation:     0.4294963186 dB
Transmit Power:       11.7 dBm
Receiver Gain:        4.2040 dB (2271, 4210, 90)
Last Activation Status: No Failure (0x0)
CRC Errors:           2
Chipset Version:      1
Firmware Version:     R1.0
Country Code:         0xB500
Provider Code:        0x4E505347
Vendor Data:          0x0 0x0 0x0 0x0
                    0x0 0x0 0x0 0x0

```

```

Performance statistics since reload:
Number of LOS failures:          0
Number of LOSQ failures:        0
Number of coding violations:     0
Number of errored seconds:      0
Number of severely errored seconds: 0
Number of unavailable seconds:   0

```

```

Performance statistics for:
Time elapsed since beginning of interval: 6Min      Current 15 mins      Current 24 Hours
Number of LOS seconds:                   0                0Hr 6Min
Number of LOSQ seconds:                   0                0
Number of code violations:                 0                0
Number of errored seconds:                 0                0
Number of severely errored seconds:        0                0
Number of unavailable seconds:              0                0

```

**Table 5-1** describes possible command output for the **show interface** command. Each line in the command output example corresponds to a row in this table.

**Table 5-1 Show DSL Interface Command Output Description**

| Output          | Description  |
|-----------------|--|
| Equipment Type  | <ul style="list-style-type: none"> <li>Customer Premise Equipment (CPE), if connected to a DSLAM.</li> <li>Central Offices (COs); if the routers are connected back to back, then one of the routers can act as a CO.</li> </ul> |
| Operating Mode  | G.SHDSL annex configuration  |
| Clock Rate Mode | Upstream and downstream bit rate configuration. Either AUTO for fixed.   |
| Reset Count     | Number of times the G.SHDSL chip has been reset since power-up.  |
| Requested rate  | User-specified bit rate requirement.   |
| Actual rate     | The actual bit rate that the transceiver is using.   |

**Table 5-1 Show DSL Interface Command Output Description (continued)**

| Output                             | Description   |
|------------------------------------|---|
| Modem Status                       | <ul style="list-style-type: none"> <li>Handshake, when local transceiver tries to reach the far-end transceiver.</li> <li>Training; indicates the startup training is in progress.</li> <li>Data, if successfully trained.</li> </ul> |
| Received SNR                       | The received signal-to-noise ratio (SNR).   |
| Loop Attenuation                   | The difference in decibels (dB) between the power received at the near-end and the power transmitted from the far-end.  |
| Transmit Power                     | Local STU transmit power.   |
| Receiver Gain                      | Total receiver gain.  |
| Last Activation Status             | Defines the last failure state of the G.SHDSL chip.   |
| CRC Errors                         | Cyclic redundancy check errors.   |
| Chipset Version                    | Vendor's chipset information.   |
| Firmware Version                   | Vendor's firmware release version.  |
| Country Code                       | The country identification for the far end.   |
| Provider Code                      | Identification of the vendor.   |
| Vendor data                        | Vendor-specific information.  |
| Number of LOS failures             | Loss of synchronization counter increased when it contains one or more error in the framing bits. If the counter continues to increase during or after training, the line might be noisy or the cable is not connected.               |
| Number of LOSQ failures            | Loss of signal quality counter is increased when SNR is below the threshold.  |
| Number of code violations          | Code violation is defined as a count of the CRC anomalies occurring during the accumulation period.   |
| Number of errored seconds          | An errored second is a count of 1-second intervals during which one or more CRC anomalies/loss of sync words are declared.  |
| Number of severely errored seconds | A severely errored second is a count of 1-second intervals during which 50 or more CRC anomalies are declared.  |
| Number of unavailable seconds      | An unavailable second is a count of 1-second intervals for which the DSL line is unavailable.   |

# ATM Troubleshooting Commands

This section describes some ATM troubleshooting commands.

## ping atm interface Command

You can use the **ping atm interface** command to determine whether a particular PVC is in use. The PVC does not need to be configured on the router in order for you to use this command.

For example, to test whether PVC 1/200 is in use, use the following command:

```
Router# ping atm interface atm 0 1 200 seg-loopback
```

Type escape sequence to abort.

Sending 5, 53-byte segment OAM echoes, timeout is 2 seconds:

!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 148/148/148 ms

This command sends five OAM F5 loopback packets to the DSLAM (segment OAM packets). If the PVC is configured at the DSLAM, the ping is successful.

To test whether the PVC is being used at the aggregator, enter the following command:

```
Router# ping atm interface atm 0 1 200 end-loopback
```

Type escape sequence to abort.

Sending 5, 53-byte end-to-end OAM echoes, timeout is 2 seconds:

!!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 400/401/404 ms

This command sends end-to-end OAM F5 packets, which are echoed back by the aggregator.

## show interface Command

Use the **show interface** command to display the status of all physical ports (Ethernet and ATM) and logical interfaces on the router. Significant messages in the command output are shown in bold. Significant messages are described in [Table 5-2, Part 1](#).

```
820-uut2#sh int atm0
ATM0 is up, line protocol is up
  Hardware is PQUICC_SAR (with Alcatel ADSL Module)
  Internet address is 14.0.0.16/8
  MTU 1500 bytes, sub MTU 1500, BW 640 Kbit, DLY 80 usec,
    reliability 40/255, txload 1/255, rxload 1/255
  Encapsulation ATM, loopback not set
  Keepalive not supported
  Encapsulation(s):AAL5, PVC mode
  10 maximum active VCs, 1 current VCCs
  VC idle disconnect time:300 seconds
  Last input 01:16:31, output 01:16:31, output hang never
  Last clearing of "show interface" counters never
  Input queue:0/75/0 (size/max/drops); Total output drops:0
  Queueing strategy:Per VC Queueing
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    512 packets input, 59780 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 1024 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
```

```

426 packets output, 46282 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 output buffer failures, 0 output buffers swapped out
820-uut2#sh int eth0
Ethernet0 is up, line protocol is up
Hardware is PQIICC Ethernet, address is 0000.0c13.a4db
(bia0010.9181.1281)
Internet address is 170.1.4.101/24
MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec,
reliability 255/255., txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
820-uut2#sh int dialer 1
Dialer 1 is up, line protocol is up
Hardware is Dialer interface
Internet address is 1.1.1.1/24
MTU 1500 bytes, BW 100000 Kbit, DLY 100000 usec, reliability
255/255. txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
DTR is pulsed for 5 seconds on reset
LCP Closed

```

Table 5-2, Part 1 describes possible command output for the **show interface** command. Each line in the command output example corresponds to a row in this table.

**Table 5-2, Part 1** *show interface Command Output Description*

| Output  | Description   |
|---|---|
| <ul style="list-style-type: none"> <li>ATM0 is up, line protocol is up</li> </ul> <p><b>Other possible messages:</b></p> <ul style="list-style-type: none"> <li>ATM0 is down, line protocol is down</li> <li>ATM0 is down, line protocol is down</li> </ul>                               | <ul style="list-style-type: none"> <li>The ATM line is up and operating correctly.</li> <li>The ATM interface has been disabled with the <b>shutdown</b> command.</li> <li>The ATM line is down, possibly because the ADSL cable is disconnected or because the wrong type of cable is connected to the ATM port.</li> </ul>  |
| <ul style="list-style-type: none"> <li>ATM0.1 is up, line protocol is up</li> </ul> <p><b>Other possible messages:</b></p> <ul style="list-style-type: none"> <li>ATM0.1 is administratively down, line protocol is down</li> <li>ATM0.1 is down, line protocol is down</li> </ul>        | <ul style="list-style-type: none"> <li>The first ATM subinterface is up and operating correctly.</li> <li>The ATM subinterface has been disabled with the <b>shutdown</b> command.</li> <li>The ATM subinterface is down, possibly because the ATM line has been disconnected (by the service provider).</li> </ul>   |
| <ul style="list-style-type: none"> <li>Ethernet0 is up, line protocol is up</li> </ul> <p><b>Other possible messages:</b></p> <ul style="list-style-type: none"> <li>Ethernet0 is up, line protocol is down</li> <li>Ethernet0 is administratively down, line protocol is down</li> </ul> | <ul style="list-style-type: none"> <li>The Ethernet interface is connected to the network and operating correctly.</li> <li>The Ethernet interface has been correctly configured and enabled, but the Ethernet cable might be disconnected from the LAN.</li> <li>The Ethernet interface has been disabled with the shutdown command, and the interface is disconnected.</li> </ul> |

**Table 5-2, Part 1** *show interface Command Output Description (continued)*

| Output   | Description   |
|--|---|
| Dialer1 is up, line protocol is up<br><b>Another possible message:</b><br>Dialer1 is down, line protocol is down | <ul style="list-style-type: none"> <li>Dialer1 is up and operating correctly.</li> <li>Dialer1 is not operating, possibly because the interface has been brought down with the shutdown command or the ADSL cable is disconnected.</li> </ul> |
| Dialer1 is down, line protocol is down   | <ul style="list-style-type: none"> <li>This is a standard message and does not indicate anything wrong with the configuration</li> </ul>  |

## show atm interface Command

To display ATM-specific information about an ATM interface, use the **show atm interface atm0** privileged EXEC command. Following is the command syntax:

```
show atm interface atm0
```

Following is an output example from the **show interface atm** command:

```
tw_820#sh atm int atm 0
Interface ATM0:
AAL enabled: AAL5 , Maximum VCs:11, Current VCCs:0

Maximum Transmit Channels:0
Max. Datagram Size:1528
PLIM Type:INVALID - 640Kbps, Framing is INVALID,
DS3 lbo:short, TX clocking:LINE
0 input, 0 output, 0 IN fast, 0 OUT fast
Avail bw = 640
Config. is ACTIVE
```

Table 5-3 describes the fields shown in the command output.

**Table 5-3** *show atm interface Command Output Description*

| Field                     | Description   |
|---------------------------|---|
| ATM interface             | Interface number. Always 0 for the Cisco 827 routers.           |
| AAL enabled               | Type of AAL enabled. The Cisco 827 routers support AAL5.        |
| Maximum VCs               | Maximum number of virtual connections this interface supports.  |
| Current VCCs              | Number of active virtual channel connections (VCCs).            |
| Maximum Transmit Channels | Maximum number of transmit channels.                            |
| Max Datagram Size         | The configured maximum number of bytes in the largest datagram. |
| PLIM Type                 | Physical layer interface module (PLIM) type                     |

## debug atm Commands

This section describes how to use the **debug atm** commands with additional keywords to troubleshoot the router.

### Before Using Debug Commands

You can use the debug commands to troubleshoot configuration problems that you might be having on your network. Debug commands provide extensive, informative displays to help you interpret any possible problems. All debug commands are entered in privileged EXEC mode, and most debug commands take no arguments. Read the information in before using debug commands.



#### Caution

Debugging is assigned a high priority in your router CPU process, and it can render your router unusable. For this reason, use debug commands only to troubleshoot specific problems. The best time to use debug commands is during periods of low network traffic so that other activity on the network is not adversely affected.

**Table 5-4 Important Information About Debug Commands**

|                          |   |
|--------------------------|---|
| Additional documentation | You can find additional information and documentation about the debug commands in the <i>Debug Command Reference</i> document on the Cisco IOS software documentation CD-ROM that came with your router.<br><br>If you are not sure where to find this document on the CD-ROM, use the Search function in the Verity Mosaic browser that comes with the CD-ROM. |
| Disabling debugging      | To turn off any debugging, enter the <b>undebug all</b> command.  |
| Viewing debug message    | To view debug messages on the console, enter the <b>logging console debug</b> command.  |
| Telnet sessions          | If you want to use debug commands during a Telnet session with your router, you must first enter the <b>terminal monitor</b> command.   |

### debug atm errors Command

Use the **debug atm errors** command to display ATM errors. The **no** form of this command disables debugging output. Following is the command syntax:

```
debug atm errors
no debug atm errors
```

Following is sample **debug atm errors** output.

```
820-uut2#deb atm err
ATM errors debugging is on
Router#
01:32:02:ATM(ATM0.2):VC(3) Bad SAP received 4500
01:32:04:ATM(ATM0.2):VC(3) Bad SAP received 4500
01:32:06:ATM(ATM0.2):VC(3) Bad SAP received 4500
01:32:08:ATM(ATM0.2):VC(3) Bad SAP received 4500
01:32:10:ATM(ATM0.2):VC(3) Bad SAP received 4500
```

## debug atm events Command

Use the **debug atm events** command to display ATM events. The **no** form of this command disables debugging output. Following is the command syntax:

```
debug atm events
no debug atm events
```

This command displays ATM events that occur on the ATM interface processor and is useful for diagnosing problems in an ATM network. It provides an overall picture of the stability of the network.

If the interface is successfully communicating with the Digital Subscriber Line Access Multiplexer (DSLAM) at the telephone company, the modem state is 0x10. If the interface is not communicating with the DSLAM, the modem state is 0x8.

The following output indicates that the ADSL line is up (training successful):

```
00:02:57: DSL: Send ADSL_OPEN command.
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Sent command 0x5
00:02:57: DSL: Received response: 0x26
00:02:57: DSL: Unexpected response 0x26
00:02:57: DSL: Send ADSL_OPEN command.
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Sent command 0x5
00:03:00: DSL: 1: Modem state = 0x8
00:03:02: DSL: 2: Modem state = 0x10
00:03:05: DSL: 3: Modem state = 0x10
00:03:07: DSL: 4: Modem state = 0x10
00:03:09: DSL: Received response: 0x24
00:03:09: DSL: Showtime!
00:03:09: DSL: Sent command 0x11
00:03:09: DSL: Received response: 0x61
00:03:09: DSL: Read firmware revision 0x1A04
00:03:09: DSL: Sent command 0x31
00:03:09: DSL: Received response: 0x12
00:03:09: DSL: operation mode 0x0001
00:03:09: DSL: SM: [DMTDSL_DO_OPEN -> DMTDSL_SHOWTIME]
```

In case of failure, you may see the modem state remain at 0x8 and not move to 0x10:

```
00:02:57: DSL: Send ADSL_OPEN command.
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Sent command 0x5
00:02:57: DSL: Received response: 0x26
00:02:57: DSL: Unexpected response 0x26
00:02:57: DSL: Send ADSL_OPEN command.
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Using subfunction 0xA
00:02:57: DSL: Sent command 0x5
00:03:00: DSL: 1: Modem state = 0x8
00:03:00: DSL: 1: Modem state = 0x8
00:03:00: DSL: 1: Modem state = 0x8
00:03:00: DSL: 1: Modem state = 0x8
00:03:00: DSL: 1: Modem state = 0x8
00:03:00: DSL: 1: Modem state = 0x8
```

## debug atm packet Command

Use the **debug atm packet** command to display per-packet debugging output. The output reports information online when a packet is received or a transmission is attempted. The **no** form of this command disables debugging output. Following is the command syntax:

```
debug atm packet [interface atm number [vcd vcd-number] [vc vpi/vci number]]
no debug atm packet [interface atm number [vcd vcd-number] [vc vpi/vci number]]
```

Following are the keywords used in this command:

|                                 |  |
|---------------------------------|--|
| <i>interface atm number</i>     | (Optional) ATM interface or subinterface number.           |
| <b>vcd</b> <i>vcd-number</i>    | (Optional) Number of the virtual circuit designator (VCD). |
| <b>vc</b> <i>vpi/vci number</i> | (Required) The vpi/vci value of the ATM PVC.               |

The **debug atm packet** command displays all process-level ATM packets for both outbound and inbound packets. This command is useful for determining whether packets are being received and transmitted correctly.



### Caution

Because the **debug atm packet** command generates a significant amount of output for every packet processed, use it only when network traffic is low so that other system activities are not adversely affected.

Below is sample **debug atm packet** output.

```
Router#
01:23:48:ATM0(O):
VCD:0x1 VPI:0x1 VCI:0x64 DM:0x0 SAP:AAAA CTL:03 OUI:000000 TYPE:0800 Length:0x70
01:23:48:4500 0064 0008 0000 FF01 9F80 0E00 0010 0E00 0001 0800 A103 0AF3 17F7 0000
01:23:48:0000 004C BA10 ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD
01:23:48:ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD
01:23:48:ABCD ABCD ABCD ABCD ABCD
01:23:48:
01:23:48:ATM0(I):
VCD:0x1 VPI:0x1 VCI:0x64 Type:0x0 SAP:AAAA CTL:03 OUI:000000 TYPE:0800 Length:0x70
01:23:48:4500 0064 0008 0000 FE01 A080 0E00 0001 0E00 0010 0000 A903 0AF3 17F7 0000
01:23:48:0000 004C BA10 ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD
01:23:48:ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD
01:23:48:ABCD ABCD ABCD ABCD ABCD
01:23:48:
```

[Table 5-5](#) describes the fields shown in the **debug atm packet** command output.

**Table 5-5** *debug atm packet Command Output Description*

| Field    | Description                                   |
|----------|---|
| ATM0     | Interface that is generating the packet.      |
| (O)      | Output packet. (I) would mean receive packet. |
| Pak size | Packet size in bytes.                         |

**Table 5-5** *debug atm packet Command Output Description (continued)*

| Field                 | Description  |
|-----------------------|--|
| VCD: 0xn              | Virtual circuit associated with this packet, where <i>n</i> is some value. |
| VPI: 0xn              | Virtual path identifier for this packet, where <i>n</i> is some value.     |
| DM: 0xn               | Descriptor mode bits, where <i>n</i> is some value.                        |
| MUXETYPE:<br><i>n</i> | Multiplex type.  |
| Length: <i>n</i>      | Total length of the packet (in bytes) including the ATM header(s).         |

## Software Upgrade Methods

Following are the methods for upgrading software on Cisco 800-series routers:

- Copy the new software image to Flash memory over the LAN or WAN while the existing Cisco IOS software image is operating.
- Copy the new software image to Flash memory over the LAN while the boot image (ROM monitor) is operating.
- Copy the new software image over the console port while in ROM monitor mode.
- From the ROM monitor mode, boot the router from a software image that is loaded on a TFTP server. To use this method, the TFTP server must be on the same LAN as the router.

## Recovering a Lost Password

This section describes how to recover a lost enable or enable secret password. The process of recovering a password consists of the following major steps:

1. [Changing the Configuration Register](#)
2. [Resetting the Router](#)
3. [Resetting the Password and Saving Your Changes](#) (for lost enable secret passwords only)
4. [Resetting the Configuration Register Value](#)



### Note

These procedures can only be done when you are connected to the router through the console port. These procedures cannot be performed through a Telnet session.



### Note

See the “Hot Tips” section on Cisco.com for additional information on replacing enable secret passwords.

## Changing the Configuration Register

This section describes how to change a configuration register.

- 
- Step 1** Connect an ASCII terminal or a PC running a terminal emulation program to the CONSOLE port on the rear panel of the router.
  - Step 2** Configure the terminal to operate at 9600 baud, 8 data bits, no parity, and 1 stop bit.
  - Step 3** At the privileged EXEC prompt (*router\_name* >), enter the **show version** command to display the existing configuration register value (shown in bold at the bottom of this output example):

```
820-uut2#sh ver
Cisco Internetwork Operating System Software
Cisco IOS (tm) C827 Software (C827-NSY6-M), Version 12.0
Copyright (c) 1986-1999 by cisco Systems, Inc.
Compiled Mon 22-Nov-99 11:20 by dahsue
Image text-base:0x80013170, data-base:0x8081B748

ROM:System Bootstrap, Version 12.0(19990519:174856) [jakumar-twister_dev 1055],
DEVELOPMENT SOFTWARE

Jay uptime is 48 minutes
System returned to ROM by reload
Running default software

CISCO C827 (MPC855T) processor (revision 0x00) with 19456K/1024K bytes of memory.
Processor board ID 00000000, with hardware revision 0000
CPU rev number 5
Bridging software.
4 POTS Ports
1 Ethernet/IEEE 802.3 interface(s)
1 ATM network interface(s)
128K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read/Write)

Configuration register is 0x100
```

- Step 4** Record the setting of the configuration register. It is usually 0x2100 or 0x100.
  - Step 5** Record the break setting:
    - Break enabled—bit 8 is set to 0.
    - Break disabled (default setting)—bit 8 is set to 1.
- 



### Note

To enable break, enter the **config-register 0x01** command while in privileged EXEC mode.

---

## Resetting the Router

This section describes how to reset the router.

- Step 1** If break is enabled, go to [Step 2](#). If break is disabled, turn the router off ( O ), wait 5 seconds, and turn it on ( | ) again. Within 60 seconds, press the **Break** key. The terminal displays the ROM monitor prompt. Go to [Step 3](#).



**Note** Some terminal keyboards have a key labeled *Break*. If your keyboard does not have a Break key, see the documentation that came with the terminal for instructions on how to send a break.

- Step 2** Press **break**. The terminal displays the following prompt:

```
rommon 2>
```

- Step 3** Enter **confreg 0x142** to reset the configuration register:

```
rommon 2> confreg 0x142
```

- Step 4** Initialize the router by entering the **reset** command:

```
rommon 2> reset
```

The router cycles its power, and the configuration register is set to 0x142. The router uses the boot ROM system image, indicated by the system configuration dialog:

```
--- System Configuration Dialog ---
```

- Step 5** Enter **no** in response to the prompts until the following message is displayed:

```
Press RETURN to get started!
```

- Step 6** Press **Return**. The following prompt appears:

```
Router>
```

- Step 7** Enter the **enable** command to enter enable mode. Configuration changes can be made only in enable mode:

```
Router> enable
```

The prompt changes to the privileged EXEC prompt:

```
Router#
```

- Step 8** Enter the **show startup-config** command to display an enable password in the configuration file:

```
Router# show startup-config
```

If you are recovering an enable password, skip the following [“Resetting the Password and Saving Your Changes”](#) section, and complete the password recovery process by performing the steps in the [“Resetting the Configuration Register Value”](#) section.

If you are recovering an enable secret password, it is not displayed in the **show startup-config** command output. Complete the password-recovery process by performing the steps in the following [“Resetting the Password and Saving Your Changes”](#) section.

## Resetting the Password and Saving Your Changes

This section discusses how to reset your password and save the changes.

- 
- Step 1** Enter the **configure terminal** command to enter configuration mode:  
Router# **configure terminal**
- Step 2** Enter the **enable secret** command to reset the enable secret password in the router:  
Router(config)# **enable secret password**
- Step 3** Enter **exit** to exit configuration mode:  
Router(config)# **exit**
- Step 4** Save your configuration changes:  
Router# **copy running-config startup-config**
- 

## Resetting the Configuration Register Value

After you have recovered or reconfigured a password, reset the configuration register value:

- 
- Step 1** Enter the **configure terminal** command to enter configuration mode:  
Router# **configure terminal**
- Step 2** Enter the **configure register** command and the original configuration register value that you recorded.  
Router(config)# **config-reg value**
- Step 3** Enter **exit** to exit configuration mode:  
Router(config)# **exit**



**Note** To return to the configuration being used before you recovered the lost enable password, do not save the configuration changes before rebooting the router.

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- Step 4** Reboot the router, and enter the recovered password.
- 

## Managing the Cisco Router Web Setup Tool

The Cisco Router Web Setup tool is a free software configuration utility, supporting the Cisco 831 router and the SOHO series routers. It includes a Web-based GUI that offers the following features:

- Simplified setup
- Advanced configuration

- Router security
- Router monitoring

## Pointers to CRWS Documentation

To find the CRWS Introduction, go to:

[http://www.cisco.com/en/US/products/sw/netmgts/ps2076/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/sw/netmgts/ps2076/tsd_products_support_series_home.html)

To see the CRWS Troubleshooting Guide, go to:

[http://www.cisco.com/en/US/products/sw/netmgts/ps2076/prod\\_troubleshooting\\_guide09186a0080132c3c.html](http://www.cisco.com/en/US/products/sw/netmgts/ps2076/prod_troubleshooting_guide09186a0080132c3c.html)

