



Troubleshooting

This chapter provides information about product issues in the Cisco 678 asymmetric digital subscriber line (ADSL) router.

WAN Link and Power-Up Issues

When you power up the router, this is the normal sequence of events:

- The ALARM light comes on within five seconds, flashes for half a second, then goes off.
- Between 1 and 10 seconds after the ALARM light goes off, the WAN-LNK light starts blinking, indicating that the router is attempting to establish communication with the service provider modem in the central office. After communication is established, the WAN-LNK becomes solid.

So under normal conditions, the ALARM light should be off within six seconds of powering up the router, and within one minute the WAN-LNK light should become solid.

If the router cannot establish communication with the service provider modem, the WAN-LNK light will go off and the router will wait 10 seconds. The WAN-LNK light will start blinking when the router tries again to establish communication.

If, after repeated attempts to establish communication, the WAN-LNK light continues blinking, turn the power off and then on. If the WAN-LNK light still does not become solid within one minute, call your service representative.

If the ALARM light flashes RED or lights RED and stays on, call your service representative.

**Note**

With the POWER light ON, the WAN-LNK light may appear OFF under certain circumstances, even though the Cisco 678 is operating correctly. This condition can occur, for instance, if there is no data traffic across the WAN-LNK for two minutes or more. In this case, the PPP session will time out and the WAN-LNK light will go off. During subsequent requests for data across the link, the WAN-LNK light should start to blink, indicating that the ADSL connection sequence has started.

Web Browser Compatibility

Netscape 3.01 or higher or Internet Explorer 3.01 or higher is recommended for use as a browser for the Cisco Web Management Interface.

Serial Buffer Overflow

When using the serial port as your terminal connection, large amounts of serial data might overflow the serial buffer. This results in ASCII garbage appearing on the screen, but does not affect performance or operation in any way. To avoid this issue, use Telnet to manage the Cisco 678.

RADIUS Password and Username Lengths

The Cisco 678 supports RADIUS passwords with more than 16 characters, however, RADIUS servers only support 16 characters or less. RADIUS usernames can be up to 255 characters. Refer to the “RADIUS Client” section on page 3-19.

Computers Running Linux Without term/termcap

Computers running Linux without the term/termcap database installed will have trouble connecting to Cisco equipment. The message “BAD ADDRESS” is sometimes displayed as an error message. The term/termcap database can be installed from the Linux install disks or CD-ROM.

Clearing PC Cache with ARP

If you update IP addresses on many Cisco 678s in rapid succession using a Windows PC, the ARP cache on the PC might not clear right away. This causes communications problems with the subsequent Cisco 678s in the line. Use the **arp -a** command to obtain the current ARP list, then update the entries. For example, to clear the PC cache, use the following command at the MS-DOS prompt on your PC:

```
c:\> arp -d 192.168.0.100
```

This deletes the MAC address and causes IP to send an ARP request (or packet) to the IP address 192.168.0.100. The ARP utility comes with Windows 95, Windows 98, and Windows NT, so if you don't have it in your current installation, you can install it from your original Windows install media.

RIP and Idle Timeouts

On a busy network with many RIP broadcasts and requests, RIP traffic alone can cause the Cisco 678 to remain sufficiently active to not trigger the idle timeout. Cisco recommends that RIP be disabled if Cisco 678 idle timeouts are used.

ADSL Parameters for the set interface command

The **set interface wan0** command supports these parameters:

| | |
|--|--|
| <i>stay</i> | Sets stay-trained mode. ADSL line will not retrain. |
| overhead-framing mode-number | Configures the requested ATM framing structure. The Cisco 678 supports ATM overhead framing mode 3. A retrain is required to negotiate the new overhead framing mode with the central office equipment. This parameter only applies to DMT Issue 2 encoding. This command can be saved in NVRAM. |
| trellis-coding {enabled disabled} | Configures the device to request trellis coding on the wan0 interface. Trellis coding can be enabled or disabled. A retrain is required to negotiate trellis coding with central office equipment. Trellis coding must also be enabled on the DSLAM for it to be enabled. This parameter only applies to DMT Issue 2 encoding. This command can be saved in NVRAM. |

Frequently Asked Questions about the WAN LNK LED

This list describes all known conditions indicated by the WAN LNK LED:

- If the WAN LNK LED blinks continuously and never stays solid on, the Cisco 678 never trains to a system such as the Cisco 6xxx series:
 - The ADSL line is not connected to the Cisco 678.
 - The subscriber is locked on the Cisco 6xxx series.
 - The ADSL circuit is physically too long.
 - There is excessive noise on the ADSL circuit.
- If the Cisco 678 trains up and the WAN LNK LED turns off after approximately 105 seconds when the Cisco 678 is in routing mode, this means that the Cisco 678 PPP requests are not getting answered by the router on the service provider's network, such as the Cisco 7200 series or Cisco 6400. It takes 105 seconds for three PPP requests to be sent from the Cisco 678, and if they are not answered by the Cisco 7200 series or Cisco 6400, the Cisco 678 stops sending them and the WAN LNK LED turns off.

There are a number of possibilities why this would happen:

- The VPI/VCI provisioning is not correct in the ATM cloud. This could signify that the Cisco 7200 or Cisco 6400 or the ATM switch along the path does not have the correct provisioning.
- The VPI/VCI mapping in the Cisco 7200 or Cisco 6400 or the Cisco 678 is not configured properly.
- ATM Cell scrambling is enabled on one end of the link but not the other. The **show running** command will display an entry with "*ATM WAN Cell Scrambling = disabled*" if cell scrambling is disabled. No entry implies the default behavior of ATM cell scrambling is enabled.
- The Cisco 7200 or Cisco 6400 is powered off.
- The Cisco 678 is configured for routing mode, but the Cisco 7200 or Cisco 6400 (or other router at the service provider's network terminating Cisco 678 traffic) is configured for bridging.

Use the **show errors** command to check the contents of the error log.

- If the Cisco 678 trains up and the WAN LNK LED turns off, this is a sign of no ATM cell delineation. Verify that you have the ATM link terminated at the central office end. Without ATM cell delineation, the router will attempt to retrain the line in 1 to 10 seconds.
- If the Cisco 678 trains up and then immediately drops the connection, the near-end DMT firmware might not be compatible with the far-end DMT firmware. For example, an ITU G.Lite router might not train to an ANSI Issue 1 Central Office. To see the DMT firmware version installed on your router, use the **show version** command.
- If the WAN LNK LED turns off after the Cisco 678 has successfully been transferring data end-to-end for some time, this means that the Cisco 678 or the Cisco 7200 or Cisco 6400 might have a timeout set. Use the **show errors** command to see if the error log shows that timeouts caused the drop. There are two timeouts that could affect the WAN LNK LED:
 - IDLE timeout: This timeout can be set on the Cisco 678 or the Cisco 7200 series or Cisco 6400. If the IDLE timeout is set to some value, then the Cisco 678 WAN LNK LED will turn off if the Cisco 678 becomes idle for that specified period of time. The **show timeout** command will display the current timeout status and settings.

- SESSION timeout: This timeout can be set on the Cisco 678 or the Cisco 7200 series or Cisco 6400. If the SESSION timeout is set to some value, then the Cisco 678 WAN LNK LED will turn off after that certain period of set time no matter if it idle or not. The **show timeout** command will display the current timeout status and settings.
- If the WAN LNK LED goes solid for approximately four seconds and then turns off, this primarily points to a RADIUS problem. After the Cisco 678 trains and the Cisco 7200 or Cisco 6400 that is being used to authenticate its PPP session is using RADIUS, then this could point to a failed RADIUS authentication. Possible reasons for a failed RADIUS authentication include:
 - The Cisco 7200 series or Cisco 6400 has the wrong IP address for the RADIUS server.
 - The username and password on the Cisco 678 do not match the username and password running on the RADIUS server's user list.
 - The RADIUS server is not running.

Disabling RADIUS on the Cisco 7200 or Cisco 6400 would be a simple test to see if it is a RADIUS problem. Note that RADIUS is an application only available in routing mode.

The **show interface wan0** command provides feedback on the wan0 configuration as well as the actual configuration negotiated with the central office equipment as shown here:

```
cbos#show interface wan0
wan0  ADSL Physical Port
      Line Trained
Actual Configuration:
Overhead Framing:          3
Trellis Coding:           Disabled
Standard Compliance:      T1.413
Downstream Data Rate:     8032 Kbps
Upstream Data Rate:       864 Kbps
Interleave S Downstream:  1
Interleave D Downstream:  128
Interleave R Downstream:  16
Interleave S Upstream:    4
Interleave D Upstream:    8
Interleave R Upstream:    16
Modem Microcode:          H14
DSP version:               0
Operating State:           Showtime/Data Mode
```

```
Configured:
Echo Cancellation:      Disabled
Overhead Framing:      3
Coding Gain:           Auto
TX Power Attenuation:   0dB
Trellis Coding:        Enabled
Bit Swapping:          Disabled
Standard Compliance:   Multimode
Remote Standard Compliance:T1.413
Tx Start Bin:          0x6
Tx End Bin:            0x1f
Data Interface:        Utopia L1
Status:
Local SNR Margin:      6.5dB
Local Coding Gain:     5.0dB
Local Transmit Power:  12.5dB
Remote Transmit Power: 10.5dB
Local Attenuation:     28.0dB
Remote Attenuation:    7.0dB
Remote Vendor ID:      0x39
Remote Vendor Revision: 0x0
Transmitted Cells:     0
Received Cells:        43978
Transmitted Frames:    79900
Received Frames:       19975
Local Counters:
Interleaved RS Corrected Bytes: 0
Interleaved Symbols with CRC Errors: 2
No Cell Delineation Interleaved: 0
Out of Cell Delineation Interleaved: 0
Header Error Check Counter Interleaved:0
Count of Severely Errored Frames: 0
Count of Loss of Signal Frames: 0
Remote Counters:
Interleaved RS Corrected Bytes: 0
Interleaved Symbols with CRC Errors: 0
No Cell Delineation Interleaved: 0
Header Error Check Counter Interleaved:0
Count of Severely Errored Frames: 0
Count of Loss of Signal Frames: 0
```

