

# Hardware Troubleshooting

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This appendix contains procedures that help you troubleshoot physical problems with a Catalyst 3920 Token Ring Switch and its connections to other devices.

This appendix contains the following information:

- Obtaining Service on page C-1
- Summary of the Hardware Troubleshooting Process on page C-1
- Understanding the LEDs on page C-2
- Choosing a Troubleshooting Procedure on page C-4

## Obtaining Service



**Caution** There are no operator-serviceable parts in the Catalyst 3920. Do not remove the cover for any reason. Refer servicing to qualified personnel.

## Summary of the Hardware Troubleshooting Process

If one or more devices (such as a computer) connected to a Catalyst 3920 are unable to communicate with other devices in the network, use the following steps to start the troubleshooting process:

- Step 1** Using the network sketch, the label on the cable connected to the device, or other network records, locate the Catalyst 3920 to which the device is connected.
- Step 2** If you have set up a console session (described in the “Planning for Configuration and Management” chapter), it can be used to determine whether diagnostics have been completed correctly. Refer to the “Resetting the Catalyst 3920” chapter for more information.
- Step 3** Observe the LEDs on the Catalyst 3920 front panel. Review the “Understanding the LEDs” section on page C-2 before proceeding with the troubleshooting process.
- Step 4** Select a troubleshooting procedure as described in the “Choosing a Troubleshooting Procedure” section on page C-4.

## Understanding the LEDs

The Catalyst 3920 has three sets of LEDs on the front of the switch; those for the switch, those for the stack, and those for the individual ports. It has one set of LEDs on the back of the switch for the power source.

### Switch LEDs

Table C-1 lists the Catalyst 3920 status LEDs and their meanings.

**Table C-1 Catalyst 3920 Status LEDs and Their Meanings**

LED	Position	State	Meaning
PWR	Top left	On	Power supply current is good.
		Off	Power supply current is bad.
Mode	Middle left	On	Boot is in progress.
		Off	Catalyst 3920 is working correctly.
		Blinking	The FLASH update portion of a TFTP download is in progress.
FLT (fault)	Bottom left	On	Power-on failure has occurred.
		Off	Catalyst 3920 is working correctly.

### Stack LEDs

Table C-2 lists the stack LEDs and their meanings.

**Table C-2 Stack LEDs and Their Meanings**

LED	Position	State	Meaning
TX (transmit)	Top right	On	Stack port is transmitting.
		Off	Stack port is not transmitting.
RX (receive)	Middle right	On	Stack port is receiving.
		Off	Stack port is not receiving.
AT (attach)	Bottom right	On	Stack port is attached to the stack.
		Off	Stack port is not attached to the stack.

## Port LEDs

Table C-3 lists the port LEDs and their meanings.

**Table C-3 RJ45 Port LEDs and Their Meanings**

LED	Position	State	Meaning
INS (insert)	Left	On	Port is inserted.
		Off	Port is not inserted.
ACT (activity)	Right	On	Port is transmitting or receiving.
		Off	Port is idle.

## Power Supply LEDs

Table C-4 lists the power supply LEDs and their meanings.

**Table C-4 Power Supply LEDs**

LED	Position	State	Meaning
RPS PRESENT	Top	On	RPS is connected to the Catalyst 3920 and to an AC power source.
		Off	RPS is not connected to the Catalyst 3920 or it is not connected to an AC power source.
RPS GOOD	Middle	On	RPS is supplying power to the Catalyst 3920.
		Off	RPS is not supplying power to the Catalyst 3920.
INT PS GOOD	Bottom	On	Internal power supply is providing power to the Catalyst 3920.
		Off	Internal power supply is not providing power to the Catalyst 3920.

Table C-5 describes the meanings of the combinations of LEDs.

**Table C-5 Understanding the Power Source LEDs**

<b>RPS PRESENT</b>	<b>RPS GOOD</b>	<b>INT PS GOOD</b>	<b>Meaning</b>
Off	Off	On	No RPS is installed. All power is being provided by the internal source.
On	Off	On	The RPS is installed, but not functioning. All power is being provided by the internal power source.
On	On	On	The RPS is installed. The switch is configured in a quasi-redundant configuration. The internal power source is providing the power and the RPS is ready to provide power if needed.
On	On	Off	The RPS is installed. One of the following is true:  The switch is configured in a quasi-redundant configuration. The internal power source has failed and the RPS is providing power.  The switch is configured in a fully-redundant configuration. The internal power source is not connected to an AC source. The RPS is providing both primary and back-up power. It is not possible, however, to determine whether the primary RPS connection is providing power or the primary has failed and the RPS has switched over to back-up power.

## Choosing a Troubleshooting Procedure

Use Table C-6 to determine which troubleshooting procedure you should use.

**Table C-6 Symptom, LED State, and Recommended Troubleshooting Procedure**

<b>Symptom and LED State</b>	<b>Procedure</b>
All LEDs are off.	A
FLT LED is on.	B
None of the devices connected to the Catalyst 3920 can communicate, the FLT LED is off, and the Power LED is on.	C
Single device connected to the Catalyst 3920 is having trouble communicating.	D

### Procedure A

Use the following procedure if all LEDs are off:

- Step 1** Verify that the power cord is connected at both ends and that the power outlet is working.
- Step 2** If the power cord is connected correctly, the outlet is working, and the problem persists, the problem is in the Catalyst 3920. Contact the Cisco TAC.

## Procedure B

Use the following procedure if the FLT LED (amber) is on:

- Step 1** Reset the Catalyst 3920 by disconnecting the power cord. Wait 10 seconds and then reconnect the cord. If the problem goes away, resume using the Catalyst 3920.
- Step 2** If you have just downloaded new software, clear NVRAM and reset the Catalyst 3920 using the instructions in the “Resetting the Catalyst 3920” chapter.

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**Note** Clearing NVRAM returns all configuration parameters to their default values.

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- Step 3** Reset the Catalyst 3920 and monitor the diagnostic messages for individual port failures. Correct any individual port problems that are detected.
- Step 4** If the problem persists, the problem is in the Catalyst 3920. Contact the Cisco TAC.

## Procedure C

Use the following procedure if all devices connected to the Catalyst 3920 have communication problems, the Catalyst 3920 FLT LED is off, and the Mode LED is off:

Reset the Catalyst 3920 by disconnecting power cord for 10 seconds. Reconnect the power cord.

- If the problem is corrected, resume using the Catalyst 3920.
- If the box status LEDs indicate a failure, go to Procedure B on page C-5.
- If the problem persists, check all the configuration parameters.
- If the problem continues, go to Procedure D on page C-5 to correct problems with the individual ports.

## Procedure D

Use the following procedure if one device connected to the Catalyst 3920 is having a communication problem, the Catalyst 3920 FLT LED is off, Mode LED is off, and other attached devices can communicate through the Catalyst 3920:

- Step 1** Check the port LEDs.
- If the port Connect LED is on, the problem is probably external to the Catalyst 3920. Go to Step 2.
  - If the port Connect LED is off, the port is probably disabled. Check that the port configuration matches the attached device, and then go to Step 3.
  - If the port Connect LED is blinking, go to Step 4.
- Step 2** If the Connect LED on the failing port is on and the attached device still cannot communicate, do the following:
- If the attached device is directly connected, it might be set up incorrectly. Go to Step 4.
  - In a shared environment, check the segment cabling and the media access unit.
  - If problem persists, try another identically configured port on the Catalyst 3920. If the new port works, there is a problem with the failed port. Contact the Cisco TAC.

- Step 3** Determine whether the port has been disabled:
- If the port is disabled, enable it. A port will disable itself when the Config Loss parameter is exceeded. This can be caused by poor cables, a faulty station connected to the Catalyst 3920, or a bad port on the Catalyst 3920.
  - If the port is not disabled, disconnect the port cable. If the LED does not start flashing within a few seconds, the port is bad and the Catalyst 3920 needs service. Try moving the cable to another port with a flashing Connect LED until service can be arranged. If the Catalyst 3920 can be temporarily removed from service, connect a console and reset the Catalyst 3920 with diagnostics to see whether the port passes diagnostics and initializes. If it does not, the problem is in the Catalyst 3920. Contact the Cisco TAC.
- Step 4** Restart the communications program on the failed connected device.
- If the communication program appears to start without errors, observe the Connect LED on the Catalyst 3920 port. If it is on, the problem may have been corrected. Check the Config Loss parameter in the Port Configuration Menu for possible causes of the failure.
  - If problem persists, try another identically configured port on the Catalyst 3920. If the new port works, there is a problem with the failed port. Contact the Cisco TAC.
- Step 5** If the Catalyst 3920 is connected to a Token Ring concentrator, perform the following steps:
- Verify that the Catalyst 3920 duplex setting matches the attached device.
  - Verify that the concentrator is operating correctly.
  - Verify that only one cable interconnects the two devices. In other words, only one port on the Catalyst 3920 should be connected to a port on the concentrator.
- Step 6** For each device that is having a communication problem, connect its segment to another Token Ring port on the Catalyst 3920. Try each of the remaining ports to determine whether the problem is in a particular port.
- If the problem is corrected by using a different port, the problem might be in the Catalyst 3920. Contact the Cisco TAC.
  - If the problem persists, continue with the Step 7.
- Step 7** The problem does not appear to be in the Catalyst 3920, the cables, or the devices connected to the Catalyst 3920. The problem might be in the network applications or other software running on the devices that are having the communication problem. Refer to the software documentation for software problem determination procedures, or consult your network administrator.