CHAPTER 6

Troubleshooting the Installation

This chapter describes how to troubleshoot Catalyst 4000 family switch installations and contains these sections:

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- Problem Solving to the System Component Level, page 6-2
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If your system has problems starting up, use the information in this chapter to help isolate the cause. Problems with the initial startup are often caused by a switching module that has become dislodged from the backplane or a power cord that is disconnected from the power supply. Although temperature conditions above the maximum acceptable level rarely occur at initial startup, environmental monitoring functions are included because they also monitor power supply output voltages.

Note This chapter covers only the chassis component hardware aspects of troubleshooting. For configuration questions or problems, refer to the *Software Configuration Guide* or *Command Reference* publication for your switch to configure or enable the interfaces.

System Boot Verification

When the initial system boot is complete, verify the following:

- Power supplies are supplying power to the system.
- The system fan assembly is operating.
- System software boots successfully.
- The supervisor engine and all switching modules are installed properly in their slots, and each initialized without problems.

If all of these conditions are met and the hardware installation is complete, refer to the *Software Configuration Guide* and *Command Reference* publication for your switch to troubleshoot the software. However, if any of these conditions are not met, use the procedures in this chapter to isolate and, if possible, resolve the problem.

Problem Solving to the System Component Level

The key to success when troubleshooting the system is to isolate the problem to a specific system component. The first step is to compare what the system *is doing* to what it *should be doing*. Because a startup problem can usually be attributed to a single component, it is more efficient to isolate the problem to a subsystem rather than troubleshoot each separate component in the system.

The switch consists of the following subsystems:

- Power supply—Includes the power supplies and power supply fans. If you experience problems with the power supplies, see the “Troubleshooting the Power Supply” section on page 6-4.
- Fan assembly—The system fan assembly should operate whenever system power is on. You should be able to hear the fan assembly to determine if it is operating. If you determine that the fan assembly is not operating, see the “Troubleshooting the Fan Assembly” section on page 6-5.
- Supervisor engine—The supervisor engine contains the system operating software, so check here if you have trouble with the system software. Status LEDs on the supervisor engine indicate if the supervisor engine has initialized correctly. For more information, see the “Troubleshooting Switching Modules” section on page 6-6.

- Switching modules—The STATUS LEDs on each switching module indicate if the switching module has been initialized correctly. The supervisor engine must be operating properly before the switching module will initialize. If a switching module is improperly installed in the switch, it will not function. For more information, see the "Troubleshooting Switching Modules" section on page 6-6.

Identifying Startup Problems

LEDs indicate all system states in the startup sequence. By checking the LEDs, you can determine when and where the system failed in the startup sequence. If you have problems after the switch is powered on, refer to the configuration procedures in the *Software Configuration Guide* for your switch.

After you connect the power cords to your Catalyst 4000 family switch, follow these steps:

Step 1 Check the power supply LEDs as follows:

- The GOOD LED should turn green when power is applied to the supply. The LED should remain on during normal system operation.
- If the GOOD LED does not light, or the FAIL LED lights, see the "Troubleshooting the Power Supply" section on page 6-4.

Note If a power supply is installed and not connected to a power source, it will indicate a failure.

Step 2 Listen for the system fan assembly. If you do not immediately hear the system fan assembly begin to operate, see the "Troubleshooting the Fan Assembly" section on page 6-5.

Step 3 Check that the LEDs on the supervisor engine light as follows:

- The STATUS LED flashes orange once and stays orange during diagnostic boot tests.
  - It turns green when the module is operational (on line).
  - If the system software is unable to start up, this LED stays orange.

  - If the STATUS LED on the supervisor engine front panel is red or orange, see the "Troubleshooting Switching Modules" section on page 6-6.
- The Ethernet management port LED turns green when the module is operational (online). If no signal is detected, the LINK LED turns off.

Step 4 Verify that the STATUS LEDs on each switching module are green when the supervisor engine completes initialization. This LED indicates that the supervisor engine and switching modules are receiving power, have been recognized by the supervisor engine, and contain a valid Flash code version. However, this LED does not indicate the state of the individual interfaces on the switching modules. If a STATUS LED is red or orange, see the "Troubleshooting Switching Modules" section on page 6-6.

Step 5 If the boot information and system banner are not displayed, verify that the terminal is set correctly and connected properly to the monitoring port.

Troubleshooting the Power Supply

To help isolate a power subsystem problem, follow these steps:

Step 1 Check whether the power supply GOOD LED is on or the FAIL LED is on.

Note This procedure assumes that only one power supply is installed in the Catalyst 4003 switch or two power supplies are installed in the Catalyst 4006 switch.

Step 2 If the GOOD LED is off or if the FAIL LED is on, take the following steps:

- Ensure that the power supply is flush with the back of the chassis.
- Unplug the power cord, loosen and reinstall the power supply, tighten the captive installation screws, and then plug in the power cord.

Step 3 If the GOOD LED remains off, there might be a problem with the AC source or the power cable. Connect the power cord to another power source if one is available.

Step 4 If the GOOD LED fails to light after you connect the power supply to a new power source, replace the power cord.

Note If this unit has more than one power cord, repeat Step 1 through Step 4 for each power supply.

Step 5 If the LED still fails to light when the switch is connected to a different power source with a new power cord, the power supply is probably faulty. Replace the power supply.

Step 6 If a second power supply is available, install it in the second power supply bay.

Step 7 Check that the GOOD LED is on for the additional power supply. Check that the FAIL LED is off.

Note This procedure assumes two or more power supplies are installed in the switch chassis and *all* are connected to an AC power source.

Step 8 If the LEDs are not on, repeat the previous procedure to troubleshoot the second or third power supply.

If you are unable to resolve the problem, or if you determine that either a power supply or backplane connector is faulty, contact a customer service representative for instructions.

Troubleshooting the Fan Assembly

Note All fans must be operating or a failure will be indicated.

To help isolate a fan assembly problem, follow these steps:

Step 1 Check if the supervisor engine software is reporting a temperature problem or problem with the fans.

Step 2 Determine if the airflow is unrestricted.

Step 3 Determine if the power supply is functioning properly. If it is not, see the "Troubleshooting the Power Supply" section on page 6-4.

Step 4 Check that the fan assembly is properly seated in the backplane by loosening the captive installation screws, removing the fan assembly, and reinstalling it.

Step 5 Restart the system.

Step 6 Verify that all fans are operating.

Step 7 If the system is still detecting a fan assembly failure, contact a customer service representative for instructions.

Troubleshooting Switching Modules

To help isolate a supervisor engine or switching module problem, follow these steps:

Step 1 Check that the STATUS LED is green.

After the system initializes the interfaces, the STATUS LED on the module should be green.

Step 2 Make sure the switching module is properly seated.

Step 3 Restart the system.

Step 4 If there is still a problem, remove the module. Using a flashlight, check to see if the connector pins are damaged or bent.

Step 5 If you still experience trouble, contact a customer service representative for assistance.

Contacting Customer Service

If you are unable to solve a startup problem after using the troubleshooting suggestions in this chapter, contact a customer service representative for assistance and further instructions.

Before you call, have the following information ready to help your customer service representative assist you as quickly as possible:

- Date you received the switch
- Chassis serial number (located on a label on the right of the rear panel of the chassis)
- Type of software and release number
- Maintenance agreement or warranty information
- Brief description of the problem
- Brief explanation of the steps you have already taken to isolate and resolve the problem