Troubleshooting

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Introduction

Your Cisco SCE 8000 platform went through extensive testing before leaving the factory. However, if you encounter problems starting it, use the information in this chapter to help isolate the cause of the problems. The procedures in this chapter assume that you are troubleshooting the initial system startup, and that your Cisco SCE 8000 platform is in the original factory configuration. If you have removed or replaced components or changed any default settings, the recommendations in this chapter might not apply. Make sure to review the safety warnings listed in *Regulatory Compliance and Safety Information for the Cisco SCE8000* that accompanied your Cisco SCE 8000 platform before using the troubleshooting procedures in this chapter.

This chapter contains the following sections:

Troubleshooting Overview

This section describes the troubleshooting methods used in this chapter and describes how the Cisco SCE 8000 platform is divided into subsystems for more efficient problem solving. If you are unable to easily solve the problem, contact a customer service representative for assistance and further instructions. Provide the representative with the following information:

- Date you received the Cisco SCE 8000
- Chassis serial number
- Type of software and release number
- Brief description of the problem you are having
- Brief explanation of the steps you have taken to isolate and resolve the problem
- Maintenance agreement or warranty information

Table 8-1 shows the general troubleshooting strategy described in this chapter. See this table, as necessary, to follow the steps to isolate problems to a specific subsystem and resolve the problem if possible.

Table 8-1 Troubleshooting Strategy for Startup Problems

	Action	Yes	No
Step 1	Turn power on. Go to Step 2.	—	—
Step 2	Check the following: • Front panel power LED on? • Power supply 'Input OK' LEDs on? • 'Output fail' LEDs not on?	Go to Step 3.	See Troubleshooting the Power Subsystem, page 8-8 and go to Step 3.
Step 3	Status LED red (failure)?	See Troubleshooting the Firmware Package Installation, page 8-8 and go to Step 4.	Go to Step 4.
Step 4	Management interface operational?	Go to Step 5.	See Troubleshooting the Management Subsystem, page 8-9 and go to Step 5.
Step 5	Link interfaces operational?	Go to Step 6.	See Troubleshooting the Link Interface Subsystem, page 8-11 and go to Step 6.
Step 6	System startup successful (all interfaces operating normally).	—	—

Information About Troubleshooting Tools

There are two tools that will help you to successfully troubleshoot your Cisco SCE 8000 installation:

- CLI Commands for Troubleshooting, page 8-3
- Checking the LEDs, page 8-5

CLI Commands for Troubleshooting

Use the following commands to provide information to help you troubleshoot installation of your Cisco SCE 8000 platform. See the *Cisco SCE8000 10GBE Software Configuration Guide* or the *Cisco SCE8000 CLI Command Reference* document for more information.

Note Remember that if the management interface is not operational, you should connect the Cisco SCE 8000 platform to a local console so that you can enter CLI commands for troubleshooting.

- **Troubleshooting firmware package installation:**
  - **boot system <filename>**—Specifies and verifies the package file to be installed. Error messages or other output identify problems with the package file.

  Following is a sample output from the **boot system** command:

```
SCE(config)# boot system ftp://cisco:cisco@10.10.10.10/downloads/SENum.pkg.pkg
Verifying package file SENum.pkg.pkg…
Package file verified OK.
```

- **Troubleshooting the management subsystem:**
  - **show interface GigabitEthernet 1/1**—Displays IP address and auto-negotiation information for the management interfaces.

  Following is a sample output from the **show interface GigabitEthernet 1/1** command:

```
ip address: 10.1.6.145
subnet mask: 255.255.0.0
Configured speed: auto, configured duplex: auto
AutoNegotiation is On, link is Up, actual speed: 100, actual duplex: half
```

  - **show ip default-gateway**—Displays the IP address of the configured default gateway.

  Following is a sample output from the **show ip default-gateway** command:

```
Default gateway: 10.1.1.1
```

  - **show ip route**—Displays the entire routing table and the destination of last resort (default-gateway).

  Following is a sample output from the **show ip route** command:

```
gateway of last resort is        10.1.1.1
```

  - **show access-lists**—Shows all access-lists or a specific access list.

  Following is a sample output from the **show access-lists** command:

```
Standard IP access list 1
Permit 10.1.1.0, wildcard bits 0.0.0.255
deny   any
```

  - **show telnet**—Displays the status of the telnet server daemon (**status**) or any active Telnet sessions (**sessions**).

Following is a sample output from the **show telnet** command:

```
show telnet sessions
There is 1 active telnet session:
Index | Source
================
0     | 10.1.1.201

show telnet status
Telnet deamon is enabled.
```

  - **show line vty timeout**—Shows the timeout configured for Telnet sessions.

  Following is a sample output from the **show line vty timeout** command:

```
Timeout is 30 minutes
```

- **Troubleshooting the link interface subsystem:**
  - **show interface TenGigabitEthernet 3/#/0**—Displays information for a specific 10 GBE Interface.

  Following is a sample output from the **show interface** command:

```
Auto negotiation configured: Disabled
Actual status:
Link is: ON
Auto negotiation: Disabled
Bandwidth (L1): 10000000 Kbps, Burst-size: 500000 bytes
Pseudo IP Address: Not Configured
```

  - **show interface TenGigabitEthernet 3/#/0 counters**—Displays the values of counters of a GBE interface.

  Following is a sample output from the **show interface counters** command:

```
L2 In total octets: 792000
In good unicast packets: 12000
In good multicast packets: 0
In good broadcast packets: 0
In packets discarded: 0
In packets with CRC/Alignment error: 0
In undersized packets: 0
In oversized packets: 0
Rx pause packets: 0
L2 Out total octets: 0
Out unicast packets: 0
Out good multicast packets: 0
Out good broadcast packets: 0
Out packets discarded: 0
Tx pause packets: 0
Tx regular collision events: 0
L2 Bandwidth Kbps (Rx + Tx): 0
# of packets received of length (in octets):
64: 0, 65-127: 12000, 128-255: 0,
256-511: 0, 512-1023: 0, 1024-1518: 0,
1519+: 0
```

See Troubleshooting with the User Log, page 8-13 for an explanation of commands related to the user log.

Checking the LEDs

The LEDS on the Cisco SCE 8000-SMC-E front panel, along with the LEDs on the power supplies and fan assembly are the most immediate problem-detection mechanism of the platform. See the following sections for information on Cisco SCE 8000 platform LEDS:

- Table 2-3 on page 2-5
- Examining the LEDs, page 6-16
- Starting the System and Observing Initial Conditions, page 7-3
- Cisco SCE 8000 Operational Status, page 8-5

Cisco SCE 8000 Operational Status

Table 8-2 lists the operational states of the Cisco SCE 8000. The Status LED on the Service Control module reflects the current Cisco SCE 8000 operational status (see Table 8-3 and Table 8-4). Once boot is complete, the operational status can be displayed using CLI command **show system operation-status.**

Table 8-2 Cisco SCE 8000 Operational States

Cisco SCE 8000 Operational Status	Description	Status LED State
Booting	Initial state after reset.	Amber
Operational	Cisco SCE 8000 becomes operational after completing the following process: • Boot is completed. • Power-on self-tests are completed without failure. • Platform configuration is applied.	Steady green

Table 8-2 Cisco SCE 8000 Operational States (continued)

Cisco SCE 8000 Operational Status	Description	Status LED State
Warning	Cisco SCE 8000 is fully operational (as above) but one of the following occurred: • GBE Management port link is down. • Internal temperature above threshold. • Internal voltage not in expected range. • Fan problem. • Power supply problem. • Insufficient space on the disk. **Note** If the condition that caused the Cisco SCE 8000 to be in Warning state is resolved (for example, link is up) the Cisco SCE 8000 reverts to Operational state.	Flashing amber
Failure	System is in Failure state after Boot because of one of the following conditions: • Power-on test failure. • Three abnormal reboots in less than 30 minutes. • Platform configured to enter Failure mode consequent to failure-induced reboot (this is configurable using CLI command). • Severe system health problem, such as extensive overheating or voltage out of correct operating range. **Note** Depending on the cause of failure, the management interface and the platform configuration may or may not be active/available.	Red

Table 8-3 Power Supply LEDs

LED Label	Color	State	Function
INPUT OK	Green	On	Input voltage is present and within the required range.
—	—	Off	Input voltage is not present or not within the required range.
OUTPUT FAIL	Green	On	Output voltage is not within the required range.
—	—	Off	Output voltage is in the required range.
FAN OK	Green	On	Power supply internal fan is operational.
—	—	Off	Power supply internal fan is not operational.
Power (front panel)	Green	Steady	Installed power supplies are functioning normally.

Table 8-3 Power Supply LEDs (continued)

LED Label	Color	State	Function
—	Amber	Steady	One of the power supply units is disconnected or malfunctioning.
—	—	Off	No power.

Table 8-4 Fan Assembly LED

LED Label	Color	State	Function
FAN STATUS	Green	On	All fans are operational.
		Off	One or more of the individual fans are not operational.

Problem Solving Using a Subsystems Approach

This section describes the following topics:

Identifying Startup Problems

Startup problems usually occur because of a source power issue or to a poor cable connection.

When you start up the Cisco SCE 8000 platform for the first time, you should observe the startup sequence described in Starting the Cisco SCE 8000 Platform, page 7-2. This section contains a more detailed description of the normal startup sequence and describes the steps to take if the system does not perform that sequence as expected. LEDs indicate all system states in the startup sequence. By checking the state of the LEDs, you can determine when and where the system failed in the startup sequence. Use the following descriptions to isolate the problem to a subsystem, and then proceed to the appropriate sections to try to resolve the problem.

When you start up the system by turning on the power supply switch, the following should occur:

- You should immediately hear the fans operating.
- If the Status LED is flashing orange, indicating a warning state, check the user log:

  At the prompt, enter **more user log.**

  If any of the following warning messages appear, and the root cause is not obvious and easily solved (such as obstruction of external air-flow), turn the Cisco SCE 8000 platform off and call technical support:

  - Voltage problem
  - Fan problem
  - Abnormal raise in interior temperature

Troubleshooting the Power Subsystem

In the normally configured Cisco SCE 8000 platform with redundant power supply units, it is unlikely that the device will not start at all. At startup, verify that both power supply units are operational. If the Power LED on the front panel remains unlit when the Cisco SCE 8000 platform is powered up, consult Table 8-5 to help isolate a problem in the power subsystem.

Note If the system powers off because of an environmental shutdown, wait at least 1 minute before manually rebooting the system, otherwise it pauses indefinitely.

Table 8-5 Troubleshooting the Power Subsystem

Symptom	Possible Cause	Possible Solution
Power LED on the front panel and LEDs on the power supply unit are not lit, or do not remain lit continuously.	Power cable not fully seated at system.	Turn the power switch to the off position and reseat the power cable in the system.
—	Power cable not fully seated at source.	Turn the switch to the off position and reseat the power cable at the power source.
—	Power source is faulty.	Turn the switch to the off position, connect the power cable to another power source, if available, and turn the switch back on.
—	Faulty power cable.	Turn the switch to the off position, remove the cable and replace it.
—	Faulty power supply.	If the system still fails to come up when the power supply is connected to a different power source with a new power cable, the power supply unit is probably faulty. Contact a service representative.

Troubleshooting the Firmware Package Installation

See Table 8-6 to help isolate a problem in the installation of the firmware package.

Problems related to the installation of the firmware package could be any of the following:

- File not found in the expected location.
- Wrong file type.
- Device to which the file is to be extracted is full.

Table 8-6 Troubleshooting the Firmware Package Installation

Diagnostic Action		
Enter these CLI commands: • **configure** • **boot system** <*filename*>		
Symptom	**Possible Cause**	**Possible Solution**

Table 8-6 Troubleshooting the Firmware Package Installation (continued)

Diagnostic Action		
The following error message is returned: `Error-File <filename> does not exist`	The package file does not exist in the specified location.	Verify the package file location and try again.
The package file is not the correct one for the Cisco SCE 8000.	There is a mismatch between the package file and the platform.	Verify that you have the package file taht is appropriate to your platform type.

Troubleshooting the Management Subsystem

See Table 8-7 to help isolate a problem in the management subsystem.

Problems in the management subsystem could be any of the following:

- Management link is down. (Mng LINK LED not lit--also Status is WARNING)
- Management link is up (Mng LINK LED lit) but does not answer ping
- Telnet connection cannot be established because of link problems (Mng LINK LED not lit)
- Management link is up (Mng LINK LED lit) but Telnet connection cannot be established
- Telnet connection established, but terminates automatically

Note When the management link is down or a Telnet connection cannot be established, you must open a CLI session on a local terminal connected to the CON port. This enables you to solve the problem and then reconnect through the management port

Table 8-7 Troubleshooting the Management Subsystem

Symptom	Diagnostic Action	Possible Cause	Possible Solution
Management link down: `Mng LINK LED not lit`	• CLI command **show interface GigabitEthernet 1/1** • ping to management interface fails	RJ 45 connector is not connected to the platform or to the network.	Reconnect the cable to the GBE port and to network.
—	—	Cable is broken.	Check or replace the cable.
Management link up: • Mng LINK LED is lit • **ping** to management interface fails	CLI commands • **show ip route** • **show ip default-gateway**	One of the following configurations may be wrong: • IP address / subnet mask • IP default gateway	See Initial Setup Parameters, page 5-3. See the "Setting the IP Address and Subnet Mask of the Management Interface" section in the *Cisco SCE8000 10GBE Software Configuration Guide*.

Table 8-7 Troubleshooting the Management Subsystem (continued)

Symptom	Diagnostic Action	Possible Cause	Possible Solution
—	CLI command: **show access-lists**	An ACL that denies entry may be assigned.	See Initial Setup Parameters, page 5-3. See the "Configuring Access Control Lists (ACLs)" section in the *Cisco SCE8000 10GBE Software Configuration Guide*.
• Telnet connection cannot be established • Mng LINK LED is not lit (link is down)	CLI command: **show interface GigabitEthernet 1/1**	Management interface IP address or subnet mask is incorrect.	Check or reconfigure management port IP address and subnet mask.
• Telnet connection cannot be established • Mng LINK LED is lit (link is up)	CLI command: **show telnet status**	Telnet server is disabled.	Enable Telnet server: **service telnetd.**
—	CLI command: **show telnet sessions**	Too many Telnet connections (up to five concurrent sessions are supported via Telnet).	Close one or more of the open Telnet sessions.
—	CLI command: **show ip default-gateway**	Default gateway is incorrect (when the host used as client is not in the same network as the SCE Platform).	Check or reconfigure default gateway. See Initial Setup Parameters, page 5-3. See the "Setting the IP Address and Subnet Mask of the Management Interface" section in the *Cisco SCE8000 10GBE Software Configuration Guide*.
—	CLI command: **show ip route <host-ip-address>**	Routing tables are incorrectly configured (when the host used as client is not in the same network as the SCE Platform, and there is more than one gateway on the SCE Platform network).	Check or reconfigure routing tables. See Initial Setup Parameters, page 5-3. See the "Setting the IP Address and Subnet Mask of the Management Interface" section in the *Cisco SCE8000 10GBE Software Configuration Guide*.

Table 8-7 Troubleshooting the Management Subsystem (continued)

Symptom	Diagnostic Action	Possible Cause	Possible Solution
—	CLI commands: • **show access-lists** • **show ip access-class**	Host is not a member of a valid access list.	See Initial Setup Parameters, page 5-3. See the "Configuring Access Control Lists (ACLs)" section in *Cisco SCE8000 10GBE Software Configuration Guide*.
Telnet connection terminates automatically.	CLI commands: • **show line** • **show line vty timeout**	Telnet connection may be timing out.	Reconfigure line timeout. **timeout <time in seconds>**

Troubleshooting the Link Interface Subsystem

See Table 8-8 to help isolate a problem in the link interface subsystem.

In general, the case where no traffic is coming out of the Cisco SCE 8000 is often caused by link problems or the 10 GBE interface configuration. In some cases, the problem which seems as a transmit problem could be in the Rx (no traffic is being received by the Cisco SCE 8000 or there is actually no traffic on the line, which could be a normal situation).

Note In CLI commands for TenGigabitEthernet interfaces, # stands for the number of the SPA module (Cisco SCE 8000-SIP subslot). This can be 0 through 3.

Problems in the link interface subsystem could be any of the following:

- Link is down. (LINK LED not lit and system status is WARNING)
- Peer does not receive traffic from Cisco SCE 8000. (LINK LED is lit and Tx LED is flashing)
- 10 GBE link is up but not receiving from peer. (LINK LED is lit, but Rx LED is not flashing)

Table 8-8 Troubleshooting the Link Interface Subsystem

Symptom	Diagnostic Action	Possible Cause	Possible Solution
• Link is down. (LINK LED not lit) • Output counters not incrementing.	CLI command: • **show interface TenGigabitEthernet 3/#/0 counters**	Connector is not connected to the platform or to the network.	Reconnect the fiber to the 10 GBE port and to network.
—	—	Fiber is broken or damaged.	Reconnect or replace the fiber to the 10 GBE port.
—	—	Connectivity using external optic bypass is incorrect or problematic.	Reconnect or replace the fiber between the 10 GBE port and the optic bypass module.

Table 8-8 Troubleshooting the Link Interface Subsystem (continued)

Symptom	Diagnostic Action	Possible Cause	Possible Solution
—	Temporarily disconnect optic bypass module and check operation. See the "Cabling the 10 GBE Line Interface Ports" section on page 6-11.	Problem with external optic bypass module.	Replace the optic bypass module.
• 10 GBE link is up. (LINK LED is continuous green) • No traffic received. (10 GBE interface Rx LED is not flashing)	—	No traffic is being transmitted to the Cisco SCE 8000 from its peers.	Check traffic connection at peer.

Downgrading Cisco SCOS Release 4.0.x

While downgrading Cisco SCOS Release 4.0.x to an earlier version, an error message similar to the following is displayed:

```
"Could not allocate 7383087 bytes for Control Application XML data partition"
```

To downgrade Cisco SCOS Release 4.0.x to an earlier version, follow these steps:

Step 1 Copy the Cisco SCOS Release 4.0.x PQI file to the /apps/data/scos/app/ folder:

```
SCE8000#> copy ftp://ftpdefaultdirectory/4.0.x/<filename.pqi> /apps/data/scos/app/
```

Step 2 Uninstall the Cisco SCOS Release 4.0.x PQI file:

```
SCE8000(config if)#> pqi uninstall file <filename.pqi>
```

Step 3 Copy the running configuration to the startup configuration:

```
SCE8000#> copy running-config startup-config
```

Step 4 Install the desired version of Cisco SCOS PKG file from the Cisco SCA BB application.

Step 5 Install the desired version of Cisco SCOS PQI file from the Cisco SCA BB application.

Troubleshooting with the User Log

The user log is an ASCII file that can be viewed in any editor. It contains a record of system events, including startup, shutdown and errors. You can use the Logger to view the user log to determine whether or not the system is functioning properly, as well as for technical support purposes.

This section describes the following topics:

The Logging System

Events are logged to one of two log files. After a file reaches maximum capacity, the events logged in that file are then temporarily archived. New events are then automatically logged to the alternate log file. When the second log file reaches maximum capacity, the system then reverts to logging events to the first log file, thus overwriting the temporarily archived information stored in that file.

Basic operations include:

How to Copy the User Log to an External Source

You can view the log file by copying it to an external source. This command copies both log files to any external host running a FTP server.

From the **SCE>** prompt, enter **logger get user-log file-name** *ftp://username:password@ipaddress/path* and press **Enter**.

How to Copy the User Log to an Internal Location

You can view the log file by copying it to disk. This command copies both log files to the local SCE platform disk.

From the **SCE>** prompt, enter **logger get user-log file-name** *target-filename* and press **Enter**.

How to View the User Log

Note This command is not recommended when the user log is large. Copy a large log to a file to view it (see How to Copy the User Log to an External Source, page 8-13)

From the **SCE>** prompt, enter **more user-log** and press **Enter**.

How to Clear the User Log

You can clear the contents of the user log at any time. The user log contains important information about the functioning of the system. It is recommended that a copy be made before the log is cleared.

Step 1 From the **SCE#** prompt, enter **clear logger device user-file-log** and press **Enter**.

Step 2 The system asks `Are you sure?`

Step 3 Enter **y** and press **Enter**.

How to View the User Log Counters

There are two types of log counters:

- User log counters—Count the number of system events logged from the SCE platform last reboot.
- Nonvolatile counters—These are not cleared during boot time.

From the **SCE>** prompt, enter **show logger device user-file-log counters** and press **Enter**.

How to View the Nonvolatile Counter for the User-file-log

From the **SCE>** prompt, enter **show logger device user-file-log nv-counters** and press **Enter**.

Generating a File for Technical Support

In order for technical support to be most effective, the user should provide them with the information contained in the system logs. Use the **logger get support-file** command to generate a support file for the use of Cisco technical support staff.

Step 1 From the **SCE#** prompt, enter **logger get support-file** *filename* and press **Enter**.

The support information file is created using the specified filename. This operation may take some time.

Step 2 To copy the support file to an external source, from the **SCE#** prompt, enter **copy** *filename ftp://username:password@ipaddress/path* and press **Enter**.