Troubleshooting

This appendix provides general troubleshooting information for the CSS components. It includes the following sections:

Information in this appendix applies to the CSS 11501, CSS 11503, and CSS 11506, except where noted.

Troubleshooting the Boot Process

There are three phases in the boot process during which the CSS runs diagnostic tests on the hardware and checks the boot configuration. With the CSS 11501, the internal motherboard boots all components in the chassis and verifies that they are properly functioning. With the CSS 11503 and CSS 11506, the SCM boots each module in the chassis and verifies that the module is functioning properly. During any of these phases, the CSS reports problems through error messages.

The following sections provide information on:

- Diagnostic Tests for Hardware
- OffDM Verification of the Boot Configuration Record and Disk
- CSS 11501 Boot and Verification
- SCM Boot and Verification of the Modules

For information about the boot process, refer to Chapter 3, Booting and Configuring the CSS.

Diagnostic Tests for Hardware

At the beginning of the boot process, the CSS performs diagnostic tests on the hardware. When the CSS powers up, it displays the following messages (shown for the CSS 11503 and CSS 11506).

```
BootRom...booting
Copyright 1998 (c), Cisco Systems, Inc.

Locked boot flash.
Validating operational boot flash, please wait...
Operational boot flash valid. Jumping to operational boot flash.
Copyright 1998 (c), Cisco Systems, Inc.

Operational boot flash.
Attaching interrupt handlers...Done.
Master SCM.
Built Jun 22 2001 @ 15:14:20
Version x.xx Build xx
```

Then the hardware goes through a series of power-on self-tests on the CSS 11501 components or on the CSS 11503 or CSS 11506 modules, chassis, and backplane. The asterisks that appear indicate the completion of each test.

```
Press <ESC> to enter the Diagnostic Monitor
* * * * * * * * * * * * * *...
Ran  1 times, x tests. Detected 0 errors.
```

If an error occurs during a test, the console displays an error message, increments the detected error counter, and continues to the next test until it completes all of the power-on self tests. The error messages appear in the following format:

```
>>>>>>>>FAILURE_START
>
>From: Slot Slot_number, CPU Cpu_number
>Level: Failure_level
>Type: Failure_type
>Major Error ID: Maj_Error_id
>Minor Error ID: Min_Error_id
>Test Ref #: Test_reference
>Test: 'Test_name'
>Details:
>
>Failure_details
>
>>>>>>>>>FAILURE_END
```

Table C-1 lists the fields in the error message and describes their meanings.

Table C-1 Fields in the Diagnostic Monitor Error Message

Field	Description
Slot_number	Indicates the slot number reporting the error.
Cpu_number	Indicates the CPU number reporting the error. This field is 1 for boards with a single MIPS CPU.
Failure_level	There are three types of failure levels: • **Board** - The CSS 11501 motherboard or a specific module in the CSS 11503 or CSS 11506. If the CSS completes the boot process, but a component or module has failed, the CSS also generates a boot log message. • **Backplane** - An EEPROM failure is a catastrophic failure. Obtain technical assistance. • **Chassis** - A fan failure has occurred. After the boot process has completed, a log message appears with information on which fan has failed. For information on troubleshooting a fan failure, see "Troubleshooting the CSS Fans" later in this appendix.

Table C-1 Fields in the Diagnostic Monitor Error Message (continued)

Field	Description
Failure_type	Indicates one of four types of failure, Hardware/Fatal, Hardware/Non-Fatal, Software/Fatal, and Software/Non-Fatal. • Fatal errors indicate that a CSS 11501 component or a specific module in the CSS 11503 or CSS 11506 cannot perform its intended function reliably. • Non-Fatal errors indicate that a CSS 11501 component or a specific module in the CSS 11503 or CSS 11506 is capable of performing its intended function despite the errors, but you should repair the problem as soon as possible. In the case of fatal and non-fatal errors with the CSS 11501, obtain technical assistance. In the case of fatal and non-fatal errors with the CSS 11503 or CSS 11506: 1. When the CSS completes the boot process, power down the CSS. 2. Reseat the failed module. 3. Power up the CSS. If reseating the module does not correct its failure, obtain technical assistance.
Maj_Error_id	Indicates the single reference number that points to a particular sub-function in the CSS 11501 chassis or a specific module in the CSS 11503 or CSS 11506.
Min_Error_id	Indicates the sub reference number that points to a particular verification step within the sub-function.
Test_reference	Indicates the test number associated with a particular test.

Table C-1 Fields in the Diagnostic Monitor Error Message (continued)

Field	Description

Test_name	Provides the name of the test reporting the error; for example:
	`Uart Interrupt Test`
	`PHY Reset Test`

Failure_details	Provides information about the error; for example: `PHY Reset Register failed to clear. Addr: 0x12345678 Expected: 0x0 Actual:0xf`

After the CSS performs the diagnostics, it boots the Offline Diagnostic Monitor (OffDM) as indicated by the following message:

```
Booting OffDm @ 0xbfd70000
```

See the following section for the OffDM verification of the boot configuration record and disk drive.

If the Booting OffDm message does not appear, a CSS 11501 component failure or an SCM failure may have occurred; such a failure would not allow a software download to start.

If this problem occurs for a CSS 11501, obtain technical assistance.

If this problem occurs for a CSS 11503 or CSS 11506:

1. Power down the CSS.
2. Reseat the SCM.
3. Power up the CSS.

   If reseating the module does not correct its failure, obtain technical assistance.

OffDM Verification of the Boot Configuration Record and Disk

During OffDM, the CSS checks the configuration record and initializes the disk. The following sections discuss:

- Errors in the Boot Configuration Record
- Failure of the Disk Drive in the SCM

Errors in the Boot Configuration Record

If the CSS detects any errors in the configuration record, a failed message appears along with information on the configuration parameter in question. The problems may include a misconfigured IP and subnet address, or there is no primary or secondary boot record. The CSS does not continue the boot process until the problem is resolved.

If a failed message occurs:

1. Enter the OffDM menu and display your current configuration record. For detailed information on using OffDM, refer to the *Cisco Content Services Switch Administration Guide*.
2. Correct the misconfiguration.
3. Reboot the CSS.

Note If a MAC address error occurs, obtain technical assistance.

Failure of the Disk Drive in the SCM

After the CSS confirms a valid configuration record, it initializes the disk in slot 0 in the CSS 11501 chassis or on the SCM in the CSS 11503 or CSS 11506. If the disk cannot initialize, the CSS indicates that it has failed. If this occurs:

1. Enter the OffDM menu. For detailed information on using OffDM, refer to *Cisco Content Services Switch Administration Guide*.
2. Select the disk options from the Advanced Options menu.
3. Perform a check disk on the disk in slot 0 and, if necessary, reformat the disk.
4. Reboot the CSS. If the failure is not resolved, obtain technical assistance.

CSS 11501 Boot and Verification

After the CSS 11501 completes the OffDM boot process, the CSS displays the main banner and starts the Online Diagnostic Monitor (OnDM). During OnDM, the CSS 11501 downloads software to each component and verifies that each component is functioning.

If there is a failure on a component, the CSS 11501 attempts the boot process three times. If the boot is unsuccessful, the CSS generates the following log message and saves it in the boot.log file:

```
CHMGR: Slot slot/subslot had diagnostic failures - NOT STARTING UP
```

If this problem occurs for a CSS 11501, obtain technical assistance.

For information on log files, see "Log File Information".

SCM Boot and Verification of the Modules

After the CSS 11503 or CSS 11506 completes the OffDM boot process, it displays the main banner and starts the Online Diagnostic Monitor (OnDM). During OnDM, the SCM downloads software to each of the modules and boots the modules. Then, the SCM verifies that each module is functioning.

If there is a failure on a module, the SCM attempts to boot the module three times. If the SCM is unsuccessful, the CSS generates the following log message and saves it in the boot.log file:

```
CHMGR: Slot slot/subslot had diagnostic failures - NOT STARTING UP
```

Then the SCM shuts down the slot and no longer recognizes it. If you use the **show chassis** command, the slot does not appear. If a module failure occurs:

1. Power down the CSS.
2. Reseat the module.
3. Power on the CSS.

   If reseating the module does not correct its failure, replace the module.

For additional information on troubleshooting the modules during normal CSS operation, see "Troubleshooting the CSS 11501". For information on log files, see "Log File Information".

Troubleshooting the Console Interface

Table C-2 lists common communications problems that may exist between the CSS and a console. Ensure the console settings are configured to:

- Baud Rate - 9600
- Data Bits - 8
- Parity - none
- Stop Bits -1
- Flow Control - none

For information on console cable pinouts, refer to Appendix B, Cable Connector Pinouts.

Table C-2 Troubleshooting the Console Interface

Possible Problem	Recommended Action
Nothing appears on the screen.	Ensure that the RS-232 cable is securely connected to the console port.
Characters appear on the screen, but are garbled.	Verify that the CSS and the console settings match with respect to baud rate, data bits, stop bits, and parity.
Abbreviated input is used, but pressing the tab key does not enter the command you want.	Ensure that you enter a sufficient number of characters for the CSS to distinguish between different commands and options.
Random characters are lost.	Set the flow command on the console to XON/XOFF.

Troubleshooting the CSS Power Supply

The following sections discuss:

Troubleshooting the CSS 11501 Power Supply

The CSS 11501 has one power supply as part of its chassis. When you power on the CSS, the indications of a successful power up are that it boots properly and become operational, and displays the following log message:

```
CHMGR: All power supplies are present (1).
```

Note This message is displayed only if the logging level is set to the Info-6 or Debug-7 level.

If you power on the CSS and it does not boot as indicated by the Status LEDs, either:

- There is no power to the power supply. Ensure that the CSS 11501 has power. Check the power switch, power cord, and power source.
- The power supply failed, obtain technical assistance.

Troubleshooting the CSS 11503 Power Supply

The CSS 11503 has one power supply as part of its chassis. When you power on the CSS, the indications of a successful power up are that its modules boot and become operational, and the following log message appears:

```
CHMGR: All power supplies are present (1).
```

Note This message is displayed only if the logging level is set to the Info-6 or Debug-7 level.

If you power on the CSS and its modules do not boot as indicated by their Status LEDs, either:

- There is no power to the power supply. Ensure that the CSS has power. Check the power switch, power cord, and power source.
- The power supply failed. You must replace the CSS chassis.

Troubleshooting the CSS 11506 Power Supply

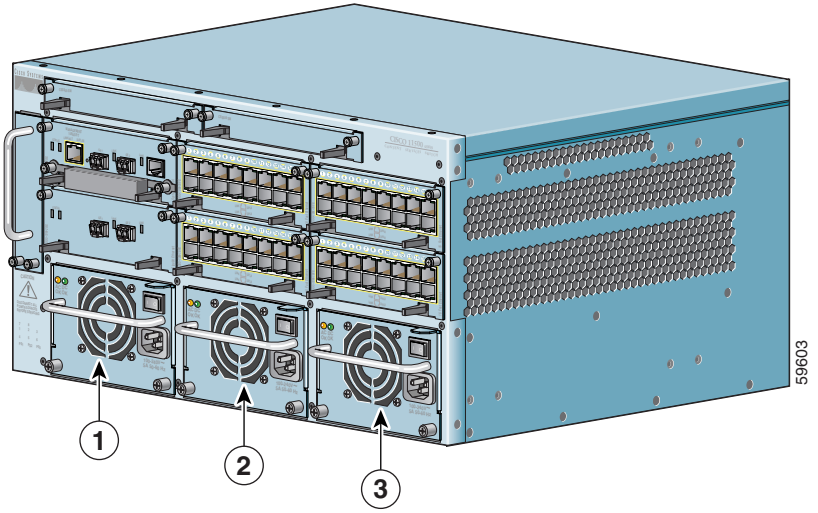
If the CSS 11506 power supplies power on successfully and the CSS completes the boot process, the following message appears:

```
CHMGR: All power supplies are present (3).
```

Note This message is displayed only if the logging level is set to the Info-6 or Debug-7 level.

A CSS 11506 can contain a maximum of three power supplies, but it requires two functioning power supplies to guarantee service. Figure C-1 shows the location of the power supplies.

Figure C-1 Location of the CSS 11506 Power Supplies



1	Power supply 1	**3**	Power supply 3
2	Power supply 2		

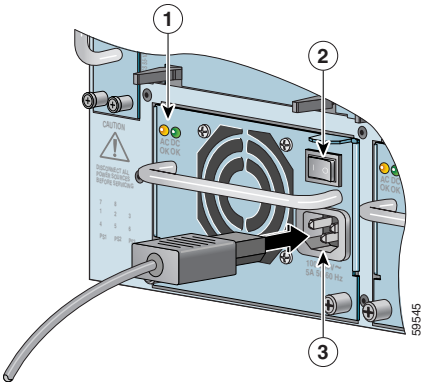
If the CSS 11506 contains less than three power supplies, a power supply is powered off, or a power supply module failed, the CSS displays the following messages:

```
CHMGR: Missing backup power supply.
CHMGR: Cannot locate power supply: PSnumber.
```

The PS*number* variable indicates which power supply cannot be found or has failed.

When this message occurs, view the LEDs on the power supply. Figure C-2 shows the AC power supply LEDs. These LEDs indicate the power status of the supply.

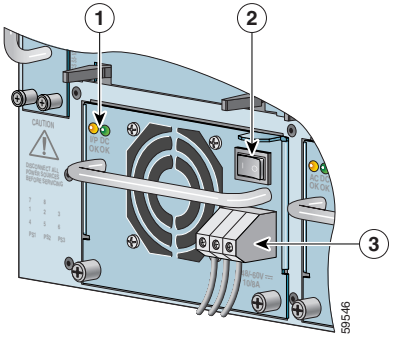
Figure C-2 CSS 11506 AC Power Supply LEDs



1	Power Supply LEDs: AC OK and DC OK	**3**	AC connector
2	Power switch		

Figure C-3 shows the DC power supply LEDs.

Figure C-3 CSS 11506 DC Power Supply LEDs



1	Power Supply LEDs: I/P OK and DC OK	**3**	Terminal block
2	Power switch		

Table C-3 describes these LEDs and provide suggestions for correcting problems.

Table C-3 LEDs of the CSS 11506 Power Supply

LED State			
AC OK or **I/P OK (DC power supply)**	**DC OK**	**Possible Problem**	**Recommended Action**
On	On	There is no problem with the power source and the power supply.	Not applicable.
Off	Off	There is no power to the power supply.	Ensure the supply has power. Check the power switch, power cord, and power source.
On	Off	The power supply failed.	Remove and replace the power supply. Refer to the reference sheet that comes with the replacement supply. After you install the power supply, the CSS automatically brings the power supply into service.

Troubleshooting the CSS Fans

The following sections discuss:

- Troubleshooting the CSS 11501 Chassis Fans
- Troubleshooting the CSS 11503 Chassis Fans
- Troubleshooting the CSS 11506 Fan Module

Troubleshooting the CSS 11501 Chassis Fans

The CSS 11501 has six fans. When the CSS starts up and the fans are operational, the following message appears:

```
CHMGR: All fans are present (6).
```

Note This message is displayed only if the logging level is set to the Info-6 or Debug-7 level.

If a fan fails when the CSS 11501 starts up, or fails during its normal operation, the following message appears:

```
CHMGR: Missing fans. Expected 6. Found number.
```

The *number* variable indicates the total number of functioning fans. If the CSS 11501 starts to overheat, the following message appears:

```
Temperature has reached x celsius for slot number
```

The *x* variable indicates the temperature of the CSS 11501.

When a fan failure occurs, obtain technical assistance.

Troubleshooting the CSS 11503 Chassis Fans

The CSS 11503 has four fans, three for cooling the modules and one for the power supply. When the CSS starts up and fans are operational, the following message appears:

```
CHMGR: All fans are present (4).
```

Note This message is displayed only if the logging level is set to the Info-6 or Debug-7 level.

If a fan fails when the CSS starts up, or fails during its normal operation, the following message appears:

```
CHMGR: Missing fans. Expected 4. Found number.
```

The *number* variable indicates the total number of functioning fans. If the modules start to overheat in the chassis, the following message appears:

```
Temperature has reached x celsius for slot number
```

The *x* variable indicates the temperature of the module. The module in the designated slot *number* is running a temperature that is too high.

If the power supply fan fails, the following message appears:

```
CHMGR: Power Supply Fan Failure.
```

When a fan failure occurs, you must replace the CSS chassis.

Troubleshooting the CSS 11506 Fan Module

The CSS 11506 has three fans in a single fan module. When the CSS starts up and fans are operational, the following message appears:

```
CHMGR: All fans are present (3).
```

Note This message is displayed only if the logging level is set to the Info-6 or Debug-7 level.

If a fan fails when the CSS starts up, or fails during its normal operation, the following message appears:

```
CHMGR: Missing fans. Expected 3. Found number.
```

The *number* variable indicates the total number of functioning fans.

If the modules start to overheat in the chassis, the following message appears:

```
Temperature has reached x celsius for slot number
```

The *x* variable indicates the temperature of the module. The module in the designated slot *number* is running a temperature that is too high.

When a fan failure occurs, you must replace the fan module to prevent the CSS modules from overheating.

Troubleshooting the CSS 11501

CSS 11501 status is indicated by the Status LED on the front panel. For information about the CSS 11501 LEDs, refer to Chapter 2, Cabling the CSS.

Table C-4 provides suggestions for correcting problems that may occur with the CSS 11501.

Table C-4 Troubleshooting the CSS 11501

Symptom	Recommended Action
At boot up, the following message appears: `CHMGR: Slot slot/subslot had diagnostic failures - NOT STARTING UP`	When there is a failure on a CSS 11501 component, the CSS 11501 attempts the boot process three times. If the boot is unsuccessful, the CSS generates a log message and saves it in the boot.log file. Obtain technical assistance. Refer to the "About This Guide". For information on log files, see "Log File Information".
During normal CSS operation, the following message appears: `Temperature has reached x celsius for slot number`	Check the six fans in the chassis. The CSS 11501 is running at a temperature that is too high, as indicated by the *x* variable. When a fan failure occurs, obtain technical assistance.

Table C-4 Troubleshooting the CSS 11501 (continued)

Symptom	Recommended Action
You cannot access log or archive files on the CSS disk but traffic is still passed in and out of the CSS.	Replace the disk containing the files. Remove the disk and install the replacement in the CSS 11501. Refer to the reference sheet that comes with the replacement disk. After you install the disk in the CSS, you must wait 10 seconds before you can reseat or remove it. If the replacement disk does not have the same software version that the CSS is running, the CSS 11501 will not initialize the disk. You must reboot the CSS and configure a primary boot record. You can select the CSS software currently on the disk or instruct the CSS where to locate the CSS software ADI file to install on the disk. If you archived an offline version of your CSS running-config file, copy it back onto the CSS.

Troubleshooting the CSS Modules

CSS 11503 and CSS 11506 module status is indicated by the Status LED on the module front panel. For information about the module LEDs, refer to Chapter 2, Cabling the CSS.

Table C-5 provides suggestions for correcting problems that may occur with the modules in the CSS 11503 and CSS 11506.

Caution Do not remove an active module from the CSS. The module must be in a powered down state as indicated by the **show chassis** command. Before removing an SM, power down the CSS.

Note As implemented in WebNS 5.10 and greater, when a CSS module fails during normal operations, the CSS reboots.

Table C-5 Troubleshooting the CSS Modules

Symptom	Recommended Action
At boot up, the following message appears: `CHMGR: Slot slot/subslot had diagnostic failures - NOT STARTING UP`	1. Power down the CSS. 2. Reseat the module in its slot. 3. Power up the CSS to boot the module. If reseating the module does not correct the failure, replace the module. Refer to the reference sheet that comes with the replacement module.
During normal CSS operation, the following message appears and then, the CSS reboots: `ONDM: LifeTick for Sub-Module in slot/sub-slot - slot/subslot failed, resetting..`	If the module is not functioning, one of its Status LED will be Red and blinking slowly. If it is an FEM, all of its Link and Duplex LEDs will blink synchronously. When the CSS reboots, the Status LED is off. Use the **show chassis** command to verify the state of the module. 1. Replace the module. Refer to the reference sheet that comes with the replacement module. 2. Power up the CSS to boot the module.
During normal CSS operation, the following message appears and then, the CSS reboots: `ONDM: Port C Path Failure %s, turning off Focus-C Port.`	The Switch Module in slot 1 failed. 1. Power down the CSS. 2. Remove and replace the module. Refer to the reference sheet that comes with the replacement module. 3. Reboot the CSS to boot the module.
During normal CSS operation, the following message appears and then, the CSS reboots: `ONDM: Port D Path Failure %s, turning off Focus-D Port.`	The Switch Module in slot 2 failed. 1. Power down the CSS. 2. Remove and replace the module. Refer to the reference sheet that comes with the replacement module. 3. Reboot the CSS to boot the module.

Table C-5 Troubleshooting the CSS Modules (continued)

Symptom	Recommended Action
During normal CSS operation, the following message appears and then, the CSS reboots: `ONDM: Both Port C and Port D Focus Connect paths have failed.`	The Switch Modules in slot 1 and 2 failed. 1. Power down the CSS. 2. Remove and replace the modules. Refer to the reference sheet that comes with the modules. 3. Reboot the CSS to boot the modules.
During normal CSS operation, the following message appears: `Temperature has reached x celsius for slot number`	Check the fans in the chassis. The module in the designated slot *number* is running a temperature that is too high, indicated by the *x* variable. • For a CSS 11503, replace the chassis. • For a CSS 11506, replace the fan module. Refer to the reference sheet that comes with the replacement module.
You cannot access log or archive files on the CSS disk but traffic is still passed in and out of the CSS.	Replace the disk containing the files. Remove the disk and install the replacement in the SCM. Refer to the reference sheet that comes with the replacement disk. After you install the disk in the SCM, you must wait 10 seconds before you can reseat or remove it. If the replacement disk does not have the same software version that the CSS is running, the SCM will not initialize the disk. You must reboot the CSS and configure a primary boot record. You can select the CSS software currently on the disk or instruct the CSS where to locate the CSS software ADI file to install on the disk. If you archived an offline version of your CSS running-config file, copy it back onto the CSS.

Log File Information

The CSS provides logging capabilities for debug and system monitoring by generating the log files described in Table C-6.

Table C-6 CSS Log File Descriptions

Log File	Log File Destination		Records
	Default Location	Alternate Location	
Boot.log	Hard disk and console or flash disk and console	None	Results of the boot process.
Boot.bak	Hard disk and console or flash disk and console	None	Backup of a boot log file. Each time you reboot the CSS, the software renames the current boot log file to boot.log.prev and starts a new boot log file. The CSS overwrites an existing backup boot log file when it renames a boot log file.
Sys.log	Hard disk or flash disk	Console syslogd VTY1 VTY2	Log information for user-defined subsystem or CLI commands. By default, logging is enabled and logs subsystem **all** with level **warning**. The CSS creates sys.log to record this log information.

Table C-6 CSS Log File Descriptions (continued)

Log File	Log File Destination		Records
	Default Location	Alternate Location	
Sys.log.prev	Hard disk or flash disk	Console syslogd VTY1 VTY2	Backup of a system log file. When a system log file reaches its maximum size (50 MB, for a hard disk-based CSS; 10 MB, for a flash disk-based CSS), the software renames the system log file to sys.log.prev and starts a new system log file. The CSS overwrites an existing backup system log file when a system log file is renamed. When you reboot a CSS, the software continues to use the existing system log file until it reaches its maximum size.

By default, the CSS has boot logging and system logging enabled and writes the logged information to the log files on the hard disk or flash disk, depending on the type of storage in your CSS. Log file information is recorded as ASCII text.

Note If the CSS disk fails, log and archive information cannot be saved to files on the disk.

For information on:

- Configuring logging functions and log messages, refer to the *Cisco Content Services Switch Administration Guide*
- Using syslogd, refer to your syslogd daemon reference guide