



Troubleshooting the Boot Process

There are three phases in the boot process during which the Cisco 11500 series CSS runs power-on self tests on the hardware and checks the boot configuration. During any of these phases, the CSS reports problems through error messages.

- With the CSS 11501, the internal motherboard boots all components in the chassis and verifies that each component is 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.

This appendix contains the following major sections:

- [Diagnostic Tests for Hardware and Error Messages](#)
- [Offline DM Verification of the Boot Configuration Record and Disk](#)
- [CSS 11501 Boot and Verification](#)
- [CSS 11503 and CSS 11506 Boot and Module Verification](#)

If the suggestions in this appendix do not help to resolve your booting problem, contact the Cisco Technical Assistance Center (TAC).

For details about powering on and booting the CSS, including the various bootstates and the Status LEDs, refer to [Chapter 1, Booting, Logging In, and Getting Started](#).

Diagnostic Tests for Hardware and Error Messages

At the beginning of the boot process, the Cisco 11500 series CSS performs diagnostic tests on the hardware. When the CSS powers up, it first displays a series of messages (see the [Chapter 1, Booting, Logging In, and Getting Started](#)) and then the hardware goes through a series of power-on self tests.

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 the CSS 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. This information may be useful when in contact with TAC about a specific error message.

Table C-1 *Fields in the Diagnostic Monitor Error Message*

Field	Description
<i>Slot_number</i>	The slot number reporting the error.
<i>Cpu_number</i>	The CPU number reporting the error. This field is 1 for boards with a single MIPS CPU.
<i>Failure_level</i>	There are three types of failure levels: <ul style="list-style-type: none">• 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. Contact TAC for 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 the <i>Cisco 11500 Series Content Services Switch Hardware Installation Guide</i>.

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

Field	Description
<i>Failure_type</i>	<p>One of four types of failure, Hardware/Fatal, Hardware/Non-Fatal, Software/Fatal, and Software/Non-Fatal.</p> <ul style="list-style-type: none"> • Fatal errors indicate that a CSS 11501 component or a specific module in the CSS 11503 or CSS 11506 cannot perform its intended function. • 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. <p>In the case of fatal and non-fatal errors with the CSS 11501, contact TAC for technical assistance.</p> <p>In the case of fatal and non-fatal errors with the CSS 11503 or CSS 11506:</p> <ol style="list-style-type: none"> 1. Power down the CSS when the CSS completes the boot process. 2. Reseat the failed module. 3. Power up the CSS. <p>If reseating the module does not correct the failure, contact TAC for technical assistance.</p>
<i>Maj_Error_id</i>	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.
<i>Min_Error_id</i>	The sub-reference number that points to a particular verification step within the sub-function.
<i>Test_reference</i>	The test number associated with a particular test.

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

Field	Description
<i>Test_name</i>	Provides the name of the test reporting the error. For example: Uart Interrupt Test PHY Reset Test
<i>Failure_details</i>	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 DM as indicated by the following message:

```
Booting OffDm @ 0xbfd70000
```

See the [“Offline DM Verification of the Boot Configuration Record and Disk”](#) section for the Offline DM 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, contact Cisco Technical Assistance Center (TAC) for 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 the failure, contact TAC for technical assistance.

Offline DM Verification of the Boot Configuration Record and Disk

During the Offline DM verification phase, the CSS checks the configuration record and initializes the disk. 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 Offline DM menu and display your current configuration record. Refer to [Appendix B, Using the Offline Diagnostic Monitor Menu](#) for detailed information on using Offline DM.
2. Reconfigure the CSS boot record configuration.
3. Reboot the CSS.

**Note**

If a MAC address error occurs, contact TAC for technical assistance.

After the CSS confirms a valid configuration record, it initializes the disk in slot 0. If the disk cannot initialize, the CSS indicates that it has failed. If an initialization problem occurs:

1. Enter the Offline DM menu.
2. Select the option **3** from the Disk Options menu.
3. Perform a check disk on the disk in slot 0. If necessary, reformat the disk.
4. Reboot the CSS. If the failure is not resolved, contact TAC for technical assistance.

CSS 11501 Boot and Verification

After the CSS 11501 completes the Offline DM boot process, the CSS displays the login 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 component failure, the CSS 11501 attempts the boot process three times. If the boot is unsuccessful, the CSS generates the following log message and saves the message in the boot.log file:

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

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

CSS 11503 and CSS 11506 Boot and Module Verification

After the CSS 11503 or CSS 11506 completes the Offline DM boot process, the CSS 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. The SCM verifies that each module is functioning.

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

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

The SCM disables 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 the failure, replace the module.

For additional information on troubleshooting the modules during normal CSS operation, see the *Cisco 11500 Series Content Services Switch Hardware Installation Guide*.

