



Cisco Content Services Switch Getting Started Guide

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Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

Text Part Number: 78-11766-01

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Content Services Switch Getting Started Guide

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About This Guide

This guide is intended to help you quickly get your CSS 11050, CSS 11150, and CSS 11800 content services switches (hereinafter referred to as the CSS) installed and into operation. It provides you with instructions for installing, cabling, booting, and configuring the CSS. Information in this guide applies to all CSSs except where noted.

Audience

This guide is intended for the following trained and qualified service personnel who are responsible for installing and operating the CSS:

- System installer
- Hardware technician
- System operator

How to Use This Guide

This section describes the chapters and contents in this guide.

Chapter	Description
Chapter 1, Unpacking and Installing the CSS	This chapter provides instructions for unpacking and installing the CSS.
Chapter 2, Cabling the CSS	This chapter provides instructions for cabling the CSS and the CSS 11800 modules, and describes the CSS LEDs and connectors.
Chapter 3, Booting the CSS	This chapter provides information on the boot directory and structure, instructions for connecting the console, powering the CSS, booting the CSS (for the first time and on a routine basis).
Chapter 4, Configuring the CSS	This chapter describes how to configure the CSS using the configuration script.
Appendix A, Specifications	This appendix provides specifications for the CSS and components.
Appendix B, Cable Pinouts	This appendix provides pinouts for each connector on the CSS.
Appendix C, Troubleshooting	This appendix provides troubleshooting information for the CSS, modules, power supply, and boot process.
Appendix D, Regulatory Information	This appendix provides information on regulatory compliance.

Related Documentation

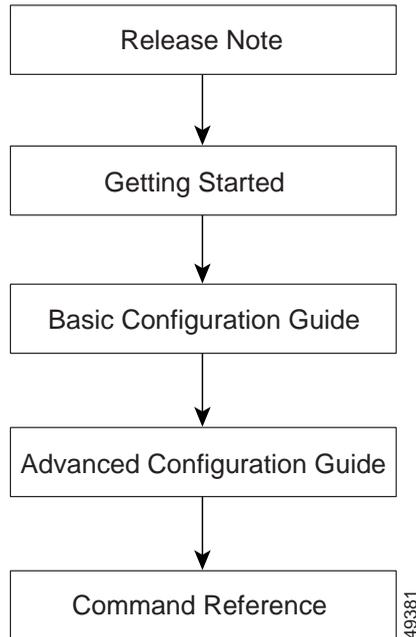
In addition to this document, the Content Services Switch documentation set includes the following:

Document Title	Description
<i>Content Services Switch Release Note</i>	The release note provides information not in the previous guides and reference.
<i>Content Services Switch Basic Configuration Guide</i>	This guide describes how to perform a basic CSS configuration including logging into the CSS, upgrading your CSS software, and configuring: <ul style="list-style-type: none">• The CSS for operation• User profile and CSS parameters• DNS, ARP, RIP, IP, and bridging features• Management ports, interfaces, and circuits• Services• Owners• Content rules

Document Title	Description
<i>Content Services Switch Advanced Configuration Guide</i>	<p>This guide describes how to configure advanced CSS features, including</p> <ul style="list-style-type: none"> • Sticky parameters • HTTP header load balancing • Source groups, ArrowPoint Control Lists (ACLS), Extension Qualifier Lists (EQLs), Uniform Resource Locator Qualifier Lists (URQLs), Network Qualifier Lists (NQLs), and Domain Qualifier Lists (DQLs) • VIP and CSS redundancy • Content Smart Caching • Domain Name Service (DNS) • Demand-Based Content Replication and content staging and replication • Firewall Load Balancing • SNMP and RMON • OSPF routing protocol • Network proximity
<i>Content Services Switch Command Reference</i>	<p>This guide provides an alphabetical list of all CSS Command Line Interface commands including syntax, options, and related commands.</p>

Documentation Map

This section provides a map for using the CSS documentation set.



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Symbols and Conventions

This guide uses the following symbols and conventions to emphasize certain information.



Caution

A caution means that a specific action you take could cause a loss of data or adversely impact use of the equipment.



Warning

A warning describes an action that could cause you physical harm or damage the equipment.



Note

A note provides important related information, reminders, and recommendations.

Bold text indicates a command in a paragraph.

Courier text indicates text that appears in a command line, including the CLI prompt.

Courier bold text indicates commands and text you enter in a command line.

Italics text indicates the first occurrence of a new term, book title, and emphasized text.

1. A numbered list indicates that the order of the list items is important.
 - a. An alphabetical list indicates that the order of the secondary list items is important.
- A bulleted list indicates that the order of the list topics is unimportant.
 - An indented list indicates that the order of the list subtopics is unimportant.



Unpacking and Installing the CSS

This chapter describes how to unpack and install the CSS 11050, CSS 11150, and CSS 11800 content services switches (hereinafter referred to as the CSS) as free-standing or rack-mount units.

This chapter contains the following sections:

- Site Requirements
- Shipment Contents
- Unpacking the CSS
- If the Product is Damaged
- Installing the CSS 11050 or CSS 11150
- Installing the CSS 11800
- Installing a CSS 11800 Module



Note

For information on installing a replacement or accessory item in the CSS 11800 (such as a redundant AC or DC power supply, or fan unit) consult the reference sheet included with the item.

Site Requirements

Before you select an installation site for the CSS, read the electrical, environmental, and physical requirements as described in Appendix A, Specifications. If you are installing a DC unit (CSS 11150 or CSS 11800 only), ensure that you read and follow the DC power supply safety warnings in Appendix A, Specifications.

Required Tools and Equipment

To install the CSS hardware, you need the following tools and equipment:

- A Phillips and a flat-head screwdriver
- Anti-static wrist strap (included in the CSS 11800 Accessory kit)
- Hand lift (recommended) for lifting the CSS 11800 chassis into the equipment rack

Once you complete the installation, you need a console terminal (or equivalent) that runs at 9600 bps to issue console commands (see Chapter 3, Booting the CSS).

Shipment Contents

The CSS 11050, CSS 11150, and CSS 11800 shipment contains the following items except where noted:

- Content Services Switch
- Anti-static wrist strap (CSS 11800 only)
- Four rubber feet (CSS 11050 and CSS 11150)
- Mounting brackets and hardware (CSS 11050 and CSS 11150)
- Console cable kit:
 - RS-232 shielded modem cable
 - RJ-45 to female 25-pin sub-d connector
 - RJ-45 to female 9-pin sub-d connector

- Software License Key (located on a card in an envelope in the Accessory kit)

**Note**

If you cannot find the software license key, call the Cisco Technical Assistance Center (TAC) toll free, 24 hours a day, 7 days a week at 1-800-553-2447 or 1-408-526-7209. You can also email TAC at tac@cisco.com.

- Content Services Switch Documentation:
 - Release Note
 - Getting Started Guide
- Content Services Switch (CSS 11050, CSS 11150, or CSS 11800) and System Software compact disk containing:
 - Release Note
 - Getting Started Guide
 - Basic Configuration Guide
 - Advanced Configuration Guide
 - Command Reference
 - ArrowPoint Distribution Image (this system software is preinstalled on the CSS)
 - System software ZIP file for network boot
 - MIBs
 - Adobe Acrobat Reader
 - Read Me First file providing information about the use of the software and MIBs

Unpacking the CSS

The CSS is shipped in a protective shipping carton. The CSS 11050 and CSS 11150 are shipped as a self-contained chassis; no modules or components can be added or removed. The CSS 11800 is shipped with the power supply, fan unit, SCM, and SFM preinstalled. You must install all separately ordered items (for example, I/O modules or a redundant AC or DC power supply) into the CSS 11800.

This section describes:

- Unpacking the CSS 11050 or CSS 11150
- Unpacking the CSS 11800

Unpacking the CSS 11050 or CSS 11150

To unpack the CSS 11050 or CSS 11150:

1. Remove the CSS and all accessories from the shipping carton.
2. Check the configuration of the CSS and the accessories against the items listed on the packing slip. Report any discrepancies as described in “If the Product is Damaged” in this chapter.
3. To install the CSS 11050 or CSS 11150, go to “Installing the CSS 11050 or CSS 11150”.

Unpacking the CSS 11800

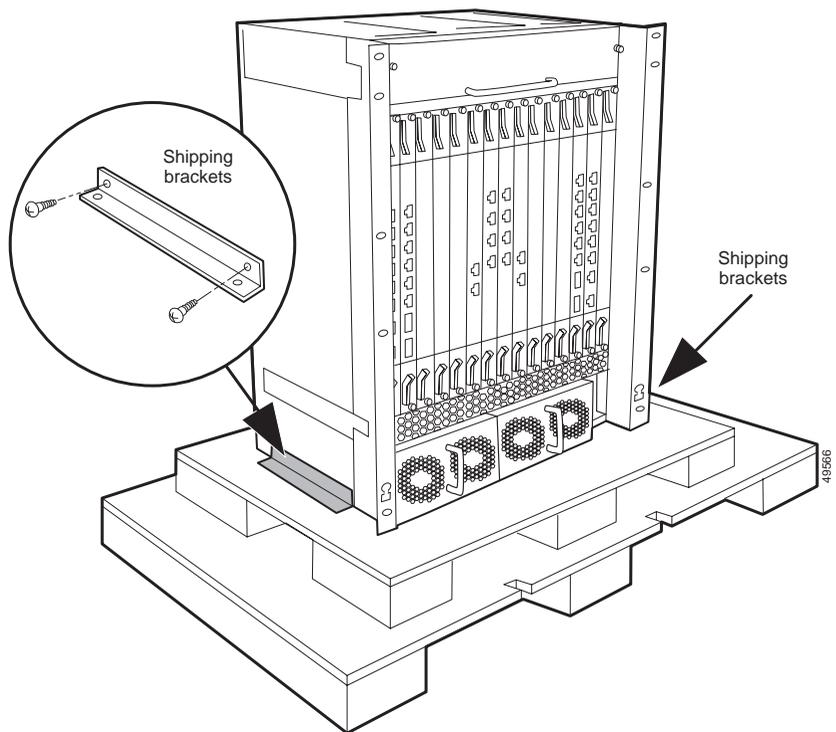
The CSS 11800 is shipped attached to a wooden pallet with screws and shipping brackets. Due to the large size and weight of a unit, move it to the installation site before unpacking it from the shipping carton.

To unpack the CSS 11800:

1. Remove all enclosed packing materials. Save the packing materials in case you need to repack the CSS later.
2. Remove the accessories from the shipping carton.

3. Check the configuration of the CSS and the accessories against the packing slip. Report any discrepancies as described in “If the Product is Damaged” in this chapter.
4. Using a Phillips screwdriver, remove the screws from the shipping brackets on the pallet. Figure 1-1 shows the CSS 11800 attached to the wooden pallet.
5. Carefully remove the CSS from the pallet.

Figure 1-1 CSS 11800 Shipping Pallet



6. To install the CSS, go to “Installing the CSS 11800”.

If the Product is Damaged

If any portion of the unit or component is damaged in transit, forward an immediate request to the delivering carrier to perform an inspection of the product and to prepare a damage report. Save the container and all packing materials until the contents are verified.

Concurrently, report the nature and extent of the damage to Customer Service. Report the problem or deficiency to Customer Service along with the model number and serial number. Upon receipt of this information, you will be provided with service instructions, or a Return Material Authorization (RMA) Number and shipping information.

Installing the CSS 11050 or CSS 11150

The CSS 11050 or CSS 11150 can be placed on a flat surface as a free-standing unit or rack-mounted in an equipment cabinet. The following sections describe the steps to install the CSS as a:

- Free-standing unit
- Rack-mounted unit

Prior to installing the CSS, observe the following installation requirements:

- The ambient operating temperature is 32° to 104° F (0 to 40° C).

If you install the CSS in a closed or multi-unit rack, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Ensure that the temperature does not exceed the CSS maximum ambient operating temperature.

- The minimum clearance requirement is 2 inches (10 cm) of air flow space on both sides of the chassis.
- Ensure that the CSS is reliably grounded to earth. We recommend that you do not use power strips or extension cords to connect the CSS to the power source.

**Caution**

Do not remove the CSS 11050 or CSS 11150 cover. There are electrical shock hazards present in the unit if the cover is removed. There are no serviceable or installable components available with the CSS 11050 and CSS 11150 CSS.

**Note**

Removing the CSS 11050 or CSS 11150 cover voids its warranty.

Installing the CSS 11050 or CSS 11150 as a Free-Standing Unit

Position the CSS 11050 or CSS 11150 on the selected flat surface. When installing the CSS, note that all cables connect to the front of the unit with the exception of the cable that connects to the Ethernet management port on the rear panel and the power cord.

Rack-Mounting the CSS 11050 or CSS 11150

Before you rack-mount the CSS 11050 or CSS 11150:

- Determine if you want to front-mount or mid-mount the CSS chassis into the cabinet. The difference between front-mount or mid-mount is:
 - Front-mount sets the front edge of the unit even with the front edge of the rack
 - Mid-mounting the CSS sets the front edge of the unit past the front edge of the rack
- Install the mounting brackets on the CSS. The rack position of the CSS determines where you will install the mounting brackets on the CSS chassis. Refer to the following section to install the mounting brackets.

Installing the Mounting Brackets

Before you begin, you will need the mounting brackets and eight screws shipped in the Accessory kit accompanying the CSS 11050 and CSS 11150, and a #2 Phillips screwdriver.

To install the mounting brackets on the CSS chassis:

1. Position the CSS with its front panel facing you. On the left and right side of its chassis, note the screw holes for installing the mounting brackets.
2. Position a bracket on one side of the chassis. Align the bracket with the appropriate screw holes for front- or mid-mounting.

Figure 1-2 illustrates front-mounting the brackets. Figure 1-3 illustrates mid-mounting the brackets.

Figure 1-2 Front-Mounting the Brackets on the CSS 11050 or CSS 11150

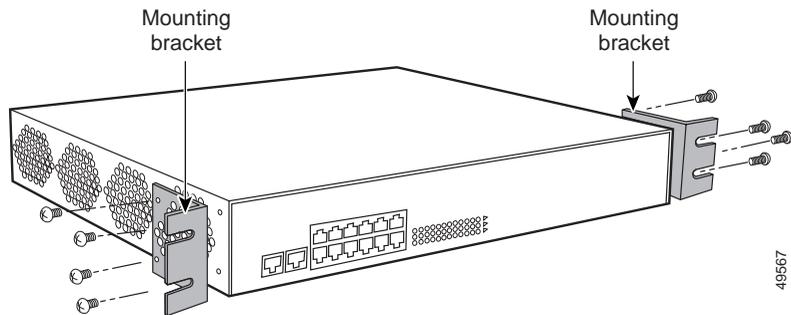
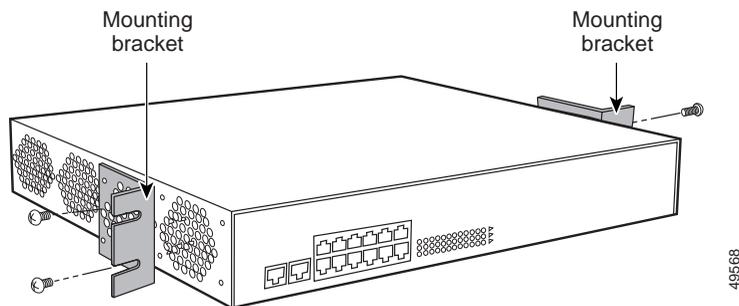


Figure 1-3 Mid-Mounting the Brackets on the CSS 11050 and CSS 11150



3. Secure the bracket to the CSS with four screws.
4. Repeat steps 2 and 3 to install a mounting bracket on the other side of the CSS.

You are ready to install the CSS in the cabinet.

Installing the CSS into the Rack

Before you begin, you will need a #2 Phillips screwdriver and four pan-head screws. To install the CSS 11050 or CSS 11150 into an equipment rack:

1. Raise the CSS to the installation height. Align the screw holes on the mounting bracket with the holes on the equipment rack.
2. Use a #2 Phillips screwdriver and *two* pan-head screws to secure *each* mounting bracket to each side of the rack.

Installing the CSS 11800

The CSS 11800 is a rack-mount unit. When positioning the CSS 11800 for installation, keep in mind that all cables connect to the front of the unit.

Prior to rack-mounting the CSS, observe the following installation requirements:

- The maximum ambient operating temperature for the CSS 11800 is 32° to 104° F (0 to 40° C). When you install the CSS 11800 in a closed or multi-unit rack, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Ensure that the temperature does not exceed the CSS maximum ambient operating temperature.
- Ensure that the CSS 11800 is reliably grounded to earth. Do not use power strips or extension cords to connect the CSS to the power source.

Before you rack-mount the CSS 11800 CSS chassis, determine if you want to front-mount, mid-mount, or extend-mount the chassis in the cabinet:

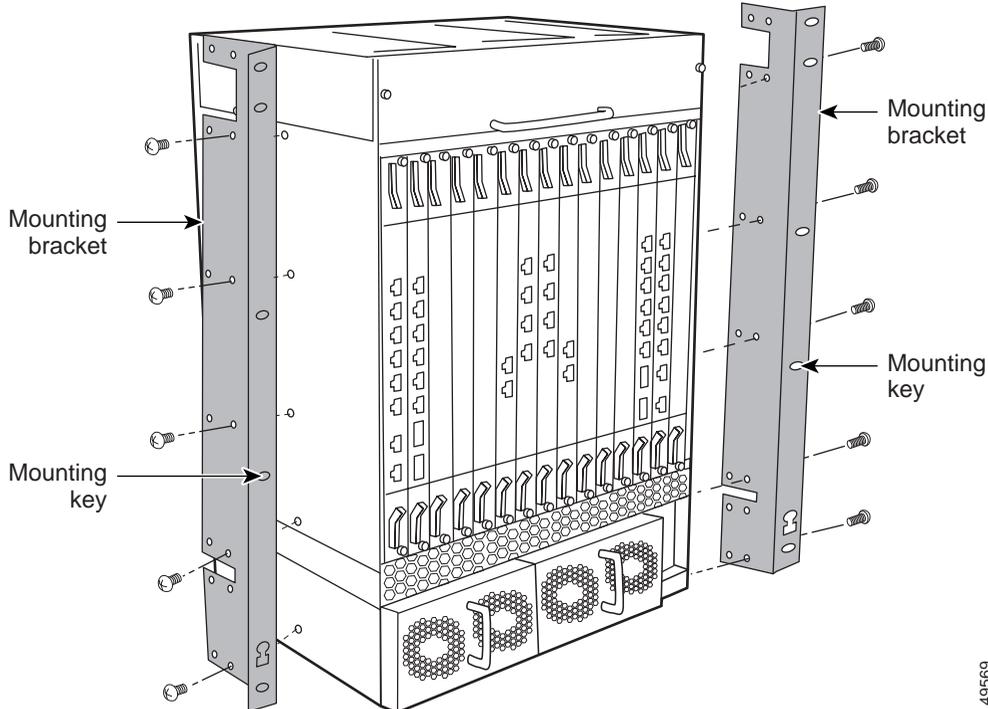
- Front-mount the chassis to set the front edge of the unit even with the front edge of the rack. The brackets are preinstalled in this position on the chassis and are ready for mounting in a rack, as described in “Rack-Mounting the CSS 11800 Chassis”.
- Mid-mount the chassis to set the front edge of the unit in front of the front edge of the rack. To mid-mount the brackets on the chassis, follow the steps in “Mid-Mounting the CSS 11800 Brackets”.
- Extend-mount the chassis to set the front edge of the unit behind the front edge of the rack; allowing the chassis to be installed in an enclosed rack. To extend-mount the brackets on the chassis, follow the steps in “Extend-Mounting the CSS 11800 Brackets”.

Mid-Mounting the CSS 11800 Brackets

To change the location of the mounting brackets on the CSS 11800 chassis from a front-mount position to a mid-mount position (refer to Figure 1-4):

1. Remove the seven front mounting bracket screws from one side of the chassis.
2. Position the mounting bracket onto the middle of one side of the CSS, lining up the front screw holes on the bracket with the holes on the side of the chassis.

Figure 1-4 *Aligning Brackets on the CSS 11800 for Mid-Mounting*



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3. Using a Phillips screwdriver, install only five of the seven #10-32 pan-head screws through the mid-mount bracket holes into the CSS. Do not install the screws in the top of the bracket or second from the bottom of the bracket.

4. Repeat steps 1 through 3 to install the second bracket onto the other side of the chassis.

When the brackets are in position for mounting the chassis in a rack, proceed to the “Rack-Mounting the CSS 11800 Chassis”.

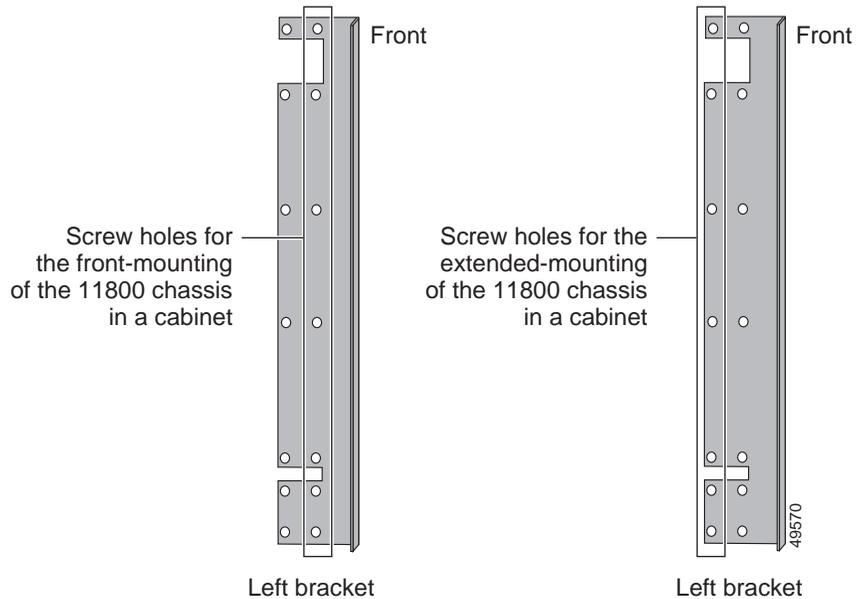
Extend-Mounting the CSS 11800 Brackets

You can extend-mount a CSS 11800 chassis to set the front edge of the unit behind the front edge of the rack to allow the chassis to be installed in an enclosed rack. Before you can extend-mount a chassis, you need to reposition its mounting brackets. Each bracket has two sets of screw holes. The set of holes you use to install the brackets to the chassis determines how the chassis is mounted in a rack:

- The screw holes toward the front of the bracket position each bracket on the CSS 11800 chassis for front mounting in a cabinet; this is the preinstalled position.
- The screw holes behind the first set of holes position each bracket on the CSS 11800 chassis for extended mounting in a cabinet.

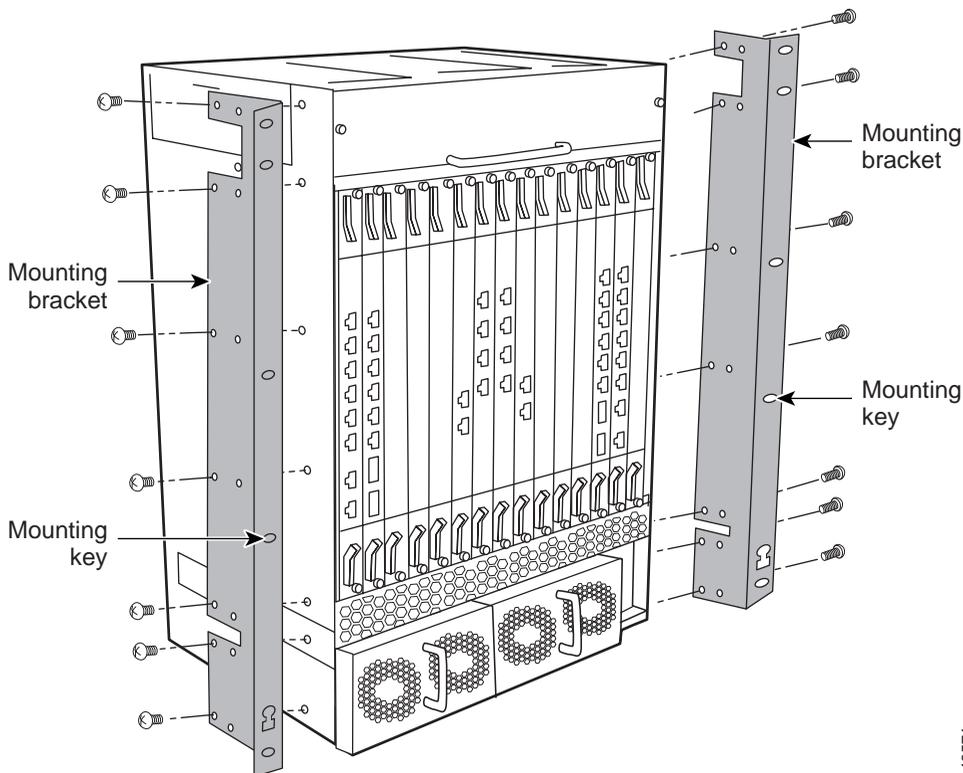
Figure 1-5 illustrates extend-mounting the brackets.

Figure 1-5 *Screw Holes on the CSS 11800 Bracket for Front and Extended Mounting*



To change the location of the mounting brackets on the CSS 11800 chassis from a front-mount position to an extended-mount position:

1. Remove the seven front mounting bracket screws from one side of the chassis.
2. Align the rear screw holes on the bracket with the screw holes on the front side of the chassis. Note the bracket's proper orientation as shown in Figure 1-6.

Figure 1-6 *Aligning Brackets on the CSS 11800 Chassis for Extended Mounting*

3. Using a Phillips screwdriver, install the seven #10-32 pan-head screws through the extended-mount bracket holes into the CSS.
4. Repeat steps 1 through 3 to install the second bracket onto the other side of the chassis.

When the brackets are in position for mounting the chassis in a rack, proceed to “Rack-Mounting the CSS 11800 Chassis”.

Rack-Mounting the CSS 11800 Chassis

Once the mounting brackets are installed, you are ready to install the CSS 11800 chassis.



Warning

The weight and position of the CSS 11800 chassis within the cabinet may make the cabinet top-heavy or unstable. Take all necessary precautions to anchor the cabinet securely before installing the chassis.

To install the CSS 11800 chassis into a cabinet:

1. Locate the mounting keys on the left and right mounting brackets (see Figure 1-4). Mounting keys are designed to fit over pan-head screws installed in the mounting rack to hold the chassis in place while you secure the chassis into the rack.
2. Install a pan-head screw into the left and right sides of the mounting rack. These screws fit into the mounting keys and hold the chassis.
3. Raise the CSS to the appropriate installation height and place the mounting keys over the installed pan-head screws. The CSS is now held in place by the mounting keys so you can install the remaining screws.
4. Align the screw holes on the mounting bracket with the screw holes on the equipment cabinet and install the pan-head screws through the CSS and cabinet brackets. The CSS 11800 requires five pan-head screws for each side of the chassis.

Installing a CSS 11800 Module

This section applies to the CSS 11800 modules only and contains the following sections:

- Installation Precautions and Restrictions
- Unpacking a CSS 11800 Module
- Installing a Module
- Installing a Passive SCM or SFM

Installation Precautions and Restrictions

This section includes background material related to installing a module into the CSS 11800 chassis. It is recommended that you read the topics in this section before installing a module.

Installation Precautions

The CSS 11800 design enables you to install and remove modules without powering down the chassis (*hot swap*). Read and observe the following precautionary information prior to servicing the CSS 11800.



Warning

Do not remove or install modules without using appropriate anti-static guard measures. The CSS includes an anti-static wrist strap in the Accessory kit. Attach the copper tape end of the strap to an unpainted metal surface on the chassis. You can leave the strap connected to the chassis when you are done.



Warning

If you do not power down the CSS 11800, an electrical energy hazard is present within the chassis. Prior to installing or removing components, remove all metallic objects from hands and wrists to prevent bridging of live contact points.

Module Slot Restrictions

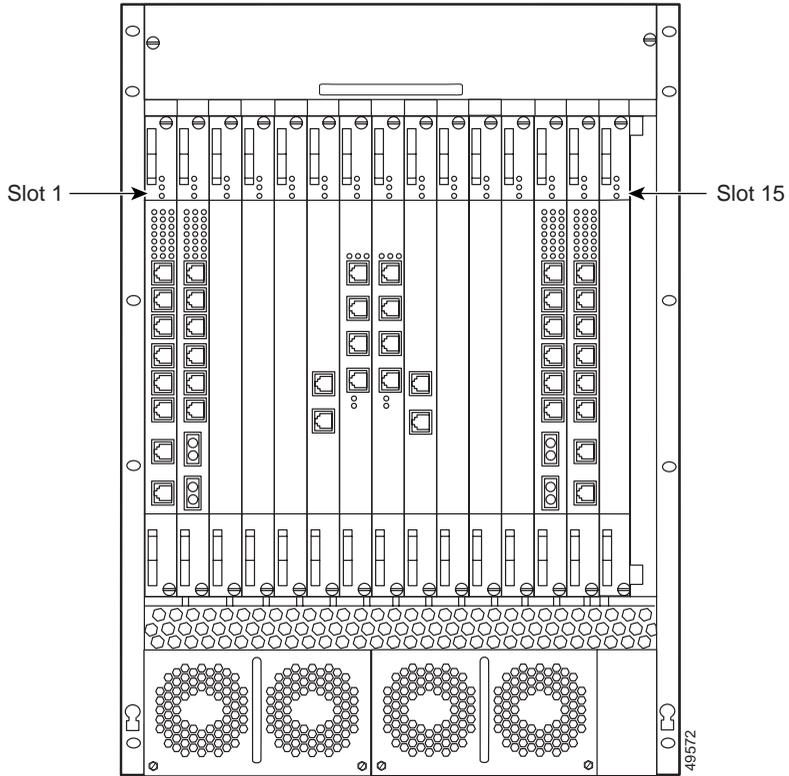
Modules are restricted to specific slots due to bandwidth capabilities. The CSS 11800 chassis backplane is designed for specific modules to reside in their respective slots. For example, you cannot install a SCM in slot 2 because the backplane connector for slot 2 does not accommodate a SCM connector. Prior to installing a module, refer to Table 1-1 for information on chassis slot usage.

Table 1-1 Chassis Slot Usage

Slot Number	Slot Usage	Slot Color Code
1	I/O Module	Blue
2	I/O Module	Blue
3	I/O Module	Blue
4	I/O Module	Blue
5	SFM or SFM2 (passive module)	Purple
6	SFM or SFM2 (active module)	Purple
7	SCM (initial active module)	Red
8	SCM (initial passive module)	Red
9	SFM or SFM2 (active module)	Purple
10	SFM or SFM2 (passive module)	Purple
11	I/O Module	Blue
12	I/O Module	Blue
13	I/O Module	Blue
14	I/O Module	Blue
15	Internal Disk Module (flash or hard disk)	Green

Figure 1-7 illustrates a fully configured CSS 11800.

Figure 1-7 Fully Configured CSS 11800



Hot Swapping a Module



Warning

Do not hot swap an active SCM, SFM, or SFM2 from a CSS. Hot swapping these active modules terminates all communications within the CSS and causes the CSS to reboot.

If you replace an active SCM with a new SCM, the boot configuration reverts back to its default settings. You must reconfigure these parameters through the Offline Diagnostic Monitor menu. For more information on accessing and using this menu, refer to the *Content Services Switch Basic Configuration Guide*, Chapter 1.

You do not need to power down the CSS 11800 chassis to install a module. You can install a module while the chassis is operating. When you install a SFM or SFM2 while the CSS is powered up, the module remains powered off until the next reboot.

When you remove a module and replace it with a module of the *same* type, the SCM automatically downloads the boot image and configuration files for the module. (For information on image and configuration files, refer to Chapter 4, Configuring the CSS.) The newly installed module boots up with:

- The appropriate module image
- The same configuration as the former module

When you remove a module and replace it with a module of a *different* type, the SCM downloads the module boot image automatically. The newly installed module boots up with the appropriate module image.

Unpacking a CSS 11800 Module

To unpack a CSS 11800 module:

1. Verify that the module is the model you ordered by checking the model number listed on the side of the shipping carton
2. Remove the module, in its anti-static bag, from the shipping carton.
3. Put on the anti-static strap provided with your CSS.

4. Remove the module from the anti-static shielding bag and inspect it for damage.

Always hold the module by the faceplate, being careful not to touch the components. If the module appears to be damaged, return it to the anti-static bag, repack it in the shipping carton, and contact your local supplier.

5. For the procedure on installing a module into the CSS 11800 chassis, refer to “Installing a Module”.

Installing a Module

You can install a module while the chassis is operating. You do not need to power down the CSS 11800 chassis to install a module. However, if you install a SFM, you must reboot the chassis to activate it.

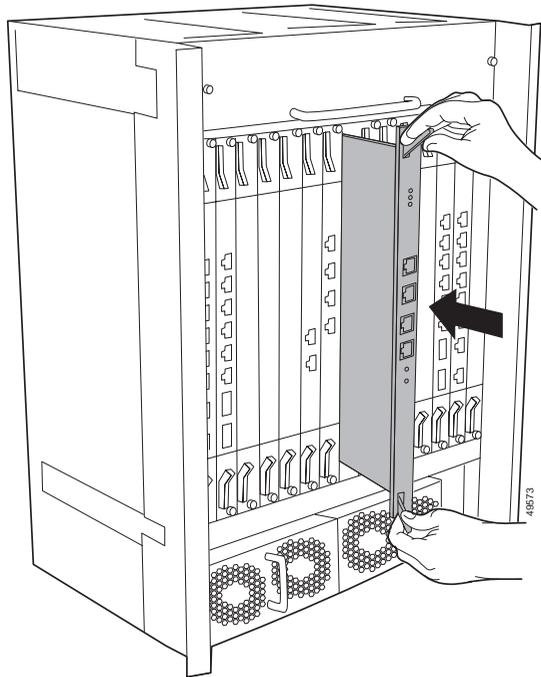


Note

For the procedure on installing a passive SCM or SFM, refer to “Installing a Passive SCM or SFM”. For information on removing and replacing a module, refer to “Hot Swapping a Module”.

To install a module:

1. Properly ground yourself prior to handling the module. For example, wear the anti-static wrist strap (included in the Accessory kit) and stick the copper-tape end of the strap to an unpainted metal surface on the chassis. Make sure that the wrist strap makes good contact with your skin.
2. Locate an open slot in the chassis for the module. Refer to Table 1-1 to identify possible slots for the module. If necessary, remove a blank panel from the chassis to expose a slot for the module.
3. Insert the module into the board guides at the top and bottom of the slot and slide it into the chassis by pressing firmly at the top and bottom of the faceplate as shown in Figure 1-8.

Figure 1-8 *Installing a Module into a CSS 11800 Chassis*

4. Close both ejectors simultaneously to seat the module connector into the backplane.
5. Using a Phillips screwdriver, tighten the spring-loaded screws on the front of the module faceplate. Once you install the module, it begins diagnostics and initializes automatically.
If you installed a SFM or SFM2, you must reboot the chassis to activate it.
6. If you are installing additional GBICs in a Gigabit Ethernet module, position the GBIC with its receive connector above its transmit connector.

Installing a Passive SCM or SFM

You can install a passive SCM or SFMs (which includes SFM2s) in a CSS 11800 chassis. Passive modules are stand-by modules in case of an active module failure. When an active module fails, the passive module becomes active. Passive modules do not load share processing functions with the active module.



Note

The SCM contains a small lithium battery. Some jurisdictions restrict the ways in which items containing lithium batteries may be disposed. In particular, lithium batteries or products containing lithium batteries may never be disposed of in an unregulated fire. Other restrictions might apply. Refer to Appendix A, Specifications for lithium battery safety warnings.



Warning

Ultimate disposal of this product should be handled according to all national laws and regulations.

The CSS 11800 enables you to install a passive:

- SCM for the active SCM
- SFM for each of the two active SFMs (total of four SFMs)



Note

You can mix SFMs with SFM2s in the same CSS 11800 chassis. However, you must use the same type module as the active SFM and as the passive SFM.

To install a passive SCM or SFM:

1. Properly ground yourself prior to handling the module.
2. As defined in Table 1-1:
 - SCMs are restricted to slots 7 or 8
 - Passive SFMs are restricted to slots 5 and 10 (with active SFMs in slots 6 and 9, respectively)
3. If necessary, remove a blank panel from the chassis to expose a slot.

4. Insert the module into the board guides at the top and bottom of the slot and slide it into the chassis by pressing firmly at the top and bottom of the faceplate.
5. Close both ejectors simultaneously to seat the module connector into the backplane.
6. Using a Phillips screwdriver, tighten the spring-loaded screws on the front of the module faceplate.
 - A SCM module begins diagnostics and initializes automatically.
 - To power on the SFM or SFM2, reboot the CSS.
7. To copy the boot configuration from the active SCM to the passive SCM, use the **passive sync** command in boot configuration mode.

Passive Module Switchover

If the active SCM fails:

1. The CSS reboots and connections are terminated.
2. The CSS restores all configurations using the startup-config file.
3. The passive SCM becomes active automatically.

If an active SFM or SFM2 fails:

1. The CSS performs a cold boot and connections are terminated.
2. The CSS restores all configurations using the startup-config file.
3. A passive SFM becomes active automatically.



Note

When the CSS 11800 chassis contains two passive SFMs or SFM2s and an active switchover occurs, both passive SFMs or SFM2s switchover to become active SFMs.



Cabling the CSS

This chapter describes the individual CSS interfaces, how to cable the CSS and its interfaces, how to attach a console for console management, and how to connect the AC or DC power cord. This chapter also describes the CSS LEDs and connectors. The information in this chapter applies to the CSS 11050, CSS 11150, and CSS 11800 except where noted.

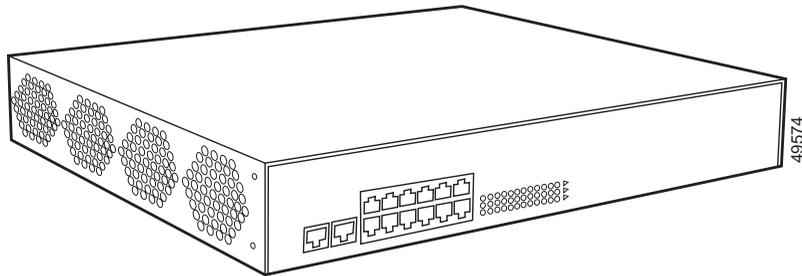
This chapter contains the following sections:

- Cabling the CSS 11050 and CSS 11150
- Cabling the CSS 11800 Modules
- Connecting Power Cords

Cabling the CSS 11050 and CSS 11150

The CSS 11050 and CSS 11150 are fixed configuration devices designed for small Web sites or remote satellite Web sites. Each of these devices provide 5 Gbps of switch bandwidth and integrated LAN ports. They feature all of the networking software capabilities necessary for connecting remote Web sites to the Internet or the home Web site.

Figure 2-1 illustrates a CSS 11151 with 12 auto-sensing 10/100-Mbps Ethernet (10BASE-T/100BASE-TX) interfaces.

Figure 2-1 CSS 11151 Content Services Switch

The CSS 11050 configuration supports:

- 8 auto-sensing 10/100-Mbps Ethernet (10BASE-T/100BASE-TX) interfaces
- Optional integrated Gigabit Ethernet Network Interface Card (GENIC) with one uplink port

The CSS 11150 configuration supports:

- 12 auto-sensing 10/100-Mbps Ethernet (10BASE-T/100BASE-TX) interfaces
- Optional integrated Gigabit Ethernet Network Interface Card (GENIC) with two GBIC ports, in either 4 MB or 8 MB per port versions
- Optional integrated Fast Ethernet Network Interface Card (FENIC) with four SC connectors for uplinks
- Optional integrated Fast Ethernet Network Interface Card (FENIC) with four additional auto-sensing 10/100-Mbps Ethernet (10BASE-T/100BASE-TX) interfaces for a total of 16 interfaces

CSS 11050 and CSS 11150 Rear Panel Connectors and LEDs

The CSS 11050 and CSS 11150 have connectors and LEDs on their front and rear panels. The rear panel has an AC connector (or DC connector on a CSS 11150), an Ethernet management RJ-45 connector, and the associated Ethernet Link/Activity, 10/100 (Mbps), and Duplex (Half or Full) LEDs, as shown in Figure 2-2.

Figure 2-2 CSS 11050 and CSS 11150 Rear Panel Connectors and LEDs

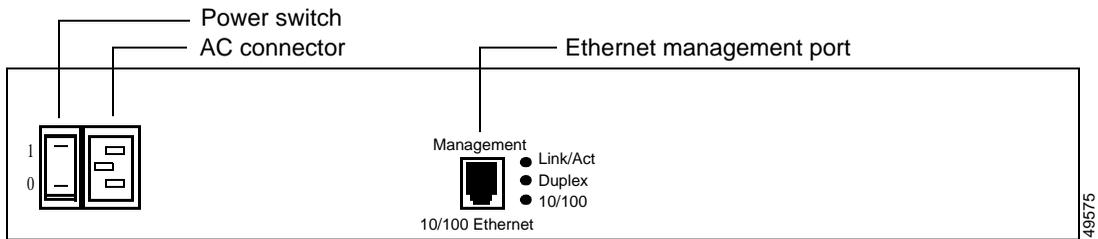


Table 2-1 describes the LEDs on the rear panel.

Table 2-1 CSS 11050 and CSS 11150 Ethernet Management Port LED Descriptions

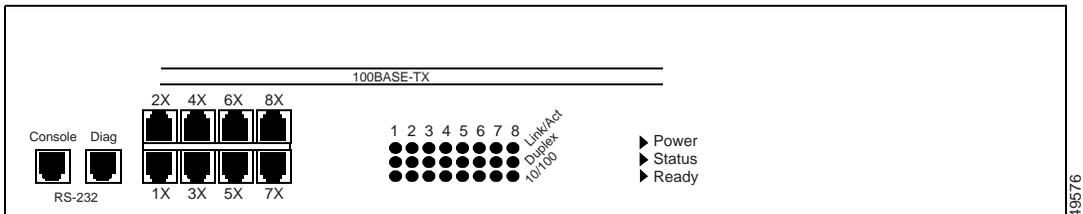
LED Name	Color	State	Indicates
Link/Act	Green	Off	No link established
		On	Link established
		Blinking	Link established and activity
Duplex	Green	Off	Half duplex
		On	Full duplex
10/100	Green	Off	Port is operating at 10 Mbps
		On	Port is operating at 100 Mbps

CSS 11050 Front Panel Connectors and LEDs

All front panels of the CSS 11050 models contain connectors and LEDs that vary according to their model number. For example, the CSS 11051 in Figure 2-3 has:

- 1 RS-232 Console connector (9600 baud)
- 1 RS-232 Diag connector, reserved for field service use only (115,200 baud)
- 8 10/100-Mbps auto-sensing Fast Ethernet connectors and their associated Link/Activity status, 10/100 (Mbps), and Duplex (Half or Full) LEDs
- Power, Status, and Ready LEDs

Figure 2-3 CSS 11051 Front Panel Connectors and LEDs



The CSS 11052, as shown in Figure 2-4, also has one Gigabit Ethernet connection using a Gigabit Interface Converter (GBIC), and associated Transmit, Receive, and Link LEDs. The GBIC complies with Revision 5.1 of the GBIC specification for Class 4 GBICs. The GBIC network interface complies with the IEEE 1000BASE-SX specification for short laser wavelength of 850 nm and use SC-type fiber connectors.

Figure 2-4 CSS 11052 Front Panel Connectors and LEDs

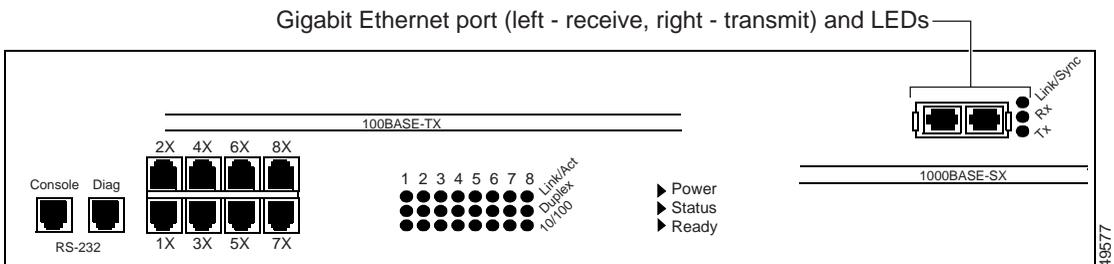


Table 2-2 CSS 11050 Front Panel LED Descriptions

LED Name	Color	State	Indicates
Link/Act (Fast Ethernet ports)	Green	Off	No link established
		On	Link established
		Blinking	Link established and activity
Duplex (Fast Ethernet ports)	Green	Off	Half duplex
		On	Full duplex

Table 2-2 CSS 11050 Front Panel LED Descriptions (continued)

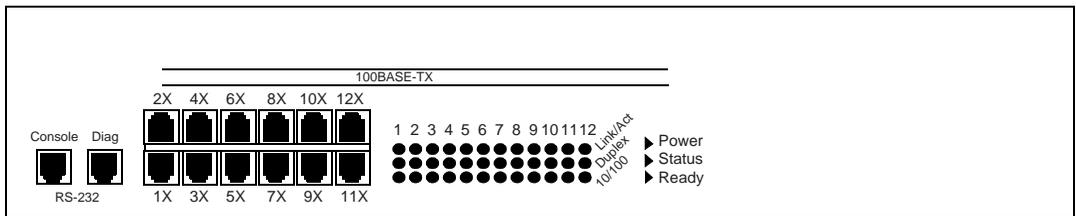
LED Name	Color	State	Indicates
10/100 (Fast Ethernet ports)	Green	Off	Port is operating at 10 Mbps
		On	Port is operating at 100 Mbps
Power	Green	Off	CSS does not have power
		On	CSS has power
Status	Yellow	Off	CSS is operational
		Blinking	CSS detects an error during offline or online testing, or the boot diagnostic failed and the system cannot boot
Ready	Green	Off	CSS is booting
		On	CSS is operational
		Blinking	CSS is accessing the disk
Tx (Transmit) (Gigabit port on the CSS 11052)	Green	Off	No transmit packet activity
		Blinking	Transmit activity detected
Rx (Receive) (Gigabit port on the CSS 11052)	Green	Off	No receive packet activity
		Blinking	Receive activity detected
Link/Sync (Gigabit port on the CSS 11052)	Green	Off	No link
		On	Link exists and synchronization achieved
		Blinking	Link exists but not synchronized

CSS 11150 Front Panel Connectors and LEDs

All front panels of the CSS 11150 models front panels contain connectors and LEDs that vary according to their model number. For example, the CSS 11151 front panel in Figure 2-5 has:

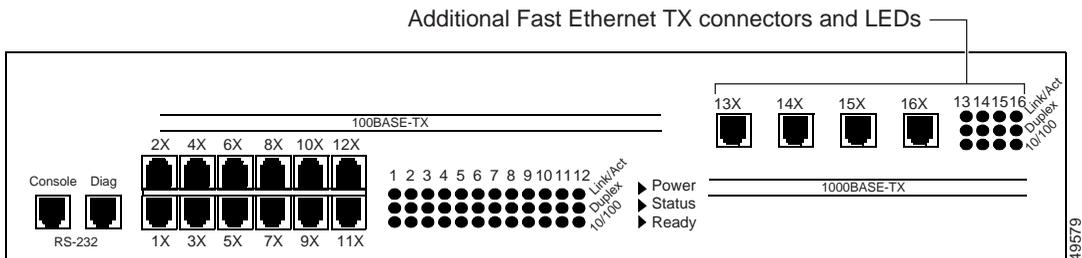
- 1 RS-232 Console connector (9600 baud)
- 1 RS-232 Diag connector, reserved for field service use only (115,200 baud)
- 12 10/100-Mbps auto-sensing Fast Ethernet connectors and their associated Link/Activity status, 10/100 (Mbps), and Duplex (Half or Full) LEDs
- Power, Status, and Ready LEDs

Figure 2-5 CSS 11151 Front Panel Connectors and LEDs



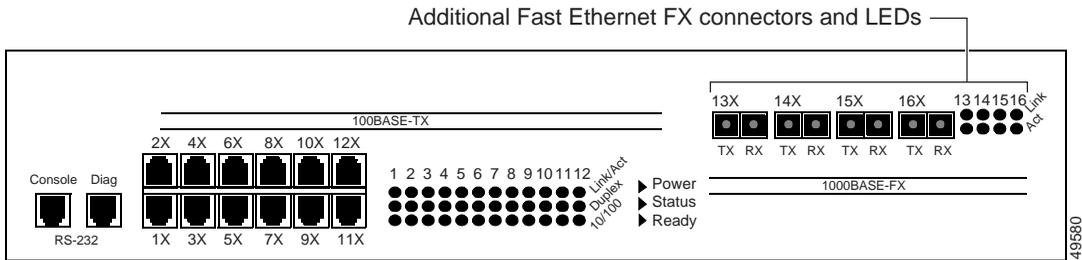
The CSS 11152, as shown in Figure 2-6, has four additional Fast Ethernet TX connectors and their associated Link/Activity status, 10/100 (Mbps), and Duplex (Half or Full) LEDs

Figure 2-6 CSS 11152 Front Panel Connectors and LEDs



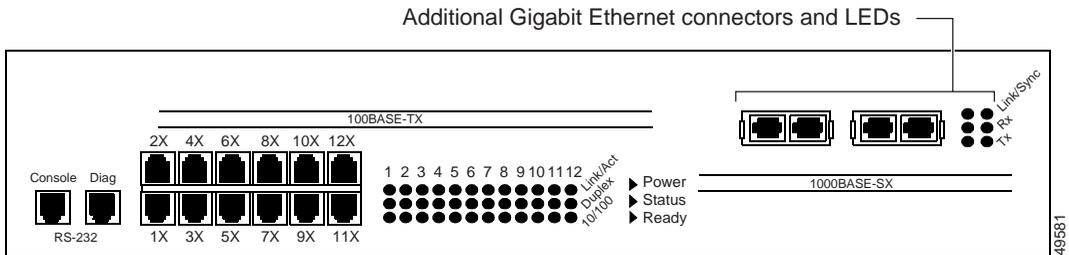
The CSS 11153, as shown in Figure 2-7, has four additional Fast Ethernet 100BASE-FX SC fiber connectors and their associated Link and Activity LEDs

Figure 2-7 CSS 11153 Front Panel Connectors and LEDs



The CSS 11154, as shown in Figure 2-8, has two 1000-Mbps Gigabit Ethernet connections using Gigabit Interface Converters (GBICs) and their associated Transmit, Receive, and Link LEDs. The GBICs comply with Revision 5.1 of the GBIC specification for Class 4 GBICs. The GBIC network interfaces comply with the IEEE 1000BASE-SX specification for short laser wavelength of 850 nm and use SC-type fiber connectors.

Figure 2-8 CSS 11154 Front Panel Connectors and LEDs



**Note**

The CSS 11155 has a similar appearance to the CSS 11154, but its memory size per port is 8 MB instead of 4 MB.

Table 2-3 describes the LEDs on the CSS 11150.

Table 2-3 CSS 11150 Front Panel LED Descriptions

LED Name	Color	State	Indicates
Link/Act (Fast Ethernet TX ports)	Green	Off	No link established
		On	Link established
		Blinking	Link established and activity
Duplex (Fast Ethernet TX ports)	Green	Off	Half duplex
		On	Full duplex
10/100 (Fast Ethernet TX ports)	Green	Off	Port is operating at 10 Mbps
		On	Port is operating at 100 Mbps
Power	Green	Off	CSS does not have power
		On	CSS has power
Status	Yellow	Off	CSS is operational
		Blinking	CSS detects an error during offline or online testing, or the boot diagnostic failed and the system cannot boot
Ready	Green	Off	CSS is booting
		On	CSS is operational
		Blinking	CSS is accessing the disk
Tx (Transmit) (Gigabit ports on the CSS 11154 or CSS 11155)	Green	Off	No transmit packet activity
		Blinking	Transmit activity detected

Table 2-3 CSS 11150 Front Panel LED Descriptions (continued)

LED Name	Color	State	Indicates
Rx (Receive) (Gigabit ports on the CSS 11154 or CSS 11155)	Green	Off	No receive packet activity
		Blinking	Receive activity detected
Link/Sync (Gigabit ports on the CSS 11154 or CSS 11155)	Green	Off	No link
		On	Link exists and synchronization achieved
		Blinking	Link exists but not synchronized
Link (Fast Ethernet FX ports on the CSS 11153)	Green	Off	No link established
		On	Link established
Act (Fast Ethernet FX ports on the CSS 11153)	Green	Blinking	Link established and activity

Cabling the CSS 11800 Modules

The CSS 11800 modules has connectors and LEDs on their front rear panels. The following sections describe:

- CSS 11800 Product Description
- Switch Control Module Connectors and LEDs
- Fast Ethernet Module Connectors and LEDs
- Gigabit Ethernet Module Connectors and LEDs
- Switch Fabric Module (SFM and SFM2) Connectors and LEDs
- Internal Disk Module LEDs

CSS 11800 Product Description

The CSS 11800 is a 15-slot modular switching chassis with a high speed switching fabric. The CSS 11800 offers LAN connectivity and scalable switch capacity. Designed for larger, mission-critical Web sites, the CSS 11800 provides 20 Gbps of switching bandwidth and high port density LAN ports interfaces. The CSS 11800 CSS is a Carrier Class platform with high performance and scalability and no single point of failure. In case of a disk failure, traffic is still passed in and out of the CSS.

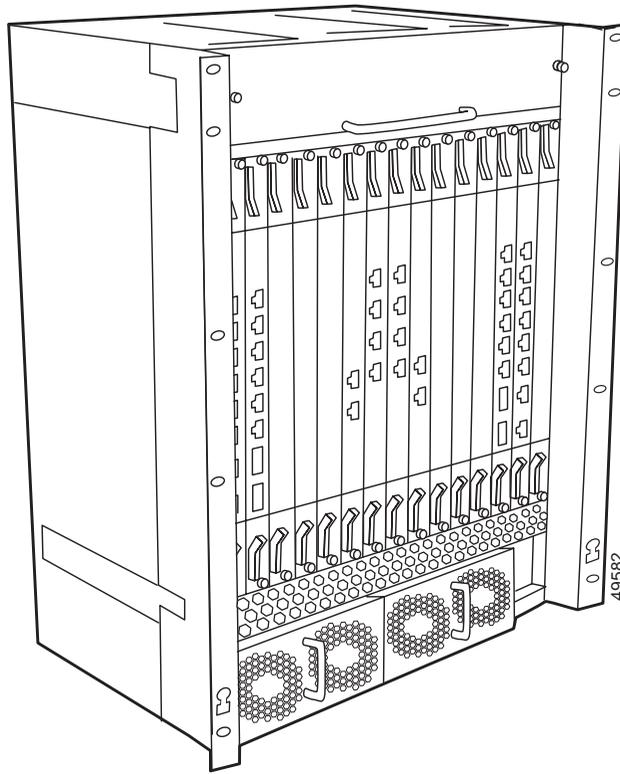
The CSS 11800 configuration provides:

- 20 Gbps of switching bandwidth (with support for an optional redundant 20-Gbps switch fabric)
- 128 MB Switch Control Module (SCM), model CSS8-SCM (with support for an optional passive SCM)
- 10-Gbps Switch Fabric Module 2 (SFM2), model CSS8-SFM2 (with support for an optional passive SCM2)
- Hard drive-based Internal Disk Module (IDM), model CSS8-IDM-MEM-HD, for logging and off-line system files

- Eight slots configurable with either:
 - Fast Ethernet modules providing eight auto-sensing 10/100-Mbps Ethernet (10BASE-T/100BASE-TX) RJ-45 ports or six 10BASE-T/100BASE-TX ports and two 100BASE-FX ports
 - Gigabit Ethernet modules providing up to four 1000-Mbps Ethernet (1000BASE-SX) Gigabit Interface Converter (GBIC) interfaces with either 8 megabytes of flow connection memory supporting up to 64,000 simultaneous flows or 16 megabytes of flow connection memory supporting up to 128,000 simultaneous flows
- Optional flash-based Internal Disk Module (IDM), model CSS8-IDM-MEM-HD, in place of the hard drive-based IDM

Figure 2-9 illustrates a CSS 11800.

Figure 2-9 CSS 11800 Content Services Switch



Switch Control Module Connectors and LEDs

The Switch Control Module (SCM) provides master control and packet memory storage and is responsible for the following functions:

- System powerup and boot control
- Centralized routing table management
- System-wide connection management
- Interface to external Network Management Station
- Disk management (internal disk module)

- Provides two external RS-232 interfaces
- Building Integrated Timing Service support

While only one SCM is required in a configuration, you can install and configure a passive SCM for redundancy. A maximum of two SCMs are allowed in a chassis.

**Note**

The SCM contains a small lithium battery. Some jurisdictions restrict the ways in which items containing lithium batteries may be disposed. In particular, lithium batteries or products containing lithium batteries may never be disposed of in an unregulated fire. Other restrictions might apply. Refer to Appendix A, Specifications for lithium battery safety warnings.

**Warning**

Ultimate disposal of this product should be handled according to all national laws and regulations.

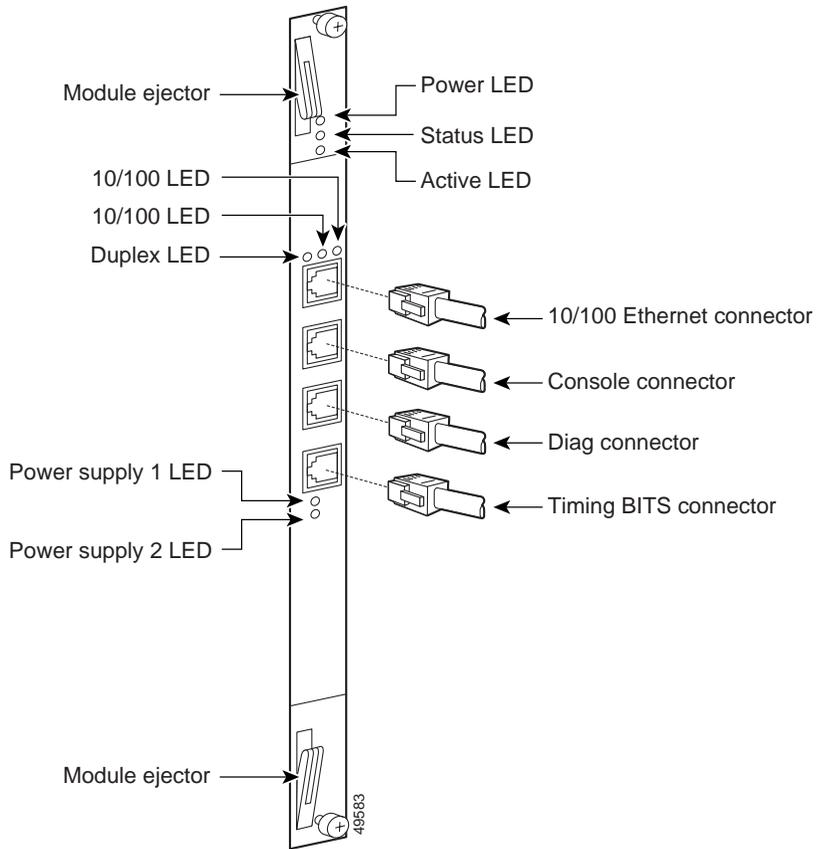
Switch Control Module Connectors

The Switch Control Module (model CSS8-SCM) contains the following connectors and LEDs:

- 1 RJ-45 10/100-Mbps Fast Ethernet management connector
- 1 RJ-45 RS-232 Console connector
- 1 RJ-45 RS-232 Diag connector (reserved for field service diagnostic use only)
- 1 RJ-45 Building Integrated Timing Supply (BITS) Clock RS-422 connector
- Power, Status, and Active module LEDs
- Duplex, 10/100, and Active LEDs for the Fast Ethernet port
- Power Supply 1 and 2 LEDs

Figure 2-10 illustrates the SCM front panel connectors and LEDs

Figure 2-10 Switch Control Module Connectors and LEDs



Switch Control Module LEDs

The SCM front panel LEDs indicate module and configuration status. Table 2-4 describes the SCM LEDs and their indications.

Table 2-4 Switch Control Module LED Descriptions

LED Name	Color	LED Status	Indicates
Power	Green	Off	Module does not have power
		On	Module has power
Status	Yellow	Off	Module is operational
		On	Module is experiencing an error (only when the SCM is active; the LED is normally yellow when the SCM is passive)
Active	Green	Off	SCM is passive
		On	SCM is active
Duplex (Ethernet Management Port)	Green	Off	Port is operating at half duplex
		On	Port is operating at full duplex
10/100 (Ethernet Management Port)	Green	Off	Port is operating at 10 Mbps
		On	Port is operating at 100 Mbps
Link (Ethernet Management Port)	Green	Off	No link
		On	Link established
		Blinking	Link established and constant activity
PS 1 (Power Supply 1)	Green	Off	Power supply is not functioning
		On	Power supply is functioning
PS 2 (Power Supply 2)	Green	Off	Power supply is not functioning
		On	Power supply is functioning

Configuring a Terminal to the SCM Console Port

This section describes how to configure a terminal connected to the SCM console port. Initially, the terminal settings must match the CSS default settings as specified in Table 2-5.

Table 2-5 CSS Console Port Default Settings

Parameter	Default Setting
Baud Rate	9600
Data Bits	8
Flow Control	none
Parity	none
Stop Bits	1
Terminal Type	VT100/ANSI

Fast Ethernet Module Connectors and LEDs

The FEM is available in two models:

- Model CSS8-IOM-8FE contains 8 RJ-45 Fast Ethernet 10/100-Mbps 10BASE-T/100BASE-TX connectors
- Model CSS8-IOM-6/2FE contains 6 RJ-45 Fast Ethernet 10/100-Mbps 10BASE-T/100BASE-TX connectors and 2 100BASE-FX SC fiber connectors

Each model contains Power, Status, and Ready LEDs for module status and Duplex, Speed, and Link LEDs for each of the 8 connectors. Figure 2-11 illustrates the LEDs and connectors on the 8-port FEM.

Figure 2-11 8-Port Fast Ethernet Module Connectors and LEDs

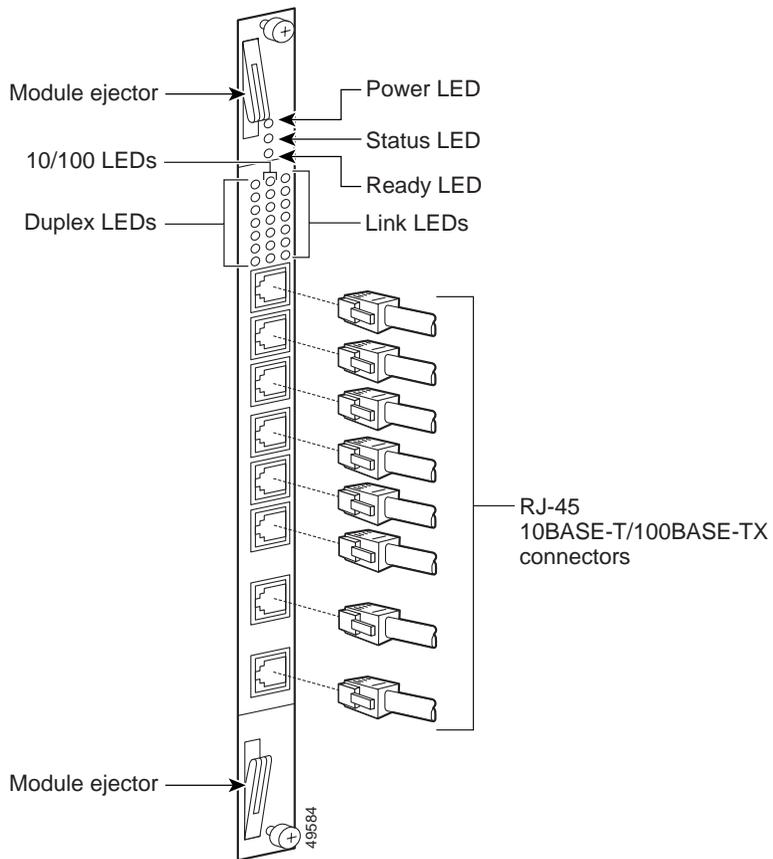
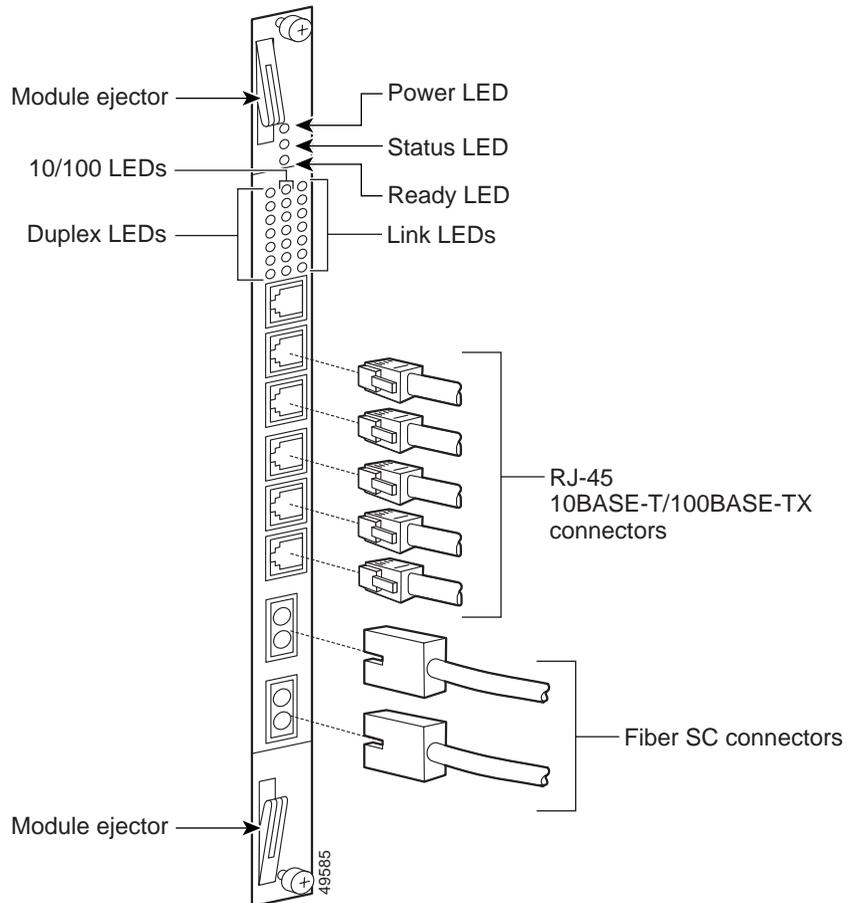


Figure 2-12 illustrates the LEDs and connectors on the FEM model CSS8-IOM-6/2/FE.

Figure 2-12 Fast Ethernet Module with 6 10BASE-T/100BASE-TX Connectors, Two 100BASE-FX SC Fiber Connectors, and LEDs



Fast Ethernet Module LEDs

The FEM front panel LEDs indicate module and network status. Table 2-6 describes the FEM LEDs

Table 2-6 Fast Ethernet Module LED Descriptions

LED Name	Color	LED Status	Indicates
Power	Green	Off	Module does not have power
		On	Module has power
Status	Yellow	Off	Module is operational
		On	Module is experiencing an error
Ready	Green	Off	Module not initialized
		On	Module initialized and ready
Duplex (FES Ports 1 to 8)	Green	Off	Port is operating at half duplex
		On	Port is operating at full duplex
10/100 (FES Ports 1 to 8)	Green	Off	Port is operating at 10 Mbps
		On	Port is operating at 100 Mbps
Link (FES Ports 1 to 8)	Green	Off	No link established
		On	Link established
		Blinking	Link established and activity detected

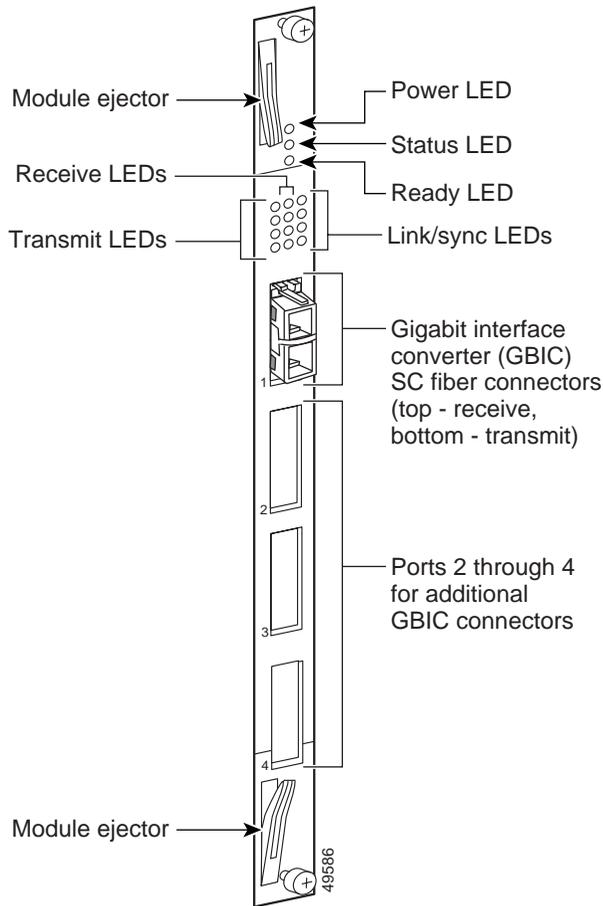
Gigabit Ethernet Module Connectors and LEDs

The GEM is available in two models:

- Model CSS8-IOM-4GE/8 contains four Gigabit Interface Converter (GBIC) slots and 8 MB Flow Cache SRAM memory supporting up to 64,000 simultaneous flows. CSS8-GBIC-SX is sold separately.
- Model CSS8-IOM-4GE/16 contains four GBIC slots and 16 MB Flow Cache SRAM memory supporting up to 128,000 simultaneous flows. CSS8-GBIC-SX is sold separately.

Figure 2-13 illustrates the LEDs and connectors on a GEM.

Figure 2-13 Gigabit Ethernet Module Connectors and LEDs



Gigabit Ethernet Module LEDs

The GEM front panel LEDs indicate module status (Power, Status, and Ready LEDs) and network status for each of the connectors (Transmit, Receive, and Link LEDs). Table 2-7 describes the GEM LEDs

Table 2-7 Gigabit Ethernet Module LED Descriptions

LED Name	Color	LED Status	Indicates
Power	Green	Off	Module does not have power
		On	Module has power
Status	Yellow	Off	Module is operational
		On	Module is experiencing an error
Ready	Green	Off	Module not initialized
		On	Module initialized and ready
Tx (Transmit) (Ports 1 to 4)	Green	Off	No transmit packet activity
		Blinking	Transmit activity detected
Rx (Receive) (Ports 1 to 4)	Green	Off	No receive packet activity
		Blinking	Receive activity detected
Link/Sync (Ports 1 to 4)	Green	Off	No link
		On	Link exists and synchronization achieved
		Blinking	Link exists but not synchronized

Switch Fabric Module (SFM and SFM2) Connectors and LEDs

The Switch Fabric Module (SFM or SFM2) sets up and tears down flow connections, monitors switch operation, and performs switch functions. The I/O modules use the SFM processors to perform routing functions, including resolution of unknown addresses, route determinations, protocol processing, and other exception events.

Each module provides 10-Gbps switch control element for switching functionality and flow processing for four I/O modules. You can install a second active module to service four additional I/O modules. Both active modules are on simultaneously in the CSS 11800. The chassis enables you to configure two additional passive modules for redundancy. Therefore, you can configure a total of four SFMs or SFM2s in a chassis, of which only two would be active at any time.

**Note**

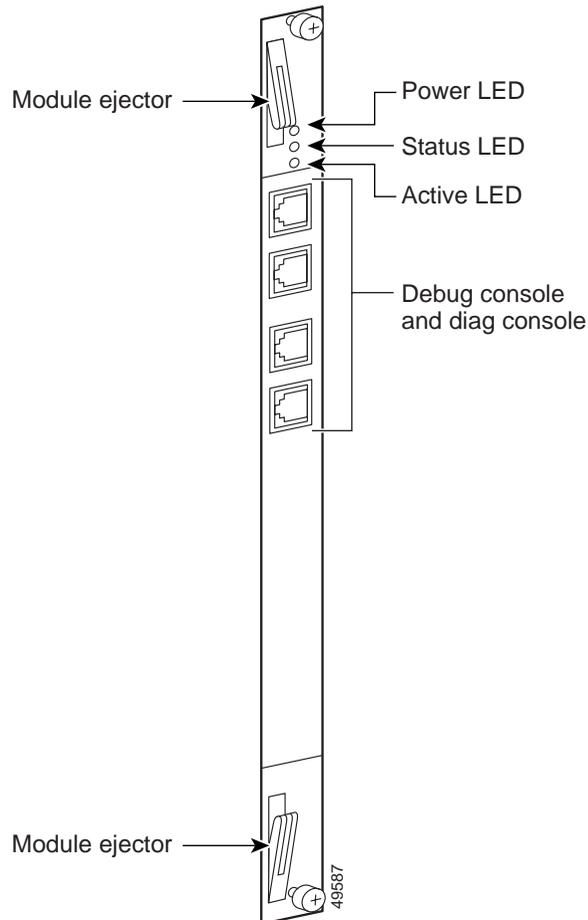
When the CSS 11800 contains two passive SFMs and an active SFM switchover occurs, both passive SFMs switchover to become active SFMs.

You can mix SFMs with SFM2s in the same CSS 11800 chassis. However, you must use the same type module as the active SFM and as the passive SFM.

The Switch Fabric Module (SFM and SFM2) contains Power, Status, and Active LEDs. The SFM has four RJ-45 RS-232 Console and Diag connectors (all of these connectors are reserved for field service diagnostic use only).

Figure 2-14 illustrates the SFM front panel LEDs and connectors.

Figure 2-14 Switch Fabric Module Connectors and LEDs



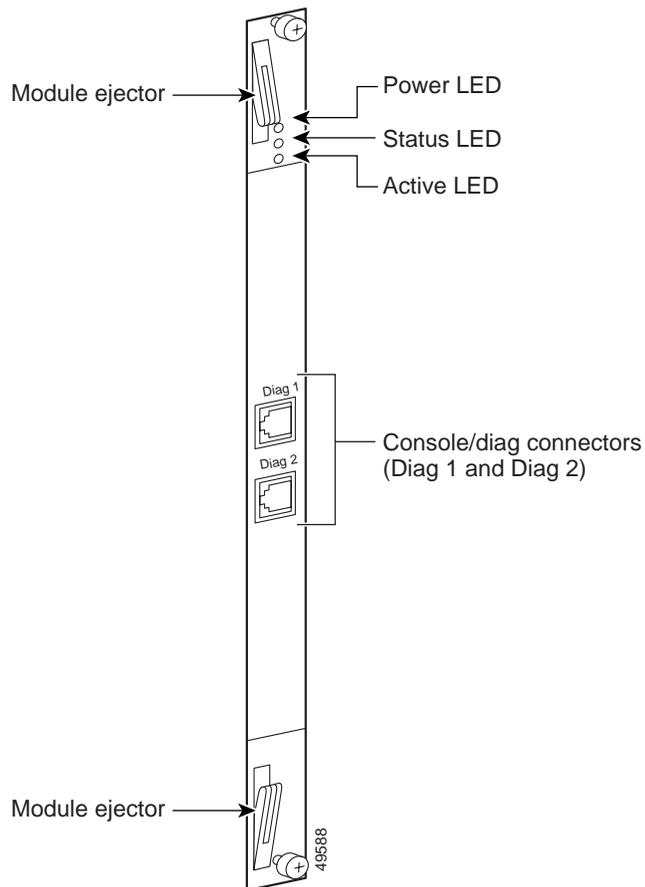
The SFM2 contains two RJ-45 RS-232 Diag1 and Diag 2 connectors, combining both Console and Diag functions on each connector (all of these connectors are reserved for field service diagnostic use only).

**Note**

These connectors are for serial data only and are not compatible with Ethernet RJ-45 cable connectors.

Figure 2-15 illustrates the SFM2 (model CSS8-SFM2) front panel LEDs and connectors

Figure 2-15 Switch Fabric Module 2 Connectors and LEDs



SFM and SFM2 LEDs

The SFM and SFM2 front panel LEDs indicate operating and configuration status. Table 2-8 describes the SFM LEDs and their indications

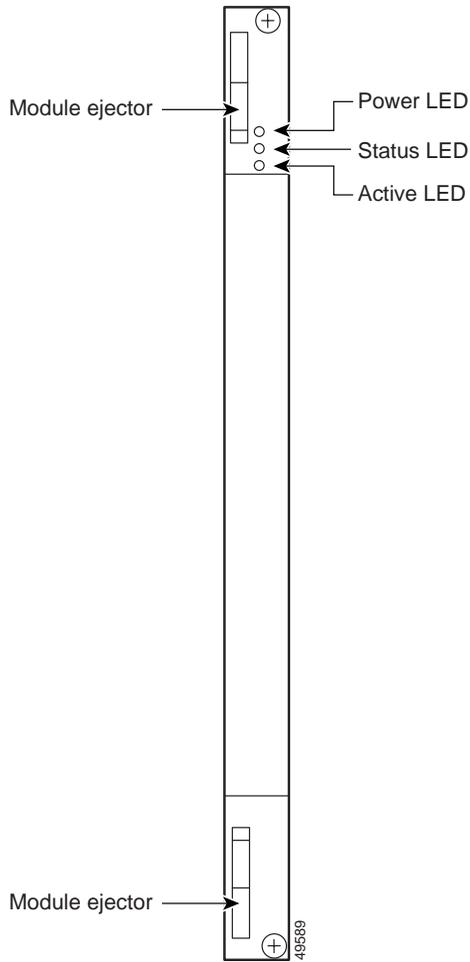
Table 2-8 *Switch Fabric Module LED Descriptions*

LED Name	Color	LED Status	Indicates
Power	Green	Off	Module does not have power
		On	Module has power
Status	Yellow	Off	Module is operational
		On	Module is experiencing an error (only when the SFM is active; the LED is normally yellow when the SFM is passive)
Active	Green	Off	SFM is passive
		On	SFM is active

Internal Disk Module LEDs

The Internal Disk Module (IDM) in slot 15 contains Power, Status, and Active LEDs. Figure 2-16 illustrates the IDM front panel LEDs. The LEDs apply to both the flash-based (model CSS8-IDM-MEM-FD) or hard drive-based (model CSS8-IDM-MEM-HD) IDM.

Figure 2-16 Internal Disk Module LEDs



Internal Disk Module LEDs

The CSS 11800 IDM front panel LEDs indicate operating and activity status. Table 2-9 describes the IDM LEDs and their indications

Table 2-9 CSS 11800 Internal Disk Module LED Descriptions

LED Name	Color	LED Status	Indicates
Power	Green	Off	IDM does not have power
		On	IDM has power
Status	Green	Off	IDM device 0 is selected
		On	Reserved for future use
Active	Green	Off	No activity
		On	Constant activity
		Blinking	Activity

Connecting Power Cords

The CSS 11050 models are powered by an AC power supply. The CSS 11150 and CSS 11800 are powered by either an AC or DC power supply. Before you install the AC or DC power cord, ensure that you have read Appendix A, Specifications for electrical specifications. The following sections describe:

- Connecting a CSS 11050 or CSS 11150 Power Cord
- Connecting a CSS 11800 Power Cord

Connecting a CSS 11050 or CSS 11150 Power Cord

The following sections provide information on:

- Connecting a CSS 11050 or CSS 11150 AC Power Cord
- Connecting a CSS 11150 DC Power Cord



Note

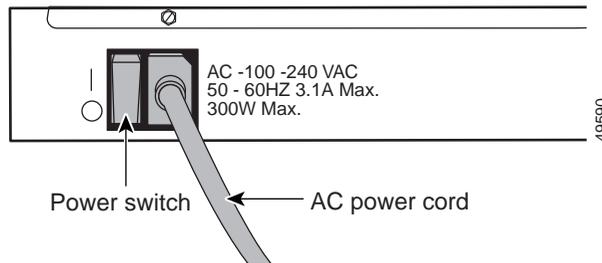
The CSS 11050 is only available in an AC version.

Connecting a CSS 11050 or CSS 11150 AC Power Cord

To connect an AC power cord to a CSS 11050 or CSS 11150:

1. Ensure that the CSS power switch is in the **0** (off) position.
2. Attach the power cord to the CSS by plugging the AC power cord connector into the power receptacle at the rear panel, as shown in Figure 2-17

Figure 2-17 Connecting a CSS 11050 or CSS 11150 AC Power Cord



3. Plug the power cord into a dedicated 3-wire grounding receptacle.
4. Switch on the power on the CSS.

Connecting a CSS 11150 DC Power Cord

Before you install a DC power cord, refer to Appendix A, Specifications for DC power supply safety warnings.



Warning

The DC power supply cord requires 18 AWG wire. The CSS 11150 draws a maximum of 25 amps.



Warning

DC systems do not have a power switch. A chassis configured for DC power requires an external power disconnect device (such as an external circuit breaker).

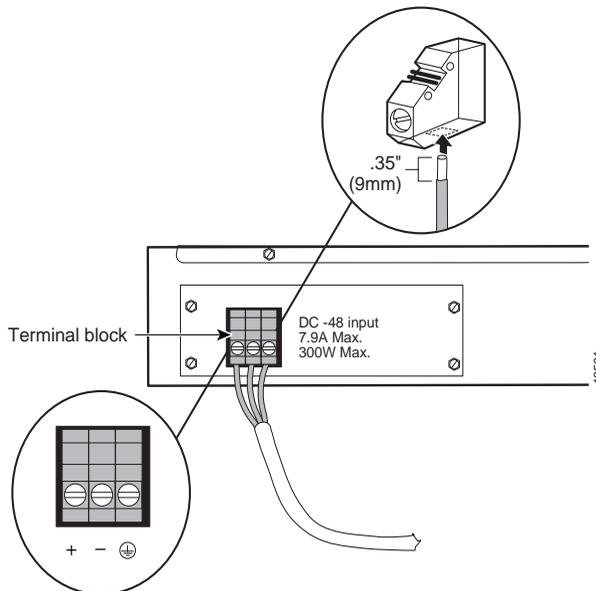
**Warning**

Before performing the DC installation procedure, ensure that power is removed from the DC circuit. To ensure that all power is off, locate the circuit breaker that services the DC circuit and switch it off.

To connect the CSS 11150 DC power supply to a power source:

1. Locate the DC terminal block on the front of the chassis as shown in Figure 2-18.

Figure 2-18 Location of CSS 11150 DC Power Supply Connectors



2. Using a flat-head screwdriver, loosen the captive screws on the three DC connectors (labeled from left to right, +, -, and \oplus , respectively).

**Warning**

Before installing a wire, ensure that the polarity of the DC connections is correct. Reversed polarity can create a dangerous shock hazard and cause damage to the DC power source.

3. Install the wires into the appropriate connector. Make sure that the uninsulated part of each wire is 9mm (0.35 in.) in length.

When installing the wires, always connect the ground wire first. When disconnecting the wires, always disconnect the ground wire last.

The proper power cable wiring between the CSS 11150 and DC power source is illustrated in Table 2-10.

Table 2-10 CSS 11150 to DC Power Source Cabling

CSS 11150	DC Power Source
 (Ground)	 (Ground)
+	+
-	-

4. Tighten the captive screws to 5 to 7 inch-pounds (.6 to .8 Nm) of torque to secure the wires in the connectors. Ensure the wires are held firmly in place.

Connecting a CSS 11800 Power Cord

The following sections provide information for connecting an AC or DC power cord to a CSS 11800.



Note

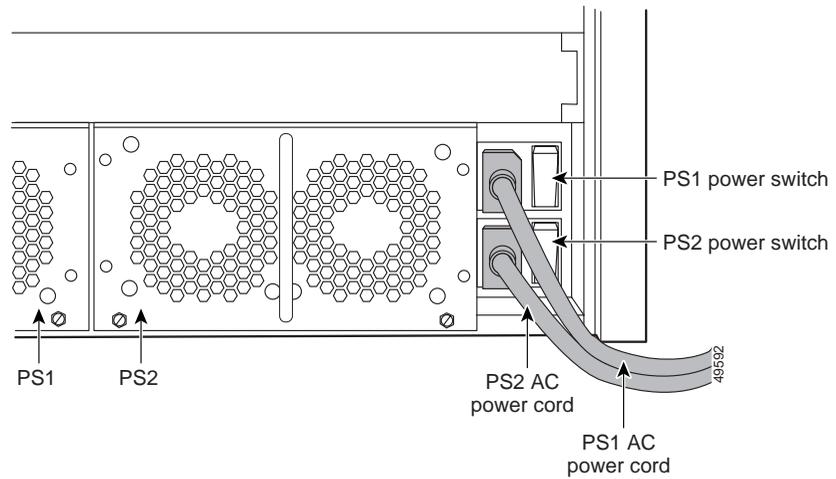
For information on installing a redundant AC or DC power supply, consult the reference sheet included with the power supply.

Connecting a CSS 11800 AC Power Cord

To connect an AC power cord to a CSS 11800:

1. Ensure that the CSS power switch is in the **0** (off) position.
2. Attach the power cord to the CSS by plugging the AC power cord connector into the power receptacle at the front of the chassis as shown in Figure 2-19

Figure 2-19 Connecting a CSS 11800 AC Power Cord



3. Plug the power cord into a dedicated 3-wire grounding receptacle.
4. Switch on the power on the CSS.

Connecting a CSS 11800 DC Power Cord

Before you install a DC power cord, refer to Appendix A, Specifications for DC power supply safety warnings.



Warning

The DC power supply cord requires 12 AWG wire. The CSS 11800 draws a maximum of 25 amps.



Warning

DC systems do not have a power switch. A chassis configured for DC power requires an external power disconnect device (such as an external circuit breaker).



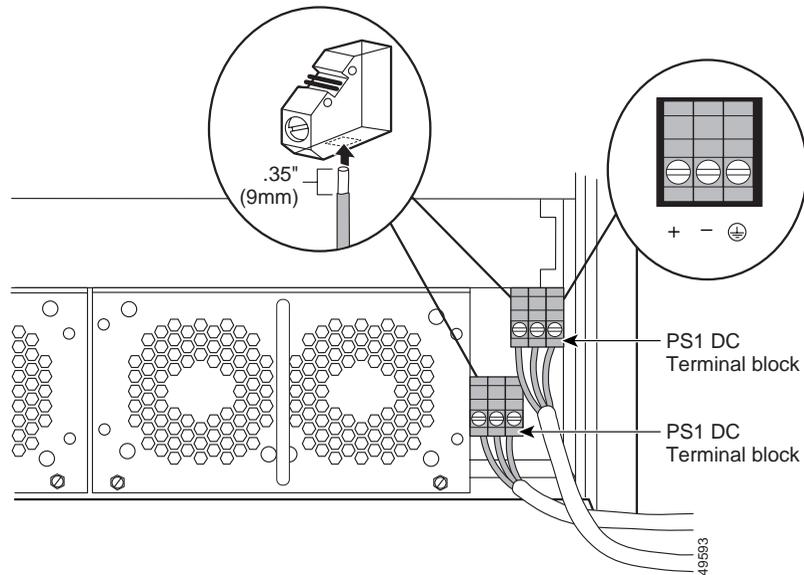
Warning

Before performing the DC installation procedure, ensure that power is removed from the DC circuit. To ensure that all power is off, locate the circuit breaker that services the DC circuit and switch it off.

To connect the CSS 11800 DC power supply to a power source:

1. Locate the DC terminal block on the front of the chassis as shown in Figure 2-20.

Figure 2-20 Location of CSS 11800 DC Power Supply Connectors



2. Using a flat-head screwdriver, loosen the captive screws on the three DC connectors (labeled from left to right, +, -, and \oplus , respectively).



Warning

Before installing a wire, ensure that the polarity of the DC connections is correct. Reversed polarity can create a dangerous shock hazard and cause damage to the DC power source.

3. Install the wires into the appropriate connector. Make sure that the uninsulated part of each wire is 9mm (0.35 in.) in length.

When installing the wires, always connect the ground wire first. When disconnecting the wires, always disconnect the ground wire last.

The proper power cable wiring between the CSS 11800 and DC power source is illustrated in Table 2-11.

Table 2-11 CSS 11800 to DC Power Source Cabling

CSS 11800	DC Power Source
⊕ (Ground)	⊕ (Ground)
+	+
-	-

4. Tighten the captive screws to 5 to 7 inch-pounds (.6 to .8 Nm) of torque to secure the wires in the connectors . Ensure the wires are held firmly in place.



Booting the CSS

This chapter describes the CSS disk directory structure, powering the CSS, and the CSS boot sequence.

This chapter contains the following sections:

- CSS Software Overview
- Connecting the Console
- Powering Up the CSS
- Powering Down the CSS
- Booting the CSS for the First Time
- Booting the CSS on a Routine Basis

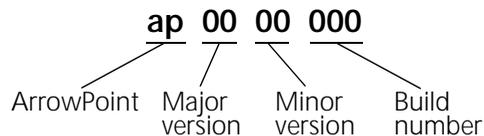
CSS Software Overview

The CSS software contains the files to run the CSS including boot files, and directories for archiving and logging files, and MIB information. This software is preinstalled on the CSS 11800 Internal Disk Module (IDM), or CSS 11050 or CSS 11150 disk drive. For a CSS 11800 or CSS 11150, the disk can be a hard disk drive or an optional flash disk, an EPROM-based storage device.

You can also install the CSS software on a network drive on an NT system which the CSS can access through FTP. The Content Services Switch and System Software compact disk contains the CSS software for the network drive. This software is in Zip format and must be copied and uncompressed on a network drive. For more information on configuring a network boot drive, refer to the *Content Services Switch Basic Configuration Guide*.

You can install up to four software CSS versions on your CSS hard drive. For a CSS flash disk, you can install up to two software versions. To view all versions installed on the CSS, use the **show installed-software** command.

To view the version currently running on the CSS, use the **version** command. The software version format is defined as follows:



From an FTP server, you can view the following directories:

- The log directory contains the following log files:
 - **boot.log** - ASCII log of boot process
 - **sys.log** - ASCII log of system events (logging to disk is enabled by default to subsystem all and level info)
 - **boot.bak** - Backup of a previous boot log
 - **sys.log.prev** - Backup of a previous system log (if any)
- The scripts directory contains default, profile, and sample scripts
- The core directory contains any core dumps created by the CSS
- The MIB directory contains MIB files which you can load into SNMP-compliant network management software applications



Note

When you view the CSS software directories installed on a network drive, more directories are listed than those you can view on the CSS disk. Do not manipulate the files in these directories.

The software directory also contains the startup-config file. This file is an ASCII file containing commands the CSS executes at startup. This file is created when you:

- Complete using the configuration script.
- Issue the **copy running-config startup-config** or **write memory** command. These commands also save configuration changes to the startup-config during a CSS session.
- Use File Transfer Protocol (FTP) to copy a startup-config file to the CSS.

The archive directory contains the files that you archive from the current software by using the **archive** command. These files include running-config, startup-config, log files, profile scripts, and scripts you create. You can view a list of archived files by using the **show archive ?** command.

To restore any archived files to the CSS, use the **restore** command. For more information on the **archive** and **restore** commands, refer to the *Content Services Switch Command Reference*.

To view general information about the CSS disk, enter:

```
show disk
```

Information similar to the following appears:

```
Disk Size:           1,842 MB   _____ Total size of the disk in megabytes
Disk Free:           730 MB    _____ Available disk space in megabytes
Bad Cluster Count:  0         _____ Number of bad clusters on the disk
File Count:          8,686     _____ Number of files on the disk
Directory Count:    1,061     _____ Number of directories on the disk
```

Connecting the Console

To connect a console to the CSS and power up the CSS, attach the console cable (provided in the Accessory kit) to the Console port on the CSS 11050 or CSS 11150 front panel, or to the CSS 11800 SCM panel. Your terminal settings must match the following CSS default settings:

- Baud Rate: 9600
 - Data Bits: 8
 - Flow Control: none
 - Parity: none
 - Stop Bits: 1
1. Attach the power cord to the CSS 11050 or CSS 11150 rear panel AC connector, or to the CSS 11800 AC connector.
 2. Power on the CSS as described in “Powering Up the CSS”.

Powering Up the CSS

To power up the AC on a CSS 11050, CSS 11150 or CSS 11800:

1. Attach the power cord to the CSS 11050 or CSS 11150 rear panel AC connector, or to the CSS 11800 AC connector (as described in Chapter 2, Cabling the CSS).
2. Power on the CSS by toggling the power switch to the **1** (on) position.

For DC power on a CSS 11150 or CSS 11800, set the external disconnect device to the **1** (on) position.

Powering Down the CSS

To shutdown the CSS gracefully and avoid introducing lost or fragmented files, always use the **shutdown** command prior to removing power from the CSS. This command is available in boot mode.

For example:

```
(config-boot)# shutdown
```

Once the CSS shuts down all processes, you may remove power from the CSS.

Booting the CSS for the First Time

When the CSS initially boots up, it:

- Performs hardware diagnostics.
- Validates the integrity of the disk file system automatically. If the CSS:
 - Does not detect errors, it reports a status of OK and continues the boot process
 - Detects errors, it returns a status of DIRTY, runs a quick check disk automatically, and continues the boot process
- Prompts you to:
 - Enter the software license key, located on a card in an envelope in the Accessory kit
 - Configure the IP address and subnet mask for the Ethernet Management port, used for CSS configuration and management only; this port does not route traffic
 - Change the default administrative login name (**admin**) and password (**system**)
 - Password-protect the Offline Diagnostic Monitor menu (Offline DM menu)

The initial boot-up prompts are described in the sections below.

Entering Your License Key

When the CSS completes hardware initialization and power-on diagnostics, you must enter a valid license key for the CSS software. The CSS does not require you to enter this key on subsequent startups.

**Note**

Your license key is located on a card in an envelope in the Accessory kit. If you cannot find the software license key, call the Cisco Technical Assistance Center (TAC) toll free, 24 hours a day, 7 days a week at 1-800-553-2447 or 1-408-526-7209. You can also email TAC at tac@cisco.com.

The CSS prompts you to accept the license agreement. You must accept the license agreement or you cannot log into the CSS.

```
Do you agree to the terms and conditions set forth in the License
Agreement, located in the front section of Getting Started.
```

Then the CSS prompts you to enter your license key, as shown below:

```
Enter Software License Key: xxxxxxxxxxxxxx
```

When you enter:

- A valid license number, the CSS prompts you to enter an IP address for the Ethernet Management port.
- An invalid license number, the CSS redisplay the license prompt until you enter a valid number. If you do not enter a valid license number, you cannot log into the CSS.

**Note**

If you purchased the SSH Server option or the Network Proximity software option, its license key is on the CSS software license key card. After the CSS has booted and you log in, use the **license** command to enter the SSH Server license key. For example, enter:

```
# license
```

```
Enter Software License Key (q to quit):
```

At the prompt, enter the 12-digit option license key.

Configuring the Ethernet Management Port

Once you enter a valid license key at the boot prompt, the CSS displays the following message and prompt:

```
Use the Ethernet management port IP address to access the Content
Services Switch for configuration and management only. This port
does not route traffic and is not associated with VLAN circuits.
```

```
Do you wish to configure the Ethernet management port IP address
[y/n]?
```

Enter:

- **y** to configure an IP address and subnet mask for the Ethernet Management port. The CSS prompts you for an IP address and then a subnet mask. You must enter a valid IP address or the CSS repeats the prompt until you do. The CSS does not accept an all zero IP address.



Caution

The Ethernet Management port IP address must be a different subnet than any other CSS VLAN circuit subnet. If you do not make this IP address unique, you will not be able to access the port.

```
Enter IP Address [1.1.1.1]:
Enter subnet mask [255.0.0.0]
```

- **n** to accept the default IP address (1.1.1.1) and subnet mask (255.0.0.0). The CSS does not prompt you for an IP address and subnet mask.

Changing the Default Username and Password

The CSS allows you to change the default username and password.

```
Access to this device is allowed using the default username and
password. For enhanced security we recommend that you change the
defaults. Do you want to change the defaults now (yes,no):
```

Enter:

- **yes** to change the username and password. The CSS prompts you for this information and password confirmation.

```
Enter <administrator> username:
Enter <administrator> password:
Confirm <administrator> password:
```

- **no** to keep the default username and password.

Password-Protecting the Offline Diagnostic Monitor Menu



Note

The Offline Diagnostic Monitor Menu options are described in the *Content Services Switch Basic Configuration Guide*, Chapter 1, Logging In and Getting Started.

The CSS prompts you to password-protect the Offline DM menu.

```
Set Password Protection for Offline Diagnostic Monitor menu
(yes,no)
```

Enter:

- **yes** to password-protect the Offline DM menu. When you password-protect the Offline DM menu, you need to enter the administrative username and password each time you access the menu.

```
The administrative username and password are required to access
the Offline Diagnostic Monitor menu.
Initializing the disk.....OK
```



Caution

Use care when password-protecting the Offline DM Main menu and ensure that you write down the new password. If you lose the new password, it cannot be recovered and you will be unable to access the Offline DM Main menu. The only solution, at that point, would be to contact the Cisco Technical Assistance Center (TAC) at 1-800-553-2447 or 1-408-526-7209. You can also email TAC at tac@cisco.com.

- **no** to disable password-protection on the Offline DM menu.

The CSS then enables you to access the Offline DM menu.

Press any key to access the Offline Diagnostic Monitor menu...

To access the Offline DM menu, press any key within 5 seconds. Refer to the next sections for information on using the Offline DM menu. If you do not wish to access the Offline DM menu after seeing this message, do not press a key.

After the CSS has completed the boot process, it displays the Cisco banner, copyright, and login prompt.

Booting the CSS on a Routine Basis

When you power up the CSS (after initial start-up), the boot process:

- Displays the software version and build number
- Performs hardware initialization and power-on diagnostics
- Checks the results of the previous shutdown
- Provides access to the Offline Diagnostic Monitor (Offline DM) menu
- Prompts you to log into the CSS

The boot-up sequence is described in the sections below.

Performing Hardware Initialization and Power-On Diagnostics

When you boot the CSS, it initializes the hardware and performs power-on diagnostics. During this time, the module Status and Ready LEDs blink to indicate the stages of the boot process. If a non-recoverable error occurs during the boot sequence, the module Status and Ready LEDs blink indefinitely until you cold boot the CSS and the error is cleared.

- The CSS 11050 or CSS 11150 boot process takes approximately 15 seconds to complete.
- The CSS 11800 boot process takes approximately 1 to 3 minutes (depending on your configuration) to complete.

Table 3-1 defines the boot states and the Status and Ready LED blinking patterns.

Table 3-1 Module Status and Ready LED Boot Definitions

State Sequence	Status LED	Ready LED
1. Off line and not active	Off	Off
2. Offline testing	Off	Blinking
Offline tests detect an error	Blinking	Off
3. Off line and active (Offline Diagnostic Monitor is displayed)	On	On
4. On line and not active	On	Off
5. Online testing/Initialization	On	Blinking
Online tests detect an error	Blinking	On
6. On line and not active (Passive SCM or SFM)	On	Off
7. On line and active	Off	On
Boot diagnostics failed and the system cannot boot	Blinking	Blinking

Checking Results of Previous Shutdown

When the CSS boots up, it checks the results of the previous shutdown. If the CSS:

- Does not detect any errors, it reports a status of OK and continues with the boot process

```
Reading configuration records...OK
Checking previous shutdown...OK
Initializing the disk...OK
```

- Detects errors, it returns a status of DIRTY and runs a quick check disk automatically

```
Reading configuration records...OK
Checking previous shutdown...DIRTY
Complete (/) Operation completed successfully
Initializing the disk...OK
```

During a check disk, the CSS detects and recovers from the following error conditions:

- File Allocation Tables (FATs) are out of synchronization
- Sector write truncation revitalization (may occur from a power loss at the time the CSS is writing to the disk)
- Bad cluster identification and mapping in the FAT when reformatting the disk
- Crosslinked FAT entries
- Disk entry validation, name, size, cluster assignment, cluster chaining
- Recovery of lost clusters

The CSS cannot recover from sector failures within the first 754 sectors (for example, boot, primary/secondary FAT, root directory entries).

The amount of time the CSS requires to perform a check disk is proportional to the number of installed files and directories on the disk. The greater the number of installed files and directories, the longer it takes to complete the check disk.

Logging into the CSS

After the CSS has completed the boot process, it displays the start-up banner, copyright, and login prompt. If a startup-config is present, the CSS displays the following message:

```
Press CNTRL-C to abort running the startup-config
```

When you abort running the startup-config, the CSS does not use the existing startup-config. It enables you to log in and reconfigure the CSS to create a new running-config. Use this feature if you misconfigure your startup-config and it becomes unusable.

When you log in from:

- A console, the CSS prompts you to
Press any key to log in.
- A Telnet session, this message is not displayed.

The CSS prompts you to enter a username and password. Enter the default user name **admin** and the default password **system** as lowercase text, or enter the administrative username and password you configured during the boot process or using the Offline DM menu. For security, the CSS does not display the password.

```
User Access Verification
Username:
Password
```

If you connect a console to the CSS after the CSS boots, your screen will be blank. Press <Enter> to display the username and password prompts.

If the CSS has never been configured, a configuration script runs automatically and prompts you to enter configuration information. Subsequent logins to the CSS do not automatically start the configuration script. Refer to Chapter 4, *Configuring the CSS for the procedure on using the configuration script*.



Configuring the CSS

This chapter provides information on service, owner, and content rules, and how to configure the CSS through configuration scripts. This chapter contains the following sections:

- Service, Owner, and Content Rule Overview
- Using the Configuration Script

Service, Owner, and Content Rule Overview

The CSS enables you to configure services, owners, and content rules to direct requests for content to a specific destination service (for example, a server or a port on a server). By configuring services, owners, and content rules, you optimize and control how the CSS handles each request for specific content.

- A **service** is a destination location where a piece of content resides *physically* (a local or remote server and port). You add services to content rules. Adding a service to a content rule includes it in the resource pool that the CSS uses for load balancing requests for content. A service may belong to multiple content rules.
- An **owner** is generally the person or company who contracts the web hosting service to host their web content and allocate bandwidth as required.

- A **content rule** is a hierarchical rule set containing individual rules that describe which content (for example, .html files) is accessible by visitors to the web site, how the content is mirrored, on which server the content resides, and how the CSS should process requests for the content. Each rule set must have an owner.

**Note**

For detailed information on creating and configuring services, owners, and content rules, refer to the *Content Services Switch Basic Configuration Guide*.

When a request for content is made, the CSS:

1. Uses the owner content rule to translate the owner's Virtual IP address (VIP) or domain name using Network Address Translation (NAT) to the corresponding service IP address and port.
2. Checks for available services that match the content request.
3. Uses content rules to choose which service can best process the request for content.
4. Applies all content rules to service the request for content (for example, load balancing method, redirects, failover, stickiness).

The CSS uses content rules to determine:

- Where the content physically resides, whether local or remote
- Where to direct the request for content (which service or services)
- Which load balancing method to use

The type of rule also implies the network layer at which the rule functions.

- A Layer 3 content rule implies a destination IP address of the host or network.
- A Layer 4 content rule implies a combination of destination IP address and port.
- A Layer 5 content rule implies a combination of destination IP address, port, and URL that may or not contain an HTTP cookie or a domain name.

Content rules are *hierarchical*. That is, if a request for content matches more than one rule, the characteristics of the most specific rule apply to the flow. The hierarchy for content rules is shown below. The CSS uses this order of precedence to process requests for the content, with 1 being the highest match and 8 being the lowest match.

1. Domain name, IP address, protocol, port, URL
2. IP address, protocol, port, URL
3. IP address, protocol, port
4. IP address, protocol
5. IP address
6. Domain name, protocol, port, URL
7. Protocol, port, URL
8. Protocol, port

Using the Configuration Script

The CSS initiates the configuration script automatically when you log in *and* it does not detect an existing startup-config file.



Note

If you want to configure the CSS manually, refer to the *Content Services Switch Basic Configuration Guide*.

You need to enter the following information as the configuration script completes itself:

- IP address and subnet mask for circuit VLAN1 (all interfaces are assigned to VLAN1 by default)
- IP address for the default gateway
- IP addresses for the servers
- Virtual IP address (VIP) for the content rule

The configuration script allows you to create services, owners, and content rules based on your entries and then enables you to:

- Configure Layer 3 load balancing
- Configure Layer 5 load balancing
- Configure Proxy cache
- Configure Transparent cache
- Exit from the script and save the information you entered to the running-config

To accept the script default values, press the Enter key at the prompts. To quit the script, enter “q” at any prompt.

You may also initiate the configuration script manually by entering the **script play setup** command.

To clear an existing running-config, use the **clear running-config** command from SuperUser mode. To clear an existing startup-config, use the **clear startup-config** command from SuperUser mode.

The following pages show you the entire configuration script including:

- **Bold** text to indicate where you enter information
- Explanations to help you use the script

```
#####
#Setup Script for the Content Services Switch#
#####

Checking for Existing Config...

No startup-config was found, continue with the setup script [y/n]?
y

Note: Pressing "q" after any prompt quits setup. Pressing <CR>
after any [y/n] defaults to "y".

Warning: All circuit VLAN IP addresses must be on a different
subnet than the Ethernet Mgt port IP address. The existing
Ethernet Mgt port IP address is: 10.0.4.251

Add an IP address to VLAN1: [default = 192.168.10.1] 192.168.3.6

Add an IP subnet mask to VLAN1: [default = 255.255.255.0]

Warning: The default gateway IP address must be on the same subnet
as VLAN1. VLAN1 IP address is: 192.168.3.6

Add IP address for default gateway: [default = 192.168.3.2]
192.168.3.3

Pinging the default gateway: 100% Success.

Which feature do you want to configure?

[1] Layer3 load balancing
[2] Layer5 load balancing
[3] Proxy cache
[4] Transparent cache
[5] Exit script
```

If you select option 5 to exit the script, the CSS saves the information you entered to the running-config and then displays the running-config.

Configuring Layer3 Load Balancing

A layer 3 load balancing configuration enables the CSS to use a Virtual IP address (VIP) to load balance Web traffic to Web servers based on IP addresses.

When you select Layer 3 load balancing, the script automatically:

- Creates an owner (L3_Owner)
- Creates a Layer 3 content rule (L3_Rule) and defines ArrowPoint Content Awareness (ACA) as the load balance method
- Activates the services
- Activates the content rule
- Saves the running-config to the startup-config

The script enables you to configure:

- Service name (default name is Server1)
- Service IP address
- VIP for the content rule

To configure Layer 3 load balancing, enter **1**.

```
Which feature do you want to configure?
```

```
[1] Layer3 load balancing  
[2] Layer5 load balancing  
[3] Proxy cache  
[4] Transparent cache
```

```
Enter the number for the feature you want to configure: 1
```

To accept the script default values, press the Enter key at the prompts.

```

Creating Layer3 load balancing

Enter service name: [default = Server1]

Enter service IP address: [default = 192.168.10.3] 192.168.3.58

Create another service? [y/n]? y

Enter service name: [default = Server2]

Enter service IP address: [default = 192.168.10.3] 192.168.3.59

Create another service? [y/n]? n

Enter Virtual IP address for L3_Rule: [default = 192.168.10.4]
192.168.3.6

```

After the configuration is completed, the script automatically:

- Displays the running-config
- Saves the running-config to the startup-config

```

Showing the Running Config

!Generated MAR 6 17:53:49

!***** GLOBAL *****
ip route 0.0.0.0 0.0.0.0 192.168.3.3
!***** CIRCUIT *****
circuit VLAN1
ip address 192.168.3.6 255.255.255.0
!***** SERVICE *****
service Server1
    ip address 192.168.3.58
    active
service Server2
    ip address 192.168.3.59
    active

```

```

!***** OWNER *****
owner L3_Owner
  content L3_Rule
  add service Server1
  add service Server2
  vip address 192.168.3.6
  balance aca
  active
#####
##   Setup Completed Successfully!!!  ##
#####

```

For detailed configuration information, refer to the Content Services Switch Basic Configuration Guide.

Configuring Layer 5 Load Balancing

A Layer 5 load balancing configuration enables the CSS to use a Virtual 7IP address (VIP) to load balance Web traffic to Web servers based on Universal Resource Locators (URLs).

When you select Layer5 load balancing, the script automatically:

- Creates an owner (L5_Owner)
- Creates a Layer 3 content rule (L3_Rule)
- Creates a Layer 5 content rule (L5_Rule) and defines:
 - Protocol tcp
 - Port 80
 - URL "/*"
 - Load balance method as ACA
- Activates the services
- Activates the content rule
- Saves the running-config to the startup-config

The script enables you to configure:

- Service name (default name is Server1)
- VIP for the content rule

To configure Layer 5 load balancing, enter **2**.

```
Which feature do you want to configure?
```

```
[1] Layer3 load balancing  
[2] Layer5 load balancing  
[3] Proxy cache  
[4] Transparent cache
```

```
Enter the number for the feature you want to configure: 2
```

To accept the script default values, press the Enter key at the prompts.

```
Creating Layer5 load balancing
```

```
Enter service name: [default= Server1]
```

```
Enter service IP address: [default = 192.168.10.3] 192.168.3.58
```

```
Create another service? [y/n]? n
```

```
Enter Virtual IP address for L5_Rule: [default = 192.168.10.4]  
192.168.3.8
```

After the configuration is completed, the script automatically:

- Displays the running-config
- Saves the running-config to the startup-config

Showing the Running Config

```

!Generated MAR 6 17:53:49

!***** GLOBAL *****
ip route 0.0.0.0 0.0.0.0 192.168.3.3
!***** CIRCUIT *****
circuit VLAN1
ip address 192.168.3.6 255.255.255.0
!***** SERVICE *****
service Server1
    ip address 192.168.3.58
    active
!***** OWNER *****
owner L5_Owner
content L3_Rule
    add service Server1
    vip address 192.168.3.8
    balance aca
    active
content L5_Rule
    add service Server1
    vip address 192.168.3.8
    protocol tcp
    port 80
    url "/*"
    balance aca
    active
#####
##    Setup Completed Successfully!!!    ##
#####

```

For detailed configuration information, refer to the Content Services Switch Basic Configuration Guide.

Configuring Proxy Cache

A proxy cache configuration enables the CSS to use a Virtual IP address (VIP) to load balance Web traffic to proxy cache servers based on domain name.

When you select Proxy Cache, the script automatically:

- Creates an owner (Proxy_Owner)
- Creates a content rule (Proxy_Rule) and defines:
 - Service type as proxy-cache
 - Protocol tcp
 - Port 8080
 - URL "/*"
 - Load balance method as domain
 - Application type HTTP
- Activates the services
- Activates the content rule

The script enables you to configure:

- Service name (default name is Proxy_Cache1)
- VIP for the content rule

To configure a proxy cache configuration, enter **3**.

```
Which feature do you want to configure?
```

```
[1] Layer3 load balancing  
[2] Layer5 load balancing  
[3] Proxy cache  
[4] Transparent cache
```

```
Enter the number for the feature you want to configure: 3
```

To accept the script default values, press the Enter key at the prompts.

```
Creating Proxy Cache Configuration
```

```
Enter service name: [default=Proxy_Cache1]
```

```
Enter service IP address: [default = 192.168.10.3] 192.168.3.60
```

```
Create another service? [y/n]? n
```

```
Enter Virtual IP address for Proxy_Rule: [default = 192.168.10.4]  
192.168.3.9
```

After the configuration is completed, the script automatically:

- Displays the running-config
- Saves the running-config to the startup-config

```
Showing the Running Config
!Generated MAR 6 17:53:49
!***** GLOBAL *****
ip route 0.0.0.0 0.0.0.0 192.168.3.3
!***** CIRCUIT *****
circuit VLAN1
ip address 192.168.3.6 255.255.255.0
!***** SERVICE *****
service Proxy_Cache1
    ip address 192.168.3.60
    type proxy-cache
    port 8080
    protocol tcp
    active
!***** OWNER *****
owner Proxy_Owner
content Proxy_Rule
    add service Proxy_Cache1
    vip address 192.168.3.9
    port 8080
    protocol tcp
    url "/"*
    balance domain
    application http
    active

#####
##   Setup Completed Successfully!!!  ##
#####
```

For detailed configuration information, refer to the Content Services Switch Basic Configuration Guide.

Configuring Transparent Cache

A transparent cache configuration enables the CSS to redirect cacheable HTTP traffic to transparent cache servers based on IP address and port (80). The CSS directs non-cacheable HTTP traffic to the origin servers.

When you select Transparent Cache, the script automatically:

- Creates an owner (Transparent_Owner)
- Creates a content rule (Transparent_Rule) and defines:
 - Service type as transparent-cache
 - Protocol tcp
 - Port 80
 - Extension Qualifier List (EQL) named *Cacheable* that contains the file types displayed in the sample running-config file
 - URL "/*" eql Cacheable
 - Load balance method as domain
 - Failover type as bypass
 - Application type HTTP
- Activates the services
- Activates the content rule

The script enables you to:

- Configure a service name (Transparent_Cache1)
- Define whether to direct only cacheable content or all content to the cache servers

To configure a transparent cache configuration, enter **4**.

```
Which feature do you want to configure?
```

```
[1] Layer3 load balancing
[2] Layer5 load balancing
[3] Proxy cache
[4] Transparent cache
```

```
Enter the number for the feature you want to configure: 4
```

To accept the script default values, press the Enter key at the prompts.

```
Creating Transparent Cache Configuration
```

```
Enter service name: [default = Transparent_Cache1]
```

```
Enter service IP address: [default = 0.0.0.0] 192.168.3.7
```

```
Create another service? [y/n]? n
```

```
Transparent caching can be configured to direct only cacheable
content to the cache server. Non-cacheable content is sent
directly to the origin server.
```

```
The alternative is to direct all traffic to the cache server
regardless of whether the content is cacheable.
```

```
Should only cacheable content be directed to the cache server?
[y/n]?
```

Enter:

- **y** to define URL “/*” as egl-cacheable in the content rule and allow the CSS to direct only cacheable content to the cache servers
- **n** to define URL “/*” in the content rule and allow the CSS to direct all content to the cache servers

After the configuration is completed, the script automatically:

- Displays the running-config
- Saves the running-config to the startup-config

```
Showing the Running Config
```

```
!Generated MAR 6 17:53:49
```

```
!***** GLOBAL *****
```

```
ip route 0.0.0.0 0.0.0.0 192.168.3.3
```

```
!***** CIRCUIT *****
```

```
circuit VLAN1
```

```
ip address 192.168.3.6 255.255.255.0
```

```

!***** SERVICE *****
service Transparent_Cache1
  ip address 192.168.3.7
  type transparent-cache
  port 80
  protocol tcp
  active
!***** EQL *****
eql Cacheable
  description "This EQL contains
    extensions of cacheable content"
  extension pdf "Acrobat"
  extension fdf "Acrobat Forms Document"
  extension au "Sound audio/basic"
  extension bmp "Bitmap Image"
  extension z "Compressed data
    application/x-compress"
  extension gif "GIF Image image/gif"
  extension html "Hypertext Markup
    Language text/html"
  extension htm
  extension js "Java script
    application/x-javascript"
  extension mocha
  extension jpeg "JPEG image image/jpeg"
  extension jpg
  extension jpe
  extension jfif
  extension pjpeg
  extension pjp
  extension mp2 "MPEG Audio audio/x-mpeg"
  extension mpa
  extension abs
  extension mpeg "MPEG Video video/mpeg"
  extension mpg
  extension mpe
  extension mpv
  extension vbs
  extension mlv
  extension pcx "PCX Image"
  extension txt "Plain text text/plain"
  extension text
  extension mov "QuickTime video/quicktime"
  extension tiff "TIFF Image image/tiff"
  extension tar "Unix Tape Archive
    application/x-tar"
  extension avi "Video for Windows
    video/x-msvideo"

```

```

extension wav "Wave File audio/x-wav"
extension gz "application/x-gzip"
extension zip "ZIP file
    application/x-zip-compressed"
!***** OWNER *****
owner Transparent_Owner
content Transparent_Rule
    add service Transparent_Cache1
    port 80
    protocol tcp
    url "/" eq1 Cacheable or url "/"
    balance domain
    failover bypass
    application http
    active
#####
##    Setup Completed Successfully!!!    ##
#####

```

For detailed configuration information, refer to the *Content Services Switch Basic Configuration Guide*.

Where to Go Next

Refer to the *Content Services Switch Basic Configuration Guide* and the *Content Services Switch Advanced Configuration Guide* for detailed information on configuring the CSS.



Specifications

This appendix contains the following sections that list specifications for the CSS 11050, CSS 11150, and CSS 11800:

- Electrical Specifications
- Environmental Specifications
- Physical Specifications
- Module Specifications
- Internal Disk Module Specifications
- Supported Protocols
- DC Power Supply Safety Warnings
- Lithium Battery Disposal Warnings

Electrical Specifications

Table A-1 describes the CSS 11050, CSS 11150, and CSS 11800 AC electrical specifications

Table A-1 AC Electrical Specification

AC Specification	CSS 11050 or CSS 11150	CSS 11800
Input Voltage AC	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz
Current AC (max@ 100VAC)	3.1 Amps	12 Amps
Power Consumption (maximum)	310 Watts	1200 Watts

Table A-2 describes the CSS 11150, and CSS 11800 DC electrical specifications

Table A-2 DC Electrical Specifications

DC Specification	CSS 11150	CSS 11800
Voltage DC	-48.0 to -60.0 VDC	-48.0 to -60.0 VDC
Current DC (maximum)	8 Amps	25 Amps
Power Consumption	300 Watts (maximum)	970 Watts (maximum)

AC Power Cord Country Requirements

The CSS AC power cord is a three-prong IEC 320-C13 plug that grounds the unit and polarizes the connection. Table A-3 lists country requirements for plug types and ratings.

Table A-3 AC Power Cord Country Requirements

Country	AC Power Cord Type and Rating
Australia	AS 3112-1981 10A/240 VAC
Austria	CEE7 Sht V11 16A/240 VAC
Belgium	CEE7 Sht V11 16A/240 VAC
British	BS 1363A 13A/250 VAC
Canada	NEMA 5-15P 12A/125 VAC
China	AS 3112-1981 10A/240 VAC
Denmark	SRAF 1962/DB 16/87 10A/250 VAC
Finland	CEE7 Sht V11 16A/240 VAC
France	CEE7 Sht V11 16A/240 VAC
Germany	CEE7 Sht V11 16A/240 VAC
India	BS 546A 16A/250 VAC
Israel	S.I. 32 16A/250 VAC
Italy	CEI 23-16 10A/250 VAC
Japan	JIS 8303 12A/125 VAC
Netherlands	CEE7 Sht V11 16A/240 VAC
Norway	CEE7 Sht V11 16A/240 VAC
South Africa	BS 546A 16A/250 VAC
Sweden	CEE7 Sht V11 16A/240 VAC
Switzerland	ASE 1011 (1959) Type 12 10A/250 VAC
U.S.A.	NEMA 5-15P 12A/125 VAC

Environmental Specifications

Table A-4 describes the CSS 11050, CSS 11150, and CSS 11800 environmental specifications.

Table A-4 Environmental Specifications

Specification	CSS 11050 or CSS 11150	CSS 11800
Ambient Operating Temperature	32 to 104° F (0 to 40° C)	
Relative Humidity	5 to 95% (non-condensing)	
Ambient Storage Temperature	23 to +149° F (-5 to 65° C)	

Physical Specifications

Table A-5 describes the CSS 11050, CSS 11150, and CSS 11800 physical specifications.

Table A-5 Physical Specifications

Specification	CSS 11050 or CSS 11150	CSS 11800
Chassis Dimensions (H x W x D)	2.62" x 17.1" x 15"	25.25" x 17.1" x 12.5"
Chassis Shipping Weight	23 lbs.	105 lbs. (base system containing one power supply, one SFM or SFM2, one SCM, IDM)
Chassis Weight Fully Configured	16 lbs.	72 lbs. (base system containing one power supply, one SFM or SFM2, one SCM, IDM)

Module Specifications

Table A-6 describes module general specifications.

Table A-6 *Module General Specifications*

Specification	CSS 11050 or CSS 11150	CSS 11800
Slot Configuration	Fixed configuration	8 slots for I/O modules 2 slots for SCMs (1 active, 1 passive) 4 slots for SFMs or SFM2s (2 active, 2 passive) 1 slot for the IDM
Switch Bandwidth	5 GB	20 GB (base) 20 GB 1:1 optional redundancy
CPU Memory (DRAM)	CSS 11050 128 MB (base) CSS 11150 128 MB (base) with a maximum of 256 MB.	Switch Control Module 128 MB (base) with a maximum of 256 MB Switch Fabric Module (SFM or SFM2) 256 MB
Common Packet Memory (SRAM)	Per System 6 MB	Switch Control Module Per System 12 MB

Internal Disk Module Specifications

This section provides the following specifications for the Internal Disk Module (IDM).

- Power
- General

IDM Power Requirements

Table A-7 describes the IDM power requirements.

Table A-7 IDM Power Requirements

Power Requirements	Internal Disk Module
+12V +/- 5%	1.2 Amps Max
+5V +/- 5%	.5 Amps Max

IDM General Specifications

Table A-8 defines IDM general specifications.

Table A-8 IDM General Specifications

Specification	Hard Disk	Flash Disk
Capacity	1.08 GB minimum	350 MB minimum
Interface	EIDE or ATA-3	IDE

Supported Protocols

The CSS supports the following protocols:

- Transport
- Network
- Routing
- Gateway
- Application
- Network Utilities
- Network Management

Transport

The CSS supports the following transport protocols:

- TCP
- UDP

Network

The CSS supports the following network protocols:

- Internet Protocol (IP)
- ICMP
- Address Resolution Protocol (ARP)
- Inverse ARP

Routing

The CSS supports the following routing protocols:

- RIP I
- RIP II
- OSPF Version 2

Gateway

The CSS supports Network Address Translation (NAT), per RFC 1631 gateway protocol.

Application

The CSS supports the following application protocols:

- HTTP 1.0, HTTP 1.1
- TELNET
- FTP, TFTP
- RTP

Network Utilities

The CSS supports the following network utility protocols:

- DNS Client
- Radius Client
- HTTP Client
- FTP Daemon

Network Management

The CSS supports the following network management protocols:

- SNMP v1
- SNMP v2

DC Power Supply Safety Warnings



Warning

The DC power supply must be installed in restricted access areas only (for example, dedicated equipment rooms, equipment closets) in accordance with articles 110-16, 110-17, and 110-18 of the national electric code, ANSI/NFPA 70. Connect a DC CSS 11150 or CSS 11800 to a -48 VDC source that is electrically isolated from the AC power source and is reliably grounded to earth.

This equipment is designed to permit the connection of the grounded conductor of the DC supply circuit to the grounding conductor at the equipment. If this connection is made, all of the following conditions must be met:

- This equipment shall be connected directly to the DC supply system grounding electrode conductor or bonding jumper from a grounding terminal bar or bus to which the DC supply system grounding electrode conductor is connected.
- This equipment shall be located in the same immediate area as any other equipment that has a connection between the grounded conductor of the same DC supply circuit and the grounding conductor, and also the point of grounding of the DC system. The DC system shall not be grounded elsewhere.
- The DC supply source is to be located within the same premises as the equipment.
- There shall be no switching or disconnecting devices in the grounded circuit conductor between the DC source and the point of connection of the grounding electrode conductor.



Warning

A readily accessible disconnect device must be provided in the fixed wiring for a DC power supply. It must be suitable for the rated voltage and current specified.

Lithium Battery Disposal Warnings

The SCM contains a small lithium battery. Some jurisdictions restrict the ways in which items containing lithium batteries may be disposed. In particular, lithium batteries or products containing lithium batteries may never be disposed of in an unregulated fire. Other restrictions might apply.



Warning

Ultimate disposal of this product should be handled according to all national laws and regulations.

Waarschuwing

Dit produkt dient volgens alle landelijke wetten en voorschriften te worden afgedankt.

Varoitus

Tämän tuotteen lopullisesta hävittämisestä tulee huolehtia kaikkia valtakunnallisia lakeja ja säännöksiä noudattaen.

Attention

La mise au rebut définitive de ce produit doit être effectuée conformément à toutes les lois et réglementations en vigueur.

Warnung

Dieses Produkt muß den geltenden Gesetzen und Vorschriften entsprechend entsorgt werden.

Avvertenza

L'eliminazione finale di questo prodotto deve essere eseguita osservando le normative italiane vigenti in materia.

Advarsel

Endelig disponering av dette produktet må skje i henhold til nasjonale lover og forskrifter.

Aviso

A descartagem final deste produto deverá ser efectuada de acordo com os regulamentos e a legislação nacional.

¡Advertencia!

El desecho final de este producto debe realizarse según todas las leyes y regulaciones nacionales.

Varning!

Slutlig kassering av denna produkt bör skötas i enlighet med landets alla lagar och föreskrifter.



Cable Pinouts

This appendix contains the following sections that list pinouts for the connectors used with the CSS 11050, CSS 11150, and CSS 11800:

- RJ-45 Fast Ethernet Connector Pinouts
- RJ-45 RS-232 Serial Connector Pinouts
- RJ-45 Timing BITS Connector Pinouts
- RJ-45 Management Connector Pinouts

RJ-45 Fast Ethernet Connector Pinouts

Table B-1 lists the pinouts for the RJ-45 Fast Ethernet connectors on the:

- CSS 11050 and CSS 11150
- Fast Ethernet Module

Table B-1 RJ-45 Fast Ethernet Connector Pinouts

Signal Name	RJ-45 Fast Ethernet Pin Numbers	Crossover Cable Pinouts
RX +	1	3
RX -	2	6
TX +	3	1
Unconnected	4	4
Unconnected	5	5
TX -	6	2
Unconnected	7	7
Unconnected	8	8

When using the Fast Ethernet connectors to connect the CSS to a:

- Server or a workstation, use a straight-through cable
- Switch or a repeater, use a crossover cable

RJ-45 RS-232 Serial Connector Pinouts

RJ-45 RS-232 Serial connectors are the interfaces for the:

- Console and Diag ports on all CSS 11050 and CSS 11150, and CSS 11800 Switch Control Module (SCM) and Switch Fabric Module (SFM)
- Diag1 and Diag2 ports on the SFM2. These ports provide both console and diagnostic functionality on each of its RJ-45 RS-232 Serial connectors.

Table B-2 lists the RJ-45 RS-232 Serial connector pinouts for the Console port.

Table B-2 RJ-45 RS-232 Serial Connector Pinouts for the Console Port

Signal Name	Pin Number
DTR -	1
TXD	2
RXD	3
RTS -	4
CTS -	5
DSR	6
GND	7
DCD -	8

Table B-3 lists the pinouts for the RJ-45 to DB-9 or to DB-25 console cables supplied in the CSS cable kit.

Table B-3 RJ-45 Connector to a DB-9 or DB-25 Connector Console Cable Pinouts

Signal Name	RJ-45 Console Pin Number to	DB-9 Pin Number	DB-25 Pin Number
TXD	2	2	3
RXD	3	3	2
GND	7	5	7

Table B-4 lists the RJ-45 RS-232 Serial connector pinouts for the Diag port.

Table B-4 RJ-45 RS-232 Serial Connector Pinouts for the Diag Port

Signal Name	Pin Number
Not Used	1
TXD	2
RXD	3
Not Used	4
Not Used	5
Not Used	6
GND	7
Not Used	8

Table B-5 lists the RJ-45 RS-232 Serial connector pinouts for the Diag1 and Diag2 ports on the SFM2. These ports provide both console and diagnostic functionality on each of its RJ-45 RS-232 Serial connectors.

Table B-5 RJ-45 RS-232 Serial Connector Pinouts for the SFM2 Diag1 and Diag2 Port

Signal Name	Pin Number
Not Used	1
TXD - Console	2
RXD - Console	3
GND	4
TXD - Diag	5
RXD - Diag	6
GND	7
Not Used	8

RJ-45 Timing BITS Connector Pinouts

Table B-6 lists the RJ-45 Timing BITS (Building Integrated Timing Supply) Clock connector pinouts on the SCM.

Table B-6 *RJ-45 Timing BITS Connector Pinouts*

Signal Name	Pin Number
Bitsck +	1
Bitsck -	2
Unconnected	3, 4, 5, 6, 7, 8

RJ-45 Management Connector Pinouts

Table B-7 lists RJ-45 Ethernet management connector pinouts on the:

- CSS 11050 and CSS 11150 rear panel
- CSS 11800 front panel

Table B-7 *RJ-45 Management Connector Pinouts*

Signal Name	Pin Number
TX +	1
TX -	2
RX +	3
Unconnected	4
Unconnected	5
RX -	6
Unconnected	7
Unconnected	8



Troubleshooting

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

- Troubleshooting the Console Interface
- Troubleshooting the CSS Power Supply
- Troubleshooting the CSS 11800 Modules
- Troubleshooting the Boot Process
- Log File Information

Information in this appendix applies to the CSS 11050, CSS 11150, and CSS 11800 Content Services Switches except where noted.

Troubleshooting the Console Interface

Table C-1 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
- Flow Control - none
- Parity - none
- Stop Bits -1

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

Table C-1 *Troubleshooting the Console Interface*

Possible Problem	Recommended Action
Nothing appears on the screen.	Ensure 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 for 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 enough 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

Power supply status is indicated by the:

- Power LED on the CSS 11050 and CSS 11150
- PS1 and PS2 LEDs on the SCM in the CSS 11800

For information on power supply LEDs, refer to Chapter 2, *Cabling the CSS*. Table C-2 provides suggestions for correcting problems that may occur with the CSS 11050 or CSS 11150 power supply.

Table C-2 *Troubleshooting the CSS 11050 or CSS 11150 CSS Power Supply*

LED Name	LED Status	Possible Problem	Recommended Action
Power	Off	No power to power supply.	Ensure unit has power. Check power switch, power cord, and power source.
		Fault in power supply.	Replace unit.

Table C-3 provides suggestions for correcting problems that may occur with the CSS 1800 power supplies (AC or DC). The power supply status LED is on the SCM.

Table C-3 *Troubleshooting the CSS 11800 Power Supply*

LED Name	LED Status	Possible Problem	Recommended Action
PS 1 PS 2	Off	No power to primary power supply.	Ensure unit has power. Check power switch, power cord, and power source.
		Fault in power supply.	Replace the power supply.
		The power outputs are out of limits (possibly caused by a low input line).	Replace the power supply or rectify the deficient line condition.



Note

Installing a second CSS 11800 power supply provides power load balancing between the two power supplies. When you install a second power supply, it powers on and begins to share the power load automatically.

Troubleshooting the CSS 11800 Modules

Each CSS 11800 module is equipped with a temperature sensor that detects an over- or under-temperature condition. If the module detects that its temperature is out of range, it generates a log message.

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-4 provides suggestions for correcting problems that may occur with the modules.

Table C-4 *Troubleshooting the CSS 11800 Modules*

Symptom	Recommended Action
System cannot identify module type.	Remove the module and re-install it to reseal the module in the backplane connector.
	Reload the ADI file.
System cannot find an image for the module.	Reload the ADI file.
Module failed diagnostic (according to the information in the Boot.log file).	Replace the 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 Internal Disk Module. Remove the module and re-install it to reseal the module in the backplane connector.
Replacement IDM does not initialize.	If the replacement IDM does not contain the same version of the software that the CSS is currently running, the SCM will not initialize the IDM for use. 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 Boot Process

During the boot process, the SCM downloads software to the SFM or SFM2 and the I/O modules. If the boot process cannot locate the correct files, the CSS logs an error in the Boot.log file. For information about the boot process, refer to Chapter 4, Configuring the CSS.

Table C-5 provides suggestions for correcting problems that may occur during the boot process.

Table C-5 *Troubleshooting the Boot Process*

Symptom	Recommended Action
Boot diagnostic failed.	Check boot.log for error messages that may specify which component is faulty.
Boot process failed.	Check boot.log for error messages that may specify where in the process the boot failed. (For information on boot.log, refer to the “Log File Information” section in this appendix.)
Boot image is corrupt.	Reload the ADI file.
Cannot locate boot record.	Check boot record configuration in the Offline DM menu. (Refer to the <i>Content Services Switch Basic Configuration Guide</i> , Chapter 1, Logging In and Getting Started, for information on the Offline DM menu.) Reconfigure boot record configuration if necessary.

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 a boot log file is renamed.
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.
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 time 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. The maximum size of a log file is 50 MB for hard disk-based systems and 10 MB for flash disk-based systems. 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, refer to the *Content Services Switch Basic Configuration Guide*.

For information on using syslogd, refer to your syslogd daemon reference guide.



Regulatory Information

This appendix lists the regulatory agencies that have approved the content services switch (CSS 11050, CSS 11150, or CSS 11800). This appendix also includes a sample affidavit that you need to file with your telephone company concerning connecting customer premise equipment (CPE) to 1.544-Mbps services.

This appendix includes the following sections:

- Regulatory Standards Compliance
- Canadian IC CS-03 Requirements
- FCC Part 68 General Information
- FCC and Telephone Company Procedures and Requirements
- Example Affidavit (United States)

Regulatory Standards Compliance

The following regulatory agencies have approved the CSS and have found it to be fully compliant with their environmental, safety, and emissions standards.

Table D-1 Regulatory Standards Compliance

Regulatory Standards Compliance	Regulatory Agency
Safety	<ul style="list-style-type: none"> • UL 1950 • C-UL • EN60950 • GS Mark
EMC	<ul style="list-style-type: none"> • FCC Part 15 • EN55022 • EN50082-1 • VCCI
Factory Approvals	<ul style="list-style-type: none"> • UL • TUV • BABT

Canadian IC CS-03 Requirements

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements documents. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, user should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



Warning

Users should not attempt to make electrical ground connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Avis D'Industrie Canada

L'étiquette d'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L'entreprise de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

AVIS: L'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface. La terminaison d'une interface téléphonique peut consister en une combinaison de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

FCC and Telephone Company Procedures and Requirements

To connect this system to the network, you must provide the local operating company with the registration number of this equipment, and you must order the proper connections.

To order the proper service, provide the telephone company with the following information:

- Quantities and USOC numbers of the required jacks
- Sequence in which the trunks are to be connected
- Facility interface codes, by position
- Ringer equivalence number or service code, as applicable, by position

Radio Frequency Interference

The CSS is designed for Class A use only. Do not attempt to use this equipment in a domestic environment, which requires Class B distinction. These switches cause interference with domestic products.



Warning

In accordance with FCC Part 15 Subpart B requirements, changes or modifications made to this equipment not expressly approved by Cisco Systems could void user's authority to operate this equipment.

This equipment produces electromagnetic energy at radio frequencies and, if not installed and operated in accordance with the manufacturer's instructions as contained in this document, could cause interference to radio communications and/or interfere with the operation of other RF devices. The equipment has been tested and found to comply with the limits for a Class A Computing Device pursuant to Subpart B of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of the equipment in a residential area may cause interference. Should this occur, the user may be required to discontinue operation of the equipment, or take other such measures as may be adequate to rectify the condition at the user's expense.

If Problems Arise

If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, as it may cause harm to the telephone network. The telephone operating company must be notified before removal of equipment that is connected to 1.544 Mbps digital services. If the telephone company notes a problem, it may temporarily discontinue service. When practical, the telephone company will notify you in advance of this disconnection. If advance notice is not feasible, you will be notified as soon as possible. When you are notified, you will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC.

In the event repairs are needed on this equipment, they should be performed by Cisco Systems or an authorized representative of Cisco Systems.

Example Affidavit (United States)

This is an example of the affidavit that needs to be filed with the Telco concerning connection of customer premise equipment (CPE) to 1.544 Mbps services:

For the work to be performed in the certified territory of

_____ (name of Telco), State of _____,

County of, _____, I, _____ (Name), of

_____ (Business Address),

_____ (phone number) being duly sworn, state the following:

I have responsibility for the operation and maintenance of the terminal equipment to be connected to 1.544 Mbps digital services. The terminal equipment to be connected complies with Part 68 of the FCC rules except for the encoded analog content and billing protection specifications. With respect to the encoded analog content and billing protection:

() I attest that all operations associated with the establishment, maintenance of the terminal equipment to be connected to 1.544 Mbps digital services complies with Part 68 of the FCC Rules and Regulations.

() The digital CPE does not transmit digital signals containing encoded analog content or billing information which is intended to be decoded within the telecommunications network.

() The encoded analog content and billing protection is factory set and is not under control of the customer.

I attest that the operator(s)/maintainer(s) of the digital CPE responsible for the establishment, maintenance and adjustment of the encoded analog content and billing information has (have) been trained to perform these functions by successfully having completed one of the following:

() A training course provided by the manufacturer/grantee of the equipment used to encode analog signals; or

() A training course provided by the customer or authorized representative, using training materials and instructions provided by the manufacturer/grantee of the equipment used to encode analog signals; or

() An independent training course (e.g. trade school or technical institution) recognized by the manufacturer/grantee of the equipment used to encode analog signals; or

() In lieu of the proceeding training requirements, the operator(s)/maintainer(s) is (are) under control of a supervisor trained in accordance with _____ (circle one) above.

I agree to provide _____ (name of Telco) with proper documentation to demonstrate compliance with the information as provided in the preceding paragraph, if so requested.

_____ (Signature)

_____ (Title)

_____ (Date)

Subscribe and sworn to before me, this _____ day of _____, 19__.

_____ Notary Public, my commission expires _____.



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