



Specifying the CSS Boot Configuration

This chapter describes how to set the boot configuration, both the primary and secondary boot files, for the CSS. Information in this chapter applies to all CSS models, except where noted.

This chapter contains the following major sections:

- [Boot Setup Quick Start](#)
- [Accessing Boot Mode](#)
- [Specifying the Primary Boot Configuration](#)
- [Specifying the Secondary Boot Configuration](#)
- [Configuring a Boot Configuration Record for the Passive SCM](#)
- [Showing the Boot Configuration](#)
- [Booting the CSS from a Network Drive](#)

As an alternate procedure for managing the CSS boot configuration from the CLI, you can use the Offline DM menu. Refer to [Appendix B, Using the Offline Diagnostic Monitor Menu](#) for details.

Boot Setup Quick Start

[Table 4-1](#) provides a quick overview of the steps required to configure the CSS to boot from a primary boot file and from a secondary boot file. Each step includes the CLI command required to complete the task. For a complete description of each feature and all the options associated with the CLI command, see the sections following [Table 4-1](#).

Table 4-1 *Boot Setup Quick Start*

Task and Command Example

1. Create a File Transfer Protocol (FTP) record file to use when accessing an FTP server from the CSS. This step is optional.

```
# ftp-record arrowrecord 192.168.19.21 bobo password "secret"
/outgoing
```

Note Refer to [Chapter 3, Managing the CSS Software](#) for details on creating an FTP record.

2. Access boot mode.

```
(config)# boot
```

3. Specify the primary boot configuration.

```
(config-boot)# primary boot-file ap0720002
(config-boot)# primary boot-type boot-via-ftp arrowrecord
```

4. Specify the secondary boot configuration.

```
(config-boot)# secondary boot-file ap0720001
(config-boot)# secondary boot-type boot-via-disk
```

5. Exit from boot mode.

```
(config-boot)# exit
```

6. Save your configuration changes to the startup-config file (recommended). If you do not save the running configuration, all configuration changes are lost upon reboot.

```
(config)# copy running-config startup-config
```

Accessing Boot Mode

Boot configuration mode contains all the commands necessary to boot the CSS and maintain the software revision. To access this mode, use the **boot** command from global configuration mode.

To access boot mode, enter:

```
(config)# boot
```

The CSS enters boot mode.

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

Specifying the Primary Boot Configuration

Use the **primary** command to specify the primary boot configuration. The options for this boot-mode command are as follows:

- **primary boot-file** - Specifies the primary boot file
- **primary boot-type** - Specifies the primary boot method: local disk, using FTP, or a network-mounted file system using FTP
- **primary config-path** - Specifies the path to a network CSS configuration

This section includes the following topics:

- [Specifying the Primary Boot File](#)
- [Specifying the Primary Boot Type](#)
- [Specifying the Primary Configuration Path](#)

Specifying the Primary Boot File

Use the **primary boot-file** command to specify the primary boot file. Enter the primary boot file as an unquoted text string with no spaces and a maximum of 64 characters.

To specify the primary boot filename, enter:

```
(config-boot)# primary boot-file ap0720002
```

To display a list of boot filenames, enter:

```
(config-boot)# primary boot-file ?
```

To remove the primary boot file, enter:

```
(config-boot)# no primary boot-file
```

Specifying the Primary Boot Type

Use the **primary boot-type** command to specify the location from which the CSS accesses the primary boot image upon system reboot or when you download new software.

The syntax for this boot mode command is:

```
primary boot-type [boot-via-disk|boot-via-ftp ftp_record |  
boot-via-network ftp_record]
```

The options and variables for this command are as follows:

- **boot-via-disk** - Boots the CSS from a software version that resides on the CSS disk.
- **boot-via-ftp** *ftp_record* - Downloads an ADI file containing CSS software that you want to install on the CSS disk. The CSS accesses the ADI or GZIP file containing the CSS software from an FTP server, copies the file to the disk, and unpacks it. The CSS then boots from the disk.
- **boot-via-network** *ftp_record* - Uses FTP to boot the CSS from software located on a network-mounted file system on a remote system. Instead of the CSS disk, the network file system contains the CSS software. The CSS boots from this file system and loads the configuration in to memory.



Note A network boot requires that the CSS contains an operational disk.

The *ftp_record* variable is the name of the FTP record file that contains the FTP server IP address, username, and password. Enter an unquoted text string with no spaces. Refer to [Chapter 3, Managing the CSS Software](#) for details on creating an FTP record.

For example, to configure the primary boot-type to **boot-via-disk**, enter:

```
(config-boot)# primary boot-type boot-via-disk
```

To remove the primary boot type, enter:

```
(config-boot)# no primary boot-type
```

Primary Boot Configuration Considerations

When you select **primary boot-type boot-via-ftp** or **primary boot-type boot-via-network**, make sure you properly connect the Ethernet Management port on the CSS to the network. The locations of the Ethernet Management port on the CSS are listed below.

- CSS 11501 - Front Panel 10 Mbps-Ethernet Management port
- CSS 11503 and CSS 11506 - SCM 10 Mbps-Ethernet Management port

When you select **primary boot-type boot-via-network**, make sure you:

- Locate the remote system on the network where you will copy the CSS software.
 - Make sure the CSS can access the system via FTP.
 - Copy the CSS software Zip file from www.cisco.com onto the designated network server.
 - Create a directory and unzip the file in to the directory. This directory will contain all of the boot files and directories.
- Create an FTP record on the CSS to the directory that contains the CSS software on the network drive. Refer to [Chapter 3, Managing the CSS Software](#) for details on creating an FTP record.



Note

Be aware of the following network boot restrictions: a network boot is not supported on UNIX workstations, and the War-FTP daemon is not supported for network-booting the system software.

A network boot requires that the CSS contains an operational disk.

Specifying the Primary Configuration Path

Use the **primary config-path** command to specify the alternate path to a network configuration for the network boot method. An alternate configuration path allows multiple CSSs to use the same boot image while keeping their configuration information in separate directories. The CSS must be able to access the configuration path through an FTP server as defined in the FTP record for the network boot method.

When using an alternate configuration path, make sure the path leads to a directory containing the script, log, and information subdirectories, and to the startup-config file. These subdirectories must contain the files in the corresponding subdirectories of the unzipped boot image. First, create these subdirectories on the FTP server, then copy the files from the boot image to the subdirectories.

Enter the configuration pathname as an unquoted text string with no spaces and a maximum of 64 characters.

To configure the primary configuration path, enter:

```
(config-boot)# primary config-path f:/bootdir/
```

To remove the primary network configuration path, enter:

```
(config-boot)# no primary config-path
```

Specifying the Secondary Boot Configuration

Use the **secondary** command to specify the secondary boot configuration. The CSS uses the secondary boot configuration when the primary boot configuration fails. The options for this boot mode command are as follows:

- **secondary boot-file** - Specifies the secondary boot file
- **secondary boot-type** - Specifies the boot method: local disk or FTP
- **secondary config-path** - Specifies the path to a network configuration using FTP

This section includes the following topics:

- [Specifying the Secondary Boot File](#)
- [Specifying the Secondary Boot Type](#)
- [Specifying the Secondary Configuration Path](#)

Specifying the Secondary Boot File

Use the **secondary boot-file** command to specify the secondary boot file that the CSS uses when the primary boot configuration fails. Enter the boot file as an unquoted text string with no spaces and a maximum of 64 characters.

To specify the secondary boot filename, enter:

```
(config-boot)# secondary boot-file ap0720001
```

To display a list of secondary boot filenames, enter:

```
(config-boot)# secondary boot-file ?
```

To remove the secondary boot file, enter:

```
(config-boot)# no secondary boot-file
```

Specifying the Secondary Boot Type

Use the **secondary boot-type** command to specify the secondary boot configuration.

The syntax for this boot mode command is:

```
secondary boot-type [boot-via-disk|boot-via-ftp ftp_record|  
boot-via-network ftp_record]
```

The options and variables for this command are as follows:

- **boot-via-disk** - Boots the CSS from a software version that resides on the CSS disk.
- **boot-via-ftp ftp_record** - Downloads an ADI file containing CSS software that you want to install on the CSS disk. The CSS accesses the ADI or GZIP file containing the CSS software from an FTP server, copies the file to the disk, and unpacks it. The CSS then boots from the disk.
- **boot-via-network ftp_record** - Uses FTP to boot the CSS from software located on a network-mounted file system on a remote system. Instead of the CSS disk, the network file system contains the CSS software. The CSS boots from this file system and loads the configuration in to memory.



Note A network boot requires that the CSS contains an operational disk.

The *ftp_record* variable is the name of the FTP record file that contains the FTP server IP address, username, and password. Enter an unquoted text string with no spaces. Refer to [Chapter 3, Managing the CSS Software](#) for details on creating an FTP record.

For example, to specify the secondary boot type as **boot-via-disk**, enter:

```
(config-boot)# secondary boot-type boot-via-disk
```

To remove the secondary boot type, enter:

```
(config-boot)# no secondary boot-type
```

Secondary Boot Configuration Considerations

When you select **secondary boot-type boot-via-ftp** or **secondary boot-type boot-via-network**, make sure you properly connect the Ethernet Management port on the CSS to the network. Note the locations of the Ethernet Management port on the CSS as listed below.

- CSS 11501 - Front Panel 10 Mbps-Ethernet Management port
- CSS 11503 and CSS 11506 - SCM 10 Mbps-Ethernet Management port

When you select **secondary boot-type boot-via-network**, make sure you:

- Locate the remote system on the network where you will copy the CSS software.
 - Make sure the CSS can access the system via FTP.
 - Copy the CSS software Zip file from www.cisco.com onto the designated network server.
 - Create a directory and unzip the file in to the directory. This directory will contain all of the boot files and directories.
- Create an FTP record on the CSS to the directory that contains the CSS software on the network drive.

**Note**

Be aware of the following network boot restrictions: a network boot is not supported on UNIX workstations, and the War-FTP daemon is not supported for network-booting the system software.

A network boot requires that the CSS contains an operational disk.

Specifying the Secondary Configuration Path

Use the **secondary config-path** command to specify the alternate path to a network configuration for the network boot method. An alternate configuration path allows multiple CSSs to use the same boot image while keeping their configuration information in separate directories. The CSS must be able to access the configuration path through an FTP server as defined through the FTP record for the network boot method.

When using an alternate configuration path, make sure the path leads to a directory containing the script, log, and information subdirectories, and to the startup-config file. These subdirectories must contain the files in the corresponding subdirectories of the unzipped boot image. First, create these subdirectories on the FTP server, then copy the files from the boot image to the subdirectories.

Enter the configuration pathname as an unquoted text string with no spaces and a maximum of 64 characters.

To configure the secondary configuration path, enter:

```
(config-boot)# secondary config-path f:/bootdir/
```

To remove the secondary network configuration path, enter:

```
(config-boot)# no secondary config-path
```

Configuring a Boot Configuration Record for the Passive SCM

Use the **passive** command to configure the boot configuration record for the current passive SCM installed in a CSS 11506. The boot configuration record consists of the IP address, subnet mask, boot method, and boot file.

Using the **sync** options for this command, copy the boot configuration record from the active SCM to the passive SCM. In most CSS configurations, the active and passive SCMs have the same boot record.

The **passive** command also allows you to configure the individual components of the boot configuration record on the passive SCM. For example, you can configure a boot record on the passive SCM that has a software version that differs from the active SCM. The boot configuration record allows you to run a new software version on the active SCM and have an older software version on the passive SCM.

You can also configure a different IP address on the passive SCM to track an active-to-passive state transition between the SCMs. You can track active-to-passive state transitions through a network management station, where you can receive SNMP host traps.

The **passive** command and its options affect only the current passive SCM. When you configure the passive SCM, the set values are loaded in to its NVRAM. If the passive SCM transitions to the active state, it continues to retain these values, but is no longer affected by these commands; boot commands are not saved in the running-config file.

This section includes the following topics:

- [Configuring the Passive SCM Gateway Address](#)
- [Configuring the Passive SCM IP Address](#)
- [Configuring the Passive SCM Primary Boot File](#)
- [Configuring the Passive SCM Primary Boot Type](#)
- [Configuring the Passive SCM Primary Configuration Path](#)
- [Configuring the Passive SCM Secondary Boot File](#)
- [Configuring the Passive SCM Secondary Boot Type](#)
- [Configuring the Passive SCM Secondary Configuration Path](#)

- [Configuring the Passive SCM Subnet Mask](#)
- [Copying Configuration Information from the Active SCM to the Passive SCM](#)

Configuring the Passive SCM Gateway Address

Use the **passive gateway address** command to configure an Ethernet management port default gateway to load a boot file on a CSS across different subnets for the passive SCM. Enter the IP address for the passive SCM to be used upon CSS boot up. Do not enter an all-zero IP address.

For example:

```
(config-boot)# passive gateway address 172.16.3.6
```

To change the passive SCM boot gateway address, reenter the **passive gateway address** command.

Configuring the Passive SCM IP Address

Use the **passive ip address** command to configure the boot IP address for the passive SCM. Enter the IP address for the passive SCM to be used upon CSS boot up. Do not enter an all-zero IP address.

For example:

```
(config-boot)# passive ip address 172.16.3.6
```

To change the passive SCM boot IP address, reenter the **passive ip address** command.

Configuring the Passive SCM Primary Boot File

Use the **passive primary boot-file** command to specify the primary boot image for the passive SCM. Enter the filename of the primary boot image for the passive SCM as an unquoted text string with no spaces and a maximum of 64 characters. To display a list of filenames, enter **passive primary boot-file ?**.

For example:

```
(config-boot)# passive primary boot-file ap0720002
```

To remove the primary boot file from the passive SCM, enter:

```
(config-boot)# no passive primary boot-file
```

Configuring the Passive SCM Primary Boot Type

Use the **passive primary boot-type** command to specify the location from which the CSS accesses the primary boot image for the passive SCM upon system reboot or when you download new software.

The syntax for this boot mode command is:

```
passive primary boot-type [boot-via-disk|boot-via-ftp ftp_record |  
boot-via-network ftp_record]
```

The options and variables for the **passive primary boot-type** are as follows:

- **boot-type boot-via-disk** - Boots the CSS from a software version that currently resides on the CSS disk.
- **boot-type boot-via-ftp *ftp_record*** - Downloads an ADI file containing CSS software that you want to install on the CSS disk. The CSS accesses the ADI or GZIP file containing the CSS software from an FTP server, copies the file to the disk, and unpacks it. The CSS then boots from the disk.
- **boot-type boot-via-network *ftp_record*** - Uses FTP to boot the CSS from software located on a network-mounted file system on a remote system. Instead of the CSS disk, the network file system contains the CSS software. The CSS boots from this file system and loads the configuration in to memory.



Note A network boot requires that the CSS contains an operational disk.

The *ftp_record* variable is the name of the FTP record file that contains the FTP server IP address, username, and password. Enter an unquoted text string with no spaces. Refer to [Chapter 3, Managing the CSS Software](#) for details on creating an FTP record.

For example:

```
(config-boot)# passive primary boot-type boot-via-ftp arecord
```

To remove the primary boot type from the passive SCM, enter:

```
(config-boot)# no passive primary boot-type
```

Configuring the Passive SCM Primary Configuration Path

Use the **passive primary config-path** command to specify the alternate path to a network configuration for the network boot method for the passive SCM. An alternate configuration path allows multiple CSSs to use the same boot image while keeping their configuration information in separate directories. The CSS must be able to access the configuration path through an FTP server as defined through the FTP record for the network boot method.

When using an alternate configuration path, make sure the path leads to a directory containing the script, log, and information subdirectories, and the startup-config file. These subdirectories must contain the files in the corresponding subdirectories in the unzipped boot image. First, create these subdirectories on the FTP server, then copy the files from the boot image to the subdirectories.

Enter the configuration path for network configuration. Enter an unquoted text string with no spaces and a maximum of 64 characters. For example:

```
(config-boot)# passive primary config-path c:/bootdir/
```

To remove the primary network configuration path, enter:

```
(config-boot)# no passive primary config-path
```

Configuring the Passive SCM Secondary Boot File

Use the **passive secondary boot-file** command to specify the secondary boot image for the passive SCM. Enter the name of the boot file for the primary boot image as an unquoted text string with no spaces and a maximum of 64 characters. To display a list of boot filenames, enter **passive secondary boot-file ?**. For example:

```
(config-boot)# passive secondary boot-file ap0720001
```

To remove the secondary boot file from the passive SCM, enter:

```
(config-boot)# no passive secondary boot-file
```

Configuring the Passive SCM Secondary Boot Type

Use the **passive secondary boot-type** command to specify the secondary boot configuration for the passive SCM. The secondary boot configuration is used when the primary configuration fails.

The syntax for this boot mode command is:

```
passive secondary boot-type [boot-via-disk|boot-via-ftp ftp_record]  
boot-via-network ftp_record]
```

The options and variables for the **passive secondary boot-type** command are as follows:

- **boot-type boot-via-disk** - Boots the CSS from a software version that resides on the CSS disk.
- **boot-type boot-via-ftp** *ftp_record* - Downloads an ADI file containing CSS software that you want to install on the CSS disk. The CSS accesses the ADI or GZIP file containing the CSS software from an FTP server, copies the file to the disk, and unpacks it. The CSS then boots from the disk.
- **boot-type boot-via-network** *ftp_record* - Uses FTP to boot the CSS from software located on a network-mounted file system on a remote system. Instead of the CSS disk, the network file system contains the CSS software. The CSS boots from this file system and loads the configuration in to memory.



Note A network boot requires that the CSS contains an operational disk.

The *ftp_record* variable is the name of the FTP record file that contains the FTP server IP address, username, and password. Enter an unquoted text string with no spaces. Refer to [Chapter 3, Managing the CSS Software](#) for details on creating an FTP record.

For example:

```
(config-boot)# passive secondary boot-type boot-via-disk
```

To remove the secondary boot type from the passive SCM, enter:

```
(config-boot)# no passive secondary boot-type
```

Configuring the Passive SCM Secondary Configuration Path

Use the **passive secondary config-path** command to specify the secondary alternate path to a network configuration for the network boot method for the passive SCM. An alternate configuration path allows multiple CSSs to use the same boot image while keeping their configuration information in separate directories. The CSS must be able to access the configuration path through an FTP server as defined through the FTP record for the network boot method.

When using an alternate configuration path, make sure that the path leads to a directory containing the script, log, and information subdirectories, and the startup-config file. These subdirectories must contain the files in the corresponding subdirectories of the unzipped boot image. First, create these subdirectories on the FTP server, then copy the files from the boot image to the subdirectories.

Enter the configuration path as an unquoted text string with no spaces and a maximum of 64 characters.

For example:

```
(config-boot)# passive secondary config-path c:/bootdir/
```

To remove the primary network configuration path, enter:

```
(config-boot)# no passive secondary config-path
```

Configuring the Passive SCM Subnet Mask

Use the **passive subnet mask** command to configure the system boot subnet mask for the passive SCM.

For example:

```
(config-boot)# passive subnet mask 255.255.0.0
```

Copying Configuration Information from the Active SCM to the Passive SCM

Use the **passive sync** command to copy the primary and secondary boot configuration record from NVRAM of the active SCM to the passive SCM. For the CSS 11506, the **passive sync** command also copies the startup-configuration file and synchronizes the clock time from the active SCM to the passive SCM. This command is available in boot mode.

To synchronize specific boot configuration, startup configuration, or clock time information between the active SCM and the passive SCM in a CSS 11506, use the following commands:

- **passive sync boot-config** - Copies the boot configuration record from the active SCM to the passive SCM.
- **passive sync startup-config** - Copies the startup-config file from the active SCM to the passive SCM.
- **passive sync image** - Copies the ADI of the boot-image file from the active SCM to the passive SCM.
- **passive sync time** - Synchronizes the clock time of the passive SCM with the active SCM.

To copy the primary and secondary boot configuration record, startup configuration, and clock time on a CSS 11506, enter:

```
(config-boot)# passive sync
```

To copy the boot configuration record from the active SCM to the passive SCM in a CSS 11506, enter:

```
(config-boot)# passive sync boot-config
```

Showing the Boot Configuration

Use the **show boot-config** command to display the boot configuration. For example:

```
(config-boot)# show boot-config

!***** BOOT CONFIG *****
ip address 172.16.36.58
subnet mask 255.0.0.0
primary boot-file ap0720001
primary boot-type boot-via-disk
```

Booting the CSS from a Network Drive

Network booting enables you to boot the CSS from a network drive using a .zip file of the CSS software version located on www.cisco.com. When you configure the CSS for network boot, the CSS must contain an operational disk (hard or Flash).

Use your customer login and password to access www.cisco.com. From this location, you can access the page listing the network boot .zip file versions of CSS software. Click an image to download the software.



Note

Be aware of the following network boot restrictions: a network boot is not supported on UNIX workstations, and the War-FTP daemon is not supported for network-booting the system software. In addition, network booting does not support the use of core dumps from the CSS.

Perform a network boot if you want multiple CSSs to use the same boot image while keeping their own configuration information. Provide an alternate path for the location of the configuration information. This information must exist on the same network file system as the boot image.

When using an alternate configuration path, make sure the path leads to a directory containing the script, log, and information subdirectories. These subdirectories must contain the files in the corresponding subdirectories in the boot image. Create these subdirectories, then copy the files from the boot image.

This section includes the following topics:

- [Configuring Network Boot for a Primary SCM](#)
- [Configuring Network Boot for a Passive SCM](#)
- [Showing Network Boot Configurations](#)

Configuring Network Boot for a Primary SCM

To configure network boot for a primary SCM on the CSS 11503 or CSS 11506:

1. Make sure the SCM management port has access to the network drive from which you are booting the CSS. The SCM mounts the drive, and reads and writes to the network drive.
2. Use FTP to install the software .zip file to the network drive base directory specified in the FTP record. This network directory must be the same directory that you use to boot the CSS.
3. Unzip the file. You must use the .zip distribution format for network loading.
4. Configure the FTP record. Refer to [Chapter 3, Managing the CSS Software](#) for details on creating an FTP record. Note that the config-path and the base directory path in the FTP record associated with the network boot must contain a pathname that is distinct from a non-network drive name (for example, c: or host:).

For example:

```
# ftp-record bootrecord 192.168.19.21 bobo encrypted-password  
"secret" e:/adi_directory/
```

This directory must contain the unzipped files.

5. Configure the CSS to boot from a network drive. For example:

```
(config-boot)# primary boot-type boot-via-network bootrecord
```

6. Optionally, configure a primary configuration path to allow multiple CSSs to use the same boot image while keeping their configuration information in separate directories. The CSS must be able to access the configuration path through the FTP server as defined in the FTP record. For example:

```
(config-boot)# primary config-path e:/adi_directory/
```

Configuring Network Boot for a Passive SCM

To configure network boot for a passive SCM on the CSS 11503 or CSS 11506:

1. Configure an FTP record for the passive SCM, if not already configured (see the [“Configuring a Boot Configuration Record for the Passive SCM”](#) section).
2. Make sure the passive SCM management port has access to the network drive from which you are booting the CSS. If the primary SCM fails, the passive SCM connects to the remote disk and loads the software configuration.
3. Configure the CSS to boot from a network drive. For example:

```
(config-boot)# passive primary boot-type boot-via-network  
bootrecord
```

To display a list of configured FTP records, reenter the command and specify the ? character. For example:

```
(config-boot)# passive primary boot-type boot-via-network  
bootrecord ?
```

4. Optionally, configure a primary configuration path to allow multiple CSSs to use the same boot image while keeping their configuration information in separate directories. Your FTP daemon must support the drive mapping. Also, the CSS must be able to access the configuration path through the FTP server as defined in the FTP record. For example:

```
(config-boot)# primary config-path e:/adi_directory/
```

Showing Network Boot Configurations

Use the **show version** command to display the network boot configuration. For example:

```
(config)# show version

Version:                ap0720001 (7.20 Build 1)
Network Path:           e:/adi_directory/
Config Path:            e:/adi_directory/
Flash (Locked):        7.20 Build 1
Flash (Operational):   7.20 Build 2
Type:                   PRIMARY
Licensed Cmd Set(s):   Standard Feature Set
                       Enhanced Feature Set
                       Secure Management
```



Note

Use the **version** command in SuperUser mode to display the network boot configuration.

To display network boot configuration information, use the **show boot-config** command. For example:

```
(config)# show boot-config

!***** BOOT CONFIG *****
secondary config-path e:/adi_directory/
secondary boot-type   boot-via-network Secondary-Boot
primary boot-file     ap0720001
primary boot-type     boot-via-network
subnet mask           255.0.0.0
ip address             192.168.4.226
```

Where to Go Next

[Chapter 5, Configuring Interfaces and Circuits](#) provides information on how to configure the CSS interfaces and circuits and how to bridge interfaces to VLANs.