



Working with Configuration Files

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About Configuration Files

Configuration files contain the Cisco NX-OS software commands used to configure the features on a Cisco NX-OS device. Commands are parsed (translated and executed) by the Cisco NX-OS software when the system is booted (from the startup-config file) or when you enter commands at the CLI in a configuration mode.

To change the startup configuration file, you can either save the running-configuration file to the startup configuration using the **copy running-config startup-config** command or copy a configuration file from a file server to the startup configuration.

Types of Configuration Files

The Cisco NX-OS software has two types of configuration files, running configuration and startup configuration. The device uses the startup configuration (startup-config) during device startup to configure the software features. The running configuration (running-config) contains the current changes that you make to the startup-configuration file. The two configuration files can be different. You might want to change the device configuration for a short time period rather than permanently. In this case, you would change the running configuration by using commands in global configuration mode but not save the changes to the startup configuration.

To change the running configuration, use the **configure terminal** command to enter global configuration mode. As you use the Cisco NX-OS configuration modes, commands generally are executed immediately and are saved to the running configuration file either immediately after you enter them or when you exit a configuration mode.

To change the startup-configuration file, you can either save the running configuration file to the startup configuration or download a configuration file from a file server to the startup configuration.

Related Topics

- [Saving the Running Configuration to the Startup Configuration](#), on page 2
- [Downloading the Startup Configuration From a Remote Server](#), on page 4

Guidelines and Limitations for Configuration Files

Configuration file guidelines and limitations are as follows:

- Beginning with NX-OS 7.0(3)I7(4), the **reload timer** command is supported to enable a reboot after a delay of 5 -60 seconds.

Managing Configuration Files

This section describes how to manage configuration files.

Saving the Running Configuration to the Startup Configuration

You can save the running configuration to the startup configuration to save your changes for the next time you that reload the device.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | (Optional) show running-config Example: switch# show running-config | Displays the running configuration. |
| Step 2 | copy running-config startup-config Example: switch# copy running-config startup-config | Copies the running configuration to the startup configuration. |

Copying a Configuration File to a Remote Server

You can copy a configuration file stored in the internal memory to a remote server as a backup or to use for configuring other Cisco NX-OS devices.

Procedure

| | Command or Action | Purpose |
|---------------|---|---|
| Step 1 | copy running-config <i>scheme://server</i>[<i>url</i> /]<i>filename</i> Example: | Copies the running-configuration file to a remote server. For the <i>scheme</i> argument, you can enter tftp: , ftp: , scp: , or sftp: . The <i>server</i> argument is the |

| | Command or Action | Purpose |
|---------------|---|---|
| | <pre>switch# copy running-config tftp://10.10.1.1/sw1-run-config.bak</pre> | <p>address or name of the remote server, and the <i>url</i> argument is the path to the source file on the remote server.</p> <p>The <i>server</i>, <i>url</i>, and <i>filename</i> arguments are case sensitive.</p> |
| Step 2 | <p>copy startup-config <i>scheme://server/[url]/filename</i></p> <p>Example:</p> <pre>switch# copy startup-config tftp://10.10.1.1/sw1-start-config.bak</pre> | <p>Copies the startup-configuration file to a remote server.</p> <p>For the <i>scheme</i> argument, you can enter tftp:, ftp:, scp:, or sftp:. The <i>server</i> argument is the address or name of the remote server, and the <i>url</i> argument is the path to the source file on the remote server.</p> <p>The <i>server</i>, <i>url</i>, and <i>filename</i> arguments are case sensitive.</p> |

Example

This example shows how to copy the configuration file to a remote server:

```
switch# copy running-config
tftp://10.10.1.1/sw1-run-config.bak
switch# copy startup-config
tftp://10.10.1.1/sw1-start-config.bak
```

Downloading the Running Configuration From a Remote Server

You can configure your Cisco NX-OS device by using configuration files that you created on another Cisco NX-OS device and uploaded to a remote server. You then download the file from the remote server to your device using TFTP, FTP, Secure Copy (SCP), or Secure Shell FTP (SFTP) to the running configuration.

Before you begin

Ensure that the configuration file that you want to download is in the correct directory on the remote server.

Ensure that the permissions on the file are set correctly. Permissions on the file should be set to world-read.

Ensure that your device has a route to the remote server. Your device and the remote server must be in the same subnetwork if you do not have a router or a default gateway to route traffic between subnets.

Check connectivity to the remote server using the **ping** or **ping6** command.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | <pre>copy <i>scheme://server/[url]/filename</i> running-config</pre> | Downloads the running-configuration file from a remote server. |

| | Command or Action | Purpose |
|---------------|--|---|
| | Example: <pre>switch# copy tftp://10.10.1.1/my-config running-config</pre> | For the <i>scheme</i> argument, you can enter tftp: , ftp: , scp: , or sftp: . The <i>server</i> argument is the address or name of the remote server, and the <i>url</i> argument is the path to the source file on the remote server. The <i>server</i> , <i>url</i> , and <i>filename</i> arguments are case sensitive. |
| Step 2 | (Optional) show running-config Example: <pre>switch# show running-config</pre> | Displays the running configuration. |
| Step 3 | (Optional) copy running-config startup-config Example: <pre>switch# copy running-config startup-config</pre> | Copies the running configuration to the startup configuration. |
| Step 4 | (Optional) show startup-config Example: <pre>switch# show startup-config</pre> | Displays the startup configuration. |

Related Topics

[Copying Files](#)

Downloading the Startup Configuration From a Remote Server

You can configure your Cisco NX-OS device by using configuration files that you created on another Cisco NX-OS device and uploaded to a remote server. You then download the file from the remote server to your device using TFTP, FTP, Secure Copy (SCP), or Secure Shell FTP (SFTP) to the startup configuration.



Caution This procedure disrupts all traffic on the Cisco NX-OS device.

Before you begin

Log in to a session on the console port.

Ensure that the configuration file that you want to download is in the correct directory on the remote server.

Ensure that the permissions on the file are set correctly. Permissions on the file should be set to world-read.

Ensure that your device has a route to the remote server. Your device and the remote server must be in the same subnetwork if you do not have a router or a default gateway to route traffic between subnets.

Check connectivity to the remote server using the **ping** or **ping6** command.

Procedure

| | Command or Action | Purpose |
|---------------|--|---|
| Step 1 | write erase Example: <pre>switch# write erase</pre> | Erases the startup configuration file. |
| Step 2 | reload Example: <pre>switch# reload This command will reboot the system. (y/n)? [n] y ... Enter the password for "admin": <password> Confirm the password for "admin": <password> ... Would you like to enter the basic configuration dialog (yes/no): n switch#</pre> | Reloads the Cisco NX-OS device. Note Do not use the setup utility to configure the device. |
| Step 3 | copy <i>scheme</i>://server/[url /]filename running-config Example: <pre>switch# copy tftp://10.10.1.1/my-config running-config</pre> | Downloads the running configuration file from a remote server. For the <i>scheme</i> argument, you can enter tftp: , ftp: , scp: , or sftp: . The <i>server</i> argument is the address or name of the remote server, and the <i>url</i> argument is the path to the source file on the remote server. The <i>server</i> , <i>url</i> , and <i>filename</i> arguments are case sensitive. |
| Step 4 | copy running-config startup-config Example: <pre>switch# copy running-config startup-config</pre> | Saves the running configuration file to the startup configuration file. |
| Step 5 | (Optional) show startup-config Example: <pre>switch# show startup-config</pre> | Displays the running configuration. |

Related Topics

[Copying Files](#)

Copying Configuration Files to an External Flash Memory Device

You can copy configuration files to an external flash memory device as a backup for later use.

Before you begin

Insert the external Flash memory device into the active supervisor module.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | (Optional) dir {usb1: usb2:}[<i>directory/</i>] Example: switch# dir usb1: | Displays the files on the external flash memory device. |
| Step 2 | copy running-config {usb1: usb2:}[<i>directory/</i>] <i>filename</i> Example: switch# copy running-config usb1:dsn-running-config.cfg | Copies the running configuration to an external flash memory device. The <i>filename</i> argument is case sensitive. |
| Step 3 | copy startup-config {usb1: usb2:}[<i>directory/</i>] <i>filename</i> Example: switch# copy startup-config usb1:dsn-startup-config.cfg | Copies the startup configuration to an external flash memory device. The <i>filename</i> argument is case sensitive. |

Related Topics

[Copying Files](#)

Copying the Running Configuration from an External Flash Memory Device

You can configure your device by copying configuration files created on another Cisco NX-OS device and saved to an external flash memory device.

Before you begin

Insert the external flash memory device into the active supervisor module.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | (Optional) dir {usb1: usb2:}[<i>directory/</i>] Example: switch# dir usb1: | Displays the files on the external flash memory device. |
| Step 2 | copy {usb1: usb2:}[<i>directory/</i>] <i>filename</i> running-config Example: switch# copy usb1:dsn-config.cfg running-config | Copies the running configuration from an external flash memory device. The <i>filename</i> argument is case sensitive. |

| | Command or Action | Purpose |
|---------------|--|--|
| Step 3 | (Optional) show running-config Example: switch# show running-config | Displays the running configuration. |
| Step 4 | (Optional) copy running-config startup-config Example: switch# copy running-config startup-config | Copies the running configuration to the startup configuration. |
| Step 5 | (Optional) show startup-config Example: switch# show startup-config | Displays the startup configuration. |

Related Topics[Copying Files](#)

Copying the Startup Configuration From an External Flash Memory Device

You can recover the startup configuration on your device by downloading a new startup configuration file saved on an external flash memory device.

Before you begin

Insert the external flash memory device into the active supervisor module.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | (Optional) dir {usb1: usb2:}[directory/] Example: switch# dir usb1: | Displays the files on the external flash memory device. |
| Step 2 | copy {usb1: usb2:}[directory /]filename startup-config Example: switch# copy usb1:dsn-config.cfg startup-config | Copies the startup configuration from an external flash memory device. The <i>filename</i> argument is case sensitive. |
| Step 3 | (Optional) show startup-config Example: switch# show startup-config | Displays the startup configuration. |

Related Topics[Copying Files](#)

Copying Configuration Files to an Internal File System

You can copy configuration files to the internal memory as a backup for later use.

Procedure

| | Command or Action | Purpose |
|---------------|--|---|
| Step 1 | copy running-config [<i>filesystem</i> :[<i>directory</i>]/ [<i>directory</i>]/] <i>filename</i> Example: <pre>switch# copy running-config bootflash:sw1-run-config.bak</pre> | Copies the running-configuration file to internal memory. The <i>filesystem</i> , <i>directory</i> , and <i>filename</i> arguments are case sensitive. |
| Step 2 | copy startup-config [<i>filesystem</i> :[<i>directory</i>]/ [<i>directory</i>]/] <i>filename</i> Example: <pre>switch# copy startup-config bootflash:sw1-start-config.bak</pre> | Copies the startup-configuration file to internal memory. The <i>filesystem</i> , <i>directory</i> , and <i>filename</i> arguments are case sensitive. |

Related Topics

[Copying Files](#)

Rolling Back to a Previous Configuration

Problems, such as memory corruption, can occur that make it necessary for you to recover your configuration from a backed up version.



Note Each time that you enter a **copy running-config startup-config** command, a binary file is created and the ASCII file is updated. A valid binary configuration file reduces the overall boot time significantly. A binary file cannot be uploaded, but its contents can be used to overwrite the existing startup configuration. The **write erase** command clears the binary file.

Procedure

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | write erase Example: <pre>switch# write erase</pre> | Clears the current configuration of the switch. |
| Step 2 | reload Example: <pre>switch# reload</pre> | Restarts the device. You will be prompted to provide an nx-os image file for the device to boot and run. |
| Step 3 | copy configuration-file running-configuration | Copies a previously saved configuration file to the running configuration. |

| | Command or Action | Purpose |
|---------------|---|--|
| | Example: switch# copy bootflash:start-config.bak running-configuration | Note The <i>configuration-file</i> filename argument is case sensitive. |
| Step 4 | copy running-config startup-config Example: switch# copy running-config startup-config | Copies the running configuration to the start-up configuration. |

Removing the Configuration for a Missing Module

When you remove an I/O module from the chassis, you can also remove the configuration for that module from the running configuration.



Note You can only remove the configuration for an empty slot in the chassis.

Before you begin

Remove the I/O module from the chassis.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | (Optional) show hardware Example: switch# show hardware | Displays the installed hardware for the device. |
| Step 2 | purge module slot running-config Example: switch# purge module 3 running-config | Removes the configuration for a missing module from the running configuration. |
| Step 3 | (Optional) copy running-config startup-config Example: switch# copy running-config startup-config | Copies the running configuration to the startup configuration. |

Erasing a Configuration

Procedure

| | Command or Action | Purpose |
|---------------|--|---|
| Step 1 | <p>write erase [boot debug]</p> <p>Example:</p> <pre>switch# write erase Warning: This command will erase the startup-configuration. Do you wish to proceed anyway? (y/n) [n] y</pre> | <p>Erases configurations in persistent memory. The default action erases the startup configuration.</p> <p>The boot option erases the boot variable definitions and the IPv4 configuration on the mgmt0 interface.</p> <p>The debug option erases the debugging configuration.</p> <p>Note The running-configuration file is not affected by this command.</p> |

Clearing Inactive Configurations

You can clear inactive QoS and/or ACL configurations.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | <p>(Optional) show running-config <i>type</i> inactive-if-config</p> <p>Example:</p> <pre># show running-config ipqos inactive-if-config</pre> | <p>Displays any inactive access control list (ACL) or quality of service (QoS) configurations.</p> <p>The values for the <i>type</i> argument are acmgr and ipqos.</p> <ul style="list-style-type: none"> • acmgr—Displays any inactive configurations for acmgr. • ipqos—Displays any inactive configurations for qosmgr. |
| Step 2 | <p>clear inactive-config <i>policy</i></p> <p>Example:</p> <pre># clear inactive-config qos clear qos inactive config Inactive if config for QoS manager is saved at/bootflash/qos_inactive_if_config.cfg for vdc default you can see the log file @ show inactive-if-config log</pre> | <p>Clears inactive configurations.</p> <p>The values for the <i>policy</i> argument are qos and acl.</p> <p>The following describes the values:</p> <ul style="list-style-type: none"> • qos—Clears inactive QoS configurations. • acl—Clears inactive ACL configurations. • acl qos—Clears inactive ACL configurations and inactive QoS configurations. |

| | Command or Action | Purpose |
|---------------|--|--|
| Step 3 | (Optional) show inactive-if-config log Example: <code># show inactive-if-config log</code> | Displays the commands that were used to clear the inactive configurations. |

Configuration Archive and Configuration Log

This section contains information on configuration archive and configuration log.

Information About Configuration Archive

The configuration archive is intended to provide a mechanism to store, organize, and manage an archive of the configuration files to enhance the configuration rollback capability provided by the **configure replace** command. Before configuration archiving was introduced, you could save copies of the running configuration using the **copy running-config destination-url** command, storing the replacement file either locally or remotely. However, this method lacked any automated file management. The configuration replace and configuration rollback provides the capability to automatically save copies of the running configuration to the configuration archive. These archived files serve as checkpoint configuration references and can be used by the **configure replace** command to revert to the previous configuration states.

The **archive config** command allows you to save configurations in the configuration archive using a standard location and filename prefix that is automatically appended with an incremental version number (and optional timestamp) as each consecutive file is saved. This functionality provides a means for consistent identification of saved configuration files. You can specify how many versions of the running configuration are kept in the archive. After the maximum number of files are saved in the archive, the oldest file is automatically deleted when the next, most recent file is saved. The **show archive** command displays information for all configuration files saved in the configuration archive.

The configuration archive, wherein the configuration files are stored and are available for use with the **configure replace** command, can be located on the following file systems: bootflash, FTP, and TFTP.



Note The TFTP and FTP for this feature use VRF management.

Configuring the Characteristics of the Configuration Archive

Before using the **archive config** command, the configuration archive must be configured. Complete the following steps to configure the characteristics of the configuration archive:

Procedure

| | Command or Action | Purpose |
|---------------|--|---------------------------------------|
| Step 1 | configure terminal Example: | Enters the global configuration mode. |

| | Command or Action | Purpose |
|---------------|---|---|
| | <code>switch# configure terminal</code> | |
| Step 2 | archive Example: <code>switch(config)# archive</code> | Enters the archive configuration mode. Note This command does not apply to Cisco Nexus 9300-EX, -FX, and -R Series switches. |
| Step 3 | path <i>url</i> Example: <code>switch(config-archive)# path bootflash:myconfig</code> | Specifies the location and the filename prefix for the files in the configuration archive. <ul style="list-style-type: none"> Depending on your hardware platform, the name of your file system can be different than the one displayed in the example. Note If a directory is specified in the path instead of the file, the directory name must be followed by a forward slash as follows: <code>path flash:/directory/</code> . The forward slash is not necessary after a filename; it is necessary only when specifying a directory. |
| Step 4 | maximum <i>number</i> Example: <code>switch(config-archive)# maximum 14</code> | (Optional) Sets the maximum number of archive files of the running configuration to be saved in the configuration archive. <ul style="list-style-type: none"> The <i>number</i> is the maximum number of the archive files of the running configuration that can be saved in the configuration archive. The range is 1 to 14. The default is 10. Note Before using this command, you must configure the path to specify the location and filename prefix for the files in the configuration archive. |
| Step 5 | time-period <i>minutes</i> Example: <code>switch(config-archive)# time-period 10</code> | (Optional) Sets the time increment for automatically saving an archive file of the current running configuration in the configuration archive. <ul style="list-style-type: none"> The <i>minutes</i> argument specifies how often, in minutes, to automatically save an archive file of the current running configuration in the configuration archive. |

| | Command or Action | Purpose |
|---------------|--|---|
| | | <p>Note Before using this command, you must configure the path command to specify the location and filename prefix for the files in the configuration archive.</p> |
| Step 6 | <p>write-memory</p> <p>Example:</p> <pre>switch(config-archive)# write-memory</pre> | <p>Enables the command. It is disabled by default. Entering this command causes an archive to occur when the command copy r s is performed.</p> |
| Step 7 | <p>archive config</p> <p>Example:</p> <pre>switch(config-archive)# archive config</pre> | <p>Saves the current running configuration file to the configuration archive.</p> <p>Note You must configure the path before using the archive config command.</p> |
| Step 8 | <p>(Optional) show archive log config all</p> <p>Example:</p> <pre>switch# show archive log config all</pre> | <p>Displays the configuration log entries for all the users.</p> |

Information About Configuration Log

The configuration change logging tracks the changes that are made to the running configuration by using the data in the accounting log. This configuration log tracks the changes that are initiated only through the CLI. Only complete commands that result in the invocation of action routines are logged. The following types of entries are not logged:

- Commands that result in a syntax error message
- Partial commands that invoke the device help system

The configuration log tracks the changes that are initiated only through the CLI. For each configuration command that is executed, the following information is logged:

- A configuration change sequence number
- The line from which the command was executed
- The name of the user that executed the command
- The command that was executed

You can display the information from the configuration log by using the **show archive log config all** command. For each configuration command that is executed, the following information is logged:

- The command that was executed
- The name of the user that executed the command
- A configuration change sequence number

You can display the information from the configuration log by using the **show archive log config** command.

Displaying Configuration Log Entries

To display the configuration log entries, the configuration change logging provides the **show archive log config all** command.

Procedure

Step 1 switch# show archive log config all

Displays the configuration log entries for all users

Example:

```
switch# show archive log config all
```

| INDEX | LINE | USER | LOGGED COMMAND |
|-------|----------|--------|------------------------------------|
| 1 | console0 | user01 | logging console 1 |
| 2 | console0 | user01 | logging monitor 2 |
| 3 | console0 | user02 | system default switchport shutdown |
| 4 | console0 | user02 | interface mgmt0 |
| 5 | console0 | user02 | no shutdown |

Step 2 switch# show archive log config user username

Displays the configuration log entries for the specified username.

Example:

The following example displays the configuration log entries for a specified username.

```
switch# show archive log config user user02
```

| INDEX | LINE | USER | LOGGED COMMAND |
|-------|----------|--------|------------------------------------|
| 3 | console0 | user02 | system default switchport shutdown |
| 4 | console0 | user02 | interface mgmt0 |
| 5 | console0 | user02 | no shutdown |

Step 3 switch# show archive log config user username first-index start-number [last-index end-number]

Displays the configuration log entries by the index numbers. If you specify a number for the optional last-index, all the log entries with the index numbers in the range from the value entered for the start-number through the end-number for the specified user are displayed.

Example:

The following example displays the configuration log entry numbers 4 and 5 for a user with the username, user02. The range for the first-index and last-index is 1 to 2000000000.

```
switch# show archive log config user user02 first-index 4 last-index 5
Last Log cleared/wrapped time is : Wed Oct 19 00:53:08 2016
```

| INDEX | LINE | USER | LOGGED COMMAND |
|-------|----------|--------|-----------------|
| 4 | console0 | user02 | interface mgmt0 |
| 5 | console0 | user02 | no shutdown |

Verifying the Device Configuration

To verify the configuration, use one of the following commands:

| Command | Purpose |
|----------------------------------|-------------------------------------|
| <code>show running-config</code> | Displays the running configuration. |
| <code>show startup-config</code> | Displays the startup configuration. |

This option masks the sensitive words in running configuration output with <removed> keyword.

Examples of Working with Configuration Files

This section includes examples of working with configuration files.

Copying Configuration Files

This example shows how to overwrite the contents of an existing configuration in NVRAM:

```
switch# copy nvram:snapshot-config nvram:startup-config
Warning: this command is going to overwrite your current startup-config.
Do you wish to continue? {y/n} [y] y
```



Note This command does not apply to Cisco Nexus 9300-EX Series switches.

This example shows how to copy a running configuration to the bootflash: file system:

```
switch# copy system:running-config bootflash:my-config
```

Backing Up Configuration Files

This example shows how to back up the startup configuration to the bootflash: file system (ASCII file):

```
switch# copy startup-config bootflash:my-config
```

This example shows how to back up the startup configuration to the TFTP server (ASCII file):

```
switch# copy startup-config tftp://172.16.10.100/my-config
```

This example shows how to back up the running configuration to the bootflash: file system (ASCII file):

```
switch# copy running-config bootflash:my-config
```

Rolling Back to a Previous Configuration

To roll back your configuration to a snapshot copy of a previously saved configuration, you need to perform the following steps:

1. Clear the current running image with the **write erase** command.
2. Restart the device with the **reload** command.
3. Copy the previously saved configuration file to the running configuration with the **copy configuration-file running-configuration** command.
4. Copy the running configuration to the start-up configuration with the **copy running-config startup-config** command.