# Stack Manager and High Availability Command Reference, Cisco IOS XE Release 3.6E (Catalyst 3650 Switches)

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# Preface



## Document Conventions

This document uses the following conventions:

| Convention | Description |
|---|---|
| ^ or Ctrl | Both the ^ symbol and Ctrl represent the Control (Ctrl) key on a keyboard. For example, the key combination **^D** or **Ctrl-D** means that you hold down the Control key while you press the D key. (Keys are indicated in capital letters but are not case sensitive.) |
| **bold** font | Commands and keywords and user-entered text appear in **bold** font. |
| *Italic* font | Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font. |
| `Courier` font | Terminal sessions and information the system displays appear in `courier` font. |
| **`Bold Courier`** font | **`Bold Courier`** font indicates text that the user must enter. |
| [x] | Elements in square brackets are optional. |
| ... | An ellipsis (three consecutive nonbolded periods without spaces) after a syntax element indicates that the element can be repeated. |
| \| | A vertical line, called a pipe, indicates a choice within a set of keywords or arguments. |
| [x \| y] | Optional alternative keywords are grouped in brackets and separated by vertical bars. |

| Convention | Description |
|---|---|
| {x \| y} | Required alternative keywords are grouped in braces and separated by vertical bars. |
| [x {y \| z}] | Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element. |
| string | A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks. |
| < > | Nonprinting characters such as passwords are in angle brackets. |
| [ ] | Default responses to system prompts are in square brackets. |
| !, # | An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line. |

### Reader Alert Conventions

This document may use the following conventions for reader alerts:

**Note** Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

**Tip** Means *the following information will help you solve a problem.*

**Caution** Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

**Timesaver** Means *the described action saves time.* You can save time by performing the action described in the paragraph.

**Warning** IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

# Related Documentation

**Note** Before installing or upgrading the switch, refer to the switch release notes.

- Cisco Catalyst 3650 Switch documentation, located at:

  http://www.cisco.com/go/cat3650_docs

- Cisco SFP and SFP+ modules documentation, including compatibility matrixes, located at:

  http://www.cisco.com/en/US/products/hw/modules/ps5455/tsd_products_support_series_home.html

- Error Message Decoder, located at:

  https://www.cisco.com/cgi-bin/Support/Errordecoder/index.cgi

# Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

# Using the Command-Line Interface

This chapter contains the following topics:



# Information About Using the Command-Line Interface

## Command Modes

The Cisco IOS user interface is divided into many different modes. The commands available to you depend on which mode you are currently in. Enter a question mark (?) at the system prompt to obtain a list of commands available for each command mode.

You can start a CLI session through a console connection, through Telnet, a SSH, or by using the browser.

When you start a session, you begin in user mode, often called user EXEC mode. Only a limited subset of the commands are available in user EXEC mode. For example, most of the user EXEC commands are one-time commands, such as **show** commands, which show the current configuration status, and **clear** commands, which clear counters or interfaces. The user EXEC commands are not saved when the switch reboots.

To have access to all commands, you must enter privileged EXEC mode. Normally, you must enter a password to enter privileged EXEC mode. From this mode, you can enter any privileged EXEC command or enter global configuration mode.

Using the configuration modes (global, interface, and line), you can make changes to the running configuration. If you save the configuration, these commands are stored and used when the switch reboots. To access the various configuration modes, you must start at global configuration mode. From global configuration mode, you can enter interface configuration mode and line configuration mode.

This table describes the main command modes, how to access each one, the prompt you see in that mode, and how to exit the mode.

*Table 1: Command Mode Summary*

| Mode | Access Method | Prompt | Exit Method | About This Mode |
|---|---|---|---|---|
| User EXEC | Begin a session using Telnet, SSH, or console. | `Switch>` | Enter **logout** or **quit**. | Use this mode to<br>• Change terminal settings.<br>• Perform basic tests.<br>• Display system information. |
| Privileged EXEC | While in user EXEC mode, enter the **enable** command. | `Switch#` | Enter **disable** to exit. | Use this mode to verify commands that you have entered. Use a password to protect access to this mode. |
| Global configuration | While in privileged EXEC mode, enter the **configure** command. | `Switch(config)#` | To exit to privileged EXEC mode, enter **exit** or **end**, or press **Ctrl-Z**. | Use this mode to configure parameters that apply to the entire switch. |
| VLAN configuration | While in global configuration mode, enter the **vlan** *vlan-id* command. | `Switch(config-vlan)#` | To exit to global configuration mode, enter the **exit** command.<br>To return to privileged EXEC mode, press **Ctrl-Z** or enter **end**. | Use this mode to configure VLAN parameters. When VTP mode is transparent, you can create extended-range VLANs (VLAN IDs greater than 1005) and save configurations in the switch startup configuration file. |
| Interface configuration | While in global configuration mode, enter the **interface** command (with a specific interface). | `Switch(config-if)#` | | Use this mode to configure parameters for the Ethernet ports. |

| Mode | Access Method | Prompt | Exit Method | About This Mode |
|---|---|---|---|---|
| | | | To exit to global configuration mode, enter **exit**.<br>To return to privileged EXEC mode, press **Ctrl-Z** or enter **end**. | |
| Line configuration | While in global configuration mode, specify a line with the **line vty** or **line console** command. | `Switch(config-line)#` | To exit to global configuration mode, enter **exit**.<br>To return to privileged EXEC mode, press **Ctrl-Z** or enter **end**. | Use this mode to configure parameters for the terminal line. |

# Understanding Abbreviated Commands

You need to enter only enough characters for the switch to recognize the command as unique.

This example shows how to enter the **show configuration** privileged EXEC command in an abbreviated form:

```
Switch# show conf
```

# No and Default Forms of Commands

Almost every configuration command also has a **no** form. In general, use the **no** form to disable a feature or function or reverse the action of a command. For example, the **no shutdown** interface configuration command reverses the shutdown of an interface. Use the command without the keyword **no** to reenable a disabled feature or to enable a feature that is disabled by default.

Configuration commands can also have a **default** form. The **default** form of a command returns the command setting to its default. Most commands are disabled by default, so the **default** form is the same as the **no** form. However, some commands are enabled by default and have variables set to certain default values. In these cases, the **default** command enables the command and sets variables to their default values.

# CLI Error Messages

This table lists some error messages that you might encounter while using the CLI to configure your switch.

***Table 2: Common CLI Error Messages***

| Error Message | Meaning | How to Get Help |
|---|---|---|
| `% Ambiguous command: "show con"` | You did not enter enough characters for your switch to recognize the command. | Reenter the command followed by a question mark (?) without any space between the command and the question mark.<br>The possible keywords that you can enter with the command appear. |
| `% Incomplete command.` | You did not enter all of the keywords or values required by this command. | Reenter the command followed by a question mark (?) with a space between the command and the question mark.<br>The possible keywords that you can enter with the command appear. |
| `% Invalid input detected at '^' marker.` | You entered the command incorrectly. The caret (^) marks the point of the error. | Enter a question mark (?) to display all of the commands that are available in this command mode.<br>The possible keywords that you can enter with the command appear. |

# Configuration Logging

You can log and view changes to the switch configuration. You can use the Configuration Change Logging and Notification feature to track changes on a per-session and per-user basis. The logger tracks each configuration command that is applied, the user who entered the command, the time that the command was entered, and the parser return code for the command. This feature includes a mechanism for asynchronous notification to registered applications whenever the configuration changes. You can choose to have the notifications sent to the syslog.

**Note** Only CLI or HTTP changes are logged.

# Using the Help System

You can enter a question mark (?) at the system prompt to display a list of commands available for each command mode. You can also obtain a list of associated keywords and arguments for any command.

## SUMMARY STEPS

1. **help**
2. *abbreviated-command-entry* **?**
3. *abbreviated-command-entry* <Tab>
4. **?**
5. *command* **?**
6. *command keyword* **?**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **help**<br><br>**Example:**<br>`Switch# help` | Obtains a brief description of the help system in any command mode. |
| **Step 2** | *abbreviated-command-entry* **?**<br><br>**Example:**<br>`Switch# di?`<br>`dir disable disconnect` | Obtains a list of commands that begin with a particular character string. |
| **Step 3** | *abbreviated-command-entry* <Tab><br><br>**Example:**<br>`Switch# sh conf`<tab><br>`Switch# show configuration` | Completes a partial command name. |
| **Step 4** | **?**<br><br>**Example:**<br>`Switch> ?` | Lists all commands available for a particular command mode. |
| **Step 5** | *command* **?**<br><br>**Example:**<br>`Switch> show ?` | Lists the associated keywords for a command. |
| **Step 6** | *command keyword* **?**<br><br>**Example:**<br>`Switch(config)# cdp holdtime ?`<br>`<10-255> Length of time (in sec) that receiver must keep this packet` | Lists the associated arguments for a keyword. |

# How to Use the CLI to Configure Features

## Configuring the Command History

The software provides a history or record of commands that you have entered. The command history feature is particularly useful for recalling long or complex commands or entries, including access lists. You can customize this feature to suit your needs.

### Changing the Command History Buffer Size

By default, the switch records ten command lines in its history buffer. You can alter this number for a current terminal session or for all sessions on a particular line. This procedure is optional.

#### SUMMARY STEPS

1. **terminal history** [**size** *number-of-lines*]

#### DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **terminal history** [**size** *number-of-lines*]<br><br>**Example:**<br>`Switch# terminal history size 200` | Changes the number of command lines that the switch records during the current terminal session in privileged EXEC mode. You can configure the size from 0 to 256. |

### Recalling Commands

To recall commands from the history buffer, perform one of the actions listed in this table. These actions are optional.

**Note** The arrow keys function only on ANSI-compatible terminals such as VT100s.

#### SUMMARY STEPS

1. **Ctrl-P** or use the **up arrow** key
2. **Ctrl-N** or use the **down arrow** key
3. **show history**

### DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **Ctrl-P** or use the **up arrow** key | Recalls commands in the history buffer, beginning with the most recent command. Repeat the key sequence to recall successively older commands. |
| **Step 2** | **Ctrl-N** or use the **down arrow** key | Returns to more recent commands in the history buffer after recalling commands with **Ctrl-P** or the up arrow key. Repeat the key sequence to recall successively more recent commands. |
| **Step 3** | **show history**<br><br>**Example:**<br>`Switch# show history` | Lists the last several commands that you just entered in privileged EXEC mode. The number of commands that appear is controlled by the setting of the **terminal history** global configuration command and the **history** line configuration command. |

## Disabling the Command History Feature

The command history feature is automatically enabled. You can disable it for the current terminal session or for the command line. This procedure is optional.

### SUMMARY STEPS

1. **terminal no history**

### DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **terminal no history**<br><br>**Example:**<br>`Switch# terminal no history` | Disables the feature during the current terminal session in privileged EXEC mode. |

# Enabling and Disabling Editing Features

Although enhanced editing mode is automatically enabled, you can disable it and reenable it.

### SUMMARY STEPS

1. **terminal editing**
2. **terminal no editing**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **terminal editing**<br><br>**Example:**<br>`Switch# terminal editing` | Reenables the enhanced editing mode for the current terminal session in privileged EXEC mode. |
| **Step 2** | **terminal no editing**<br><br>**Example:**<br>`Switch# terminal no editing` | Disables the enhanced editing mode for the current terminal session in privileged EXEC mode. |

## Editing Commands Through Keystrokes

The keystrokes help you to edit the command lines. These keystrokes are optional.

**Note** The arrow keys function only on ANSI-compatible terminals such as VT100s.

***Table 3: Editing Commands***

| Editing Commands | Description |
|---|---|
| **Ctrl-B** or use the **left arrow** key | Moves the cursor back one character. |
| **Ctrl-F** or use the **right arrow** key | Moves the cursor forward one character. |
| **Ctrl-A** | Moves the cursor to the beginning of the command line. |
| **Ctrl-E** | Moves the cursor to the end of the command line. |
| **Esc B** | Moves the cursor back one word. |
| **Esc F** | Moves the cursor forward one word. |
| **Ctrl-T** | Transposes the character to the left of the cursor with the character located at the cursor. |
| **Delete** or **Backspace** key | Erases the character to the left of the cursor. |
| **Ctrl-D** | Deletes the character at the cursor. |
| **Ctrl-K** | Deletes all characters from the cursor to the end of the command line. |
| **Ctrl-U** or **Ctrl-X** | Deletes all characters from the cursor to the beginning of the command line. |
| **Ctrl-W** | Deletes the word to the left of the cursor. |
| **Esc D** | Deletes from the cursor to the end of the word. |
| **Esc C** | Capitalizes at the cursor. |
| **Esc L** | Changes the word at the cursor to lowercase. |
| **Esc U** | Capitalizes letters from the cursor to the end of the word. |

| | |
|---|---|
| **Ctrl-V** or **Esc Q** | Designates a particular keystroke as an executable command, perhaps as a shortcut. |
| **Return** key | Scrolls down a line or screen on displays that are longer than the terminal screen can display.<br>**Note** The More prompt is used for any output that has more lines than can be displayed on the terminal screen, including **show** command output. You can use the **Return** and **Space** bar keystrokes whenever you see the More prompt. |
| **Space** bar | Scrolls down one screen. |
| **Ctrl-L** or **Ctrl-R** | Redisplays the current command line if the switch suddenly sends a message to your screen. |

## Editing Command Lines That Wrap

You can use a wraparound feature for commands that extend beyond a single line on the screen. When the cursor reaches the right margin, the command line shifts ten spaces to the left. You cannot see the first ten characters of the line, but you can scroll back and check the syntax at the beginning of the command. The keystroke actions are optional.

To scroll back to the beginning of the command entry, press **Ctrl-B** or the left arrow key repeatedly. You can also press **Ctrl-A** to immediately move to the beginning of the line.

**Note** The arrow keys function only on ANSI-compatible terminals such as VT100s.

The following example shows how to wrap a command line that extends beyond a single line on the screen.

### SUMMARY STEPS

1. **access-list**
2. **Ctrl-A**
3. **Return** key

### DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **access-list**<br><br>**Example:**<br><br>`Switch(config)# access-list 101 permit tcp` | Displays the global configuration command entry that extends beyond one line.<br><br>When the cursor first reaches the end of the line, the line is shifted ten spaces to the left and redisplayed. The dollar sign ($) shows that the |

| | Command or Action | Purpose |
|---|---|---|
| | 10.15.22.25 255.255.255.0 10.15.22.35<br>Switch(config)# $ **101 permit tcp 10.15.22.25 255.255.255.0 10.15.22.35 255.25**<br>Switch(config)# $**t tcp 10.15.22.25 255.255.255.0 131.108.1.20 255.255.255.0 eq**<br>Switch(config)# $**15.22.25 255.255.255.0 10.15.22.35 255.255.255.0 eq 45** | line has been scrolled to the left. Each time the cursor reaches the end of the line, the line is again shifted ten spaces to the left. |
| **Step 2** | **Ctrl-A**<br><br>**Example:**<br>Switch(config)# **access-list 101 permit tcp 10.15.22.25 255.255.255.0 10.15.2$** | Checks the complete syntax.<br>The dollar sign ($) appears at the end of the line to show that the line has been scrolled to the right. |
| **Step 3** | **Return** key | Execute the commands.<br>The software assumes that you have a terminal screen that is 80 columns wide. If you have a different width, use the **terminal width** privileged EXEC command to set the width of your terminal.<br>Use line wrapping with the command history feature to recall and modify previous complex command entries. |

# Searching and Filtering Output of show and more Commands

You can search and filter the output for **show** and **more** commands. This is useful when you need to sort through large amounts of output or if you want to exclude output that you do not need to see. Using these commands is optional.

## SUMMARY STEPS

1. {**show** | **more**} *command* | {**begin** | **include** | **exclude**} *regular-expression*

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | {**show** | **more**} *command* | {**begin** | **include** | **exclude**} *regular-expression*<br><br>**Example:**<br>Switch# **show interfaces | include protocol**<br>Vlan1 is up, line protocol is up<br>Vlan10 is up, line protocol is down<br>GigabitEthernet1/0/1 is up, line protocol is down<br>GigabitEthernet1/0/2 is up, line protocol is up | Searches and filters the output.<br>Expressions are case sensitive. For example, if you enter **| exclude output**, the lines that contain **output** are not displayed, but the lines that contain **output** appear. |

# Accessing the CLI on a Switch Stack

You can access the CLI through a console connection, through Telnet, a SSH, or by using the browser.

You manage the switch stack and the stack member interfaces through the active switch. You cannot manage stack members on an individual switch basis. You can connect to the active switch through the console port or the Ethernet management port of one or more stack members. Be careful with using multiple CLI sessions on the active switch. Commands that you enter in one session are not displayed in the other sessions. Therefore, it is possible to lose track of the session from which you entered commands.

**Note** We recommend using one CLI session when managing the switch stack.

If you want to configure a specific stack member port, you must include the stack member number in the CLI command interface notation.

# Accessing the CLI Through a Console Connection or Through Telnet

Before you can access the CLI, you must connect a terminal or a PC to the switch console or connect a PC to the Ethernet management port and then power on the switch, as described in the hardware installation guide that shipped with your switch.

If your switch is already configured, you can access the CLI through a local console connection or through a remote Telnet session, but your switch must first be configured for this type of access.

You can use one of these methods to establish a connection with the switch:

- Connect the switch console port to a management station or dial-up modem, or connect the Ethernet management port to a PC. For information about connecting to the console or Ethernet management port, see the switch hardware installation guide.
- Use any Telnet TCP/IP or encrypted Secure Shell (SSH) package from a remote management station. The switch must have network connectivity with the Telnet or SSH client, and the switch must have an enable secret password configured.
    - The switch supports up to 16 simultaneous Telnet sessions. Changes made by one Telnet user are reflected in all other Telnet sessions.
    - The switch supports up to five simultaneous secure SSH sessions.

  After you connect through the console port, through the Ethernet management port, through a Telnet session or through an SSH session, the user EXEC prompt appears on the management station.

# Stack Manager and High Availability Commands

# debug platform stack-manager

To enable debugging of the stack manager software, use the **debug platform stack-manager** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

**debug platform stack-manager** {**all**| **rpc**| **sdp**| **sim**| **ssm**| **trace**}

**no debug platform stack-manager** {**all**| **rpc**| **sdp**| **sim**| **ssm**| **trace**}

## Syntax Description

| | |
|---|---|
| **all** | Displays all stack manager debug messages. |
| **rpc** | Displays stack manager remote procedure call (RPC) usage debug messages. |
| **sdp** | Displays the Stack Discovery Protocol (SDP) debug messages. |
| **sim** | Displays the stack information module debug messages. |
| **ssm** | Displays the stack state-machine debug messages. |
| **trace** | Traces the stack manager entry and exit debug messages. |

## Command Default

Debugging is disabled.

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

This command is supported only on stacking-capable switches.

The **undebug platform stack-manager** command is the same as the **no debug platform stack-manager** command.

When you enable debugging on a switch stack, it is enabled only on the stack master. To enable debugging on a stack member, you can start a session from the stack master by using the **session** *switch-number* EXEC command. Enter the **debug** command at the command-line prompt of the stack member. You also can use the **remote command** *stack-member-number LINE* EXEC command on the stack master switch to enable debugging on a member switch without first starting a session.

# main-cpu

To enter the redundancy main configuration submode and enable the standby switch, use the **main-cpu** command in redundancy configuration mode.

**main-cpu**

## Syntax Description

This command has no arguments or keywords.

## Command Default

None

## Command Modes

Redundancy configuration

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

From the redundancy main configuration submode, use the **standby console enable** command to enable the standby switch.

## Examples

This example shows how to enter the redundancy main configuration submode and enable the standby switch:

```
Switch(config)# redundancy
Switch(config-red)# main-cpu
Switch(config-r-mc)# standby console enable
Switch#
```

## Related Commands

| Command | Description |
|---|---|
| standby console enable | Enables access to the standby console switch. |

# mode sso

To set the redundancy mode to stateful switchover (SSO), use the **mode sso** command in redundancy configuration mode.

**mode sso**

## Syntax Description

This command has no arguments or keywords.

## Command Default

None

## Command Modes

Redundancy configuration

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

The **mode sso** command can be entered only from within redundancy configuration mode.

Follow these guidelines when configuring your system to SSO mode:

- You must use identical Cisco IOS images on the switches in the stack to support SSO mode. Redundancy may not work due to differences between the Cisco IOS releases.
- If you perform an online insertion and removal (OIR) of the module, the switch resets during the stateful switchover and the port states are restarted only if the module is in a transient state (any state other than Ready).
- The forwarding information base (FIB) tables are cleared on a switchover. Routed traffic is interrupted until route tables reconverge.

## Examples

This example shows how to set the redundancy mode to SSO:

```
Switch(config)# redundancy
Switch(config-red)# mode sso
Switch(config-red)#
```

# policy config-sync prc reload

To reload the standby switch if a parser return code (PRC) failure occurs during configuration synchronization, use the **policy config-sync reload** command in redundancy configuration mode. To specify that the standby switch is not reloaded if a parser return code (PRC) failure occurs, use the **no** form of this command.

**policy config-sync** {**bulk**| **lbl**} **prc reload**

**no policy config-sync** {**bulk**| **lbl**} **prc reload**

## Syntax Description

| | |
|---|---|
| **bulk** | Specifies bulk configuration mode. |
| **lbl** | Specifies line-by-line (lbl) configuration mode. |

## Command Default

The command is enabled by default.

## Command Modes

Redundancy configuration

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows how to specify that the standby switch is not reloaded if a parser return code (PRC) failure occurs during configuration synchronization:

```
Switch(config-red)# no policy config-sync bulk prc reload
```

# redundancy

To enter redundancy configuration mode, use the **redundancy** command in global configuration mode.

**redundancy**

## Syntax Description

This command has no arguments or keywords.

## Command Default

None

## Command Modes

Global configuration

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

The redundancy configuration mode is used to enter the main CPU submode, which is used to enable the standby switch.

To enter the main CPU submode, use the **main-cpu** command while in redundancy configuration mode.

From the main CPU submode, use the **standby console enable** command to enable the standby switch.

Use the **exit** command to exit redundancy configuration mode.

## Examples

This example shows how to enter redundancy configuration mode:

```
Switch(config)# redundancy
Switch(config-red)#
```

This example shows how to enter the main CPU submode:

```
Switch(config)# redundancy
Switch(config-red)# main-cpu
Switch(config-r-mc)#
```

# redundancy config-sync mismatched-commands

To allow the standby switch to join the stack if a configuration mismatch occurs between the active and standby switches, use the **redundancy config-sync mismatched-commands** command in privileged EXEC mode.

**redundancy config-sync** {**ignore**| **validate**} **mismatched-commands**

## Syntax Description

| | |
|---|---|
| **ignore** | Ignores the mismatched command list. |
| **validate** | Revalidates the mismatched command list with the modified running-configuration. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

If the command syntax check in the running configuration of the active switch fails while the standby switch is booting, use the **redundancy config-sync mismatched-commands** command to display the Mismatched Command List (MCL) on the active switch and to reboot the standby switch.

The following is a log entry example for mismatched commands:

```
00:06:31: Config Sync: Bulk-sync failure due to Servicing Incompatibility. Please check
full list of mismatched commands via:
show redundancy config-sync failures mcl
00:06:31: Config Sync: Starting lines from MCL file:
interface GigabitEthernet7/7
! <submode> "interface"
- ip address 192.0.2.0 255.255.255.0
! </submode> "interface"
```

To display all mismatched commands, use the **show redundancy config-sync failures mcl** command.

To clean the MCL, follow these steps:

1. Remove all mismatched commands from the running configuration of the active switch.
2. Revalidate the MCL with a modified running configuration by using the **redundancy config-sync validate mismatched-commands** command.
3. Reload the standby switch.

You can ignore the MCL by doing the following:

1 Enter the **redundancy config-sync ignore mismatched-commands** command.

2 Reload the standby switch; the system changes to SSO mode.

**Note** If you ignore the mismatched commands, the out-of-sync configuration at the active switch and the standby switch still exists.

3 Verify the ignored MCL with the **show redundancy config-sync ignored mcl** command.

If SSO mode cannot be established between the active and standby switches because of an incompatibility in the configuration file, a mismatched command list (MCL) is generated at the active switch and a reload into route processor redundancy (RPR) mode is forced for the standby switch.

**Note** RPR mode is supported on Catalyst 3850 switches as a fallback in case of errors. It is not configurable.

If you attempt to establish an SSO after removing the offending configuration and rebooting the standby switch with the same image, the C3K_REDUNDANCY-2-IOS_VERSION_CHECK_FAIL and ISSU-3-PEER_IMAGE_INCOMPATIBLE messages appear because the peer image is listed as incompatible. You can clear the peer image from the incompatible list with the **redundancy config-sync ignore mismatched-commands** EXEC command while the peer is in a standby cold (RPR) state. This action allows the standby switch to boot in a standby hot (SSO) state when it reloads.

## Examples

This example shows how to revalidate the mismatched command list with the modified configuration:

```
Switch# redundancy config-sync validate mismatched-commands
Switch#
```

# redundancy force-switchover

To force a switchover from the active switch to the standby switch, use the **redundancy force-switchover** command in privileged EXEC mode on a switch stack.

**redundancy force-switchover**

## Syntax Description

This command has no arguments or keywords.

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

Use the **redundancy force-switchover** command to manually switch over to the redundant switch. The redundant switch becomes the new active switch that runs the Cisco IOS image, and the modules are reset to their default settings.

The old active switch reboots with the new image and joins the stack.

If you use the **redundancy force-switchover** command on the active switch, the switchports on the active switch to go down.

If you use this command on a switch that is in a partial ring stack, the following warning message appears:

```
Switch# redundancy force-switchover
Stack is in Half ring setup; Reloading a switch might cause stack split
This will reload the active unit and force switchover to standby[confirm]
```

## Examples

This example shows how to manually switch over from the active to the standby supervisor engine:

```
Switch# redundancy force-switchover
Switch#
```

# redundancy reload

To force a reload of one or all of the switches in the stack, use the **redundancy reload** command in privileged EXEC mode.

**redundancy reload** {**peer**| **shelf**}

## Syntax Description

| | |
|---|---|
| **peer** | Reloads the peer unit. |
| **shelf** | Reboots all switches in the stack. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

Before using this command, see the "Performing a Software Upgrade" section of the *Stacking Configuration Guide (Catalyst 3650 Switches)* for additional information.

Use the **redundancy reload shelf** command to reboot all the switches in the stack.

## Examples

This example shows how to manually reload all switches in the stack:

```
Switch# redundancy reload shelf
Switch#
```

# reload

To reload the stack member and to apply a configuration change, use the **reload** command in privileged EXEC mode.

**reload** [**/noverify**| **/verify**] [*LINE*| **at**| **cancel**| **in**| **slot** *stack-member-number*| **standby-cpu**]

## Syntax Description

| | |
|---|---|
| **/noverify** | (Optional) Specifies to not verify the file signature before the reload. |
| **/verify** | (Optional) Verifies the file signature before the reload. |
| *LINE* | (Optional) Reason for the reload. |
| **at** | (Optional) Specifies the time in hh:mm for the reload to occur. |
| **cancel** | (Optional) Cancels the pending reload. |
| **in** | (Optional) Specifies a time interval for reloads to occur. |
| **slot** | (Optional) Saves the changes on the specified stack member and then restarts it. |
| *stack-member-number* | (Optional) Stack member number on which to save the changes. The range is 1 to 9. |
| **standby-cpu** | (Optional) Reloads the standby route processor (RP). |

## Command Default

Immediately reloads the stack member and puts a configuration change into effect.

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

If there is more than one switch in the switch stack, and you enter the **reload slot** *stack-member-number* command, you are not prompted to save the configuration.

## Examples

This example shows how to reload the switch stack:

```
Switch# reload
System configuration has been modified. Save? [yes/no]: yes
```

```
Reload command is being issued on Active unit, this will reload the whole stack
Proceed with reload? [confirm] yes
```

This example shows how to reload a specific stack member:

```
Switch# reload slot 6
Proceed with reload? [confirm] y
```

This example shows how to reload a single-switch switch stack (there is only one member switch):

```
Switch# reload slot 3
System configuration has been modified. Save? [yes/no]: y
Proceed to reload the whole Stack? [confirm] y
```

## Related Commands

| Command | Description |
|---|---|
| show switch | Displays information related to the stack member or the switch stack. |
| switch priority | Changes the stack member priority value. |
| switch renumber | Changes the stack member number. |

# session

To access a specific stack member use the **session** command in privileged EXEC mode on the stack master.

**session** *stack-member-number*

## Syntax Description

| | |
|---|---|
| *stack-member-number* | Stack member number to access from the active switch. The range is 1 to 9. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

When you access the member, its member number is appended to the system prompt.

Use the **session** command from the master to access a member Switch

Use the **session** command with **processor 1** from the master or a standalone switch to access the internal controller. A standalone Switch is always member 1.

## Examples

This example shows how to access stack member 3:

```
Switch# session 3
Switch-3#
```

## Related Commands

| Command | Description |
|---|---|
| reload | Reloads the stack member and applies a configuration change. |
| show switch | Displays information related to the stack member or the switch stack. |
| switch priority | Changes the stack member priority value. |
| switch renumber | Changes the stack member number. |

# set trace capwap ap ha

To trace the control and provisioning of wireless access point high availability, use the **set trace capwap ap ha** privileged EXEC command.

**set trace capwap ap ha** [**detail| event| dump** | {**filter** [**none** [**switch** *switch*]|*filter_name* [*filter_value* [**switch** *switch*]]]| **filtered***switch***level** {**default**| *trace_level*} [**switch** *switch*]}]

## Syntax Description

| | |
|---|---|
| **detail** | (Optional) Specifies the wireless CAPWAP HA details. |
| **event** | (Optional) Specifies the wireless CAPWAP HA events. |
| **dump** | (Optional) Specifies the wireless CAPWAP HA output. |
| **filter** *mac* | Specifies the MAC address. |
| *switch switch number* | Specifies the switch number. |
| **none** | (Optional) Specifies the no filter option. |
| **switch** *switch* | (Optional) Specifies the switch number. |
| *filter name* | Trace adapted flag filter name. |
| *filter_value* | (Optional) Value of the filter. |
| **switch** *switch* | (Optional) Specifies the switch number. |
| **filtered** | Specifies the filtered traces messages. |
| *switch* | Specifies the switch number. |
| **level** | Specifies the trace level. |
| **default** | Specifies the unset trace level value. |
| *trace_level* | Specifies the trace level. |
| **switch** *switch* | (Optional) Specifies the switch number. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows how to display the wireless CAPWAP HA:

```
Switch# set trace capwap ap ha detail filter mac WORD switch number
```

# set trace mobility ha

To debug the wireless mobility high availability in the switch, use the **set trace mobility ha** privileged EXEC command.

**set trace mobility ha** [**event**| **detail**| **dump**] {**filter**[**mac** *WORD switch switch number*] [**none** [**switch** *switch*]| *filter_name* [*filter_value* [**switch** *switch*]]]| **level** {**default**| *trace_level*} [**switch** *switch*]{**filtered**| *switch*}}

## Syntax Description

| | |
|---|---|
| **event** | (Optional) Specifies the wireless mobility high availability events. |
| **detail** | (Optional) Specifies the wireless mobility high availability details. |
| **dump** | (Optional) Specifies the wireless mobility high availability output. |
| **filter** | Specifies to trace adapted flag filter. |
| **mac** | Specifies the MAC address. |
| *WORD switch* | Specifies the switch. |
| *switch number* | Specifies the switch number. The value ranges from one to four. |
| **none** | Specifies no trace adapted flag filter. |
| **switch** *switch* | (Optional) Specifies the switch number. |
| *filter_name* | Trace adapted flag filter name. |
| *filter_value* | Trace adapted flag filter value. |
| **switch** *switch* | Specifies the switch number. |
| **level** | Specifies the trace level value. |
| **default** | Specifies the un-set trace level value. |
| *trace_level* | Specifies the trace level value. |
| **switch** *switch* | Specifies the switch number. |

| | |
|---|---|
| **filtered** | Specifies the filtered trace messages. |
| *switch* | Specifies the switch. |

**Command Default** None

**Command Modes** Privileged EXEC

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

**Examples** This example shows how to display wireless mobility high availability details:

```
Switch# set trace mobility ha detail filter mac WORD
[08/27/13 10:38:35.349 UTC 1 8135] Invalid src ip: 169.254.1.1
[08/27/13 10:38:35.349 UTC 2 8135] Invalid sysIp: Skip plumbing MC-MA
tunnels.
[08/27/13 10:38:54.393 UTC 3 8135] Mobility version mismatch, v10 received,
 or m
sglen mismatch msglen=74 recvBytes=0, dropping
```

# set trace qos ap ha

To trace wireless Quality of Service (QoS) high availability, use the **set trace qos ap ha** privileged EXEC command.

**set trace QOS ap ha** [**event**| **error**] {**filter** [**MACnone** [**switch** *switch*]| *filter_name* [*filter_value* [**switch** *switch*]]]| **level** {**default**| *trace_level*} [**switch** *switch*]}

## Syntax Description

| | |
|---|---|
| **event** | (Optional) Specifies trace QoS wireless AP event. |
| **event** *mac* | Specifies the MAC address of the AP. |
| **event** *none* | Specifies no MAC address value. |
| **error** | (Optional) Specifies trace QoS wireless AP errors. |
| **error** *mac* | Specifies the MAC address of the AP. |
| **error** *none* | Specifies no value. |
| **filter** | Specifies the trace adapted flag filter. |
| **filter** *mac* | Specifies the MAC address of the AP. |
| **filter** *none* | Specifies no value. |
| **switch** *switch* | Specifies the switch number. |
| *filter_name* | (Optional) Specifies the switch filter name. |
| *filter_value* | (Optional) Specifies the switch filter value. Value is one. |
| **switch** *switch* | (Optional) Specifies the switch number. Value is one. |
| **level** | Specifies the trace level. |
| **default** | Specifies the trace QoS wireless AP default. |
| *trace_level* | Trace level. |
| **switch** *switch* | (Optional) Specifies the switch number. Value is one. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows how to trace wireless QoS high availability:

```
Switch# set trace QOS ap ha
```

# show checkpoint

To display information about the Checkpoint Facility (CF) subsystem, use the **show checkpoint** command.

**show checkpoint clients entities statistics**

## Syntax Description

| | |
|---|---|
| **clients** | Displays detailed information about checkpoint clients. |
| **entities** | Displays detailed information about checkpoint entities. |
| **statistics** | Displays detailed information about checkpoint statistics. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows how to display all the CF clients.

```
   Client residing in process  : 8135
------------------------------------------------------------------------------
Checkpoint client: WCM_MOBILITY
    Client ID                   : 24105
    Total DB inserts            : 0
    Total DB updates            : 0
    Total DB deletes            : 0
    Total DB reads              : 0
    Number of tables            : 6
    Client residing in process  : 8135
------------------------------------------------------------------------------
Checkpoint client: WCM_DOT1X
    Client ID                   : 24106
    Total DB inserts            : 2
    Total DB updates            : 1312
    Total DB deletes            : 2
    Total DB reads              : 0
    Number of tables            : 1
    Client residing in process  : 8135
------------------------------------------------------------------------------
Checkpoint client: WCM_APFROGUE
    Client ID                   : 24107
    Total DB inserts            : 0
    Total DB updates            : 0
    Total DB deletes            : 0
    Total DB reads              : 0
    Number of tables            : 1
    Client residing in process  : 8135
```

```
------------------------------------------------------------------------------
Checkpoint client: WCM_CIDS
    Client ID                   : 24110
    Total DB inserts            : 0
    Total DB updates            : 0
    Total DB deletes            : 0
    Total DB reads              : 0
    Number of tables            : 0
    Client residing in process  : 8135
------------------------------------------------------------------------------
Checkpoint client: WCM_NETFLOW
    Client ID                   : 24111
    Total DB inserts            : 7
    Total DB updates            : 0
    Total DB deletes            : 0
    Total DB reads              : 0
    Number of tables            : 1
    Client residing in process  : 8135
------------------------------------------------------------------------------
Checkpoint client: WCM_MCAST
    Client ID                   : 24112
    Total DB inserts            : 0
    Total DB updates            : 0
    Total DB deletes            : 0
    Total DB reads              : 0
    Number of tables            : 1
    Client residing in process  : 8135
------------------------------------------------------------------------------
Checkpoint client: wcm_comet
    Client ID                   : 24150
    Total DB inserts            : 0
    Total DB updates            : 0
    Total DB deletes            : 0
    Total DB reads              : 0
    Number of tables            : 0
    Client residing in process  : 8135
------------------------------------------------------------------------------

All iosd checkpoint clients

------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
------------------------------------------------------------------------------
Network RF Client           3         --       Off

  Total API Messages Sent:                      0
  Total Transport Messages Sent:                0
  Length of Sent Messages:                      0
  Total Blocked Messages Sent:                  0
  Length of Sent Blocked Messages:              0
  Total Non-blocked Messages Sent:              0
  Length of Sent Non-blocked Messages:          0
  Total Bytes Allocated:                        0
  Buffers Held:                                 0
  Buffers Held Peak:                            0
  Huge Buffers Requested:                       0
  Transport Frag Count:                         0
  Transport Frag Peak:                          0
  Transport Sends w/Flow Off:                   0
  Send Errs:                                    0
  Send Peer Errs:                               0
  Rcv Xform Errs:                               0
  Xmit Xform Errs:                              0
  Incompatible Messages:                        0
  Client Unbundles to Process Memory:           T
------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
------------------------------------------------------------------------------
SNMP CF Client             12         --       Off

  Total API Messages Sent:                      0
```

```
  Total Transport Messages Sent:                0
  Length of Sent Messages:                      0
  Total Blocked Messages Sent:                  0
  Length of Sent Blocked Messages:              0
  Total Non-blocked Messages Sent:              0
  Length of Sent Non-blocked Messages:          0
  Total Bytes Allocated:                        0
  Buffers Held:                                 0
  Buffers Held Peak:                            0
  Huge Buffers Requested:                       0
  Transport Frag Count:                         0
  Transport Frag Peak:                          0
  Transport Sends w/Flow Off:                   0
  Send Errs:                                    0
  Send Peer Errs:                               0
  Rcv Xform Errs:                               0
  Xmit Xform Errs:                              0
  Incompatible Messages:                        0
  Client Unbundles to Process Memory:           T
------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
------------------------------------------------------------------------------
Online Diags HA            14         --       Off

  Total API Messages Sent:                      0
  Total Transport Messages Sent:                0
  Length of Sent Messages:                      0
  Total Blocked Messages Sent:                  0
  Length of Sent Blocked Messages:              0
  Total Non-blocked Messages Sent:              0
  Length of Sent Non-blocked Messages:          0
  Total Bytes Allocated:                        0
  Buffers Held:                                 0
  Buffers Held Peak:                            0
  Huge Buffers Requested:                       0
  Transport Frag Count:                         0
  Transport Frag Peak:                          0
  Transport Sends w/Flow Off:                   0
  Send Errs:                                    0
  Send Peer Errs:                               0
  Rcv Xform Errs:                               0
  Xmit Xform Errs:                              0
  Incompatible Messages:                        0
  Client Unbundles to Process Memory:           T
------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
------------------------------------------------------------------------------
ARP                        22         --       Off

  Total API Messages Sent:                      0
  Total Transport Messages Sent:                0
  Length of Sent Messages:                      0
  Total Blocked Messages Sent:                  0
  Length of Sent Blocked Messages:              0
  Total Non-blocked Messages Sent:              0
  Length of Sent Non-blocked Messages:          0
  Total Bytes Allocated:                        0
  Buffers Held:                                 0
  Buffers Held Peak:                            0
  Huge Buffers Requested:                       0
  Transport Frag Count:                         0
  Transport Frag Peak:                          0
  Transport Sends w/Flow Off:                   0
  Send Errs:                                    0
  Send Peer Errs:                               0
  Rcv Xform Errs:                               0
  Xmit Xform Errs:                              0
  Incompatible Messages:                        0
  Client Unbundles to Process Memory:           T
------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
```

```
                           ID         ID       Mode
-------------------------------------------------------------------------------
Tableid CF                 27         --       Off

  Total API Messages Sent:                       0
  Total Transport Messages Sent:                 0
  Length of Sent Messages:                       0
  Total Blocked Messages Sent:                   0
  Length of Sent Blocked Messages:               0
  Total Non-blocked Messages Sent:               0
  Length of Sent Non-blocked Messages:           0
  Total Bytes Allocated:                         0
  Buffers Held:                                  0
  Buffers Held Peak:                             0
  Huge Buffers Requested:                        0
  Transport Frag Count:                          0
  Transport Frag Peak:                           0
  Transport Sends w/Flow Off:                    0
  Send Errs:                                     0
  Send Peer Errs:                                0
  Rcv Xform Errs:                                0
  Xmit Xform Errs:                               0
  Incompatible Messages:                         0
  Client Unbundles to Process Memory:            T
-------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
-------------------------------------------------------------------------------
Event Manager              33          0       Off

  Total API Messages Sent:                       0
  Total Transport Messages Sent:                --
  Length of Sent Messages:                       0
  Total Blocked Messages Sent:                   0
  Length of Sent Blocked Messages:               0
  Total Non-blocked Messages Sent:               0
  Length of Sent Non-blocked Messages:           0
  Total Bytes Allocated:                         0
  Buffers Held:                                  0
  Buffers Held Peak:                             0
  Huge Buffers Requested:                        0
  Transport Frag Count:                          0
  Transport Frag Peak:                           0
  Transport Sends w/Flow Off:                    0
  Send Errs:                                     0
  Send Peer Errs:                                0
  Rcv Xform Errs:                                0
  Xmit Xform Errs:                               0
  Incompatible Messages:                         0
  Client Unbundles to Process Memory:            T
-------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
-------------------------------------------------------------------------------
LAN-Switch Port Mana       35          0       Off

  Total API Messages Sent:                       0
  Total Transport Messages Sent:                --
  Length of Sent Messages:                       0
  Total Blocked Messages Sent:                   0
  Length of Sent Blocked Messages:               0
  Total Non-blocked Messages Sent:               0
  Length of Sent Non-blocked Messages:           0
  Total Bytes Allocated:                         0
  Buffers Held:                                  0
  Buffers Held Peak:                             0
  Huge Buffers Requested:                        0
  Transport Frag Count:                          0
  Transport Frag Peak:                           0
  Transport Sends w/Flow Off:                    0
  Send Errs:                                     0
  Send Peer Errs:                                0
  Rcv Xform Errs:                                0
```

```
  Xmit Xform Errs:                              0
  Incompatible Messages:                        0
  Client Unbundles to Process Memory:           T
-------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
-------------------------------------------------------------------------------
LAN-Switch PAgP/LACP       36          0       Off

  Total API Messages Sent:                      0
  Total Transport Messages Sent:                --
  Length of Sent Messages:                      0
  Total Blocked Messages Sent:                  0
  Length of Sent Blocked Messages:              0
  Total Non-blocked Messages Sent:              0
  Length of Sent Non-blocked Messages:          0
  Total Bytes Allocated:                        0
  Buffers Held:                                 0
  Buffers Held Peak:                            0
  Huge Buffers Requested:                       0
  Transport Frag Count:                         0
  Transport Frag Peak:                          0
  Transport Sends w/Flow Off:                   0
  Send Errs:                                    0
  Send Peer Errs:                               0
  Rcv Xform Errs:                               0
  Xmit Xform Errs:                              0
  Incompatible Messages:                        0
  Client Unbundles to Process Memory:           T
-------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
-------------------------------------------------------------------------------
LAN-Switch VLANs           39          0       Off

  Total API Messages Sent:                      0
  Total Transport Messages Sent:                --
  Length of Sent Messages:                      0
  Total Blocked Messages Sent:                  0
  Length of Sent Blocked Messages:              0
  Total Non-blocked Messages Sent:              0
  Length of Sent Non-blocked Messages:          0
  Total Bytes Allocated:                        0
  Buffers Held:                                 0
  Buffers Held Peak:                            0
  Huge Buffers Requested:                       0
  Transport Frag Count:                         0
  Transport Frag Peak:                          0
  Transport Sends w/Flow Off:                   0
  Send Errs:                                    0
  Send Peer Errs:                               0
  Rcv Xform Errs:                               0
```

This example shows how to display all the CF entities.

```
KATANA_DOC#show checkpoint entities
                        Check Point List of Entities

 CHKPT on ACTIVE server.

-------------------------------------------------------------------------------
Entity ID         Entity Name
-------------------------------------------------------------------------------
        0         CHKPT_DEFAULT_ENTITY

  Total API Messages Sent:             0
  Total Messages Sent:                 0
  Total Sent Message Len:              0
  Total Bytes Allocated:               0
  Total Number of Members:            10

  Member(s) of entity 0 are:
```

```
    Client ID          Client Name
----------------------------------------
          168          DHCP Snooping
          167          IGMP Snooping
           41          Spanning-tree
           40          AUTH MGR CHKPT CLIEN
           39          LAN-Switch VLANs
           33          Event Manager
           35          LAN-Switch Port Mana
           36          LAN-Switch PAgP/LACP
          158          Inline Power Checkpoint
```

This example shows how to display the CF statistics.

```
KATANA_DOC#show checkpoint statistics
        IOSd Check Point Status
 CHKPT on ACTIVE server.

Number Of Msgs In Hold Q:              0
CHKPT MAX Message Size:                0
TP MAX Message Size:               65503
CHKPT Pending Msg Timer:             100 ms

  FLOW_ON  total:                      0
  FLOW_OFF total:                      0
  Current FLOW status is:             ON
  Total API Messages Sent:             0
  Total Messages Sent:                 0
  Total Sent Message Len:              0
  Total Bytes Allocated:               0
  Rcv  Msg Q Peak:                     0
  Hold Msg Q Peak:                     0
  Buffers Held Peak:                   0
  Current Buffers Held:                0
  Huge Buffers Requested:              0
```

# show etherchannel summary

To show details on the ports, port-channel, and protocols in the controller, use the **show etherchannel summary** command.

**show ethernet summary**

This command has no arguments or keywords.

## Command Default

None

## Command Modes

Privileged Mode.

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows the details on the ports, port-channel, and protocols in the controller.

```
controller#show etherchannel summary
Flags:  D - down        P - bundled in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      f - failed to allocate aggregator

        M - not in use, minimum links not met
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port


Number of channel-groups in use: 2
Number of aggregators:           2

Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
2      Po2(SD)          -
23     Po23(SD)         -
```

# show platform ses

To display the platform information - the stack event sequencer in the controller, use the **show platform ses** in the privileged EXEC mode.

**show platform ses clients states**

## Syntax Description

| | |
|---|---|
| **clients** | Displays the SES client list. |
| **states** | Displays the SES card states. |

## Command Default

None.

## Command Modes

Privileged EXEC mode.

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

Use this command in the privileged EXEC mode to view the ses clients and states detail.

## Examples

This example shows the stack event sequencer states.

```
Card #  Card State
======  ==========
1       NG3K_SES_CARD_ADD_COMPLETED(51)
2       NG3K_SES_CARD_EMPTY(0)
3       NG3K_SES_CARD_EMPTY(0)
4       NG3K_SES_CARD_EMPTY(0)
5       NG3K_SES_CARD_EMPTY(0)
6       NG3K_SES_CARD_EMPTY(0)
7       NG3K_SES_CARD_EMPTY(0)
8       NG3K_SES_CARD_EMPTY(0)
9       NG3K_SES_CARD_EMPTY(0)
```

This example shows all the associated clients of the stack event sequencer.

```
clientID  = 5
clientSeq = 5
clientName = "MATM"
clientCallback @ 0xF49F7300
next = 0x909194B4

clientID  = 6
clientSeq = 6
clientName = "L2 CONTROL"
clientCallback @ 0xF49CA3F0
next = 0x915E4E80

clientID  = 7
```

```
clientSeq = 7
clientName = "CDP"
clientCallback @ 0xF49C7220
next = 0x915E4F08

clientID  = 8
clientSeq = 8
clientName = "UDLD"
clientCallback @ 0xF49C75D0
next = 0x91854CA0

clientID  = 9
clientSeq = 9
clientName = "LLDP"
clientCallback @ 0xF49E62F0
next = 0x90919F90

clientID  = 10
clientSeq = 10
clientName = "L2M"
clientCallback @ 0xF49CE4D0
next = 0x90E35A5C

clientID  = 11
clientSeq = 11
clientName = "Storm-Control"
clientCallback @ 0xF4BA8080
next = 0x9089E9B4

clientID  = 12
clientSeq = 12
clientName = "Security Utils"
clientCallback @ 0xF466BFB0
next = 0x91855F14

clientID  = 13
clientSeq = 13
clientName = "BACKUP-INT"
clientCallback @ 0xF4A191B0
next = 0x91D3511C

clientID  = 14
clientSeq = 14
clientName = "SPAN"
clientCallback @ 0xF4A34F30
next = 0x90FFC8C8

clientID  = 15
clientSeq = 15
clientName = "NG3K_SES_CLIENT_SECURITY_CTRL"
clientCallback @ 0xF4CD1D80
next = 0x95AE5834

clientID  = 16
clientSeq = 16
clientName = "NG3K_SES_CLIENT_DAI"
clientCallback @ 0xF4CD0C50
next = 0x95AE4854

clientID  = 17
clientSeq = 17
clientName = "NG3K_SES_CLIENT_DHCPSN"
clientCallback @ 0xF4CA9D30
next = 0x91DF7728

clientID  = 18
clientSeq = 18
clientName = "NG3K_SES_CLIENT_IPSG"
clientCallback @ 0xF4CDED70
next = 0x9131DCD8

clientID  = 20
clientSeq = 20
```

```
clientName = "DTLS"
clientCallback @ 0xF49B2CB0
next = 0x9134508C

clientID  = 21
clientSeq = 21
clientName = "STATS"
clientCallback @ 0xF49BD750
next = 0x9134746C

clientID  = 22
clientSeq = 22
clientName = "PLATFORM_MGR"
clientCallback @ 0xF4AB2D40
next = 0x91323D20

clientID  = 23
clientSeq = 23
clientName = "LEARNING"
clientCallback @ 0xF49F93C0
next = 0x9091D52C

clientID  = 24
clientSeq = 24
clientName = "PLATFORM-SPI"
clientCallback @ 0xF4AAD6F0
next = 0x91F2AE14

clientID  = 25
clientSeq = 25
clientName = "EEM"
clientCallback @ 0xF5393370
next = 0x913474F4

clientID  = 26
clientSeq = 26
clientName = "NG3K_WIRELESS"
clientCallback @ 0xF4B130B0
next = 0x9131D144

clientID  = 27
clientSeq = 27
clientName = "NG3K Environment Variables"
clientCallback @ 0xF4C6DA80
next = 0x00000000

KATANA_DOC#
KATANA_DOC#
KATANA_DOC#show platform ses clients
Client list @ 0x915B312C

clientID  = 0
clientSeq = 0
clientName = "TM Shim"
clientCallback @ 0xF4C79A90
next = 0x91182F24

clientID  = 1
clientSeq = 1
clientName = "EM-HA"
clientCallback @ 0xF52CA730
next = 0x913245B8

clientID  = 2
clientSeq = 2
clientName = "IFM"
clientCallback @ 0xF4A3EB20
next = 0x934B80E4

clientID  = 3
clientSeq = 3
clientName = "PORT-MGR"
clientCallback @ 0xF49FD0A0
```

```
next = 0x91D36D08

clientID  = 4
clientSeq = 4
clientName = "IDBMAN"
clientCallback @ 0xF4AF6040
next = 0x92121224

clientID  = 5
clientSeq = 5
clientName = "MATM"
clientCallback @ 0xF49F7300
next = 0x909194B4

clientID  = 6
clientSeq = 6
clientName = "L2 CONTROL"
clientCallback @ 0xF49CA3F0
next = 0x915E4E80

clientID  = 7
clientSeq = 7
clientName = "CDP"
clientCallback @ 0xF49C7220
next = 0x915E4F08

clientID  = 8
clientSeq = 8
clientName = "UDLD"
clientCallback @ 0xF49C75D0
next = 0x91854CA0

clientID  = 9
clientSeq = 9
clientName = "LLDP"
clientCallback @ 0xF49E62F0
next = 0x90919F90

clientID  = 10
clientSeq = 10
clientName = "L2M"
clientCallback @ 0xF49CE4D0
next = 0x90E35A5C

clientID  = 11
clientSeq = 11
clientName = "Storm-Control"
clientCallback @ 0xF4BA8080
next = 0x9089E9B4

clientID  = 12
clientSeq = 12
clientName = "Security Utils"
clientCallback @ 0xF466BFB0
next = 0x91855F14

clientID  = 13
clientSeq = 13
clientName = "BACKUP-INT"
clientCallback @ 0xF4A191B0
next = 0x91D3511C

clientID  = 14
clientSeq = 14
clientName = "SPAN"
clientCallback @ 0xF4A34F30
next = 0x90FFC8C8

clientID  = 15
clientSeq = 15
clientName = "NG3K_SES_CLIENT_SECURITY_CTRL"
clientCallback @ 0xF4CD1D80
next = 0x95AE5834
```

```
clientID  = 16
clientSeq = 16
clientName = "NG3K_SES_CLIENT_DAI"
clientCallback @ 0xF4CD0C50
next = 0x95AE4854

clientID  = 17
clientSeq = 17
clientName = "NG3K_SES_CLIENT_DHCPSN"
clientCallback @ 0xF4CA9D30
next = 0x91DF7728

clientID  = 18
clientSeq = 18
clientName = "NG3K_SES_CLIENT_IPSG"
clientCallback @ 0xF4CDED70
next = 0x9131DCD8

clientID  = 20
clientSeq = 20
clientName = "DTLS"
clientCallback @ 0xF49B2CB0
next = 0x9134508C

clientID  = 21
clientSeq = 21
clientName = "STATS"
clientCallback @ 0xF49BD750
next = 0x9134746C

clientID  = 22
clientSeq = 22
clientName = "PLATFORM_MGR"
clientCallback @ 0xF4AB2D40
next = 0x91323D20

clientID  = 23
clientSeq = 23
clientName = "LEARNING"
clientCallback @ 0xF49F93C0
next = 0x9091D52C

clientID  = 24
clientSeq = 24
clientName = "PLATFORM-SPI"
clientCallback @ 0xF4AAD6F0
next = 0x91F2AE14

clientID  = 25
clientSeq = 25
clientName = "EEM"
clientCallback @ 0xF5393370
next = 0x913474F4

clientID  = 26
clientSeq = 26
clientName = "NG3K_WIRELESS"
clientCallback @ 0xF4B130B0
next = 0x9131D144

clientID  = 27
clientSeq = 27
clientName = "NG3K Environment Variables"
clientCallback @ 0xF4C6DA80
next = 0x00000000
```

# show platform stack-manager

To display platform-dependent switch-stack information, use the **show platform stack-manager** command in privileged EXEC mode.

**show platform stack-manager** {**oir-states**| **sdp-counters**| **sif-counters**} **switch** *stack-member-number*

## Syntax Description

| | |
|---|---|
| **oir-states** | Displays Online Insertion and Removal (OIR) state information |
| **sdp-counters** | Displays Stack Discovery Protocol (SDP) counter information. |
| **sif-counters** | Displays Stack Interface (SIF) counter information. |
| **switch** *stack-member-number* | Specifies the stack member for which to display stack-manager information. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

Use the **show platform stack-manager** command to collect data and statistics for the switch stack.

Use this command only when you are working directly with your technical support representative while troubleshooting a problem. Do not use this command unless your technical support representative asks you to do so.

# show redundancy

To display redundancy facility information, use the **show redundancy** command in privileged EXEC mode

**show redundancy** [**clients**| **config-sync**| **counters**| **history** [**reload**| **reverse**]| **slaves**[*slave-name*] {**clients**| **counters**}| **states**| **switchover history** [**domain default**]]

## Syntax Description

| | |
|---|---|
| **clients** | (Optional) Displays information about the redundancy facility client. |
| **config-sync** | (Optional) Displays a configuration synchronization failure or the ignored mismatched command list (MCL). For more information, see show redundancy config-sync, on page 50. |
| **counters** | (Optional) Displays information about the redundancy facility counter. |
| **history** | (Optional) Displays a log of past status and related information for the redundancy facility. |
| **history reload** | (Optional) Displays a log of past reload information for the redundancy facility. |
| **history reverse** | (Optional) Displays a reverse log of past status and related information for the redundancy facility. |
| **slaves** | (Optional) Displays all slaves in the redundancy facility. |
| *slave-name* | (Optional) The name of the redundancy facility slave to display specific information for. Enter additional keywords to display all clients or counters in the specified slave. |
| **clients** | Displays all redundancy facility clients in the specified slave. |
| **counters** | Displays all counters in the specified slave. |
| **states** | (Optional) Displays information about the redundancy facility state, such as disabled, initialization, standby or active. |
| **switchover history** | (Optional) Displays information about the redundancy facility switchover history. |
| **domain default** | (Optional) Displays the default domain as the domain to display switchover history for. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows how to display information about the redundancy facility:

```
Switch# show redundancy
Redundant System Information :
------------------------------
       Available system uptime = 6 days, 9 hours, 23 minutes
Switchovers system experienced = 0
              Standby failures = 0
        Last switchover reason = not known

                 Hardware Mode = Simplex
    Configured Redundancy Mode = SSO
     Operating Redundancy Mode = SSO
              Maintenance Mode = Disabled
                Communications = Down      Reason: Simplex mode

Current Processor Information :
------------------------------
               Active Location = slot 1
        Current Software state = ACTIVE
       Uptime in current state = 6 days, 9 hours, 23 minutes
                 Image Version = Cisco IOS Software, IOS-XE Software, Catalyst 3
850 L3 Switch Software (CAT3850-UNIVERSALK9-M), Version 03.08.59.EMD EARLY DEPLO
YMENT ENGINEERING NOVA_WEEKLY BUILD, synced to DSGS_PI2_POSTPC_FLO_DSBU7_NG3K_11
05
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Sun 16-S
        Configuration register = 0x102

Peer (slot: 0) information is not available because it is in 'DISABLED' state
Switch#
```

This example shows how to display redundancy facility client information:

```
Switch# show redundancy clients
Group ID =     1
     clientID = 20002    clientSeq =     4    EICORE HA Client
     clientID = 24100    clientSeq =     5    WCM_CAPWAP
     clientID = 24101    clientSeq =     6    WCM_RRM HA
     clientID = 24103    clientSeq =     8    WCM_QOS HA
     clientID = 24105    clientSeq =    10    WCM_MOBILITY
     clientID = 24106    clientSeq =    11    WCM_DOT1X
     clientID = 24107    clientSeq =    12    WCM_APFROGUE
     clientID = 24110    clientSeq =    15    WCM_CIDS
     clientID = 24111    clientSeq =    16    WCM_NETFLOW
     clientID = 24112    clientSeq =    17    WCM_MCAST
     clientID = 24120    clientSeq =    18    wcm_comet
     clientID = 24001    clientSeq =    21    Table Manager Client
     clientID = 20010    clientSeq =    24    SNMP SA HA Client
     clientID = 20007    clientSeq =    27    Installer HA Client
     clientID =    29    clientSeq =    60    Redundancy Mode RF
     clientID =   139    clientSeq =    61    IfIndex
     clientID =  3300    clientSeq =    62    Persistent Variable
     clientID =    25    clientSeq =    68    CHKPT RF
     clientID = 20005    clientSeq =    74    IIF-shim
     clientID = 10001    clientSeq =    82    QEMU Platform RF

<output truncated>
```

The output displays the following information:

- clientID displays the client's ID number.
- clientSeq displays the client's notification sequence number.
- Current redundancy facility state.

This example shows how to display the redundancy facility counter information:

```
Switch# show redundancy counters
Redundancy Facility OMs

               comm link up = 0
             comm link down = 0
          invalid client tx = 0
          null tx by client = 0
                tx failures = 0
      tx msg length invalid = 0

      client not rxing msgs = 0
 rx peer msg routing errors = 0
           null peer msg rx = 0
         errored peer msg rx = 0

                 buffers tx = 0
     tx buffers unavailable = 0
                 buffers rx = 0
      buffer release errors = 0

 duplicate client registers = 0
  failed to register client = 0
       Invalid client syncs = 0

Switch#
```

This example shows how to display redundancy facility history information:

```
Switch# show redundancy history
00:00:00 *my state = INITIALIZATION(2) peer state = DISABLED(1)
00:00:00 RF_EVENT_INITIALIZATION(524) op=0 rc=0
00:00:00 *my state = NEGOTIATION(3) peer state = DISABLED(1)
00:00:01 client added: Table Manager Client(24001) seq=21
00:00:01 client added: SNMP SA HA Client(20010) seq=24
00:00:06 client added: WCM_CAPWAP(24100) seq=5
00:00:06 client added: WCM_QOS HA(24103) seq=8
00:00:07 client added: WCM_DOT1X(24106) seq=11
00:00:07 client added: EICORE HA Client(20002) seq=4
00:00:09 client added: WCM_MOBILITY(24105) seq=10
00:00:09 client added: WCM_NETFLOW(24111) seq=16
00:00:09 client added: WCM_APFROGUE(24107) seq=12
00:00:09 client added: WCM_RRM HA(24101) seq=6
00:00:09 client added: WCM_MCAST(24112) seq=17
00:00:09 client added: WCM_CIDS(24110) seq=15
00:00:09 client added: wcm_comet(24120) seq=18
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) First Slave(0) op=0 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) Slave(6107) op=0 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) Slave(6109) op=0 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) Slave(6128) op=0 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) Slave(8897) op=0 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) Slave(8898) op=0 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) Slave(8901) op=0 rc=0
00:00:22 RF_EVENT_SLAVE_STATUS_DONE(523) First Slave(0) op=405 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) Redundancy Mode RF(29) op=0 rc=0
00:00:22 RF_STATUS_REDUNDANCY_MODE_CHANGE(405) IfIndex(139) op=0 rc=0

<output truncated>
```

This example shows how to display information about the redundancy facility slaves:

```
Switch# show redundancy slaves
Group ID =   1
Slave/Process ID =  6107   Slave Name = [installer]
```

```
Slave/Process ID =  6109   Slave Name = [eicored]
Slave/Process ID =  6128   Slave Name = [snmp_subagent]
Slave/Process ID =  8897   Slave Name = [wcm]
Slave/Process ID =  8898   Slave Name = [table_mgr]
Slave/Process ID =  8901   Slave Name = [iosd]

Switch#
```

This example shows how to display information about the redundancy facility state:

```
Switch# show redundancy states
         my state = 13 -ACTIVE
       peer state =  1 -DISABLED
             Mode = Simplex
          Unit ID = 1

  Redundancy Mode (Operational) = SSO
   Redundancy Mode (Configured) = SSO
               Redundancy State = Non Redundant
                      Manual Swact = disabled (system is simplex (no peer unit))

   Communications = Down      Reason: Simplex mode

     client count = 75
   client_notification_TMR = 360000 milliseconds
            keep_alive TMR = 9000 milliseconds
          keep_alive count = 0
      keep_alive threshold = 18
             RF debug mask = 0

Switch#
```

# show redundancy config-sync

To display a configuration synchronization failure or the ignored mismatched command list (MCL), if any, use the **show redundancy config-sync** command in EXEC mode.

**show redundancy config-sync** {**failures** {**bem| mcl| prc**}| **ignored failures mcl**}

## Syntax Description

| | |
|---|---|
| **failures** | Displays MCL entries or best effort method (BEM)/Parser Return Code (PRC) failures. |
| **bem** | Displays a BEM failed command list, and forces the standby switch to reboot. |
| **mcl** | Displays commands that exist in the switch's running configuration but are not supported by the image on the standby switch, and forces the standby switch to reboot. |
| **prc** | Displays a PRC failed command list and forces the standby switch to reboot. |
| **ignored failures mcl** | Displays the ignored MCL failures. |

## Command Default

None

## Command Modes

User EXEC

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

When two versions of Cisco IOS images are involved, the command sets supported by two images might differ. If any of those mismatched commands are executed on the active switch, the standby switch might not recognize those commands, which causes a configuration mismatch condition. If the syntax check for the command fails on the standby switch during a bulk synchronization, the command is moved into the MCL and the standby switch is reset. To display all the mismatched commands, use the **show redundancy config-sync failures mcl** command.

To clean the MCL, follow these steps:

1. Remove all mismatched commands from the active switch's running configuration.
2. Revalidate the MCL with a modified running configuration by using the **redundancy config-sync validate mismatched-commands** command.

3 Reload the standby switch.

Alternatively, you could ignore the MCL by following these steps:

1 Enter the **redundancy config-sync ignore mismatched-commands** command.

2 Reload the standby switch; the system transitions to SSO mode.

**Note** If you ignore the mismatched commands, the out-of-synchronization configuration on the active switch and the standby switch still exists.

3 You can verify the ignored MCL with the **show redundancy config-sync ignored mcl** command.

Each command sets a return code in the action function that implements the command. This return code indicates whether or not the command successfully executes. The active switch maintains the PRC after executing a command. The standby switch executes the command and sends the PRC back to the active switch. A PRC failure occurs if these two PRCs do not match. If a PRC error occurs at the standby switch either during bulk synchronization or line-by-line (LBL) synchronization, the standby switch is reset. To display all PRC failures, use the **show redundancy config-sync failures prc** command.

To display best effort method (BEM) errors, use the **show redundancy config-sync failures bem** command.

## Examples

This example shows how to display the BEM failures:

```
Switch> show redundancy config-sync failures bem
BEM Failed Command List
-----------------------

 The list is Empty
```

This example shows how to display the MCL failures:

```
Switch> show redundancy config-sync failures mcl
Mismatched Command List
-----------------------

The list is Empty
```

This example shows how to display the PRC failures:

```
Switch# show redundancy config-sync failures prc
PRC Failed Command List
-----------------------

 The list is Empty
```

# show switch

To display information that is related to the stack member or the switch stack, use the **show switch** command in EXEC mode.

**show switch** [*stack-member-number*| **detail**| **neighbors**| **stack-ports** [**summary**]]

## Syntax Description

| | |
|---|---|
| *stack-member-number* | (Optional) Number of the stack member. The range is 1 to 9. |
| **detail** | (Optional) Displays detailed information about the stack ring. |
| **neighbors** | (Optional) Displays the neighbors of the entire switch stack. |
| **stack-ports** | (Optional) Displays port information for the entire switch stack. |
| **summary** | (Optional) Displays the stack cable length, the stack link status, and the loopback status. |

## Command Default

None

## Command Modes

User EXEC

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

This command displays these states:

- Waiting—A switch is booting up and waiting for communication from other switches in the stack. The switch has not determined whether or not it is a stack master.

  Stack members not participating in a stack master election remain in the waiting state until the stack master is elected and ready.

- Initializing—A switch has determined whether it has stack master status. If it is not the stack master, it is receiving its system- and interface-level configuration from the stack master and loading it.
- Ready—The member has completed loading the system- and interface-level configurations and can forward traffic.

- Master Re-Init—The state immediately after a master reelection and a different member is elected master. The new master is reinitializing its configuration. This state applies only to the new master.
- Ver Mismatch—A switch in version mismatch mode. Version-mismatch mode is when a switch joining the stack has a different stack protocol minor version number than the master.
- SDM Mismatch—A switch in Switch Database Management (SDM) mismatch mode. SDM mismatch is when a member does not support the SDM template running on the master.
- Provisioned—The state of a preconfigured switch before it becomes an active member of a switch stack, or the state of a stack member after it has left the switch stack. The MAC address and the priority number in the display are always 0 for the provisioned switch.

A typical state transition for a stack member (including a master) booting up is Waiting > Initializing > Ready.

A typical state transition for a stack member becoming a stack master after a stack master election is Ready > Master Re-Init > Ready.

A typical state transition for a stack member in version mismatch (VM) mode is Waiting > Ver Mismatch.

You can use the **show switch** command to identify whether the provisioned switch exists in the switch stack. The **show running-config** and the **show startup-config** privileged EXEC commands do not provide this information.

The display also includes stack MAC-persistency wait-time if persistent MAC address is enabled.

## Usage Guidelines

This command displays these states:

- Initializing—A switch has been just added to the stack and it has not completed the basic initialization to go to the ready state.
- HA Sync in Progress—After the standby is elected, the corresponding switch remains in this state until the synchronization is completed.
- Syncing—A switch that is added to an already existing stack remains in this state until the switch add sequence is complete.
- Ready—The member has completed loading the system- and interface-level configurations and can forward traffic.
- V-Mismatch—A switch in version mismatch mode. Version-mismatch mode is when a switch that joins the stack has a software version that is incompatible with the active switch.
- Provisioned—The state of a preconfigured switch before it becomes an active member of a switch stack. The MAC address and the priority number in the display are always 0 for the provisioned switch.
- Unprovisioned—The state of a switch when the provisioned switch number was unprovisioned using the **no switch** *switch-number* **provision** command.
- Removed—A switch that was present in the stack was removed using the **reload slot** command.
- Sync not started—When multiple switches are added to an existing stack together, the active switch adds them one by one. The switch that is being added is in the Syncing state. The switches that have not been added yet are in the Sync not started state.
- Lic-Mismatch—A switch has a different license level than the active switch.

A typical state transition for a stack member (including an active switch) booting up is Waiting > Initializing > Ready.

A typical state transition for a stack member in version mismatch (VM) mode is Waiting > Ver Mismatch.

You can use the **show switch** command to identify whether the provisioned switch exists in the switch stack. The **show running-config** and the **show startup-config** privileged EXEC commands do not provide this information.

The display also includes stack MAC-persistency wait-time if persistent MAC address is enabled.

## Examples

This example shows how to display summary stack information:

```
Switch# show switch
Switch/Stack Mac Address : 6400.f124.e900
                                            H/W   Current
Switch#   Role    Mac Address     Priority Version  State
-----------------------------------------------------------
 1       Member   0000.0000.0000     0      0       Provisioned
 2       Member   0000.0000.0000     0      0       Removed
*3       Active   6400.f124.e900     2      0       Ready
 8       Member   0000.0000.0000     0      0       Unprovisioned
```

This example shows how to display detailed stack information:

```
Switch# show switch detail
Switch/Stack Mac Address : 2037.06ce.3f80 - Local Mac Address
Mac persistency wait time: Indefinite
                                           H/W   Current
Switch#   Role   Mac Address     Priority Version  State
-----------------------------------------------------------
*1       Active 2037.06ce.3f80     1      0       Ready
 2       Member 0000.000.0000      0      0       Provisioned
 6       Member 2037.06ce.1e00     1      0       Ready

           Stack Port Status             Neighbors
Switch#   Port 1     Port 2           Port 1   Port 2
-----------------------------------------------------------
  1       Ok         Down             6        None
  6       Down       Ok               None       1
```

This example shows how to display the member 6 summary information:

```
Switch# show switch 6
Switch#  Role      Mac Address     Priority     State
-----------------------------------------------------------
 6       Member     0003.e31a.1e00     1         Ready
```

This example shows how to display the neighbor information for a stack:

```
Switch# show switch neighbors
  Switch #    Port A       Port B
  --------    ------       ------
      6        None           8
      8         6           None
```

This example shows how to display stack-port information:

```
Switch# show switch stack-ports
  Switch #    Port A       Port B
  --------    ------       ------
    6          Down          Ok
    8           Ok          Down
```

This example shows the output for the **show switch stack-ports summary** command. The table that follows describes the fields in the display.

```
Switch# show switch stack-ports summary
Switch#/  Stack   Neighbor   Cable    Link   Link   Sync      #          In
```

```
 Port#     Port              Length    OK   Active   OK    Changes   Loopback
           Status                                      To LinkOK
--------  ------  --------  --------  ----  ------  ----  ---------  --------
  1/1     Down       2       50 cm     No     NO      No      10         No
  1/2     Ok         3       1 m       Yes    Yes     Yes     0          No
  2/1     Ok         5       3 m       Yes    Yes     Yes     0          No
  2/2     Down       1       50 cm     No     No      No      10         No
  3/1     Ok         1       1 m       Yes    Yes     Yes     0          No
  3/2     Ok         5       1 m       Yes    Yes     Yes     0          No
  5/1     Ok         3       1 m       Yes    Yes     Yes     0          No
  5/2     Ok         2       3 m       Yes    Yes     Yes     0          No
```

***Table 4: Show switch stack-ports summary Command Output***

| Field | Description |
|---|---|
| Switch#/Port# | Member number and its stack port number. |
| Stack Port Status | Status of the stack port.<br>• Absent—No cable is detected on the stack port.<br>• Down—A cable is detected, but either no connected neighbor is up, or the stack port is disabled.<br>• OK—A cable is detected, and the connected neighbor is up. |
| Neighbor | Switch number of the active member at the other end of the stack cable. |
| Cable Length | Valid lengths are 50 cm, 1 m, or 3 m.<br>If the switch cannot detect the cable length, the value is *no cable*. The cable might not be connected, or the link might be unreliable. |
| Link OK | Whether the stack cable is connected and functional. There may or may not be a neighbor connected on the other end.<br>The *link partner* is a stack port on a neighbor switch.<br>• No—There is no stack cable connected to this port or the stack cable is not functional.<br>• Yes—There is a functional stack cable connected to this port. |

| Field | Description |
|---|---|
| Link Active | Whether a neighbor is connected on the other end of the stack cable.<br>• No—No neighbor is detected on the other end. The port cannot send traffic over this link.<br>• Yes—A neighbor is detected on the other end. The port can send traffic over this link. |
| Sync OK | Whether the link partner sends valid protocol messages to the stack port.<br>• No—The link partner does not send valid protocol messages to the stack port.<br>• Yes—The link partner sends valid protocol messages to the port. |
| # Changes to LinkOK | The relative stability of the link.<br>If a large number of changes occur in a short period of time, link flapping can occur. |
| In Loopback | Whether a stack cable is attached to a stack port on the member.<br>• No— At least one stack port on the member has an attached stack cable.<br>• Yes—None of the stack ports on the member has an attached stack cable. |

## Related Commands

| Command | Description |
|---|---|
| reload | Reloads the stack member and applies a configuration change. |
| session | Accesses the diagnostic shell of a specific stack member or the Cisco IOS prompt of the standby Switch |
| stack-mac update force | Updates the stack MAC address to the MAC address of the active switch. |
| switch priority | Changes the stack member priority value. |
| switch provision | Supplies a configuration to a new switch before it joins the switch stack. |
| switch renumber | Changes the stack member number. |

# show trace messages capwap ap ha

To display wireless control and provisioning of wireless access points (CAPWAP) high availability, use the **show trace messages capwap ap ha** privileged EXEC command.

**show trace messages capwap ap ha** [**detail**| **event**| **dump**] [**switch** *switch*]

## Syntax Description

| | |
|---|---|
| **detail** | (Optional) Displays wireless CAPWAP high availability details. |
| **detail***switch number* | Specifies the switch number. Value is one. |
| **event** | (Optional) Displays wireless CAPWAP high availability events. |
| **event***switch number* | Specifies the switch number. Value is one. |
| **dump** | (Optional) Displays wireless CAPWAP high availability output. |
| **dump** *switch number* | Specifies the switch number. Value is one. |
| **switch** | (Optional) Displays the switch number. The value is one. |
| **switch** *switch number* | Specifies the switch number. Value is one. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows how to display CAPWAP high availability output:

```
Switch# show trace messages mobility ha dump switch 1
|  Output modifiers
  <cr>
```

# show trace messages mobility ha

To display wireless mobility high availability, use the **show trace messages mobility ha** privileged EXEC command.

**show trace messages mobility ha** [**event**| **detail**| **dump**] [**switch** *switch*]

## Syntax Description

| | |
|---|---|
| **event** | (Optional) Displays wireless mobility HA events. |
| **event** *switch* | Specifies the switch number. Value is one. |
| **detail** | (Optional) Displays wireless mobility HA details. |
| **detail** *switch* | Specifies the switch number. Value is one. |
| **dump** | (Optional) Displays the wireless mobility HA output debugging. |
| **dump** *switch* | Specifies the switch number. Value is one. |
| **switch** *switch* | (Optional) Displays the switch number. |
| **switch** *switch* | Specifies the switch number. Value is one. |

## Command Default

None

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Examples

This example shows how to display wireless mobility high availability:

```
Switch# show trace messages mobility ha
```

# stack-mac persistent timer

To enable the persistent MAC address feature, use the **stack-mac persistent timer** command in global configuration mode on the switch stack or on a standalone switch. To disable the persistent MAC address feature, use the **no** form of this command.

**stack-mac persistent timer** [**0**| *time-value*]

**no stack-mac persistent timer**

## Syntax Description

| | |
|---|---|
| **0** | (Optional) Continues using the MAC address of the current active switch indefinitely, even after a new active switch takes over.<br>(Optional) Continues using the MAC address of the current stack master after a new stack master takes over. |
| *time-value* | (Optional) Time period in minutes before the stack MAC address changes to that of the new active switch. The range is 1 to 60 minutes. When no value is entered, the default is 4 minutes. We recommend that you configure an explicit value for this command. |

## Command Default

Persistent MAC address is disabled. The MAC address of the stack is always that of the first active switch.

When the command is entered with no value, the default time before the MAC address changes is four minutes. We recommend that you configure an explicit value for this command.

## Command Modes

Global configuration

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

The MAC address of the switch stack is determined by the MAC address of the stack master. In the default state (persistent MAC address disabled), if a new switch becomes stack master, the stack MAC address changes to the MAC address of the new stack master.

When persistent MAC address is enabled, the stack MAC address does not change for a time period. During that time, if the previous stack master rejoins the stack as a stack member, the stack retains its MAC address for as long as that switch is in the stack. If the previous stack master does not rejoin the stack during the specified time period, the switch stack takes the MAC address of the new stack master as the stack MAC address.

You can set the time period to be from 0 to 60 minutes.

- If you enter the command with no value, the default delay is 4 minutes.

- If you enter **0**, the stack continues to use the current stack MAC address until you enter the **no stack-mac persistent timer** command.
- If you enter a time delay of 1 to 60 minutes, the stack MAC address of the previous stack master is used until the configured time period expires or until you enter the **no stack-mac persistent timer** command.

**Note** When you enter the **stack-mac persistent timer** command with or without keywords, a message appears warning that traffic might be lost if the old master MAC address appears elsewhere in the network domain. You should use this feature cautiously.

If you enter the **no stack-mac persistent timer** command after a switchover, before the time expires, the switch stack moves to the current stack master MAC address.

If the whole stack reloads, when it comes back up, the MAC address of the stack master is the stack MAC address.

## Examples

This example shows how to configure the persistent MAC address feature, with the warning messages for each configuration. It also shows how to verify the configuration:

```
Switch(config)# stack-mac persistent timer
WARNING: Use of an explicit timer value with the command is recommended.
WARNING: Default value of 4 minutes is being used.
WARNING: The stack continues to use the base MAC of the old Master
WARNING: as the stack-mac after a master switchover until the MAC
WARNING: persistency timer expires. During this time the Network
WARNING: Administrators must make sure that the old stack-mac does
WARNING: not appear elsewhere in this network domain. If it does,
WARNING: user traffic may be blackholed.

Switch(config)# stack-mac persistent timer 0
WARNING: Stack MAC persistency timer value of 0 means that, after a
WARNING: master switchover, the  current  stack-mac  will  continue
WARNING: to be used indefinitely.
WARNING: The  Network  Administrators must  make  sure that the old
WARNING: stack-mac  does  not  appear  elsewhere in this network
WARNING: domain. If it does, user traffic may be blackholed.

Switch(config)# stack-mac persistent timer 7
WARNING: The stack continues to use the base MAC of the old Master
WARNING: as the stack-mac after a master switchover until the MAC
WARNING: persistency timer expires. During this time the Network
WARNING: Administrators must make sure that the old stack-mac does
WARNING: not appear elsewhere in this network domain. If it does,
WARNING: user traffic may be blackholed.

Switch(config)# end
Switch(config)# show switch
Switch/Stack Mac Address : 0cd9.9624.dd80
Mac persistency wait time: 7 mins
                                           H/W   Current
Switch#  Role   Mac Address     Priority Version  State
------------------------------------------------------------
*1       Master 0cd9.9624.dd80     1      4       Ready
```

You can verify your settings by entering either of two privileged EXEC commands:

- **show running-config—**If enabled, stack-mac persistent timer and the time in minutes appears in the output.
- **show switch—**If enabled, Mac persistency wait time and the number of minutes appears in the output.

## Related Commands

| Command | Description |
|---|---|
| stack-mac update force | Updates the stack MAC address to the MAC address of the active switch. |

# stack-mac update force

To update the stack MAC address to the MAC address of the active switch, use the **stack-mac update force** command in EXEC mode on the active switch.

**stack-mac update force**

## Syntax Description

This command has no arguments or keywords.

## Command Default

None

## Command Modes

User EXEC

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

By default, the stack MAC address is not changed to the MAC address of the new active switch during a high availability (HA) failover. Use the **stack-mac update force** command to force the stack MAC address to change to the MAC address of the new active switch.

If the switch with the same MAC address as the stack MAC address is currently a member of the stack, the **stack-mac update force** command has no effect. (It does not change the stack MAC address to the MAC address of the active switch.)

**Note** If you do not change the stack MAC address, Layer 3 interface flapping does not occur. It also means that a foreign MAC address (a MAC address that does not belong to any of the switches in the stack) could be the stack MAC address. If the switch with this foreign MAC address joins another stack as the active switch, two stacks will have the same stack MAC address. You must use the **stack-mac update force** command to resolve the conflict.

## Examples

This example shows how to update the stack MAC address to the MAC address of the active switch:

```
Switch> stack-mac update force
Switch>
```

You can verify your settings by entering the **show switch** privileged EXEC command. The stack MAC address includes whether the MAC address is local or foreign.

## Related Commands

| Command | Description |
|---|---|
| show switch | Displays information related to the stack member or the switch stack. |
| stack-mac persistent timer | Enables the persistent MAC address feature. |

# standby console enable

To enable access to the standby console switch, use the **standby console enable** command in redundancy main configuration submode. To disable access to the standby console switch, use the **no** form of this command.

**standby console enable**

**no standby console enable**

## Syntax Description

This command has no arguments or keywords.

## Command Default

Access to the standby console switch is disabled.

## Command Modes

Redundancy main configuration submode

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

This command is used to collect and review specific data about the standby console. The command is useful primarily for Cisco technical support representatives troubleshooting the switch.

## Examples

This example shows how to enter the redundancy main configuration submode and enable access to the standby console switch:

```
Switch(config)# redundancy
Switch(config-red)# main-cpu
Switch(config-r-mc)# standby console enable
Switch(config-r-mc)#
```

## Related Commands

| Command | Description |
|---|---|
| main-cpu | Enters the redundancy main configuration submode and enables the standby switch. |

# switch stack port

To disable or enable the specified stack port on the member, use the **switch** command in privileged EXEC mode on a stack member.

**switch** *stack-member-number* **stack port** *port-number* {**disable**| **enable**}

## Syntax Description

| | |
|---|---|
| *stack-member-number* | Current stack member number. The range is 1 to 9. |
| **stack port** *port-number* | Specifies the stack port on the member. The range is 1 to 2. |
| **disable** | Disables the specified port. |
| **enable** | Enables the specified port. |

## Command Default

The stack port is enabled.

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

A stack is in the full-ring state when all members are connected through the stack ports and are in the ready state.

The stack is in the partial-ring state when the following occurs:

- All members are connected through their stack ports but some are not in the ready state.
- Some members are not connected through the stack ports.

**Note** Be careful when using the **switch** *stack-member-number* **stack port** *port-number* **disable** command. When you disable the stack port, the stack operates at half bandwidth.

If you enter the **switch** *stack-member-number* **stack port** *port-number* **disable** privileged EXEC command and the stack is in the full-ring state, you can disable only one stack port. This message appears:

```
Enabling/disabling a stack port may cause undesired stack changes. Continue?[confirm]
```

If you enter the **switch** *stack-member-number* **stack port** *port-number* **disable** privileged EXEC command and the stack is in the partial-ring state, you cannot disable the port. This message appears:

```
Disabling stack port not allowed with current stack configuration.
```

## Examples

This example shows how to disable stack port 2 on member 4:

```
Switch# switch 4 stack port 2 disable
```

## Related Commands

| Command | Description |
|---|---|
| show switch | Displays information related to the stack member or the switch stack. |

# switch priority

To change the stack member priority value, use the **switch priority** command in global configurationEXEC mode on the active switch.

**switch** *stack-member-number* **priority** *new-priority-value*

## Syntax Description

| | |
|---|---|
| *stack-member-number* | Current stack member number. The range is 1 to 9. |
| *new-priority-value* | New stack member priority value. The range is 1 to 15. |

## Command Default

The default priority value is 1.

## Command Modes

Global configuration

User EXEC

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

The new priority value is a factor when a new active switch is elected. When you change the priority value the active switch is not changed immediately.

## Examples

This example shows how to change the priority value of stack member 6 to 8:

```
Switch(config)## switch 6 priority 8
Changing the Switch Priority of Switch Number 6 to 8
Do you want to continue?[confirm]
```

## Related Commands

| Command | Description |
|---|---|
| reload | Reloads the stack member and applies a configuration change. |
| session | Accesses the diagnostic shell of a specific stack member or the Cisco IOS prompt of the standby Switch |
| show switch | Displays information related to the stack member or the switch stack. |
| switch renumber | Changes the stack member number. |

# switch provision

To supply a configuration to a new switch before it joins the switch stack, use the **switch provision** command in global configuration mode on the active switch. To delete all configuration information that is associated with the removed switch (a stack member that has left the stack), use the **no** form of this command.

**switch** *stack-member-number* **provision** *type*

**no switch** *stack-member-number* **provision**

## Syntax Description

| | |
|---|---|
| *stack-member-number* | Stack member number. The range is 1 to 9. |
| *type* | Switch type of the new switch before it joins the stack. |

## Command Default

The switch is not provisioned.

## Command Modes

Global configuration

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

For *type*, enter the model number of a supported switch that is listed in the command-line help strings.

To avoid receiving an error message, you must remove the specified switch from the switch stack before using the **no** form of this command to delete a provisioned configuration.

To change the switch type, you must also remove the specified switch from the switch stack. You can change the stack member number of a provisioned switch that is physically present in the switch stack if you do not also change the switch type.

If the switch type of the provisioned switch does not match the switch type in the provisioned configuration on the stack, the switch stack applies the default configuration to the provisioned switch and adds it to the stack. The switch stack displays a message when it applies the default configuration.

Provisioned information appears in the running configuration of the switch stack. When you enter the **copy running-config startup-config** privileged EXEC command, the provisioned configuration is saved in the startup configuration file of the switch stack.

**Caution** When you use the **switch provision** command, memory is allocated for the provisioned configuration. When a new switch type is configured, the previously allocated memory is not fully released. Therefore, do not use this command more than approximately 200 times, or the switch will run out of memory and unexpected behavior will result.

## Examples

This example shows how to provision a switch with a stack member number of 2 for the switch stack. The **show running-config** command output shows the interfaces associated with the provisioned switch.

```
Switch(config)# switch 2 provision WS-xxxx
Switch(config)# end
Switch# show running-config | include switch 2
!
interface GigabitEthernet2/0/1
!
interface GigabitEthernet2/0/2
!
interface GigabitEthernet2/0/3
<output truncated>
```

You also can enter the **show switch** user EXEC command to display the provisioning status of the switch stack.

This example shows how to delete all configuration information about stack member 5 when the switch is removed from the stack:

```
Switch(config)# no switch 5 provision
```

You can verify that the provisioned switch is added to or removed from the running configuration by entering the **show running-config** privileged EXEC command.

## Related Commands

| Command | Description |
|---|---|
| show switch | Displays information related to the stack member or the switch stack. |

# switch renumber

To change the stack member number, use the **switch renumber** command in EXECglobal configuration mode on the active switch.

**switch** *current-stack-member-number* **renumber** *new-stack-member-number*

## Syntax Description

| | |
|---|---|
| *current-stack-member-number* | Current stack member number. The range is 1 to 9. |
| *new-stack-member-number* | New stack member number for the stack member. The range is 1 to 9. |

## Command Default

The default stack member number is 1.

## Command Modes

User EXEC

Privileged EXEC

Global configuration

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE 3.3SE | This command was introduced. |

## Usage Guidelines

If another stack member is already using the member number that you just specified, the active switch assigns the lowest available number when you reload the stack member.

**Note** If you change the number of a stack member, and no configuration is associated with the new stack member number, that stack member loses its current configuration and resets to its default configuration.

Do not use the **switch** *current-stack-member-number* **renumber** *new-stack-member-number* command on a provisioned switch. If you do, the command is rejected.

Use the **reload slot** *current stack member number* privileged EXEC command to reload the stack member and to apply this configuration change.

## Examples

This example shows how to change the member number of stack member 6 to 7:

```
Switch# switch 6 renumber 7
WARNING:Changing the switch number may result in a configuration change for that switch.
The interface configuration associated with the old switch number will remain as a provisioned
```

```
 configuration.
Do you want to continue?[confirm]
Switch(config)# switch 6 renumber 7
WARNING:Changing the switch number may result in a configuration change for that switch.
The interface configuration associated with the old switch number will remain as a provisioned
 configuration.
Do you want to continue?[confirm]
```

## Related Commands

| Command | Description |
|---|---|
| reload | Reloads the stack member and applies a configuration change. |
| session | Accesses the diagnostic shell of a specific stack member or the Cisco IOS prompt of the standby Switch |
| show switch | Displays information related to the stack member or the switch stack. |
| switch priority | Changes the stack member priority value. |

# INDEX