

High Availability Commands

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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 (config-red)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

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

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

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

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 Everest 16.5.1a	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.

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

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

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

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

Device(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 (config)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	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.

This example shows how to enter redundancy configuration mode:

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

This example shows how to enter the main CPU submode:

```
Device(config) # redundancy
Device(config-red) # main-cpu
Device(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 Everest 16.5.1a	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.
- 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.

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

Device# redundancy config-sync validate mismatched-commands
Device#

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 Everest 16.5.1a	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:

Device# 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]

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

Device# redundancy force-switchover
Device#

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}

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~ 1	/ntax	1100	cri	ntın	n
U	IIIUA	DUS	UI I	μιιυ	ш

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 Everest 16.5.1a	This command was introduced.

Usage Guidelines

Before using this command, see the "Performing a Software Upgrade" section of the for additional information.

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

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

 ${\tt Device\#} \ \ \textbf{redundancy reload shelf}$

Device#

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		
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 Everest 16.5.1a	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:

Device# 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:

```
Device# 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):

Device# reload slot 3 System configuration has been modified. Save? [yes/no]: ${\bf y}$ Proceed to reload the whole Stack? [confirm] ${\bf y}$

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 16.
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 Everest 16.5.1a	This command was introduced.

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

Device# 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
Device#
```

This example shows how to display redundancy facility client information:

Device# show redundancy clients

```
Group ID =
             1
                     clientSeq =
                                      4 EICORE HA Client
    clientID = 20002
    clientID = 24100     clientSeq =
clientID = 24101     clientSeq =
                                      5
                                           WCM CAPWAP
                                   6 WCM RRM HA
    8 WCM QOS HA
    clientID = 24105    clientSeq =    10     WCM_MOBILITY
    clientID = 24106     clientSeq =
                                    11 WCM_DOT1X
    clientID = 24110 clientSeq = clientID = 24110 client=0
                                     12 WCM_APFROGUE
15 WCM CIDS
                                     16 WCM NETFLOW
    clientID = 24111    clientSeq =
    clientID = 24120    clientSeq =
                                    18 wcm_comet
                                     21 Table Manager Client
24 SNMP SA HA Client
27 Installer HA Client
    clientID = 24001    clientSeq =
    clientID = 20010     clientSeq =
clientID = 20007     clientSeq =
    clientID = 29 clientSeq = 60 Redundancy Mode RF
    clientID = 139  clientSeq = 61  IfIndex
    clientID = 3300   clientSeq =
                                    62 Persistent Variable
    clientID = 25    clientSeq =
clientID = 20005    clientSeq =
                                     68 CHKPT RF
74 IIF-shim
                      clientSeq =
```

The output displays the following information:

<output truncated>

- 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:

```
Device# 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
Device#
```

This example shows how to display redundancy facility history information:

```
Device# 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) seg=8
00:00:07 client added: WCM DOT1X(24106) seg=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
```

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

<output truncated>

Device#

Device#

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

```
Device# 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
```

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 Everest 16.5.1a	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.

This example shows how to display the BEM failures:

```
Device> show redundancy config-sync failures bem
BEM Failed Command List
-----
The list is Empty
```

This example shows how to display the MCL failures:

```
Device> show redundancy config-sync failures mcl
Mismatched Command List
-----
The list is Empty
```

This example shows how to display the PRC failures:

```
Device# 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.

Command Default

None

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Examples

This example shows how to display summary stack information:

This example shows how to display detailed stack information:

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

Device# 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:

Device# show switch neighbors

Switch #	Port A	Port B
6	None	8
8	6	None

This example shows how to display stack-port information:

Device# show switch stack-ports

Switch #	Port A	Port B
6	Down	Ok
8	Ok	Down

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 [{0time-value}]
no stack-mac persistent timer

Syntax Description

0

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.

Command Default

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

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

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 Everest 16.5.1a	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.

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

Device> stack-mac update force
Device>

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.

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 Everest 16.5.1a	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.

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

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

standby console enable