High Availability Commands

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

<table>
<tr><td>**Syntax Description**</td><td>This command has no arguments or keywords.</td></tr>
</table>

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)#
```

Related Commands

Command	Description
show redundancy	Displays redundancy facility information.

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 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]: y
Proceed to reload the whole Stack? [confirm] 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).	
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 standby switches in the redundancy facility.	
slave-name	(Optional) The name of the redundancy facility standby switch to display specific information for. Enter additional keywords to display all clients or counters in the specified standby switch.	
clients	Displays all redundancy facility clients in the specified secondary switch.	
counters	Displays all counters in the specified standby switch.	
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, 5 hours, 28 minutes
Switchovers system experienced = 0
               Standby failures = 0
         Last switchover reason = none

                  Hardware Mode = Duplex
   Configured Redundancy Mode = sso
     Operating Redundancy Mode = sso
               Maintenance Mode = Disabled
                 Communications = Up

Current Processor Information :
------------------------------
                Active Location = slot 5
         Current Software state = ACTIVE
       Uptime in current state = 6 days, 5 hours, 28 minutes
                  Image Version = Cisco IOS Software, Catalyst L3 Switch Software
(CAT9K_IOSXE),Experimental Version 16.x.x [S2C-build-v16x_throttle-4064-/
nobackup/mcpre/BLD-BLD_V16x_THROTTLE_LATEST 102]
Copyright (c) 1986-201x by Cisco Systems, Inc.
Compiled Mon 07-Oct-xx 03:57 by mcpre
                           BOOT = bootflash:packages.conf;
         Configuration register = 0x102

Peer Processor Information :
---------------------------
               Standby Location = slot 6
         Current Software state = STANDBY HOT
       Uptime in current state = 6 days, 5 hours, 25 minutes
                  Image Version = Cisco IOS Software, Catalyst L3 Switch Software
(CAT9K_IOSXE), Experimental Version 16.x.x [S2C-build-v16x_throttle-4064-/
nobackup/mcpre/BLD-BLD_V16x_THROTTLE_LATEST_20191007_000645 102]
Copyright (c) 1986-201x by Cisco Systems, Inc.
Compiled Mon 07-Oct-xx 03:57 by mcpre
                           BOOT = bootflash:packages.conf;
                    CONFIG_FILE =
         Configuration register = 0x102
Device#
```

This example shows how to display redundancy facility client information:

```
Device# show redundancy clients

Group ID =      1
    clientID = 29      clientSeq = 60      Redundancy Mode RF
    clientID = 139     clientSeq = 62      IfIndex
    clientID = 25      clientSeq = 71      CHKPT RF
    clientID = 10001   clientSeq = 85      QEMU Platform RF
    clientID = 77      clientSeq = 87      Event Manager
    clientID = 1340    clientSeq = 104     RP Platform RF
    clientID = 1501    clientSeq = 105     CWAN HA
    clientID = 78      clientSeq = 109     TSPTUN HA
    clientID = 305     clientSeq = 110     Multicast ISSU Consolidation RF
    clientID = 304     clientSeq = 111     IP multicast RF Client
    clientID = 22      clientSeq = 112     Network RF Client
    clientID = 88      clientSeq = 113     HSRP
    clientID = 114     clientSeq = 114     GLBP
    clientID = 225     clientSeq = 115     VRRP
    clientID = 4700    clientSeq = 118     COND_DEBUG RF
    clientID = 1341    clientSeq = 119     IOSXE DPIDX
    clientID = 1505    clientSeq = 120     IOSXE SPA TSM
    clientID = 75      clientSeq = 130     Tableid HA
```

```
        clientID = 501      clientSeq = 137      LAN-Switch VTP VLAN
```

```
<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:

```
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 = 135884
      tx buffers unavailable = 0
                  buffers rx = 135109
       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

00:00:04 client added: Redundancy Mode RF(29) seq=60
00:00:04 client added: IfIndex(139) seq=62
00:00:04 client added: CHKPT RF(25) seq=71
00:00:04 client added: QEMU Platform RF(10001) seq=85
00:00:04 client added: Event Manager(77) seq=87
00:00:04 client added: RP Platform RF(1340) seq=104
00:00:04 client added: CWAN HA(1501) seq=105
00:00:04 client added: Network RF Client(22) seq=112
00:00:04 client added: IOSXE SPA TSM(1505) seq=120
00:00:04 client added: LAN-Switch VTP VLAN(501) seq=137
00:00:04 client added: XDR RRP RF Client(71) seq=139
00:00:04 client added: CEF RRP RF Client(24) seq=140
00:00:04 client added: MFIB RRP RF Client(306) seq=150
00:00:04 client added: RFS RF(520) seq=163
00:00:04 client added: klib(33014) seq=167
00:00:04 client added: Config Sync RF client(5) seq=168
00:00:04 client added: NGWC FEC Rf client(10007) seq=173
00:00:04 client added: LAN-Switch Port Manager(502) seq=190
00:00:04 client added: Access Tunnel(530) seq=192
```

```
00:00:04 client added: Mac address Table Manager(519) seq=193
00:00:04 client added: DHCPC(100) seq=238
00:00:04 client added: DHCPD(101) seq=239
00:00:04 client added: SNMP RF Client(34) seq=251
00:00:04 client added: CWAN APS HA RF Client(1502) seq=252
00:00:04 client added: History RF Client(35) seq=261

<output truncated>
```

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

```
Device# 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]

Device#
```

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

```
Device# show redundancy states

      my state = 13 -ACTIVE
    peer state = 8   -STANDBY HOT
          Mode = Duplex
          Unit = Primary
       Unit ID = 5

Redundancy Mode (Operational) = sso
Redundancy Mode (Configured)  = sso
Redundancy State              = sso
    Maintenance Mode = Disabled
   Manual Swact = enabled
 Communications = Up

   client count = 115
 client_notification_TMR = 30000 milliseconds
         RF debug mask = 0x0

Device#
```

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
```

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)#
```