



Redundancy Commands

CPU switch module redundancy provides protection against CPU switch module failure. Use the following commands to configure and monitor CPU switch module redundancy operations.

auto-sync counters interface

To enable automatic synchronizing of traffic statistics, performance monitoring counters, and performance history counters on the active CPU switch module to the standby CPU switch module, use the **auto-sync counters interface** command. To disable this feature, use the **no** form of this command.

auto-sync counters interface

no auto-sync counters interface

Syntax Description This command has no other arguments or keywords.

Defaults Enabled

Command Modes Redundancy configuration

Command History This table includes the following release-specific history entries:

SV-Release	Modification
12.2(24)SV	This command was introduced.
12.2(29)SV	Added support for the automatic syncing of performance history counters.

Usage Guidelines Use this command to enable or disable automatic synchronizing of the traffic statistics, performance monitoring counters, and performance history counters without affecting the following types of synchronization:

- Startup configuration
- Dynamic database synchronizing
- Running configuration

Examples The following example shows how to disable automatic synchronizing of the traffic statistics and performance counters.

```
Switch# configure terminal
Switch(config)# redundancy
Switch(config-red)# no auto-sync counters interface
```

Related Commands	Command	Description
	auto-sync startup-config	Selectively enables only automatic synchronizing of the startup configuration to the standby CPU switch module.
	maintenance-mode	Disables all CPU switch module redundancy synchronization.

Command	Description
<code>redundancy</code>	Enters redundancy configuration mode.
<code>redundancy manual-sync</code>	Causes an immediate one-time database update.
<code>show redundancy summary</code>	Displays CPU switch module redundancy status and configuration information.

auto-sync running-config

To selectively enable only automatic synchronizing of the running configuration on the active processor to the standby CPU switch module, use the **auto-sync running-config** command. To disable automatic synchronizing of the running configuration, use the **no** form of this command.

auto-sync running-config

no auto-sync running-config

Syntax Description This command has no other arguments or keywords.

Defaults Enabled

Command Modes Redundancy configuration

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to enable or disable automatic synchronizing of the running configuration without affecting the following types of synchronization:

- Startup configuration
- Dynamic database synchronizing

When a CPU switch module switchover occurs, the standby CPU switch module normally uses the running configuration rather than the startup configuration. However, if **auto-sync running-config** is disabled when a CPU switch module switchover occurs, the standby CPU switch module uses the startup configuration.

In maintenance mode, all database synchronizing to the standby CPU switch module is disabled even if **auto-sync running-config** is enabled.

Examples

The following example shows how to disable automatic synchronizing of the running configuration.

```
Switch# configure terminal
Switch(config)# redundancy
Switch(config-red)# no auto-sync running-config
```

Related Commands

Command	Description
auto-sync startup-config	Selectively enables only automatic synchronizing of the startup configuration to the standby CPU switch module.
maintenance-mode	Disables all CPU switch module redundancy synchronization.
redundancy	Enters redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time database update.
show bootvar	Displays boot and other environmental variables.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

auto-sync startup-config

To selectively enable only automatic synchronizing of the startup configuration to the standby CPU switch module, use the **auto-sync startup-config** command. To disable automatic synchronizing of the startup configuration, use the **no** form of this command.

auto-sync startup-config

no auto-sync startup-config

Syntax Description This command has no other arguments or keywords.

Defaults Enabled

Command Modes Redundancy configuration

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to enable or disable only automatic synchronizing of the startup configuration without affecting the following synchronization:

- Running configuration
- Dynamic database synchronizing

In maintenance mode, all database synchronizing to the standby CPU switch module is disabled even if **auto-sync startup-config** is enabled.

Examples The following example shows how to disable automatic synchronizing of the startup configuration.

```
Switch# configure terminal
Switch(config)# redundancy
Switch(config-red)# no auto-sync startup-config
```

Related Commands	Command	Description
	auto-sync running-config	Selectively enables only automatic synchronizing of the running configuration to the standby CPU switch module.
	maintenance-mode	Disables all CPU switch module redundancy synchronization.
	redundancy	Enters redundancy configuration mode.
	redundancy manual-sync	Causes an immediate one-time database update.
	show bootvar	Displays boot and other environmental variables.
	show redundancy summary	Displays CPU switch module redundancy status and configuration information.

clear redundancy

To clear redundancy history or counters, use the **clear redundancy** command.

clear redundancy {history | counters}

Syntax Description

history	Clears the redundancy event history log.
counters	Clears the redundancy internal operational counters.

Defaults

None

Command Modes

Privileged EXEC

Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines

Use this command to perform a one-time clear of the specified redundancy history or statistics database. This command may be useful for debugging or monitoring redundancy performance.

Examples

The following example shows how to clear the redundancy history log.

```
Switch# clear redundancy history
```

Related Commands

Command	Description
show redundancy counters	Displays redundancy software counter information.
show redundancy history	Displays redundancy software history information.

maintenance-mode

To disable all CPU switch module redundancy synchronization, use the **maintenance-mode** redundancy command. To reenable redundancy synchronization, use the **no** form of this command.

maintenance-mode

no maintenance-mode

Syntax Description This command has no other arguments or keywords.

Defaults Disabled

Command Modes Redundancy configuration

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines In maintenance mode, the active CPU switch module does not automatically synchronize information to the standby CPU switch module. No standby CPU switch module errors and alarms are reported to the active CPU switch module. The standby CPU switch module leaves the hot-standby mode, enters the negotiation state, and transitions to the cold-standby state.

When maintenance mode is disabled, the standby CPU switch module reloads until it reaches the hot-standby state.

Maintenance mode is useful for CPU switch module maintenance operations and system image troubleshooting.



Note

We do not recommend leaving the active and standby CPU switch modules in maintenance mode for extended periods because any added configuration is lost unless the startup configuration on the active CPU switch module is manually updated and manually synchronized with the standby CPU switch module.

Examples

The following example shows how to enable maintenance mode redundancy.

```
Switch# configure terminal
Switch(config)# redundancy
Switch(config-red)# maintenance-mode
This command will place the system in SIMPLEX mode [confirm] y
```

Related Commands

Command	Description
redundancy	Enters redundancy configuration mode.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

redundancy

To switch to redundancy configuration mode, use the **redundancy** command.

redundancy

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes Global configuration

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to gain access to both CPU switch module redundancy configuration commands and APS configuration commands.

Examples The following example shows how to switch to redundancy configuration mode.

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

Related Commands	Command	Description
	associate group	Associates wavepatch interfaces for APS splitter protection.
	associate interface	Associates two interfaces for APS protection.
	auto-sync running-config	Selectively enables only automatic synchronizing of the running configuration to the standby CPU switch module.

Command	Description
auto-sync startup-config	Selectively enables only automatic synchronizing of the startup configuration to the standby CPU switch module.
maintenance-mode	Enables or disables CPU switch module redundancy synchronization.

redundancy manual-sync

To cause an immediate one-time database update of the specified database information, use the **redundancy manual-sync** command.

redundancy manual-sync { running-config | startup-config | both }

Syntax Description		
	running-config	Causes an immediate one-time update of the running configuration to the standby CPU switch module.
	startup-config	Causes an immediate one-time update of the startup configuration to the standby CPU switch module.
	both	Causes an immediate one-time update of the running configuration and the startup configuration to the standby CPU switch module.

Defaults None

Command Modes Privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines This command is not usually required because automatic synchronization is enabled by default and, upon exiting global configuration mode, the running configuration is updated on the standby CPU switch module. (Exit global configuration mode by entering **Ctrl-Z** or **end**.) The startup configuration is updated when the **copy** command is issued.

If auto-synchronizing is disabled, the **redundancy manual-sync** command updates the standby processor database information to be identical with the active CPU switch module.

If the system is unable to complete the update, an error message is displayed.

This command is only allowed on the active CPU switch module.

Examples

The following example shows how to make the active CPU switch module send an update for both the running configuration and the startup configuration to the standby CPU switch module.

```
Switch# redundancy manual-sync both
```

Related Commands

Command	Description
auto-sync running-config	Selectively enables only automatic synchronizing of the running configuration to the standby CPU switch module.
auto-sync startup-config	Selectively enables only automatic synchronizing of the startup configuration to the standby CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

redundancy reload peer

To reload the standby CPU switch module, use the **redundancy reload peer** command.

redundancy reload peer

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes Privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to reload the standby (or peer) CPU switch module.

The active CPU switch module is allowed to reload a standby CPU switch module that is fully running the Cisco IOS software by using an NMI (non-maskable interrupt).

This command will not succeed on the active CPU switch module if the standby CPU switch module has not fully loaded its system IOS image and reached the hot-standby state.

This command cannot be entered on the standby CPU switch module.

Examples The following example shows how to reload the standby CPU switch module.

```
Switch# redundancy reload peer
Reload peer [confirm] y
Preparing to reload peer
```

Related Commands	Command	Description
	maintenance-mode	Enables or disables CPU switch module redundancy synchronization.
	redundancy reload shelf	Reloads both CPU switch modules in the shelf.
	redundancy switch-activity	Manually switches activity from the active CPU switch module to the standby CPU switch module.
	environment-monitor shutdown temperature	Reloads the active CPU switch module.
	show redundancy summary	Displays CPU switch module redundancy status and configuration information.

redundancy reload shelf

To reload both redundant CPU switch modules, use the **redundancy reload shelf** command.

redundancy reload shelf

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes Privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines This command causes both CPU switch modules to reload.

Examples The following example shows how to reload the entire shelf.

```
Switch# redundancy reload shelf
Reload the entire shelf [confirm] y
Preparing to reload shelf
```

Related Commands	Command	Description
	maintenance-mode	Enables or disables CPU switch module redundancy synchronization.
	redundancy reload peer	Reloads the standby CPU switch module.
	redundancy switch-activity	Manually switches activity from the active CPU switch module to the standby CPU switch module.

Command	Description
environment-monitor shutdown temperature	Reloads the active CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

redundancy switch-activity

To manually switch activity from the active CPU switch module to the standby CPU switch module, use the **redundancy switch-activity** command.

redundancy switch-activity [force]

Syntax Description	force	Forces a switch of activity even when the standby CPU switch module has not reached the hot-standby state, or if some other software condition is preventing a normal switchover from occurring.
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Defaults	The active CPU switch module switches over only if the standby CPU switch module has reached hot-standby mode.
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Command Modes	Privileged EXEC
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Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines	This command must be issued on the active CPU switch module. It takes effect if the CPU switch module is in a state to allow switchover; that is, the standby CPU switch module is in the “Standby Hot” state and platform software is not temporarily disallowing the switchover.
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Examples The following example shows how to switch activity to the standby CPU switch module.

```
Switch# redundancy switch-activity
Preparing to switch activity
This will reload the active unit and force a switch of activity [confirm] y

01:40:35: %SYS-5-RELOAD: Reload requested
```

Related Commands	Command	Description
	maintenance-mode	Enables or disables CPU switch module redundancy synchronization.
	redundancy reload peer	Reloads the standby CPU switch module.
	redundancy reload shelf	Reloads both CPU switch modules in the shelf.
	environment-monitor shutdown temperature	Reloads the active CPU switch module.
	show redundancy summary	Displays CPU switch module redundancy status and configuration information.

show redundancy capability

To display capabilities of the active and standby CPU switch modules, use the **show redundancy capability** command.

show redundancy capability

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes Privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to display hardware and functional versions of the various components. If the capabilities do not match, the system is running in a degraded redundancy mode.

Examples The following example shows how to display capabilities for the active and standby CPU switch modules. (See [Table 7-1](#) for field descriptions.)

```
Switch# show redundancy capability
```

```
CPU capability support
```

Active CPU	Sby CPU	Sby Compat	CPU capability description
96 MB	96 MB	OK	CPU DRAM size
32 MB	32 MB	OK	CPU PMEM size
512 KB	512 KB	OK	CPU NVRAM size
16 MB	16 MB	OK	CPU Bootflash size
3.5	3.5	OK	CPU hardware major.minor version
1.20	1.18	OK	CPU functional major.minor version

show redundancy capability

Linecard driver major.minor versions, (counts: Active=18, Standby=18)

Active CPU	Sby CPU	Sby Compat	Drv ID	Driver description
1.1	1.1	OK	0x1000	CPU w/o Switch Fabric
1.1	1.1	OK	0x1001	Fixed Transponder, w/monitor
1.1	1.1	OK	0x1002	Fixed Transponder, no monitor
1.1	1.1	OK	0x1003	Pluggable Transponder, w/monitor
1.1	1.1	OK	0x1004	Pluggable Transponder, no monitor
1.1	1.1	OK	0x1005	Line Card Motherboard
1.1	1.1	OK	0x1006	Backplane
1.1	1.1	OK	0x1007	32-ch Mux/Demux
1.1	1.1	OK	0x1008	Fixed 4-ch Mux/Demux, no OSC
1.1	1.1	OK	0x1009	Fixed 8-ch Mux/Demux, no OSC
1.1	1.1	OK	0x100A	Modular 4-ch Mux/Demux, no OSC
1.1	1.1	OK	0x100B	Modular 8-ch Mux/Demux, no OSC
1.1	1.1	OK	0x100C	32-ch Array Wave Guide
1.1	1.1	OK	0x100D	Mux/Demux Motherboard
1.1	1.1	OK	0x100E	Modular 4-ch Mux/Demux plus OSC
1.1	1.1	OK	0x100F	Modular 8-ch Mux/Demux plus OSC
1.1	1.1	OK	0x1010	Mux-Demux Motherboard, no OSC
1.1	1.1	OK	0x1011	Line Card Motherboard, no splitter

Software sync client versions, listed as version range X-Y.

X indicates the oldest peer version it can communicate with.

Y indicates the current sync client version.

Sync client counts: Active=2, Standby=2

Active CPU	Sby CPU	Sby Compat	Cl ID	Redundancy Client description
ver 1-1	ver 1-1	OK	17	CPU Redundancy
ver 1-1	ver 1-1	OK	6	OIR Client

Backplane IDPROM comparison

Backplane IDPROM field	Match	Local CPU	Peer CPU
idversion	YES	1	1
magic	YES	153	153
card_type	YES	4102	4102
order_part_num_str	YES	N/A	N/A
description_str	YES	Manhattan_Backplane_PHASE_0	Manhattan_Backplane_PHASE_0
board_part_num_str	YES	73-5655-03	73-5655-03
board_revision_str	YES	02	02
serial_number_str	YES	TBC05031572	TBC05031572
date_of_manufacture_str	YES	02/16/2001	02/16/2001
deviation_numbers_str	YES	0	0
manufacturing_use	YES	0	0
rma_number_str	YES	0x00	0x00
rma_failure_code_str	YES	0x00	0x00
oem_str	YES	Cisco_Systems	Cisco_Systems
clei_str	YES		
snmp_oid_substr	NO	0	
schematic_num_str	YES	92-4113-03	92-4113-03
hardware_major_version	YES	3	3
hardware_minor_version	YES	0	0
engineering_use_str	YES	1	1
crcl6	OK	5913	24184
user_track_string	NO	lab	
diagst	YES	^A	^A
board_specific_revision	YES	1	1
board_specific_magic_number	YES	153	153

board_specific_length	YES	56	56
mac_address_block_size	YES	16	16
mac_address_base_str	YES	0000164428fb0	0000164428fb0
cpu_number	OK	1	1
optical_backplane_type	YES	255	255

Table 7-1 *show redundancy capability Field Descriptions*

Field	Description
Active CPU	Shows the following information for the active CPU switch module: <ul style="list-style-type: none"> processor DRAM size—the size of dynamic random access memory processor PMEM size—the amount of dynamic RAM reserved for packet I/O usage processor NVRAM size—the size of nonvolatile RAM processor Bootflash size—the size of bootflash memory processor hardware major.minor version—the CPU switch module hardware version processor functional major.minor version—the CPU switch module functional version
Sby CPU	Shows information for the standby CPU switch module. See the “ Active CPU ” description above.
Sby Compat	Indicates whether the standby CPU switch module is compatible with the active CPU switch module.
CPU capability description	Shows the capability descriptions for the active and standby CPU switch modules. See the “ Active CPU ” description above.
Linecard driver major.minor versions	Shows the number of line card drivers.
Drv ID	Shows the driver ID.
Driver description	Shows the driver description.
Software sync client versions	Shows the redundancy client version in the range X-Y, where: <ul style="list-style-type: none"> X indicates the oldest peer version it can communicate with. Y indicates the current sync client version. Also shows the sync client counts.
CI ID	Shows the client ID.
Redundancy Client description	Shows the redundancy client descriptions.

Related Commands

Command	Description
redundancy	Switches to redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time update of the specified database.
redundancy reload peer	Reloads the redundant peer CPU switch module.
redundancy reload shelf	Reloads both redundant CPU switch modules in the shelf.

Command	Description
redundancy switch-activity	Manually switches activity from the active CPU switch module to the current standby CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

show redundancy clients

To display a list of internal redundancy clients, use the **show redundancy clients** command.

show redundancy clients

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes EXEC and privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to display information about the software subsystems that are clients of the platform-independent RF (Redundancy Facility) subsystem. Subsystems that need to synchronize information from the active CPU switch module to the standby CPU switch module (or vice versa) are registered as clients of the RF.

This client information can be used to debug redundancy software.

Examples The following example shows how to display a list of internal redundancy clients. (See [Table 7-2](#) for field descriptions.)

```
Switch# show redundancy clients
clientID = 0      clientSeq = 0      RF_INTERNAL_MSG
clientID = 6      clientSeq = 16     OIR Client
clientID = 17     clientSeq = 40     CPU Redundancy
clientID = 19     clientSeq = 9999   RF_LAST_CLIENT
```

Table 7-2 *show redundancy clients Field Descriptions*

Field	Description
clientID	Shows the ID of the redundant client.
clientSeq	Shows the client notification sequence number. Client sequence numbers determine the order in which a client is notified of RF events, relative to other clients. There are cases where one client must be notified before another. This should be noted when the sequence number is defined. The lower sequence numbers are notified first.
RF_INTERNAL_MSG	Shows the RF first client, which is part of the RF subsystem and is necessary for its operation.
OIR Client	Shows the OIR (online insertion and removal) client, which updates the standby CPU switch module when line cards are inserted and removed.
CPU Redundancy	Shows the CPU switch module redundancy client, which sends running or startup configuration changes to the standby CPU switch module. This client also reports hardware/software compatibility and version numbers between the CPU switch modules. It also ensures that CPU switch module arbitration changes and peer CPU switch module communication losses are reported to the RF and to other subsystems.
RF_LAST_CLIENT	Shows the RF last client, which is part of the RF subsystem and is necessary for its operation.

Related Commands

Command	Description
redundancy	Switches to redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time update of the specified database.
redundancy reload peer	Reloads the redundant peer CPU switch module.
redundancy reload shelf	Reloads both redundant CPU switch modules in the shelf.
redundancy switch-activity	Manually switches activity from the active CPU switch module to the current standby CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

show redundancy counters

To display internal redundancy software counters, use the **show redundancy counters** command.

show redundancy counters

Syntax Description This command has no other arguments or keywords

Defaults None

Command Modes Privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to display internal redundancy software counter information, which can be used to debug redundancy software.

Examples The following example shows how to display internal redundancy software counter information. (See [Table 7-3](#) for field descriptions.)

```
Switch# show redundancy counters
Redundancy Facility OMs
      comm link up = 1
      comm link down 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
```

show redundancy counters

```

    errored peer msg rx = 0

        buffers tx = 656
tx buffers unavailable = 0
        buffers rx = 1302
    buffer release errors = 0

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

```

Table 7-3 *show redundancy counters Field Descriptions*

Field	Description
comm link up	Shows how many communications links are up.
comm link down down	Shows how many communications links are down.
invalid client tx	Shows the number of invalid client transmissions.
null tx by client	Shows the number of null transmissions by the client.
tx failures	Shows the number of transmission failures.
tx msg length invalid	Shows the number of transmission messages with invalid lengths.
client not rxing msgs	Shows that the client is not receiving event messages.
rx peer msg routing errors	Shows errors occurring in the RF application. This usually indicates a software problem.
null peer msg rx	Shows that the interprocess communication (IPC) has sent an empty message to the RF application. This usually indicates a software problem.
errored peer msg rx	Shows an IPC error when an RF message was received. This usually indicates a software problem.
buffers tx	Shows the number of internal buffers acquired for sending RF messages.
tx buffers unavailable	Shows the number of times internal buffers for sending RF messages were not available due to the high volume of messages being sent. This usually indicates a software problem.
buffers rx	Shows the number of buffers released back to the internal buffer pool.
buffer release errors	Shows errors in releasing internal buffers.
duplicate client registers	Shows that an application has been registered with the RF more than once. This usually indicates a software problem.
failed to register client	Shows that the system was unable to register an RF client application due to low memory or a software problem.
Invalid client syncs	Shows an internal software problem in the RF.

Related Commands

Command	Description
redundancy	Switches to redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time update of the specified database.
redundancy reload peer	Reloads the standby CPU switch module.
redundancy reload shelf	Reloads both redundant CPU switch modules in the shelf.

Command	Description
redundancy switch-activity	Manually switches activity from the active CPU switch module to the current standby CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

show redundancy history

To display internal redundancy software history, use the **show redundancy history** command.

show redundancy history

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes EXEC and privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to display the internal redundancy software history log, which can be used to debug redundancy software.

Examples The following example shows how to display the internal redundancy software history log, which can be useful for debugging redundancy software. (See [Table 7-4](#) for field descriptions.)

```
Switch# show redundancy history
Redundancy Facility Event Log:
00:00:00 client added: RF_INTERNAL_MSG(0) seq=0
00:00:00 client added: RF_LAST_CLIENT(19) seq=9999
00:00:16 client added: CPU Redundancy(17) seq=40
00:00:16 *my state = INITIALIZATION(2) *peer state = DISABLED(1)
00:00:16 RF_PROG_INITIALIZATION(0) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(0) CPU Redundancy(17) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(0) RF_LAST_CLIENT(19) op=0 rc=11
00:00:16 *my state = NEGOTIATION(3) peer state = DISABLED(1)
00:00:16 RF_STATUS_PEER_PRESENCE(12) op=0
00:00:16 RF_EVENT_GO_ACTIVE(28) op=0
00:00:16 *my state = ACTIVE-FAST(9) peer state = DISABLED(1)
```

```

00:00:16 RF_STATUS_SPLIT_ENABLE(15) CPU Redundancy(17) op=0
00:00:16 RF_PROG_ACTIVE_FAST(6) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(6) CPU Redundancy(17) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(6) RF_LAST_CLIENT(19) op=0 rc=11
00:00:16 *my state = ACTIVE-DRAIN(10) peer state = DISABLED(1)
00:00:16 RF_PROG_ACTIVE_DRAIN(7) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(7) CPU Redundancy(17) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(7) RF_LAST_CLIENT(19) op=0 rc=11
00:00:16 *my state = ACTIVE_PRECONFIG(11) peer state = DISABLED(1)
00:00:16 RF_PROG_ACTIVE_PRECONFIG(8) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_PRECONFIG(8) CPU Redundancy(17) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_PRECONFIG(8) RF_LAST_CLIENT(19) op=0 rc=11
00:00:16 *my state = ACTIVE_POSTCONFIG(12) peer state = DISABLED(1)
00:00:16 RF_PROG_ACTIVE_POSTCONFIG(9) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_POSTCONFIG(9) CPU Redundancy(17) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_POSTCONFIG(9) RF_LAST_CLIENT(19) op=0 rc=11
00:00:16 *my state = ACTIVE(13) peer state = DISABLED(1)
00:00:16 RF_PROG_ACTIVE(10) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE(10) CPU Redundancy(17) op=0 rc=11
00:00:16 RF_PROG_ACTIVE(10) RF_LAST_CLIENT(19) op=0 rc=11
00:00:16 client added: OIR Client(6) seq=16
00:00:19 RF_STATUS_PEER_PRESENCE(12) op=0
00:00:36 Configuration parsing complete
00:00:36 System initialization complete

```

Table 7-4 *show redundancy history Field Descriptions*

Field	Description
client added	Shows the RF subsystem client added.
*my state = INITIALIZATION	Shows that the CPU switch module has been initialized.
*peer state = DISABLED	Shows that the peer (or standby) CPU switch module is disabled.
Configuration parsing complete	Shows that the configuration has been read either from NVRAM or, on a switchover, from the stored running-config file.
System initialization complete	Shows that the system initialization is complete.

Related Commands

Command	Description
clear redundancy	Clears the redundancy history buffer in processor memory.
redundancy	Switches to redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time update of the specified database.
redundancy reload peer	Reloads the standby CPU switch module.
redundancy reload shelf	Reloads both redundant CPU switch modules in the shelf.
redundancy switch-activity	Manually switches activity from the active CPU switch module to the current standby CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

show redundancy running-config-file

To display the running configuration on the standby CPU switch module, use the **show redundancy running-config-file** command.

show redundancy running-config-file

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes EXEC and privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines This command is only available on the standby CPU switch module. It shows the stored running-config file that has been synchronized from the active CPU switch module, which will be applied as the system configuration during the next standby to active transition.

If auto-synchronization is disabled for the running-config-file on the active CPU switch module, or if the IPC (interprocessor communications) is down, this command displays the message `running-config-file is not currently valid and does not show the running-config-file`.



Note

While the standby CPU switch module remains in the hot-standby state, the running configuration, as shown by the **show running-config** command, is not expected to match the synchronized running-config file. Instead, it contains mostly default configuration values.

Examples The following example displays the running-config file on the standby CPU switch module. (See [Table 7-5](#) for field descriptions.)

```
sby-Switch# show redundancy running-config-file
```



```

!
version 12.1
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Switch
!
boot system flash bootflash:ons15530-i-mz
boot bootldr slot0:ons15530-i-mz

<Information deleted>

```

Table 7-5 *show redundancy running-config-file Field Descriptions*

Field	Description
version	Shows the software version.
no service pad	Shows service pad configuration. In the output example, “no” indicates that incoming and outgoing packet assembler/disassembler (PAD) connections are not accepted.
service timestamps	Shows that logging appears with timestamps.
no service password-encryption	Shows that password encryption has been disabled.
hostname	Shows the system name.
boot system flash	Shows the boot system flash version.
boot bootldr	Shows the bootldr version.

Related Commands

Command	Description
redundancy	Switches to redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time update of the specified database.
redundancy reload peer	Reloads the redundant peer CPU switch module.
redundancy reload shelf	Reloads both redundant CPU switch modules in the shelf.
redundancy switch-activity	Manually switches activity from the active CPU switch module to the current standby CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

show redundancy states

To display internal redundancy software state information, use the **show redundancy states** command.

show redundancy states

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes EXEC and privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to display internal redundancy software state information, which may be used to debug redundancy software.

Examples The following example shows how to display internal redundancy software state information. (See [Table 7-6](#) for field descriptions.)

```
Switch> show redundancy states
  my state = 13 -ACTIVE
  peer state = 8 -STANDBY HOT
    Mode = Duplex
    Unit ID = 6

  Split Mode = Disabled
  Manual Swact = Enabled
  Communications = Up

  client count = 5
  client_notification_TMR = 30000 milliseconds
  keep_alive TMR = 5000 milliseconds
```

```

keep_alive count = 1
keep_alive threshold = 10
RF debug mask = 0x0

```

Table 7-6 *show redundancy states Field Descriptions*

Field	Description
my state	Shows the state of the active CPU switch module.
peer state	Shows the state of the peer (or standby) CPU switch module.
Mode	Shows either simplex (single CPU switch module) or duplex (two CPU switch modules) mode.
Unit	Shows either primary (or active) CPU switch module or peer (or standby) CPU switch module.
Unit ID	Shows the unit ID of the CPU switch module.
Split Mode	Indicates whether split mode is enabled or disabled.
Manual Swact	Indicates whether manual switchovers have been enabled without the force option.
Reason	Shows why manual switchovers have been disabled. Valid reasons are: <ul style="list-style-type: none"> • Simplex mode • Invalid peer state • Split mode • Progression in progress • Unidentified platform-specific reason
Communications	Indicates whether communications are up or down between the two CPU switch modules.
Reason	Shows why communications are down, either because the system is in simplex mode or due to a failure.
client count	Shows the number of redundancy subsystems that are registered as RF clients.
client_notification_TMR	Shows, in milliseconds, the time that an internal RF timer has for notifying RF client subsystems.
keep_alive TMR	Shows, in milliseconds, the time interval the RF manager has for sending keep-alive messages to its peer on the standby CPU switch module.
keep_alive count	Shows the number of keep-alive messages sent without receiving a response from the standby CPU switch module.
keep_alive threshold	Shows the threshold for declaring that interprocessor communications are down when keep-alive messages have been enabled (which is the default).
RF debug mask	Shows an internal mask used by the RF to keep track of which debug modes are on.

Related Commands

Command	Description
redundancy	Switches to redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time update of the specified database.
redundancy reload peer	Reloads the redundant standby CPU switch module.
redundancy reload shelf	Reloads both redundant CPU switch modules in the shelf.
redundancy switch-activity	Manually switches activity from the active CPU switch module to the current standby CPU switch module.
show redundancy summary	Displays CPU switch module redundancy status and configuration information.

show redundancy summary

To display a summary of active and standby CPU switch module redundancy information, use the **show redundancy summary** command.

show redundancy summary

Syntax Description This command has no other arguments or keywords.

Defaults None

Command Modes EXEC and privileged EXEC

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release and added new required keyword summary .
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines Use this command to display a summary of redundancy-related information, including active and standby slots, uptimes, images, and current alarms. This information is useful for troubleshooting CPU switch module redundancy problems.

Examples The following example shows how to display a summary of redundancy-related information for the system. (See [Table 7-7](#) for field descriptions.)

```
Switch# show redundancy summary

Redundant system information
-----
Available Uptime:          12 minutes
Time since last switchover: 6 minutes
Switchover Count:         2

Inter-CPU Communication State:UP
```

show redundancy summary

```

Last Restart Reason:          Switch over
Reported Switchover Reason:   User initiated
Software state at switchover: STANDBY HOT

Last Running Config sync:     2 minutes
Running Config sync status:   In Sync
Last Startup Config sync:     2 minutes
Startup Config sync status:   In Sync

This CPU is the Active CPU.
-----
Slot:                          6
Time since CPU Initialized:     8 minutes
Image Version:                  ONS-15530 Software (ONS15530-I-M), Experimental Version
12.1(20010824:021324) [ffrazer-lh2 106]
Image File:                     tftp://171.69.1.129/ffrazer/ons15530-i-mz
Software Redundancy State:      ACTIVE
Hardware State:                 ACTIVE
Hardware Severity:              0

Peer CPU is the Standby CPU.
-----
Slot:                          7
Time since CPU Initialized:     2 minutes
Image Version:                  ONS-15530 Software (ONS15530-I-M), Experimental Version
12.1(20010824:021324) [ffrazer-lh2 106]
Image File (on sby-CPU):       tftp://171.69.1.129/ffrazer/ons15530-i-mz
Software Redundancy State:      STANDBY HOT
Hardware State:                 STANDBY
Hardware Severity:              0

```

Table 7-7 *show redundancy summary Field Descriptions*

Field	Description
Available Uptime	Shows the elapsed time since the system began providing uninterrupted operation, including the time when either CPU switch module is active.
Time since last switchover	Shows the amount of time since the last switchover.
Switchover Count	Shows the number of times switchover has occurred during the Available Uptime.
Inter-CPU Communication State	Shows the status of IPC (interprocess communications).
Last Restart Reason	Shows the reason for the last restart. Valid reasons include normal boot and switchover.
Last Switchover Reason	Shows the reason for the last switchover when the Last Restart Reason field shows "Switch over." Valid reasons are: <ul style="list-style-type: none"> • Not known • User initiated • User forced • User forced (reload) • Active unit failed • Active unit removed

Table 7-7 *show redundancy summary Field Descriptions (continued)*

Field	Description
Software state at switchover	Shows the software redundancy state of the processor at the time of the last switchover.
Last Running Config sync	Shows the amount of time since the CPU switch module was synchronized with the last running configuration.
Running Config sync status	Indicates whether the CPU switch module is in sync with the running configuration.
Last Startup Config sync	Shows the amount of time since the CPU switch module was synchronized with the last startup configuration.
Startup Config sync status	Indicates whether the CPU switch module is in sync with the startup configuration.
Slot	Shows the slot number on the active or standby system.
Time since CPU Initialized	Shows the amount of time since the active or standby CPU switch module was last initialized.
Image	Shows the active or standby CPU switch module system image and version.
Software Redundancy State	Indicates whether software redundancy is enabled for the active and standby CPU switch module.
Hardware State	Shows the hardware state of the active or standby CPU switch module.
Hardware Severity	Shows the severity of hardware faults. Valid values are: <ul style="list-style-type: none"> • 0 = good CPU switch module hardware (no hardware faults) • 1 = CPU switch module hardware fault that does not affect traffic • 2 = fault that partially affects traffic • 3 = fault that may affect all user data traffic

Related Commands

Command	Description
redundancy	Switches to redundancy configuration mode.
redundancy manual-sync	Causes an immediate one-time update of the specified database.
redundancy reload peer	Reloads the redundant peer CPU switch module.
redundancy reload shelf	Reloads both redundant CPU switch modules in the shelf.
redundancy switch-activity	Manually switches activity from the active CPU switch module to the current standby CPU switch module.
show redundancy capability	Displays CPU switch module redundancy capability information.

standby privilege-mode enable

To enable access to privileged EXEC mode from the standby CPU switch module CLI, use the **standby privilege-mode enable** command. To revert to the default state, use the **no** form of the command.

standby privilege-mode enable

no standby privilege-mode enable

Syntax Description This command has no other arguments or keywords.

Defaults Disabled

Command Modes Redundancy configuration

Command History This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

Usage Guidelines This command must be entered on the active CPU switch module CLI before you can access privileged EXEC mode on the standby CPU switch module CLI.

Examples The following example shows how to enable access to privileged EXEC mode on the standby CPU switch processor module.

```
Switch(config-red)# standby privilege-mode enable
```

Related Commands	Command	Description
	show redundancy summary	Displays CPU switch module redundancy status and configuration information.