



Managing Controller Stacks

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

Pre-requisites for Configuring Controller Stack

You must ensure the following before stacking controllers:

- Ensure that the controllers are connected using the stack cable. For more details on stack cables used, see the Information on Controller stack section.
- Only one controller other than the active unit is available to be stacked.
- Identify which controller needs to be in active and standby state based on your priorities.
- You must verify that the controllers in the stack run on Cisco IOS Software release 3.3 and later.
- You must verify that the licenses of the controllers in the stack; for more details, see the Cisco 5700 Series Wireless Controller Installation Guide.

- Verify the license used by the controllers in the stack. Ideally, the active controller must possess a valid license and the standby controller can either possess a valid license or a HA SKU license.

Restrictions for Configuring Controller Stack

You must ensure that the controllers in the stack are configured with the same Cisco IOS Software Release version and licenses.

When you reboot the controller while on stack, you must ensure that you deactivate the already existing licenses configured on the controllers. This is because while you perform a reboot, the controller uses the highest activated (EULA accepted) license level as the reboot license while on stack.

Information About Controller Stack

A controller stack can have one stacking-capable controller connected through their StackWise-480 ports; which implies that the stack has two members- an active and a standby controller. The stack member works together as a unified system using the StackWise-480 technology. If the active controller becomes unavailable, the standby controller assumes the role of the active switch, and continues to keep the stack operational.

The active controller contains the saved and running configuration files for the controller stack. The configuration files include the system-level settings for the controller stack and the interface-level settings for the stack member. The stack member has a current copy of all these files for back-up purposes. The controllers in the stack use Cisco StackWise-480 technology which provides a robust distributed forwarding architecture through each stack member switch and a unified, fully centralized control and management plane to simplify operation in a large-scale network design.

In the stack, all configuration in the active unit is synced to the standby unit once the standby unit changes its state from member to the hot standby state. Thus, all the start-up configuration available in the unit prior to synchronization is lost. If you would need the start-up configuration of the standby unit again, you must save the startup configuration of the unit in secondary memory- Flash memory to reuse the configurations later.

You must use the following Cisco StackWise-480 and Cisco StackPower cables to connect the units in the stack.

Stack Cable	Description
STACK-T1-50CM	Cisco StackWise-480 50cm stacking cable spare
STACK-T1-1M	Cisco StackWise-480 1m stacking cable spare
STACK-T1-3M	Cisco StackWise-480 3m stacking cable spare
CAB-SPWR-30CM	Cisco Catalyst 3850 StackPower cable 30cm spare
CAB-SPWR-150CM	Cisco Catalyst 3850 StackPower cable 150cm spare

When you reboot the controller while on stack, you must ensure that you deactivate the already existing licenses configured on the controllers. This is because while you perform a reboot, the controller uses the highest activated (EULA accepted) license level as the reboot license while on stack.

In the stack, all configuration in the active unit is synced to the standby unit once standby unit changes its state from member to the hot standby state. Thus, all the start-up configuration available in the unit prior to synchronization is lost. If you would need the start-up configuration of the standby unit again, you must save the startup configuration of the unit in secondary memory- Flash memory to reuse the configurations later.

When you use the controller stack, all the six controller ports of both the controllers are combined hence providing an availability of 12 ports for usage. The bandwidth of a controller port is a 10 gig ethernet port; however on combination of 12 ports the controller, a throughput of 60 Gbps is only available for use. These ports can be combined to form an Etherchannel, a flex link, or a Link Aggregation Group (LAG).

Hello messages are sent and received by all stack members.

- If a stack member does not respond, that member is removed from the stack.
- If the standby controller does not respond, a new standby controller is elected.
- If the active controller does not respond, the standby controller becomes the active controller.

In addition, keepalive messages are sent and received between the active and standby controllers.

- If the standby controller does not respond, a new standby controller is elected.
- If the active controller does not respond, the standby controller becomes the active controller.

Configuring Controller Stack

SUMMARY STEPS

1. Connect two controllers that are up and running using the stack cable.
2. Power up and perform a boot on both controllers simultaneously or power and boot one controller.
3. Configure Etherchannel or LAG on the units. The deployment type of Etherchannel, LAG, and LACP is based on your network design.
4. Execute the command **show etherchannel summary** to view status of the configured Etherchannel.
5. Configure LACP .
6. Execute the commands defined for displaying stack information on the console of the active controller to verify that the redundancy high availability pair exists.

DETAILED STEPS

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|---------------|--|
| Step 1 | Connect two controllers that are up and running using the stack cable. |
| Step 2 | Power up and perform a boot on both controllers simultaneously or power and boot one controller.
The controllers boot up successfully, and forms a high availability pair. |
| Step 3 | Configure Etherchannel or LAG on the units. The deployment type of Etherchannel, LAG, and LACP is based on your network design. |
| Step 4 | Execute the command show etherchannel summary to view status of the configured Etherchannel.
On successful configuration, all the specified ports will be bundled in a single channel and listed in the command output of show etherchannel summary . |

- Step 5

Configure LACP .
- Step 6

Execute the commands defined for displaying stack information on the console of the active controller to verify that the redundancy high availability pair exists.

Enabling the Persistent MAC Address Feature



Note

When you enter the command to configure this feature, a warning message appears with the consequences of your configuration. You should use this feature cautiously. Using the old MAC address elsewhere in the same domain could result in lost traffic.

Follow these steps to enable persistent MAC address:

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `stack-mac persistent timer [0 | time-value]`
4. `end`
5. `copy running-config startup-config`

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <code>Controller> enable</code>	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	configure terminal Example: <code>Controller# configure terminal</code>	Enters the global configuration mode.
Step 3	stack-mac persistent timer [0 <i>time-value</i>] Example: <code>Controller(config)# stack-mac persistent timer 7</code>	<p>Enables a time delay after a stack-master change before the stack MAC address changes to that of the new . If the previous rejoins the stack during this period, the stack uses that MAC address as the stack MAC address.</p> <p>You can configure the time period as 0 to 60 minutes.</p> <ul style="list-style-type: none">• Enter the command with no value to set the default delay of approximately 4 minutes. We recommend that you always enter a value.

	Command or Action	Purpose
		<p>If the command is entered without a value, the time delay appears in the running-config file with an explicit timer value of 4 minutes.</p> <ul style="list-style-type: none"> Enter 0 to continue using the MAC address of the current indefinitely. <p>The stack MAC address of the previous is used until you enter the no stack-mac persistent timer command, which immediately changes the stack MAC address to that of the current .</p> <ul style="list-style-type: none"> Enter a <i>time-value</i> from 1 to 60 minutes to configure the time period before the stack MAC address changes to the new . <p>The stack MAC address of the previous is used until the configured time period expires or until you enter the no stack-mac persistent timer command.</p> <p>Note If you enter the no stack-mac persistent timer command after a new takes over, before the time expires, the switch stack moves to the current MAC address.</p>
Step 4	end Example: <pre>Controller(config)# end</pre>	Returns to privileged EXEC mode.
Step 5	copy running-config startup-config Example: <pre>Controller# copy running-config startup-config</pre>	(Optional) Saves your entries in the configuration file.

What to Do Next

Use the **no stack-mac persistent timer** global configuration command to disable the persistent MAC address feature.

