



# Configuring the Cisco APIC Using the CLI

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## Configuring the Cisco APIC Cluster

### Cluster Management Guidelines

The Cisco Application Policy Infrastructure Controller (APIC) cluster comprises multiple Cisco APICs that provide operators a unified real time monitoring, diagnostic, and configuration management capability for the Cisco Application Centric Infrastructure (ACI) fabric. To assure optimal system performance, use the following guidelines when making changes to the Cisco APIC cluster:

- Prior to initiating a change to the cluster, always verify its health. When performing planned changes to the cluster, all controllers in the cluster should be healthy. If one or more of the Cisco APICs' health status in the cluster is not "fully fit," remedy that situation before proceeding. Also, assure that cluster controllers added to the Cisco APIC are running the same version of firmware as the other controllers in the Cisco APIC cluster.
- We recommend that you have at least 3 active Cisco APICs in a cluster, along with additional standby Cisco APICs. In most cases, we recommend a cluster size of 3, 5, or 7 Cisco APICs. We recommend 4 Cisco APICs for a two site multi-pod fabric that has between 80 to 200 leaf switches.
- Disregard cluster information from Cisco APICs that are not currently in the cluster; they do not provide accurate cluster information.
- Cluster slots contain a Cisco APIC `ChassisID`. Once you configure a slot, it remains unavailable until you decommission the Cisco APIC with the assigned `ChassisID`.
- If a Cisco APIC firmware upgrade is in progress, wait for it to complete and the cluster to be fully fit before proceeding with any other changes to the cluster.
- When moving a Cisco APIC, first ensure that you have a healthy cluster. After verifying the health of the Cisco APIC cluster, choose the Cisco APIC that you intend to shut down. After the Cisco APIC has shut down, move the Cisco APIC, re-connect it, and then turn it back on. From the GUI, verify that the all controllers in the cluster return to a fully fit state.




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**Note** Only move one Cisco APIC at a time.

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- When an Cisco APIC cluster is split into two or more groups, the ID of a node is changed and the changes are not synchronized across all Cisco APICs. This can cause inconsistency in the node IDs between Cisco APICs and also the affected leaf nodes may not appear in the inventory in the Cisco APIC GUI. When you split a Cisco APIC cluster, decommission the affected leaf nodes from a Cisco APIC and register them again, so that the inconsistency in the node IDs is resolved and the health status of the APICs in a cluster are in a fully fit state.
- Before configuring the Cisco APIC cluster, ensure that all of the Cisco APICs are running the same firmware version. Initial clustering of Cisco APICs running differing versions is an unsupported operation and may cause problems within the cluster.
- Unlike other objects, log record objects are stored only in one shard of a database on one of the Cisco APICs. These objects get lost forever if you decommission or replace that Cisco APIC.
- When you decommission a Cisco APIC, the Cisco APIC loses all fault, event, and audit log history that was stored in it. If you replace all Cisco APICs, you lose all log history. Before you migrate a Cisco APIC, we recommend that you manually backup the log history.

## Replacing a Cisco APIC in a Cluster Using the CLI



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- Note**
- For more information about managing clusters, see [Cluster Management Guidelines](#).
  - When you replace an APIC, the password will always be synced from the cluster. When replacing APIC 1, you will be asked for a password but it will be ignored in favor of the existing password in the cluster. When replacing APIC 2 or 3, you will not be asked for a password.
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### Before you begin

Before replacing an APIC, ensure that the replacement APIC is running the same firmware version as the APIC to be replaced. If the versions are not the same, you must update the firmware of the replacement APIC before you begin. Initial clustering of APICs running differing versions is an unsupported operation and may cause problems within the cluster.

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- Step 1** Identify the APIC that you want to replace.
- Step 2** Note the configuration details of the APIC to be replaced by using the **acdiag avread** command.
- Step 3** Decommission the APIC using the **controller controller-id decommission** command.

**Note** Decommissioning the APIC removes the mapping between the APIC ID and Chassis ID. The new APIC typically has a different APIC ID, so you must remove this mapping in order to add a new APIC to the cluster.

- Step 4** To commission the new APIC, follow these steps:
- a) Disconnect the old APIC from the fabric.
  - b) Connect the replacement APIC to the fabric.

The new APIC controller appears in the APIC GUI menu **System > Controllers > apic\_controller\_name > Cluster as Seen by Node** in the **Unauthorized Controllers** list.

- c) Commission the new APIC using the **controller controller-id commission** command.
- d) Boot the new APIC.
- e) Allow several minutes for the new APIC information to propagate to the rest of the cluster.

The new APIC controller appears in the APIC GUI menu **System > Controllers > apic\_controller\_name > Cluster as Seen by Node** in the **Active Controllers** list.

## Switching Over Active APIC with Standby APIC Using CLI

Use this procedure to switch over an active APIC with a standby APIC.

### Step 1 **replace-controller replace ID number Backup serial number**

Replaces an active APIC with an standby APIC.

#### Example:

```
apic1#replace-controller replace 2 FCH1804V27L
Do you want to replace APIC 2 with a backup? (Y/n): Y
```

### Step 2 **replace-controller reset ID number**

Resets fail over status of the active controller.

#### Example:

```
apic1# replace-controller reset 2
Do you want to reset failover status of APIC 2? (Y/n): Y
```

## Verifying Cold Standby Status Using the CLI

To verify the Cold Standby status of APIC, log in to the APIC as admin and enter the command **show controller**.

```
apic1# show controller
Fabric Name       : vegas
Operational Size  : 3
Cluster Size     : 3
Time Difference   : 496
Fabric Security Mode : strict
```

ID	Pod	Address	In-Band IPv4	In-Band IPv6	OOB IPv4	OOB IPv6
		Version	Flags	Serial Number	Health	
1*	1	10.0.0.1	0.0.0.0	fc00::1	172.23.142.4	
		fe80::26e9:b3ff:fe91:c4e0	2.2(0.172)	crva- FCH1748V0DF	fully-fit	
2	1	10.0.0.2	0.0.0.0	fc00::1	172.23.142.6	
		fe80::26e9:bf8f:fe91:f37c	2.2(0.172)	crva- FCH1747V0YF	fully-fit	

```

3      1      10.0.0.3      0.0.0.0      fc00::1      172.23.142.8
fe80::4e00:82ff:fead:bc66  2.2(0.172)      crva- FCH1725V2DK      fully-fit
21~      10.0.0.21
----- FCH1734V2DG

Flags - c:Commissioned | r:Registered | v:Valid Certificate | a:Approved | f/s:Failover fail/success
(*)Current (~)Standby

```

# Fabric Initialization and Switch Discovery

## Switch Discovery

### Registering an Unregistered Switch Using the CLI

Use this procedure to register a switch from the **Nodes Pending Registration** tab on the **Fabric Membership** work pane using the CLI.



**Note** This procedure is identical to "Adding a Switch Before Discovery Using the CLI". When you execute the command, the system determines if the node exists and, if not, adds it. If the node exists, the system registers it.

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>[no] system switch-id <i>serial-number switch-id name pod id role leaf node-type tier-2-leaf</i></b>	Adds the switch to the pending registration list.

### Adding a Switch Before Discovery Using the CLI

Use this procedure to add a switch to the **Nodes Pending Registration** tab on the **Fabric Membership** work pane using the CLI.



**Note** This procedure is identical to "Registering an Unregistered Switch Using the CLI". When you execute the command, the system determines if the node exists and, if not, adds it. If the node does exist, the system registers it.

```
[no] system switch-id serial-number switch-id name pod id role leaf node-type tier-2-leaf
```

Adds the switch to the pending registration list.

## Graceful Insertion and Removal (GIR) Mode

### Removing a Switch to Maintenance Mode Using the CLI

Use this procedure to remove a switch to maintenance mode using the CLI.



**Note** While the switch is in maintenance mode, CLI 'show' commands on the switch show the front panel ports as being in the up state and the BGP protocol as up and running. The interfaces are actually shut and all other adjacencies for BGP are brought down, but the displayed active states allow for debugging.

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```
[no]debug-switch node_id or node_name
```

Removes the switch to maintenance mode.

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### Inserting a Switch to Operation Mode Using the CLI

Use this procedure to insert a switch to operational mode using the CLI.

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```
[no]no debug-switch node_id or node_name
```

Inserts the switch to operational mode.

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