

Cisco APIC M1/M2/M3/M4/L1/L2/L3/L4 to APIC-G5 Cluster Migration, Release 6.1(4)

Version 1.0

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Goals of This Document

This document provides details on how to perform an in-service replacement of older generation Cisco APIC servers with the APIC-G5 model. As announced on cisco.com¹, the Cisco APIC L1/M1 and L2/M2 servers have reached their end-of-sale and end-of-life date and the Cisco APIC M3/L3 has reached end-of-sale date. At the time of this writing, the suggested Cisco APIC server replacement is Cisco APIC-G5 for ACI fabrics running software release 6.1(4) or later.

Software Release Requirements

The Cisco APIC-G5 requires the Cisco APIC software 6.1(4) release or later. Cisco APIC servers forming a cluster must all run the same software release. You cannot have different software releases inside one cluster; doing so will result in the cluster not converging. There is one exception to this rule: during a software upgrade process, there will be a temporary divergence in software releases within the cluster. This means that before you attempt to replace the existing Cisco APIC M1/L1, M2/L2, M3/L3, or M4/L4 server with a Cisco APIC-G5 server, you must bring the running cluster to a supported release.

Hardware Compatibility

You can mix Cisco APIC M2/L2, M3/L3, M4/L4 and APIC-G5 using any possible combination. There are no restrictions other than the minimum software release mentioned in the Software Release Requirements. APIC M1/L1 servers are not supported on ACI release 6.1(4); however, upgrading to release 6.1(4) is not blocked. Upgrading APIC M1/L1 servers to ACI release 6.1(4) should only be done for the purpose of migrating to a supported APIC model.

Table 1. Supported APIC combinations on ACI release 6.1(4) and later.

	APIC-M1/L1	APIC-M2/L2	APIC-M3/L3	APIC-M4/L4	APIC-G5
APIC-M1/L1	✓	✓	✓	✓	Only when migrating to APIC-G5
APIC-M2/L2	✓	✓	✓	✓	✓
APIC-M3/L3	✓	✓	✓	✓	✓
APIC-M4/L4	✓	✓	✓	✓	✓
APIC-G5	Only when migrating to APIC-G5	✓	✓	✓	✓

¹ <https://www.cisco.com/c/en/us/products/cloud-systems-management/application-policy-infrastructure-controller-apic/eos-eol-notice-listing.html>

When a cluster has a mix of hardware models, its performance aligns to the lowest common denominator. For example, a Cisco APIC-M2 cluster scales up to 1000 edge ports while an APIC-M3 cluster increases that number to 1200². There is no medium version for the APIC-G5 server. Mixing any medium APIC model in a cluster with APIC-G5 servers will align the cluster scale to the medium server scale.

Guidelines and Limitations for Migrating Cisco APIC Servers

The Cisco APIC L1/M1 server is no longer supported. However, you can still use the procedures in this document to migrate Cisco APIC L1/M1 servers to a newer server model.

When you decommission a Cisco APIC, the 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.

Do not decommission more than one Cisco APIC at a time.

Wait until the cluster reaches the fully fit state before proceeding with a new replacement.

Do not leave a decommissioned Cisco APIC powered on.

Replacing the In-service Cisco APIC Servers

This section describes how to replace a Cisco APIC cluster on every existing M1/L1, M2/L2, M3/L3, or M4/L4 server with an APIC-G5 server model in service with no impact to the data plane nor the control plane. The procedure is fully supported by Cisco. This procedure focuses on a 3-node Cisco APIC cluster and the process is similar for larger clusters.

Procedure

Step 1. Validate that the existing cluster is fully-fit.

² <https://www.cisco.com/c/en/us/products/collateral/cloud-systems-management/application-policy-infrastructure-controller-apic/datasheet-c78-739715.html>

Ensure your existing cluster is fully fit before attempting this procedure. You must not upgrade or modify a Cisco APIC cluster that is not fully fit. To verify that your existing cluster is fully fit:

- In the menu bar, choose **System > Controllers**.
- In the Navigation pane, expand **Controllers** and choose any Cisco APIC.
- Expand the Cisco APIC and choose **Cluster as seen by node**.

Figure 1

ID	Controller Name	IP Address	Pod ID	Admin State	Operational State	Health	Failover Status	Mode	Serial Number	Type
1	APIC-1	10.23.233.1...	1	● In Serv...	● Available	● Fully Fit	No Applia...	● Active ...	WMP270...	Physical
2	APIC-2	10.39.10.83...	1	● In Serv...	● Available	● Fully Fit	No Applia...	● Active ...	WZP2549...	Physical
3	APIC-3	10.39.10.85...	1	● In Serv...	● Available	● Fully Fit	No Applia...	● Active ...	FCH2143...	Physical

- Check the operational state of all nodes. The nodes must be "Available" and the health state must be "Fully Fit."
- You can check the APIC hardware model by selecting the APIC and navigating to **General > Hardware** as shown in figure 2. In this example, we will be migrating an APIC-M3 server to the APIC-G5.

Figure 2

Properties
Allocated Memory (KB): 97206720
Free Memory (KB): 80568380
APIC Serial Number: WMP2704001
APIC Model: APIC-SERVER-M3
CPU Architecture: x86_64
Cores: 8
CPU Model: Intel(R) Xeon(R) Bronze 3106 CPU @ 1.70GHz
Speed (GHz): 1.7
Vendor: GenuineIntel
Locator LED: Blinking
Locator LED Color: Blue

Step 2. Cable the replacement Cisco APIC-G5 servers.

In this scenario, you are replacing all three Cisco APIC servers with Cisco APIC-G5 servers. The process is the same as when replacing four, five, six, or seven servers. Physically install the replacement servers in the data center and cable them to the existing Cisco ACI fabric as you would with any server. Cable the Out-of-band (OOB) management connection. There is no need to set aside new IP addresses for the replacement Cisco APIC servers, because each Cisco APIC will simply take over the IP address of the server it is replacing.

Alternatively, you can replace existing APICs one at time. Rack and connect an APIC-G5 server in the same physical location as the one it is replacing using the same switch connections.

Step 3. Power up the Cisco APIC-G5 server that will replace an existing Cisco APIC server.

Bring up a Serial over LAN (SoL), vKVM console connection, or physical VGA connection so you can monitor their boot process. After a few minutes, you will be prompted to press any key to continue. You do not need to perform any configuration from the console. This step is just to verify that the APIC server is ready to be commissioned as a new APIC.

Figure 3



```
KVM Console APIC-SERVER-G5 WZP290491X5
[ 12.703508] sd 3:0:0:2: Attached scsi generic sg4 type 0
[ 12.709686] sd 3:0:0:1: [sdal] Media removed, stopped polling
[ 12.709887] sd 3:0:0:2: Power-on or device reset occurred
[ 12.710080] sd 3:0:0:2: [sdcl] Media removed, stopped polling
[ 12.710562] sd 3:0:0:2: [sdcl] Attached SCSI removable disk
[ 12.715710] sr 3:0:0:3: Power-on or device reset occurred
[ 12.722308] sd 3:0:0:1: [sdal] Attached SCSI removable disk
[ 12.847503] sr 3:0:0:3: [sr1] scsi-1 drive
[ 13.068174] sr 3:0:0:3: Attached scsi generic sg5 type 5
[ 13.098188] sd 3:0:0:4: Attached scsi generic sg6 type 0
[ 13.327553] sd 3:0:0:4: Power-on or device reset occurred
[ 13.337466] sd 3:0:0:4: [sdal] Media removed, stopped polling
[ 13.337926] sr 3:0:0:5: Power-on or device reset occurred
[ 13.344362] sd 3:0:0:4: [sdal] Attached SCSI removable disk
[ 13.467378] sr 3:0:0:5: [sr2] scsi-1 drive
[ 13.476135] sr 3:0:0:5: Attached scsi generic sg7 type 5
[ 13.485340] sd 3:0:0:6: Attached scsi generic sg8 type 0
[ 13.587976] sd 3:0:0:6: Power-on or device reset occurred
[ 13.597210] sd 3:0:0:6: [sdal] Media removed, stopped polling
[ 13.606942] sd 3:0:0:6: [sdal] Attached SCSI removable disk
[ 47.929503] EXT4-fs (dm-1): mounted filesystem e16f7f27-d797-442b-ac22-eafef9ece516 ro with ordered data mode. Quota mode: no
[ 47.951673] EXT4-fs (dm-1): unmounting filesystem e16f7f27-d797-442b-ac22-eafef9ece516.
[ 50.027251] EXT4-fs (dm-1): mounted filesystem 7e7bedfb-43fb-4717-928a-6ce25a97f9b0 r/w with ordered data mode. Quota mode: no
[ 50.968225] EXT4-fs (dm-7): mounted filesystem 28818abc-267c-45d5-b4e7-74d48c6336c8 r/w with ordered data mode. Quota mode: no
[ 51.630116] EXT4-fs (dm-11): mounted filesystem 2361c312-4bbe-4067-a1fe-e65f5968da6c r/w with ordered data mode. Quota mode: no
[ 51.649771] overlayfs: "xino" feature enabled using 32 upper inode bits.
[ 52.406497] systemd-journald[752]: Received SIGTERM from PID 1 (systemd).
[ 52.417944] EXT4-fs (dm-1): unmounting filesystem 7e7bedfb-43fb-4717-928a-6ce25a97f9b0.
[ 52.461373] SELinux: https://github.com/SELinuxProject/selinux-kernel/wiki/DEPRECATE-runtime-disable
[ 52.475158] SELinux: Runtime disable is not supported, use selinux=0 on the kernel cmdline.
[ 54.100299] systemd-journald[1963]: Collecting audit messages is disabled.
[ 54.587797] bridge: filtering via arp/ip/ip6tables is no longer available by default. Update your scripts to load br_netfilter if you need this.
[ 58.601682] /dev/vg_ifc0/securedata: Can't lookup blockdev
[ 58.616336] /dev/vg_ifc0/rfs1: Can't lookup blockdev
[ 58.628473] /dev/vg_ifc0/rfs2: Can't lookup blockdev

Press any key to continue...
```

Step 4. Decommission Cisco APIC 3 (or the highest number APIC in the cluster).

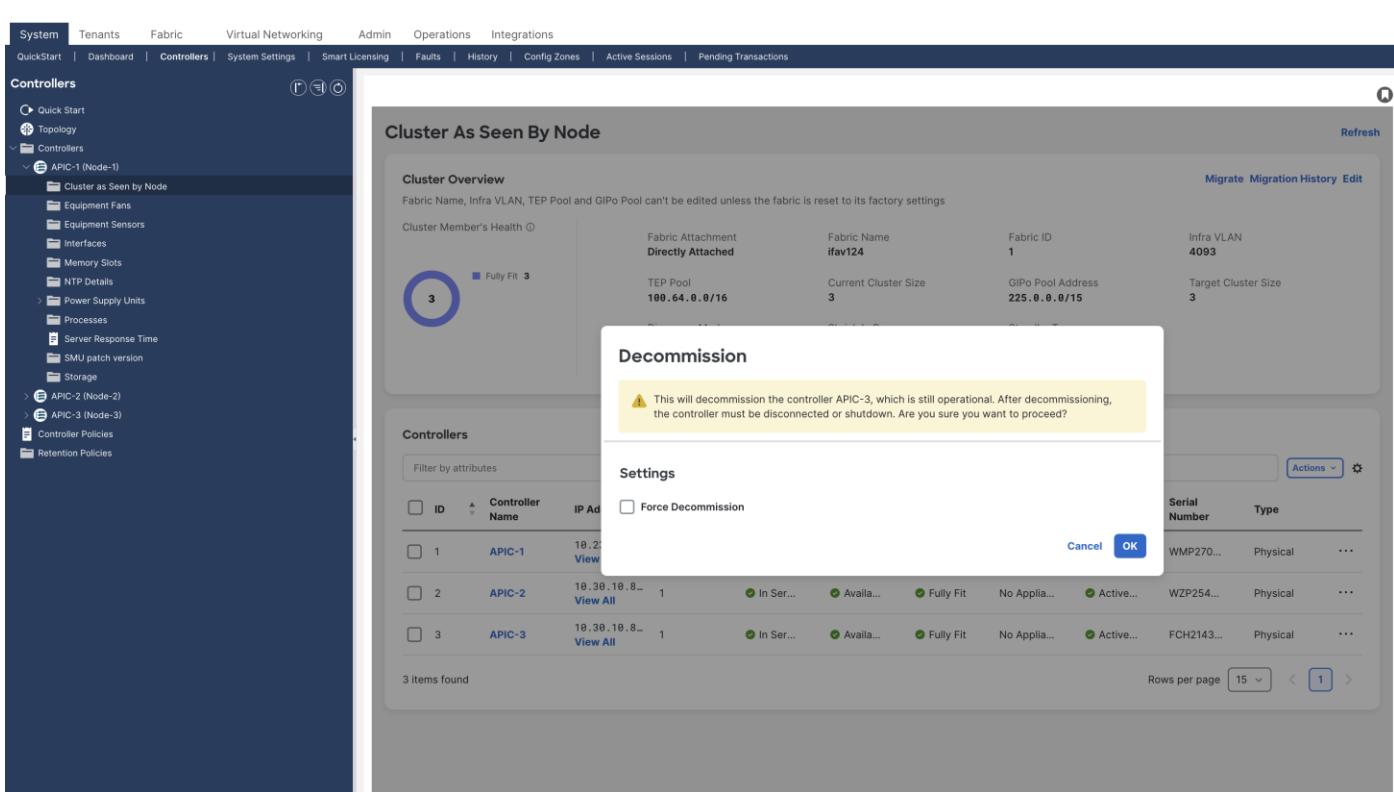
From Cisco APIC number 1 or 2, within the "cluster as seen by node" view (Figure 4), decommission the last Cisco APIC by right-clicking on that Cisco APIC and choosing **Maintenance**→**Decommission**.

Figure 4

The screenshot shows the 'Cluster As Seen By Node' interface. On the left, a sidebar lists 'Controllers' (APIC-1, APIC-2, APIC-3), 'Controller Policies', and 'Retention Policies'. The main area displays 'Cluster Overview' with a summary of the cluster's state: Fabric Name (ifav124), Fabric ID (1), Infra VLAN (4093), and TEP Pool (100.64.0.0/16). Below this is a 'Cluster Member's Health' section showing a circular status icon with '3' nodes, all marked as 'Fully Fit'. To the right are details for APIC-3: Fabric Attachment (Directly Attached), Current Cluster Size (3), Discovery Mode (Permissive), and Shrink In Progress (No). The 'Standby Type' is listed as 'Cold'. At the bottom, a table lists three controllers: APIC-1, APIC-2, and APIC-3. For APIC-3, a context menu is open, with 'Decommission' highlighted. Other options in the menu include 'Launch SSH', 'Maintenance', 'Commission', 'Replace', 'Remove From Cluster', 'Reload', 'Shutdown', 'Toggle Locator LED', 'Open In Object Store Browser', and 'Save As'.

After choosing **Decommission**, you are prompted to confirm the selection. A message displays instructing you to disconnect or power down the APIC after decommissioning it.

Figure 5



After decommissioning the APIC, the GUI shows the APIC as "Out of Service" and "Unregistered."

Figure 6

Controllers											
Filter by attributes											
<input type="checkbox"/>	ID	Controller Name	IP Address	Pod ID	Admin State	Operational State	Health	Failover Status	Mode	Serial Number	Type
<input type="checkbox"/>	1	APIC-1	10.23.233...	1	● In Service	● Available	● Fully Fit	No Appli...	● Activ...	WMP27...	Physical
<input type="checkbox"/>	2	APIC-2	10.30.10.3...	1	● In Service	● Available	● Fully Fit	No Appli...	● Activ...	WZP254...	Physical
<input type="checkbox"/>	3	APIC-3	10.30.10.8...	0	● Out of Service	● Unregistered	● Never ...	No Appli...	● Activ...	FCH2143...	Physical

3 items found

Rows per page: 15 < 1 >

Wait roughly 5 minutes, then log into that Cisco APIC's CIMC to initiate a power off sequence or use the server power off button to power off the server after having decommissioned the Cisco APIC server.

You can power off the Cisco APIC from the CIMC GUI or CLI.

Step 5. Register the new Cisco APIC for the cluster membership.

Cisco APIC release 6.0(3) and later allows you to replace a Cisco APIC server directly from the GUI, if the APIC has access to the replacement APIC server's CIMC or out-of-band management IP address. If the APIC-G5 servers have CIMC connections, it is not necessary to perform any configuration on the APIC server console. Commissioning of the APIC will be done via the CIMC. If CIMC connections are not used, you will be required to configure an out-of-band management IP on the replacement APICs.

The following steps are for APICs with CIMC connections.

The commission step bootstraps the replacement APIC-G5 with the following settings:

- CIMC Address
- CIMC username
- CIMC password
- APIC Name (this will be pre-populated when doing commission)
- Admin Password: (cluster password)
- Controller ID: (this will be pre-populated when doing commission)
- Pod-ID
- Serial Number: (will be discovered automatically when APIC connects to CIMC)
- Out-of-Band Address
- Out-of-Band gateway

On the APIC server that was decommissioned, Right-click on the server and select commission.

Figure 7

ID	Controller Name	IP Address	Pod ID	Admin State	Operational State	Health	Failover Status	Mode	Serial Number	Type
1	APIC-1	10.23.233.100	1	● In Service	● Available	● Fully Fit	No Appli...	● Active...	WMP270...	Physical
2	APIC-2	10.30.10.8	1	● In Service	● Available	● Fully Fit	No Appli...	● Active...	WZP254...	Physical
3	APIC-3	View All	0	● Out of Service	● Unreg...	● Never ...	No Appli...	● Active...		

3 items found

Actions

Commission

Decommission

Replace

Remove From Cluster

Launch SSH

Maintenance

Reload

Shutdown

Toggle Locator LED

Open In Object Store Browser

Save As

Step 6. Enter the APIC-G5 CIMC address and login credentials and click **Validate**:

Figure 8

Commission

Controller Type

Controller Type Physical Virtual

Connectivity Type CIMC OOB

CIMC Details

IP Address * 10.30.10.251

Username * admin

Password *

Figure 9

Commission

Controller Type

Controller Type Physical Virtual

Connectivity Type CIMC OOB

CIMC Details

IP Address * 10.30.10.251

Username * admin

Password *

 Validation Success

Enter the cluster password, pod-id where the APIC is located, and out-of-band management address. The out-of-band management address should be the same as the decommissioned APIC.

Figure 10

The screenshot shows a configuration interface for a Cisco APIC-3. The interface is divided into two main sections: **General** and **Out Of Band Network**.

General Section:

- Name ***: APIC-3
- Admin Password ***: (Redacted)
- Controller ID ***: 3
- Pod ID ***: 1
- Serial Number**: WZP29039BWP

Out Of Band Network Section:

- IPv4 Address ***: 10.30.10.85/24
- IPv4 Gateway ***: 10.30.10.1
- IPv6 Address ***: 2001:420:28f:2030::82/112
- IPv6 Gateway ***: 2001:420:28f:2030::1

Step 7. Verify cluster membership.

After approximately 5 minutes, you will observe transitions in the operational state and health status. First, you may see the infra IP address configured on the new server. The new server serial number will be populated.

Figure 11

Controllers											
<input type="button" value="Filter by attributes"/> <input type="button" value="Actions"/> <input type="button" value=""/>											
<input type="checkbox"/>	ID	Controller Name	IP Address	Pod ID	Admin State	Operational State	Health	Failover Status	Mode	Serial Number	Type
<input type="checkbox"/>	1	APIC-1	10.23.233.109/...	1	✓ In Se...	✓ Avail...	✓ Fully ...	No Appli...	✓ Activ...	WMP2704001L	Physical
<input type="checkbox"/>	2	APIC-2	10.30.10.83/24	1	✓ In Se...	✓ Avail...	✓ Fully ...	No Appli...	✓ Activ...	WZP2549021C	Physical
<input type="checkbox"/>	3	APIC-3	10.30.10.85/24	1	✓ In Se...	✗ Unre...	✗ Neve...	No Appli...	✓ Activ...	WZP29039BWP	Physical

During commissioning of the APIC, the Health state may display “Diverged” and/or “Data Layer Partially Diverged”. Wait until the Health status show “Fully Fit” before decommissioning the next APIC.

Figure 12

Controllers											
<input type="button" value="Filter by attributes"/> <input type="button" value="Actions"/> <input type="button" value=""/>											
<input type="checkbox"/>	ID	Controller Name	IP Address	Pod ID	Admin State	Operational State	Health	Failover Status	Mode	Serial Number	Type
<input type="checkbox"/>	1	APIC-1	10.23.233.109/...	1	✓ In Ser...	✓ Avail...	✓ Fully Fit	No Appli...	✓ Active...	WMP2704001L	Physical
<input type="checkbox"/>	2	APIC-2	10.30.10.83/24	1	✓ In Ser...	✓ Avail...	✓ Fully Fit	No Appli...	✓ Active...	WZP2549021C	Physical
<input type="checkbox"/>	3	APIC-3	10.30.10.85/24	1	✓ In Ser...	✓ Avail...	✓ Fully Fit	No Appli...	✓ Active...	WZP29039BWP	Physical

If you check the new server's properties, you will show the APIC-G5 model with a new serial number:

Figure 13

Node APIC-3

[Refresh](#)
[View In Topology](#)
[Actions](#)
[X](#)

[Overview](#)
[Faults](#)
[History](#)

Health Level

Recent Activity

● NodeInfo modified From IP:10.25.128.82 by admin
7 hours ago

Controller View



View Hardware Resources



General

ID 3	Host Name APIC-3	IP Address 10.30.10.85 View All	Operational Status -
Controller UUID -	Software Version 6.1(4h)	Last Update 2025-10-16T17:40:59.018-07:00	Current System Time 2025-10-16T17:54:16.050-07:00
Source NTP	Up Time 00:19:41:17.000	Model APIC-SERVER-G5T	Serial Number WZP29039BWP
Hardware Resources View Details	Type Physical	LLDP Neighbors 2	Core Files 0
Associated Policies -			

Step 8. Decommission another server.

To decommission another server, repeat steps 4 through 7. Remember that to decommission a server, you need to perform the operation from another server. If you are logged into APIC-1 for example, do not decommission APIC-1. Log into APIC-2, go to the "Cluster As Seen By Node" view for APIC-2 and decommission APIC-1. This is shown below:

Figure 14

Do not forget to power off the server that you decommissioned before attempting to bring in a replacement.

Step 9. Verify the entire cluster.

After replacing all APICs with APIC-G5s, validate that the entire cluster is fully fit:

Figure 15

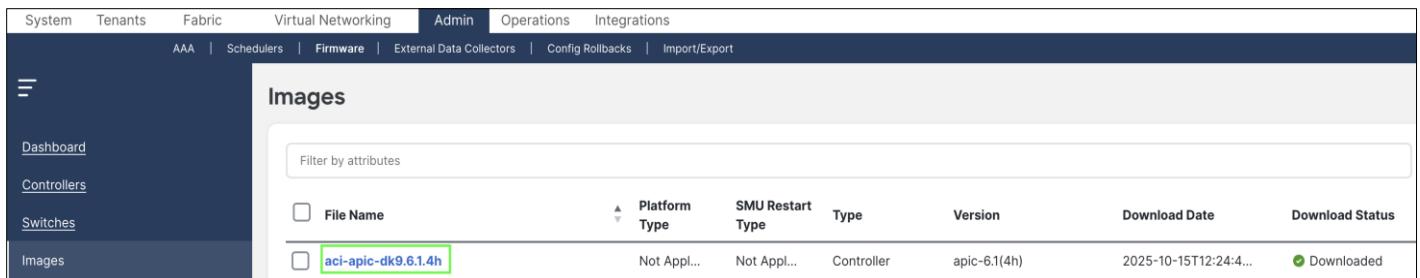
At this point, you have a fully operational, fully-fit Cisco APIC cluster with new hardware.

Replacing APIC Servers with APIC Servers Running a Different Software Release

Beginning with Cisco APIC release 6.0(2), APIC servers being commissioned to the cluster can be running a different software release than the cluster. The replacement procedure described in the previous section is the same when the replacement APIC server is running a different software release. You must download

the APIC ISO image for the currently installed release to the APIC cluster prior to executing the migration procedure. In the example below in figure 16, the APIC is running release 6.1(4h)

Figure 16



File Name	Platform Type	SMU Restart Type	Type	Version	Download Date	Download Status
acip-aci-dk9.6.1.4h	Not Appl...	Not Appl...	Controller	aci-6.1(4h)	2025-10-15T12:24:4...	Downloaded

When executing the APIC server migration with APICs running a different software release, it will take longer for the commission step to execute. This step can take more than 30 minutes to be executed. During this time, the APIC cluster state will not update, and the replacement server out-of-band management IP address will be unavailable.

Commissioning APIC Servers Without CIMC Connections

When the APIC servers are using CIMC connections, the APICs can be commissioned or added to the cluster from the CIMC address. This method does not require any configuration done on the APIC console and simplifies the APIC commissioning process. If APICs are not deployed with CIMC connections, it will be required to first configure the out-of-band management address for the APIC from the console. This can be done from the KVM SoL (serial over LAN) connection or directly on the server.

When configuring the out-of-band management address on the APIC it is only required to configure the APIC password and out-of-band management address and gateway. All other configurations will be done during the commission step.

Example of out-of-band management configuration from serial over LAN console connection.

```
CISCO Serial Over LAN:  
Close Network Connection to Exit  
Enter the password for admin [None]:  
Reenter the password for admin [None]:  
Out-of-band management configuration ...  
Enter the IP Address [192.168.10.1/24]: 10.1.1.1/24  
Enter the IP Address of default gateway [192.168.10.254]: 10.1.1.254  
Would you like to edit the configuration? (y/n) [n]:
```

When commissioning the APIC select the OOB connectivity type.

Figure 17

Commission

Controller Type

Controller Type Physical Virtual

Connectivity Type CIMC OOB

Management IP

IP Address *

Username *

Password *

[Validate](#)

Decommissioning the Standby Cisco APIC Servers to be Replaced by a Normal Cluster

If your cluster contains standby Cisco APIC servers, the same process applies. When you bring your existing cluster to a supported release, the standby Cisco APIC servers are automatically upgraded.

Starting in ACI release 6.1(2), standby APICs can be setup as Warm Standby as opposed to Cold Standby APICs which was the only option prior to the 6.1(2) release. Warm Standby APICs will synchronize all data from the active APIC cluster. The Warm Standby APIC can be used to replace a single APIC node (same as Cold Standby) or recover the entire cluster if three or more active APICs fail. See the 6.1(2) and later APIC Getting Started guide for more details on Warm Standby APIC.

The procedure for replacing a standby APIC does not differ between Cold and Warm Standby APICs.

Procedure

Step 1. From the GUI of any active APIC, delete the standby APIC node. Select the checkbox next to the Standby Node and select Delete Nodes under the Actions menu.

Figure 18

Step 2. Power down the standby controller

Step 3. Add the new APIC-G Standby controller. The process is similar to adding active controllers. Select **Add Standby Node** from the Actions menu.

Figure 19

Step 4. Use the CIMC or OOB connectivity type.

Figure 20

Add Standby Node

Controller Type

Controller Type Physical Virtual

Connectivity Type CIMC OOB

CIMC Details

IP Address *

Username *

Password *

 Validation Success

Step 5. Enter the APIC name, ID, pod, and management addresses for the Standby Node. When adding a Standby Node in the UI the node id must be between 21 and 29.

Figure 21

General

Name *

Admin Password *

Controller ID *

Pod ID *

Serial Number

Force flag to push this config in case this is needed to recover a node

Out Of Band Network

IPv4 Address *

IPv4 Gateway *

IPv6 Address *

IPv6 Gateway *

Step 6. Verify the Standby APIC successfully connects to cluster in Fully Fit Heath.

Figure 22

Controllers											
Filter by attributes											Actions 
<input type="checkbox"/>	ID	Controller Name	IP Address	Pod ID	Admin State	Operational State	Health	Failover Status	Mode	Serial Number	Type
<input type="checkbox"/>	1	APIC-1	10.23.233.100 View All	1	 In Ser...	 Availa...	 Fully Fit	No Applia...	 Active...	WZP290...	Physical
<input type="checkbox"/>	2	APIC-2	10.30.10.80 View All	1	 In Ser...	 Availa...	 Fully Fit	No Applia...	 Active...	WZP290...	Physical
<input type="checkbox"/>	3	APIC-3	10.30.10.80 View All	1	 In Ser...	 Availa...	 Fully Fit	No Applia...	 Active...	WZP290...	Physical
<input type="checkbox"/>	21	APIC-21	10.23.233.100 View All	1	 In Ser...	 Availa...	 Fully Fit	-	 Stand...	WZP290...	Physical
4 items found											
Rows per page <input type="button" value="15"/> < <input style="border: 1px solid blue; border-radius: 50%; padding: 2px 5px;" type="button" value="1"/> >											