



# Upgrading or Downgrading the Software Using the REST API

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You can upgrade the software using the REST API.

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## Upgrading or Downgrading the Cisco APIC Software Using the REST API

### Procedure

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**Step 1** Download the Cisco APIC image into the repository.

**Example:**

```
POST URL: https://<ip address>/api/node/mo/uni/fabric.xml
<firmwareRepoP>
  <firmwareOSource name="APIC_Image_download" proto="http" url="http://<ip address>/<ver-no>"/>
</firmwareRepoP>
```

**Step 2** Post the following policy to set the desired version for controllers:

**Example:**

```
POST URL: https://<ip address>/api/node/mo/uni/controller.xml
<firmwareCtrlrFWP
  version="<ver-no>"
  ignoreCompat="true">
</firmwareCtrlrFWP>
```

**Step 3** Post the following policy to trigger the controller upgrade immediately:

**Example:**

```
POST URL : https://<ip address>/api/node/mo/uni/controller.xml
<maintCtrlrMaintP
  adminState="up" adminSt="triggered">
</maintCtrlrMaintP>
```

# Upgrading or Downgrading Switches Software Using the REST API

## Procedure

**Step 1** Download the switch image into the repository.

### Example:

```
POST URL: https://<ip address>/api/node/mo/uni/fabric.xml
<firmwareRepoP>
  <firmwareOSource name="Switch_Image_download" proto="http" url="http://<ip
address>/<ver-no>"/>
</firmwareRepoP>
```

**Step 2** Post the appropriate policies to create a firmware group and a maintenance group with the necessary node IDs, depending on your software release:

- For releases prior to Release 4.0(1), post the following policies to create a firmware group that consists of your switches with node IDs 101, 102, 103, 104, and to create a maintenance group with node IDs 101, 102, 103, 104:

```
POST URL : https://<ip address>/api/node/mo/uni/fabric.xml
<fabricInst>
<firmwareFwP
  name="AllswitchesFwP"
  version="<ver-no>"
  ignoreCompat="true">
</firmwareFwP>

<firmwareFwGrp
  name="AllswitchesFwGrp" >
  <fabricNodeBlk name="Blk101"
    from_"101" to_"101">
  </fabricNodeBlk>
  <fabricNodeBlk name="Blk102"
    from_"102" to_"102">
  </fabricNodeBlk>
  <fabricNodeBlk name="Blk103"
    from_"103" to_"103">
  </fabricNodeBlk>
  <fabricNodeBlk name="Blk104"
    from_"104" to_"104">
  </fabricNodeBlk>
</firmwareFwGrp>

<firmwareRsFwgrpp
  tnFirmwareFwPName="AllswitchesFwP">
</firmwareRsFwgrpp>
</firmwareFwGrp>

<maintMaintP
```

```

        name="AllswitchesMaintP"
        runMode="pauseOnlyOnFailures" >
</maintMaintP>

<maintMaintGrp
  name="AllswitchesMaintGrp">
    <fabricNodeBlk name="Blk101"
      from_"101" to_"101">
    </fabricNodeBlk>
    <fabricNodeBlk name="Blk102"
      from_"102" to_"102">
    </fabricNodeBlk>
    <fabricNodeBlk name="Blk103"
      from_"103" to_"103">
    </fabricNodeBlk>
    <fabricNodeBlk name="Blk104"
      from_"104" to_"104">
    </fabricNodeBlk>
  </maintMaintGrp>
<maintRsMgrpp
  tnMaintMaintPName="AllswitchesMaintP">
</maintRsMgrpp>
</maintMaintGrp>
</fabricInst>

```

- For Release 4.0(1) and later, post the following policies to create a firmware group that consists of your switches with node IDs 101, 102, 103, 104, and to create a maintenance group with node IDs 101, 102, 103, 104:

```

POST URL : https://<ip address>/api/node/mo/uni/fabric.xml
<fabricInst>
  <maintMaintP
    version="<ver-no>"
    name="AllswitchesFwP"
    runMode="pauseOnlyOnFailures">
  </maintMaintP>
  <maintMaintGrp name="AllswitchesMaintGrp">
    <fabricNodeBlk name="Blk101" from_"101" to_"101">
    </fabricNodeBlk>
    <fabricNodeBlk name="Blk102" from_"102" to_"102">
    </fabricNodeBlk>
    <fabricNodeBlk name="Blk103" from_"103" to_"103">
    </fabricNodeBlk>
    <fabricNodeBlk name="Blk104" from_"104" to_"104">
    </fabricNodeBlk>
    <maintRsMgrpp tnMaintMaintPName="AllswitchesMaintGrp">
    </maintRsMgrpp>
  </maintMaintGrp>
</fabricInst>

```

- For Release 5.1(1) and later, post the following policies to create a firmware group that consists of your switches with node IDs 101, 102, 103, 104, and to create a maintenance group with node IDs 101, 102, 103, 104:

- Pre-upgrade validator (APIC)

For APIC pre-validation

```

GET URL - https://<ip
address>/mqapi2/deployment.query.json?mode=validateCtrlrMaintP&targetVersion=
b.

```

For Switch pre-validation

```
POST URL - https://<ip
address>/mqapi2/deployment.query.xml?mode=validateSwitchMaintPAsync
<syntheticMaintPSwitchDetails maintPName="
```

- Pre-Download Images to the Leaf and Spine Switches

```
POST URL - https://<ip address>/api/node/mo/uni/fabric.xml
<fabricInst>
  <maintMaintP downloadSt="triggered" name="
  </maintMaintP>
  <maintMaintGrp name="
    <fabricNodeBlk name="blk102" from_="102" to_="102">
    </fabricNodeBlk>
    <maintRsMgrpp tnMaintMaintPName="
    </maintRsMgrpp>
  </maintMaintGrp>
</fabricInst>
```

- Graceful Upgrade

```
POST URL - https://<ip address>/api/node/mo/uni/fabric.xml
<fabricInst>
  <maintMaintP downloadSt="triggered" name="
  </maintMaintP>
  <maintMaintGrp name="
    <fabricNodeBlk name="blk102" from_="102" to_="102">
    </fabricNodeBlk>
    <maintRsMgrpp tnMaintMaintPName="
    </maintRsMgrpp>
  </maintMaintGrp>
</fabricInst>
```

**Step 3** Post the following policy to trigger the upgrade of all switches immediately:

**Example:**

```
POST URL : https://<ip address>/api/node/mo/uni/fabric.xml
<maintMaintP
  name="AllswitchesMaintP" adminSt="triggered">
</maintMaintP>
```

The Cisco APICs are upgraded serially so that the controller cluster is available during the upgrade.

## Upgrading or Downgrading the Catalog Software Version Using the REST API

Typically, the catalog image is upgraded or downgraded when an Cisco APIC image is upgraded or downgraded. However occasionally, a catalog image must be upgraded by the administrator.

### Procedure

Upgrade the catalog image.

**Example:**

```

http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<firmwareCatFwP
  version="catalog-1.0(1e)" ignoreCompat="yes" />
</firmwareCatFwP>

```

## Verifying the Firmware Version and the Upgrade Status Using the API

Verification Description	Example URL
For the current running firmware version on controllers	GET URL: https://<ip address>/api/node/class/firmwareCtrlrRunning.xml
For the currently operating firmware version on switches	GET URL: https://<ip address>/api/node/class/firmwareRunning.xml
For the upgrade status of controllers and switches	GET URL: https://<ip address>/api/node/class/maintUpgJob.xml

## Upgrade Examples

### Controller Upgrade Examples

#### Download Cisco APIC image into repository

```

POST URL: http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<firmwareRepoP>
  <firmwareOSource name="APIC_Image_download" proto="http"
url="http://172.21.158.190/aci-apic-dk9.1.0.0.72.iso"/>
</firmwareRepoP>

```

#### Download switch image into repository

```

POST URL: http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<firmwareRepoP>
  <firmwareOSource name="Switch_Image_download" proto="http"
url="http://172.21.158.190/aci-n9000-dk9.11.0.0.775.bin"/>
</firmwareRepoP>

```

#### Controller Firmware Policy - set the desired version for controllers

```

POST URL: http://trunk6-ifc1/api/node/mo/uni/controller.xml
<firmwareCtrlrFwP
  version="apic-1.0(0.72)"
  ignoreCompat="true">
</firmwareCtrlrFwP>

```

**Controller Maintenance Policy – trigger upgrade on controllers starting now**

```
POST URL: http://trunk6-ifc1/api/node/mo/uni/controller.xml
<maintCtrlrMaintP
  adminState="up" adminSt="triggered">
</maintCtrlrMaintP>
```

**Get current running version on controllers**

```
(all controllers) GET URL :
http://trunk6-ifc1.insieme.local/api/node/class/firmwareCtrlrRunning.xml
(a controller) GET URL :
http://trunk6-ifc1.insieme.local/api/node/mo/topology/pod-1/node-1/sys/ctrlrfwstatuscont/ctrlrrunning.xml
```

**Get upgrade status of controllers**

```
(all controllers) GET URL : http://trunk6-ifc1.insieme.local/api/node/class/maintUpgJob.xml
(a controllers) GET URL :
http://trunk6-ifc1.insieme.local/api/node/mo/topology/pod-1/node-1/sys/ctrlrfwstatuscont/upgjob.xml
```

## Switch Upgrade Examples

**Switch Firmware Group – Group of switches with same firmware policy**

```
POST URL: http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<firmwareFwGrp name="AllswitchesFwGrp" >
  <fabricNodeBlk name="Blk101to104" from_"101" to_"104" />
  <firmwareRsFwgrp tnFirmwareFwPName="AllswitchesFwP" />
</firmwareFwGrp>
```

**Switch Firmware Firmware Policy – Set desired version**

```
POST URL: http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<firmwareFwP name="AllswitchesFwP" version="n9000-11.0(0.775)" ignoreCompat="true">
</firmwareFwP>
```

**Switch Maintenance Group – Group of switches with same maintenance policy**

```
POST URL: http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<maintMaintGrp name="AllswitchesMaintGrp">
  <fabricNodeBlk name="Blk101to104" from_"101" to_"104" />
  <maintRsMgrpp tnMaintMaintPName="AllswitchesMaintP" />
</maintMaintGrp>
```

**Switch Maintenance Policy – Setup schedule for maintenance**

```
POST URL: http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<maintMaintP name="AllswitchesMaintP" runMode="pauseOnlyOnFailures" >
</maintMaintP>
```

**Trigger upgrade on Maintenance Group – starting now**

```
POST URL: http://trunk6-ifc1/api/node/mo/uni/fabric.xml
<maintMaintP name="AllswitchesMaintP" adminSt="triggered">
</maintMaintP>
```

**Get current running version on switches**

```
(all switches) GET UR : http://trunk6-ifc1.insieme.local/api/node/class/firmwareRunning.xml
(a switch) GET URL:
http://trunk6-ifc1.insieme.local/api/node/mo/topology/pod-1/node-101/sys/fwstatuscont/running.xml
```

**Get upgrade status of switches**

```
(all switches) GET URL: http://trunk6-ifc1.insieme.local/api/node/class/maintUpgJob.xml
(a switch) GET URL:
http://trunk6-ifc1.insieme.local/api/node/mo/topology/pod-1/node-101/sys/fwstatuscont/upgjob.xml
```

