



Upgrading or Downgrading the Software Using the REST API

You can upgrade the software using the REST API.

- [Upgrading or Downgrading the Cisco APIC Software Using the REST API, on page 1](#)
- [Upgrading or Downgrading Switches Software Using the REST API, on page 2](#)
- [Upgrading or Downgrading the Catalog Software Version Using the REST API, on page 4](#)
- [Verifying the Firmware Version and the Upgrade Status Using the API, on page 5](#)
- [Upgrade Examples, on page 5](#)

Upgrading or Downgrading the Cisco APIC Software Using the REST API

Procedure

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
```

