



Nexus Dashboard Fabric Controller Image Management

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Revised: September 29, 2023,

New and Changed Information

The following table provides an overview of the significant changes up to this current release. The table does not provide an exhaustive list of all changes or of the new features up to this release.

Release Version	Feature	Description
NDFC release 12.1.2	--	Initial release of this use case document.
NDFC release 12.1.3	Software image management of Cisco Catalyst 9000 Series switches.	Introduces support for the following features: <ul style="list-style-type: none">• Software image management on stand alone, StackWise and StackWise Virtual switches of Cisco Catalyst 9000 Series.• Perform stage and validation operations in a single step.• Generate snapshots of switch configuration before and after an upgrade.

Understanding Image Management

This document provides detailed information for the Image Management feature for Nexus Dashboard Fabric Controller release 12.x or later.

Image Management deploys Cisco software images to switches which allows network stability and feature consistency. The benefits of Image Management workflows include the following:

- Comprehensive image management policies allow you to specify a version and patch level for a set of switches
- Nexus Dashboard Fabric Controller (NDFC) validates compliance for the image policy associated with each switch
- Image staging, validation, and in-service software upgrade (ISSU) operations are independent, allowing mass upgrades and downgrades



Note Starting with Nexus Dashboard Fabric Controller release 12.1.3, NDFC provides the ability to perform staging and validation in a single step.

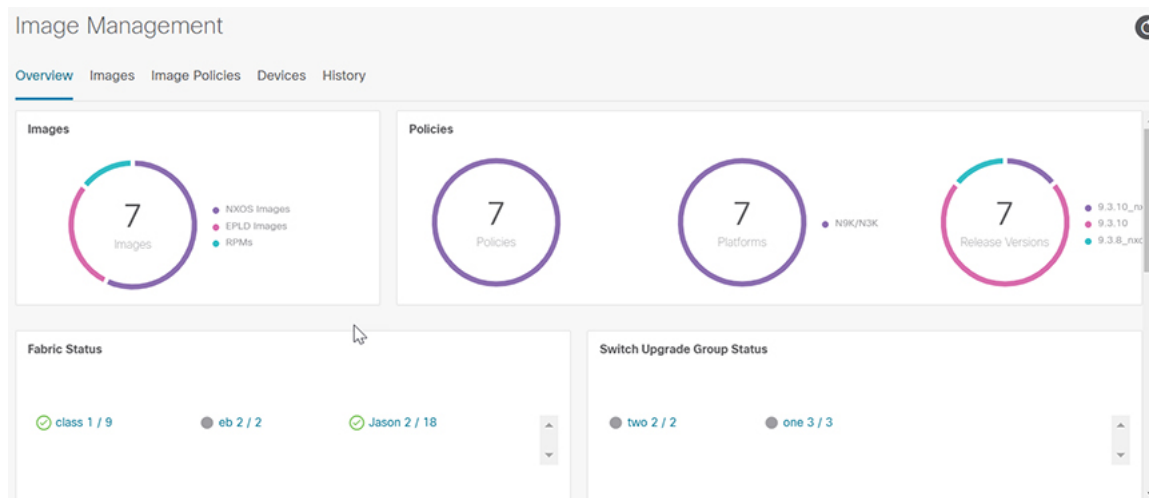
- You can perform the following operations before the maintenance window:
 - Staging image files
This copies the image files to the bootflash.
 - Validate Network Operating System (NOS) and EPLD compatibility where possible

This checks if the image is complete, if the image is valid for the individual hardware, and if the upgrade can be non-disruptive.

- Run pre-upgrade report
- The ability to run reports pre/post-upgrade and compare the results
- The ability to generate snapshots of the configuration pre/post-upgrade
- The **View Details** column provides Live log status to monitor each operation
- Allows you to make use of maintenance mode to minimize the impact of disruptive upgrades, especially for multi-reload upgrade situations
- Allows you to perform multiple operations on the devices simultaneously. However, you cannot perform multiple operations on the same set of devices at the same time.
- Upgrade groups allows bulk upgrades and downgrades. Upgrade groups have checks to avoid unnecessary downtime in redundant fabrics in the following cases:
 - All switches of a given role for a fabric will be in the same group
 - All route reflectors (RRs) in a fabric will be in the same group
 - All rendezvous points (RPs) in a fabric will be in the same group
 - Both Virtual Port Channel (vPC) peers will be in the same group
 - All In-Band Seed Devices will be in the same group
- Provides visibility into previous and current upgrade details as well as high level summarization
- Visibility into current NOS, EPLD and patch consistency at a switch, fabric, and group level

Starting with Nexus Dashboard Fabric Controller release 12.1.2, the **Overview** tab has changed and displays the images, policies, fabric status, and switch upgrade group status.

Figure 1: Image Management Overview UI, release 12.1.2



The Image Management UI has the following functional areas:

- **Overview:** This displays the images, policies, fabric status, and switch upgrade group status.
 - The **Images** card displays the number of images and the type of packages or patches.
 - The **Policies** card displays the number of policies, platforms and release versions.
 - The **Fabric Status** card displays the number of devices in the fabric and if the devices are in or out of sync and displaying in either red or green.
 - The **Switch Upgrade Group Status** card displays the number of groups and device status.
 - Green: Devices that are in sync.
 - Red: Devices that are out of sync.
 - Gray: Devices that are not available (N/A). An example is when a device does not have a policy set.
- **Images:** This displays the images. You can upload or delete images.
- **Image Policies:** This displays the image policies. You can create, delete, or edit image policies.
- **Devices:** This displays the devices. You can stage image, upgrade, validate, change mode, attach group, detach group, attach policy, or detach policy.
- **History:** This displays the history of all the operations performed on the switches.

Terminology

This describes the terms that you must be familiar with:

Term	Acronym	Description
Electronic Programmable Logic Device	EPLD	The EPLD image upgrades to enhance hardware functionality or to resolve known issues.
In-Service Software Upgrade	ISSU	ISSU allows you to upgrade the software version of the release on a chassis device with no network downtime.
Local Area Network	LAN	LAN consists of a series of computers linked together to form a network in a circumscribed location.
Network Operating System	NOS	A specialized operating system designed for a network device such as a router, switch or firewall. Some examples include NX-OS for Nexus switches, IOS XE for Cisco Catalyst switches and so on.
Rendezvous Points	RP	RP is a router that acts as the place where sources and receivers of multicast data can find each other.

Term	Acronym	Description
Route Reflector	RR	Route Reflector is a router that acts as a routing information exchange server for all other iBGP routers.
Secure Copy	SCP	SCP is used by image management to transfer files between devices.

Required Software Versions

For Cisco Nexus Dashboard services compatibility information, see the [Cisco Data Center Networking Applications Compatibility Matrix](#).

Prerequisites

This section describes the prerequisites. This document assumes that the reader has a fundamental knowledge of Nexus Dashboard and Nexus Dashboard Fabric Controller.

- SCP is used by Image Management. Both SCP and SNMP are always enabled by default and a minimum of 2 external service pool IPs are needed when you enable the Nexus Dashboard Fabric Controller.
- Ensure that your user role is **network-admin** or **device-upg-admin**.
- Ensure that there is a fabric, the fabric must have the "Deployment Enabled" flag set, and the switches are managed by the Nexus Dashboard Fabric Controller in this fabric.
- Ensure you have LAN credential set.

Upgrade or Downgrade a Group of Switches

You have two upgrade methods and one downgrade method:

- Disruptive Upgrade or Downgrade: During the upgrade or downgrade process the switches go down temporarily, which results in a disruption in your fabric traffic.
For more information, see [Upgrading or Downgrading a Group of Switches \(Disruptive\)](#), on page 5.
- Non-disruptive Upgrade: This allows the switches to run without disruption in your fabric traffic.
For more information, see [Upgrading a Group of Switches \(Non-disruptive\)](#).
- Non-disruptive Downgrade: Not supported.

Upgrading or Downgrading a Group of Switches (Disruptive)

This section describes a disruptive method for upgrading or downgrading a group of switches.

If you are downgrading a group of switches, the process is identical to the process for upgrading a group of switches, except that the target image that you choose will be earlier than the currently installed image. The text for dialogs, fields, buttons, and other controls in the UI specify “upgrade” even though you are downgrading the software.

Downloading an Image from the Software Download Website

This section describes how to download an image from the software download website.

Procedure

- Step 1** Go to the Software Download website.
[Software Download Website](#)
- Step 2** Login with your credentials. You must login to download the software.
- Step 3** Navigate to **Switches**, choose a series and a switch.
- Step 4** Depending on the switch model, choose a software type:
- For Nexus switches:
 - NX-OS EPLD Updates
 - NX-OS Firmware
 - NX-OS Patch Release
 - NX-OS Software Maintenance Upgrades (SMU)
 - NX-OS System Software
 - For Cisco Catalyst switches: IOS XE Software
- For Cisco Catalyst switches, NDFC provides support for software upgrade using CAT9K and CAT9K_LITE image types.
- Step 5** Choose the software file you want to download and click the download icon.
-

Uploading the Image to Nexus Dashboard Fabric Controller

This section describes how to upload the image.

Procedure

- Step 1** In the **Image Management** window, choose **Image**.
- Step 2** From the **Actions** drop-down list, select **Upload**.
- Step 3** In the **Upload Image** dialog box, either upload the file or import from SCP.
Note that uploading an image to SCP or SFTP server from a non-Unix based device is not supported.
- Step 4** Click **Verify**.
-

Creating the Image Policies

This section describes how to create the image policies.

Procedure

Step 1 In the **Image Management** window, choose **Image Policies**.

Step 2 From the **Actions** drop-down list, select **Create**.

Step 3 In the following **Create Image Management Policy** dialog box, enter the following information:

Create Image Management Policy ×

Policy Name*

Platform*

Release*

View All Packages

Package Name

Policy Description

EPLD

Select EPLD

RPM/SMU Disable ⓘ

RPMs/SMUs To Be Uninstalled (Provide Comma Separated Values)

Cancel Save

Depending on the switch type, not all fields in the **Create Image Management Policy** dialog box are available to all the devices.

Step 4 Click **Save**.

Creating and Attaching a Group to the Switches

This section describes how to create and attach a group to switches. Grouping allows you to track upgrades for a set of switches. You can create several groups and select a switch regardless of the group, role, or type of switch.

We recommend that you create upgrade groups based on the switch roles. For example, if a fabric has multiple switches with different roles, such as Leaf, Spine, Border, and more, creating groups based on different roles is recommended. This clearly separates roles and responsibilities during switch image management operations. Switches with different roles perform critical functionality and respond differently based on the control plane, data plane, and system-level convergence. For example, a user with the admin role can create multiple groups as follows:

- Group-Leaf-Even for Leaf switches that have even numbers or VPC role of primary
- Group-Leaf-Odd for Leaf switches that have odd numbers or VPC role of secondary

Typically, Spine and Border devices are limited to fabric, while the role of the Leaf is the most common one. Therefore, users with the admin role can upgrade individual Spines followed by Individual Borders, or create different groups for Spines and Borders. Users with the admin role can still leverage groups to divide the Leaf role switches and perform bulk actions.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the devices you want to group.
- Step 3** From the **Actions** drop-down list, select **Modify Groups**.
- Step 4** In the **Modify Groups** dialog box, click the **Attach Group** radio button and choose **Create Group** or a group that was already created from the **Group** drop-down list.
- To create a group, enter a group name in the **Modify Groups** dialog box.
- Step 5** Click **Save**.
-

Attaching a Policy to the Switches

This section describes how to attach a policy to the switches.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, select the devices you want to attach a policy.
- Step 3** From the **Actions** drop-down list, select **Modify Policy**.
- Step 4** In the **Modify Policy** dialog box, click the **Attach Policy** radio button and choose the required policy from the **Policy** drop-down list.
- Step 5** (Optional) Check or uncheck the **Stage & Validate** check box, as required.
- This option deploys the image on to the switch and validates for compatibility with the existing software version on the switch. The check box is enabled by default. You can uncheck this field while attaching the policy and do a manual stage and validate, if required. For more information, see [Copying the Image to the Switches](#) , on page 9 and [Validating the Switches \(Optional\)](#), on page 10.
- Step 6** Click **Attach**.
- The table in the **Devices** tab displays the status of the stage and validate operations.
- Step 7** (Optional) Click the link in the **View Details** column to view the install log for details about these operations. You can use the log to learn about errors, if any.
- The **History** tab also provides logs for all the configuration changes and details about the errors.
- On successful completion, the **Image Staged** and **Validated** columns will display a green icon for the respective devices.
-

What to do next

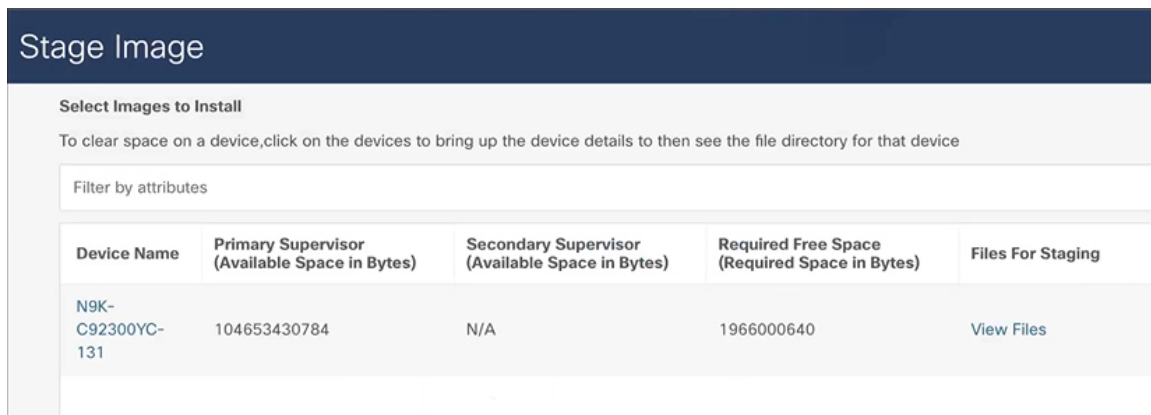
Review the install log to see if the validation was successful and proceed with the upgrade operation.

Copying the Image to the Switches

The section describes how to copy the image to the switches.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the device you want.
- Step 3** From the **Actions** drop-down list, select **Stage Image**.
- Step 4** In the **Stage Image** window, ensure there is enough space. The **Primary Supervisor (Available Space in Bytes)** displays in red if there is not enough space.



The screenshot shows the 'Stage Image' window. At the top, it says 'Select Images to Install'. Below that, there is a note: 'To clear space on a device, click on the devices to bring up the device details to then see the file directory for that device'. There is a search bar labeled 'Filter by attributes'. Below the search bar is a table with the following columns: 'Device Name', 'Primary Supervisor (Available Space in Bytes)', 'Secondary Supervisor (Available Space in Bytes)', 'Required Free Space (Required Space in Bytes)', and 'Files For Staging'. The table contains one row with the following data: Device Name: 'N9K-C92300YC-131', Primary Supervisor: '104653430784', Secondary Supervisor: 'N/A', Required Free Space: '1966000640', and Files For Staging: 'View Files'.

Device Name	Primary Supervisor (Available Space in Bytes)	Secondary Supervisor (Available Space in Bytes)	Required Free Space (Required Space in Bytes)	Files For Staging
N9K-C92300YC-131	104653430784	N/A	1966000640	View Files

To make more space:

- In the **Stage Image** window, click on the device name.
- In the **Switch Overview** window, ensure you are on the **Hardware > Bootflash** tab, you will need to delete files to create space so you can stage the image.
- Place a checkmark on the file names that you want to delete.
- Click **Actions** and **Delete Files**.
- In the **Warning Are you sure you want to delete?** dialog box, click **Confirm** to delete the files.
- Go back to the **Stage Image** window and ensure the **Required Free Space** column displays 0.

- Step 5** Click **Stage**.
-

Validating the Switches (Optional)

Before you begin

This section describes how to validate the switches to find out which switches can be upgraded by doing a compatibility check. This checks if the image is complete, if the image is valid for the individual hardware, and if the upgrade can be non-disruptive. The log files provide detailed information for each switch.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the device you want to validate.
- Step 3** From the **Actions** drop-down list, select **Validate**.
- Step 4** In the **Validate** dialog box, place a checkmark in the checkbox if you want a non-disruptive upgrade.
- Step 5** Click **Validate**.
- Step 6** In the **Image Management** window, under the **View Details** column, click **Validate** to check on the log file for that switch.



- Step 7** In the **Image Management** window, under the **Validated** column, you can see the validation progress until it completes.
 - If the validation completed successfully, it shows green.
 - If the validation fails, it shows red. Check the log file under the **View Details** column. You will need to fix the errors before proceeding.

```
Install Log For n3k-82
499 .....
500 ..... [#####] 100 -- SUCCESS
501 .....
502 Preparing "bios" version info using image bootflash:/nxos.9.3.10.bin.
503 [#          ] 0%
504 ..... [#####] 100% -- SUCCESS
505 .....
506 .....
507 Performing module support checks.
508 ..... [#####] 100% -- SUCCESS
509 .....
510 .....
511 Notifying services about system upgrade.
512 ..... [#####] 100% -- SUCCESS
513 .....
514 .....
515 .....
516 Compatibility check is done:
517 Module bootable Impact Install-type Reason
518 -----
519 .....
520 1 yes disruptive reset default upgrade is not hitless
521 .....
522 .....
523 .....
524 Images will be upgraded according to following table:
525 Module Image Running-Version(pri:alt) New-Version Upg-Required
526 -----
527 1 nxos 9.3(4) 9.3(10) yes
528 1 bios v05.43(11/22/2020):v05.38(06/12/2019) v05.47(04/28/2022) yes
529 Compatibility check status - Success.
```

Creating and Running the Pre-ISSU Report on the Switches (Optional)

This section describes how to create and run the pre-ISSU report on the switches (optional).

Procedure

Step 1 In the **Image Management** window, choose **Devices**.

Step 2 In the **Devices** window, place a checkmark in the checkbox for the devices you want to run a report.

Step 3 From the **Actions** drop-down list, select **Run Reports**.

Step 4 In the **Create Report** dialog box, choose **Pre ISSU** radio button.

a) Click **Select a Template**.

b) In the **Select Report Template** dialog box, choose the **custom_swift_issu** template and click **Select**.

c) In the **Report Name** field, enter a name for the report.

Ensure that you provide the same name for the pre and the post-ISSU reports which allows the system to associate the two reports.

d) Use the default values that are available in the fields and click **Generate**.

Note You cannot run the pre-ISSU report more than once.

The system generates the report when ready. Ensure the status displays successful.

e) You can click on the link under the **Results** column to view the HTML version of the report.

Generating Pre-Upgrade Snapshots of the Switch Configuration (Optional)

This topic describes how to generate snapshots of the configuration of a switch. It is a best practice to generate snapshots of the switch configuration before entering and exiting the maintenance mode for performing an upgrade. You can use this to compare the configuration of the switch before it was moved into maintenance mode and after bringing back to normal mode.

Procedure

Step 1 In the **Image Management** window, choose **Devices**.

Step 2 In the **Devices** window, place a checkmark in the checkbox for the required device.

Step 3 From the **Actions** drop-down list, choose **Generate Snapshot**.

Step 4 In the **Generate Snapshot** dialog box, click **Pre-Upgrade-Snapshot**.

Step 5 Click **Save**.

The system generates a pre-upgrade snapshot for the switch.

Step 6 Click the link in the **View Details** column for the respective switch to view the snapshot generated for the switch. The **History** tab also provides logs for all the configuration changes and details about the errors.

Changing to Maintenance Mode

This section describes how to change to maintenance mode.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the device you want.
- Step 3** From the **Actions** drop-down list, select **Change Mode**.
- Step 4** In the **Change Mode** dialog box, choose **Maintenance** and click **Save and Deploy Now**.
-

Upgrading or Downgrading Switches

This section describes how to upgrade or downgrade a switch or a group of switches.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** Do one of the following:
- Place a checkmark in the checkbox for the device you want to upgrade.
 - To upgrade a group of switches, filter on the **Upgrade Groups**, select all, and place a checkmark in the checkbox for all the devices you want.
- Step 3** From the **Actions** drop-down list, select **Upgrade**.
- Note** You may need to upgrade up to 4 times NOS, EPLD, and/or RPM. EPLD Golden must be upgraded separately.
- a) Click on the **Upgrade** radio button.
 - b) In the **Select Upgrades** field, place a checkmark on the upgrades you want.
For Cisco Catalyst switches, you can only upgrade the NOS. EPLD and SMU upgrades are currently not supported.
 - c) In the **Upgrade Options** field, select **Disruptive**.
 - d) You can either check the **BIOS Force** checkbox or not. It does require a reload.
 - e) You can view the **Validation Status** and filter if needed.
 - f) Click **Upgrade**.
-

Changing to Normal Mode

This section describes how to change to normal mode.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the device you want.
- Step 3** From the **Actions** drop-down list, select **Change Mode**.
- Step 4** In the **Change Mode** dialog box, choose **Normal** and click **Save and Deploy Now**.
Repeat the following procedure for the next group:

Note Ensure the switches are online before continuing to the next group.

- a) [Changing to Maintenance Mode, on page 11](#)
- b) [Upgrading or Downgrading Switches, on page 12](#)
- c) [Changing to Normal Mode, on page 12](#)

Running the Post-ISSU Report on the Switches (Optional)

This section describes how to run the post-ISSU report on switches only if the mode was changed to normal mode.



Note For release 12.1.2, you must wait until the switch is fully operational before running the Post-ISSU.

Procedure

Step 1 In the **Image Management** window, choose **Devices**.

Step 2 In the **Devices** window, place a checkmark in the checkbox for the devices you want to run the post-ISSU.

Step 3 From the **Actions** drop-down list, select **Run Reports**.

Step 4 In the **Create Report** dialog box, choose **Post ISSU** radio button.

- a) Click **Select a Template**.
- b) In the **Select Report Template** dialog box, choose the **custom_swift_issu** template and click **Select**.
- c) From the **Report Name** drop-down list, select the name of the pre-ISSU report that you have generated and click **Generate**.
- d) Use the default values that are available in the fields and click **Generate**.
The system generates the report when ready. Ensure the status displays successful.
- e) You can click on the link under the **Results** column to view the HTML version of the report.

The post-ISSU report displays a summary of the results of the checks performed before and after the upgrade, consecutively. Analyze the report for any errors and take corrective actions, as required.

Step 5 Perform the following to view the reports:

- a) In the **Nexus Dashboard Fabric Controller** window, choose **Operations > Programmable Reports**, and then go to the **Reports** tab.
- b) In the **Reports** window, click on the link displayed under the **Title** column of the report that you want to view.
- c) In the **Report** dialog box, click the expand icon to open the HTML version of the report.
The window displays a summary and the details about the errors, warnings, info and success messages. It also displays a snapshot of the configuration before and after the upgrade.

Generating Post-Upgrade Snapshot of the Switch Configuration (Optional)

This topic describes how to generate snapshots of the configuration of a switch. It is a best practice to generate snapshots of the switch configuration before entering and exiting the maintenance mode for performing an upgrade. You can use this to compare the configuration of the switch before it was moved into maintenance mode and after bringing back to normal mode.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the required device.
- Step 3** From the **Actions** drop-down list, choose **Generate Snapshot**.
- Step 4** In the **Generate Snapshot** dialog box, click **Post-Upgrade-Snapshot**.
- Step 5** Click **Save**.
- The system generates a post upgrade snapshot for the switch.
- Step 6** Click the link in the **View Details** column for the respective switch to view the snapshots and the pre and post snapshot comparison summary generated for the switch. The **History** tab also provides logs for all the configuration changes and details about the errors.
-

Upgrading a Group of Switches (Non-disruptive)

This section describes a non-disruptive method for upgrading a group of switches.

Downloading an Image from the Software Download Website

This section describes how to download an image from the software download website.

Procedure

- Step 1** Go to the Software Download website.
[Software Download Website](#)
- Step 2** Login with your credentials. You must login to download the software.
- Step 3** Navigate to **Switches**, choose a series and a switch.
- Step 4** Choose a software type:
- For Nexus switches:
 - NX-OS EPLD Updates
 - NX-OS Firmware
 - NX-OS Patch Release
 - NX-OS Software Maintenance Upgrades (SMU)
 - NX-OS System Software
 - For Cisco Catalyst switches: IOS XE Software
- For Cisco Catalyst switches, NDFC provides support for software upgrade using CAT9K and CAT9K_LITE image types.
- Step 5** Choose the software file you want to download and click the download icon.

Uploading the Image to Nexus Dashboard Fabric Controller

This section describes how to upload the image.

Procedure

- Step 1** In the **Image Management** window, choose **Image**.
 - Step 2** From the **Actions** drop-down list, select **Upload**.
 - Step 3** In the **Upload Image** dialog box, either upload the file or import from SCP.
Note that uploading an image to SCP or SFTP server from a non-Unix based device is not supported.
 - Step 4** Click **Verify**.
-

Creating the Image Policies

This section describes how to create the image policies.

Procedure

- Step 1** In the **Image Management** window, choose **Image Policies**.
- Step 2** From the **Actions** drop-down list, select **Create**.
- Step 3** In the **Create Image Management Policy** dialog box, enter the following information:

Create Image Management Policy
×

Policy Name*

Platform*

Release*

View All Packages

Package Name

Policy Description

EPLD

Select EPLD

RPM/SMU Disable ⓘ

RPMs/SMUs To Be Uninstalled (Provide Comma Separated Values)

Depending on the switch type, not all fields in the **Create Image Management Policy** dialog box are available to all the devices.

Step 4 Click **Save**.

Creating and Attaching a Group to the Switches

This section describes how to create and attach a group to switches. Grouping allows you to track upgrades for a set of switches. You can create several groups and select a switch regardless of the group, role, or type of switch.

We recommend that you create upgrade groups based on the switch roles. For example, if a fabric has multiple switches with different roles, such as Leaf, Spine, Border, and more, creating groups based on different roles is recommended. This clearly separates roles and responsibilities during switch image management operations. Switches with different roles perform critical functionality and respond differently based on the control plane, data plane, and system-level convergence. For example, a user with the admin role can create multiple groups as follows:

- Group-Leaf-Even for Leaf switches that have even numbers or VPC role of primary
- Group-Leaf-Odd for Leaf switches that have odd numbers or VPC role of secondary

Typically, Spine and Border devices are limited to fabric, while the role of the Leaf is the most common one. Therefore, users with the admin role can upgrade individual Spines followed by Individual Borders, or create different groups for Spines and Borders. Users with the admin role can still leverage groups to divide the Leaf role switches and perform bulk actions.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
 - Step 2** In the **Devices** window, place a checkmark in the checkbox for the devices you want to group.
 - Step 3** From the **Actions** drop-down list, select **Modify Groups**.
 - Step 4** In the **Modify Groups** dialog box, click the **Attach Group** radio button and choose **Create Group** or a group that was already created from the **Group** drop-down list.
To create a group, enter a group name in the **Modify Groups** dialog box.
 - Step 5** Click **Save**.
-

Attaching a Policy to the Switches

This section describes how to attach a policy to the switches.

Procedure

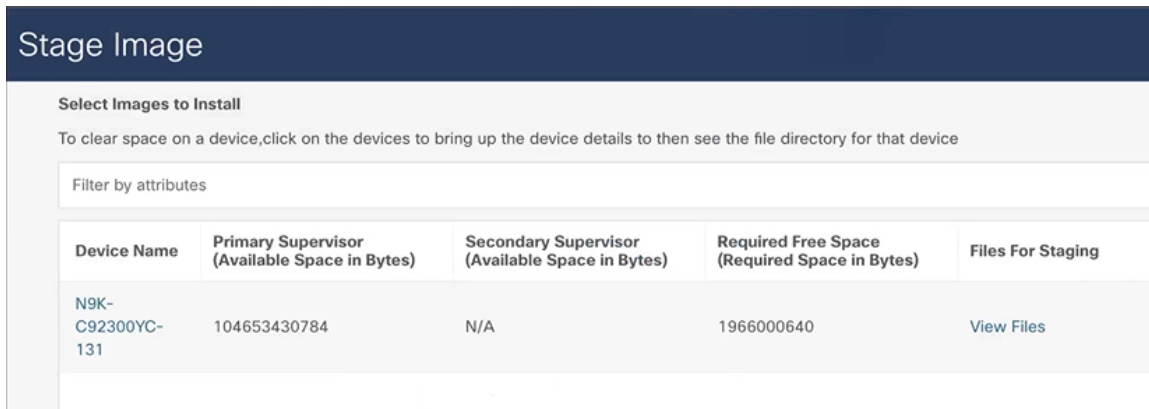
- Step 1** In the **Image Management** window, choose **Devices**.
 - Step 2** In the **Devices** window, select the devices you want to attach a policy.
 - Step 3** From the **Actions** drop-down list, select **Modify Policy**.
 - Step 4** In the **Modify Policy** dialog box, click the **Attach Policy** radio button and choose the required policy from the **Policy** drop-down list.
 - Step 5** (Optional) Place a check mark in the **Stage & Validate** checkbox, if needed.
This option deploys the image on to the switch and validates for compatibility with the existing software version on the switch. The check box is enabled by default. You can uncheck this field while attaching the policy and do a manual stage and validate, if required. For more information, see [Copying the Image to the Switches, on page 17](#) and [Validating the Switches \(Optional\), on page 18](#).
 - Step 6** Click **Attach**.
The table in the **Devices** tab displays the status of the stage and validate operations.
 - Step 7** (Optional) Click the link in the **View Details** column to view the install log for details about these operations. You can use the log to learn about errors, if any.
The **History** tab also provides logs for all the configuration changes and details about the errors.
On successful completion, the **Image Staged** and **Validated** columns will display a green icon for the respective devices.
 - Step 8** Click **Save**.
-

Copying the Image to the Switches

The section describes how to copy the image to the switches.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the device you want.
- Step 3** From the **Actions** drop-down list, select **Stage Image**.
- Step 4** In the **Stage Image** window, ensure there is enough space. The **Primary Supervisor (Available Space in Bytes)** displays in red if there is not enough space.



The screenshot shows the 'Stage Image' window. At the top, it says 'Select Images to Install'. Below that, it says 'To clear space on a device, click on the devices to bring up the device details to then see the file directory for that device'. There is a 'Filter by attributes' input field. Below the filter is a table with the following columns: 'Device Name', 'Primary Supervisor (Available Space in Bytes)', 'Secondary Supervisor (Available Space in Bytes)', 'Required Free Space (Required Space in Bytes)', and 'Files For Staging'. The table contains one row with the following data: 'N9K-C92300YC-131', '104653430784', 'N/A', '1966000640', and 'View Files'.

Device Name	Primary Supervisor (Available Space in Bytes)	Secondary Supervisor (Available Space in Bytes)	Required Free Space (Required Space in Bytes)	Files For Staging
N9K-C92300YC-131	104653430784	N/A	1966000640	View Files

To make more space:

- In the **Stage Image** window, click on the device name.
- In the **Switch Overview** window, ensure you are on the **Hardware > Bootflash** tab, you will need to delete files to create space so you can stage the image.
- Place a checkmark on the file names that you want to delete.
- Click **Actions** and **Delete Files**.
- In the **Warning Are you sure you want to delete?** dialog box, click **Confirm** to delete the files.
- Go back to the **Stage Image** window to stage the image.

- Step 5** Click **Stage**.
-

Validating the Switches (Optional)

This section describes how to validate the switches to find out which switches can be upgraded by doing a compatibility check. This checks if the image is complete, if the image is valid for the individual hardware, and if the upgrade can be non-disruptive. The log files provide detailed information for each switch.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the device you want to validate.
- Step 3** From the **Actions** drop-down list, select **Validate**.

- Step 4** In the **Validate** dialog box, place a checkmark in the checkbox if you want a non-disruptive upgrade.
- Step 5** Click **Validate**.
- Step 6** In the **Image Management** window, under the **View Details** column, click **Validate** to check on the log file for that switch.
- Step 7** In the **Image Management** window, under the **Validated** column, you can see the validation progress until it completes.



- If the validation completed successfully, it shows green.
- If the validation fails, it shows red. Check the log file under the **View Details** column. You will need to fix the errors before proceeding.

```

Install Log For n3k-82
-----
499 .....
500 ..... [#####] 100 -- SUCCESS
501 .....
502 Preparing "bios" version info using image bootflash:/nxos.9.3.10.bin.
503 [#          ] 0%
504 ..... [#####] 100% -- SUCCESS
505 .....
506 .....
507 Performing module support checks.
508 ..... [#####] 100% -- SUCCESS
509 .....
510 .....
511 Notifying services about system upgrade.
512 ..... [#####] 100% -- SUCCESS
513 .....
514 .....
515 .....
516 Compatibility check is done:
517 Module  bootable      Impact  Install-type  Reason
518 -----  -----
519 .....
520 1       yes      disruptive      reset default upgrade is not hitless
521 .....
522 .....
523 .....
524 Images will be upgraded according to following table:
525 Module      Image              Running-Version(pri:alt)      New-Version  Upg-Required
526 -----  -----
527 1          nxos                9.3(4)                        9.3(10)     yes
528 1          bios                v05.43(11/22/2020):v05.38(06/12/2019)  v05.47(04/28/2022)  yes
529 Compatibility check status - Success.
  
```

Creating and Running the Pre-ISSU Report on the Switches (Optional)

This section describes how to create and run the pre-ISSU report on the switches (optional).

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
- Step 2** In the **Devices** window, place a checkmark in the checkbox for the devices you want to run a report.
- Step 3** From the **Actions** drop-down list, select **Run Reports**.
- Step 4** In the **Create Report** dialog box, choose **Pre ISSU** radio button.
 - a) Click **Select a Template**.
 - b) In the **Select Report Template** dialog box, choose a template and click **Select**.
 - c) Answer all the questions and click **Generate**.

Generating Pre-Upgrade Snapshots of the Switch Configuration (Optional)

This topic describes how to generate snapshots of the configuration of a switch. It is a best practice to generate snapshots of the switch configuration before entering and exiting the maintenance mode for performing an upgrade. You can use this to compare the configuration of the switch before it was moved into maintenance mode and after bringing back to normal mode.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
 - Step 2** In the **Devices** window, place a checkmark in the checkbox for the required device.
 - Step 3** From the **Actions** drop-down list, choose **Generate Snapshot**.
 - Step 4** In the **Generate Snapshot** dialog box, click **Pre-Upgrade-Snapshot**.
 - Step 5** Click **Save**.
The system generates a pre-upgrade snapshot for the switch.
 - Step 6** Click the link in the **View Details** column for the respective switch to view the snapshot generated for the switch. The **History** tab also provides logs for all the configuration changes and details about the errors.
-

Upgrading a Group of Switches

This section describes how to upgrade a group of switches.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
 - Step 2** In the **Devices** window, filter on the **Upgrade Groups**, select all, and place a checkmark in the checkbox for all the devices you want.
 - Step 3** From the **Actions** drop-down list, select **Upgrade**.
Note You may need to upgrade up to 2 times (NXOS, RPM).
 - a) Click on the **Upgrade** radio button.
 - b) In the **Select Upgrades** field, place a checkmark on the upgrades you want.
 - c) In the Upgrade Options field, select **Force Non-Disruptive**.
 - d) Do not check the Bios forced checkbox.
 - e) You can view the **Validation Status** and filter if needed.
 - f) Click **Upgrade**.
 - Step 4** After all the switches within the group are fully upgraded. Repeat this procedure for the next group.
-

Running the Post-ISSU Report on the Switches (Optional)

This section describes how to run the post-ISSU report on switches (Optional).

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
 - Step 2** In the **Devices** window, place a checkmark in the checkbox for the devices you want to run the post-ISSU.
 - Step 3** From the **Actions** drop-down list, select **Run Reports**.
 - Step 4** In the **Create Report** dialog box, choose **Post ISSU** radio button.
 - a) Click **Select a Template**.
 - b) In the **Select Report Template** dialog box, choose a template and click **Select**.
 - c) Answer all the questions and click **Generate**.
-

Generating Post-Upgrade Snapshot of the Switch Configuration (Optional)

This topic describes how to generate snapshots of the configuration of a switch. It is a best practice to generate snapshots of the switch configuration before entering and exiting the maintenance mode for performing an upgrade. You can use this to compare the configuration of the switch before it was moved into maintenance mode and after bringing back to normal mode.

Procedure

- Step 1** In the **Image Management** window, choose **Devices**.
 - Step 2** In the **Devices** window, place a checkmark in the checkbox for the required device.
 - Step 3** From the **Actions** drop-down list, choose **Generate Snapshot**.
 - Step 4** In the **Generate Snapshot** dialog box, click **Post-Upgrade-Snapshot**.
 - Step 5** Click **Save**.

The system generates a post upgrade snapshot for the switch.
 - Step 6** Click the link in the **View Details** column for the respective switch to view the snapshots and the pre and post snapshot comparison summary generated for the switch. The **History** tab also provides logs for all the configuration changes and details about the errors.
-

Uninstalling Packages From a Switch

This section describes how to uninstall packages from a switch. You first need to take note of the patch names, detach the packages, and then uninstall them.

Procedure

- Step 1** In the **Nexus Dashboard Fabric Controller** window, choose **LAN > Switches**.
- Step 2** In the **Switches** window, place a checkmark in the checkbox for the device you want to uninstall packages from.
- Step 3** From the **Actions** drop-down list, select **More > Show Commands**.
- Step 4** In the **Switch Show Commands** window, enter the following:

- a) In the **Commands** field, choose **show**.
- b) Under the Variables section, in the **show** field, enter **install patches**.

In the right pane it lists the package names. Take note of the package names you want to uninstall by copying the file name. For example:

```

1
2 #show install patches
3 Boot Image:
4 | | | NXOS Image: bootflash:///nxos.9.3.10.bin
5
6 -----
7 nxos.CSCwc83676-n9k_ALL-1.0.0-9.3.10.lib32_n9000 Active Committed
8 nxos.CSCvy19448-n9k_ALL-1.0.0-9.3.7.lib32_n9000 Inactive Committed
9 -----
10

```

- c) Exit the window.

Step 5 In the **Nexus Dashboard Fabric Controller** window, choose **Operations > Image Management**.

Step 6 In the **Image Management** window, choose **Image Policies**.

Step 7 From the **Actions** drop-down list, select **Create**.

Step 8 In the **Created Image Management Policy** dialog box, enter the following:

- a) In the **Policy Name** field, enter a policy name. For example, **uninstall_patch**.
- b) From the **Platform** drop-down list, choose the correct platform.
- c) Do not check the **View All Packages** checkbox.
- d) In the **Package Name** field, leave it blank.
- e) In the **Policy description** field, leave it blank.
- f) Do not check the **ELPD** checkbox.
- g) In the **Select ELPD** field, leave it blank.
- h) Place a checkmark in the **RPM/SMU Disable** in the checkbox.
- i) In the **RPMs/SMUs To Be Uninstalled** field, enter the packages.

Note Provide a comma to separate the values.

j) Click **Save**.

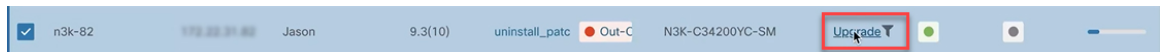
Step 9 In the **Image Management** window, choose **Device**.

Step 10 In the **Devices** window, place a checkmark in the checkbox for the devices you want to modify the policy.

Step 11 From the **Actions** drop-down list, select **Modify Policy**.

Step 12 In the **Modify Policy** dialog box, enter the following:

- a) Click on the **Attach Policy** radio button.
- b) In the **Policy** field, enter the policy name and click **Attach**. For example:



Step 13 The switch is going to recalculate. Click on the status for the switch under the Status column. For example:

Image Management

Overview Images Image Policies **Devices** History

Filter by attributes Actions ▾

<input type="checkbox"/>	Device Name	IP Address	Fabric	Current Version	Policy	Status	Model	View Details	Image Staged	Validated	Upgrade
<input type="checkbox"/>	N3K-C31108TC-V-125	172.22.31.125	Jason	7.0(3)17(3)	None	None	N3K-C31108TC-V	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	n3k-82	172.22.31.82	Jason	9.3(10)	uninstall3	Out-C	N3K-C34200YC-SM	Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	N9K-C92304QC-120	172.22.31.120	Jason	9.3(4)	None	None	N9K-C92304QC	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Step 14 In the **Image Version Status** dialog box, it shows the packages that will be removed.

Step 15 To remove the packages, in the **Devices** window, make sure the checkmark is placed in the checkbox for the devices you want to remove the packages from.

Step 16 From the **Actions** drop-down list, select **Upgrade**.

Step 17 In the **Upgrade/Uninstall** window, enter the following:

- Click on the **Uninstall** radio button and click **Uninstall**.
- In the **Devices** window, you can check the uninstall progress of the device if you click on the **Upgrade** under the View Details column.

<input checked="" type="checkbox"/>	n3k-82	172.22.31.82	Jason	9.3(10)	uninstall_patc	Out-C	N3K-C34200YC-SM	Upgrade ▾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------	--------------	-------	---------	----------------	--------------	-----------------	------------------	-------------------------------------	--------------------------	--------------------------

- Once the packages has been removed, the status will show **In-Sync** in green and **Upgrade** will show a green button.
- In the **Devices** window, you can also verify if the packages were uninstalled successfully by viewing the log file. Click on **Upgrade** for that device under the View Details column.



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