



Cisco Nexus Dashboard Operations, Release 3.2.x

Table of Contents

Firmware Management (Cluster Upgrades)	1
Prerequisites and Guidelines	1
Adding Images	2
Upgrading the Cluster	3
Deleting Images	4
Tech Support	5
History and Logs	6
Events	6
Audit Logs	6
Exporting Events	7
Cisco Intersight	9
Configuring Device Connector Settings	9
Target Claim	10
Unclaiming the Device	11
Trademarks	12

Firmware Management (Cluster Upgrades)

This section describes how to manage different firmware versions and perform cluster upgrades.

The upgrade process involves uploading a new image and then deploying it. As such, the same workflow can be used for cluster firmware downgrades as well.



The following sections provide reference information for firmware upgrades. For the latest upgrade process information, see the online version of the [Nexus Dashboard Deployment Guide](#).

Prerequisites and Guidelines

Before you upgrade your existing Nexus Dashboard cluster:

- Ensure that you have read the target release's [Release Notes](#) for any changes in behavior, guidelines, and issues that may affect your upgrade.

The upgrade process is the same for all Nexus Dashboard form factors. However, if your existing cluster is deployed using physical servers, VMware ESX, Linux KVM, Azure, or AWS, you will use the target release's ISO image (nd-dk9.<version>.iso) to upgrade; if your existing cluster is deployed in Red Hat Enterprise Linux, you will use the RHEL-specific image (nd-rhel-<version>.tar).

- Ensure that you have read the Release Notes and upgrade guides for any services you run in the existing cluster and plan to run on the target release for service-specific changes in behavior, guidelines, and issues that may affect your upgrade.

You can find the service-specific documents at the following links:

- [Nexus Dashboard Fabric Controller Release Notes](#)
- [Nexus Dashboard Fabric Controller Upgrade Guide](#)
- [Nexus Dashboard Insights Release Notes](#)
- [Nexus Dashboard Insights Upgrade Guide](#)
- [Nexus Dashboard Orchestrator Release Notes](#)
- [Nexus Dashboard Orchestrator Upgrade Guide](#)
- If you are upgrading a physical Nexus Dashboard cluster, ensure that the nodes have a supported CIMC version for the target Nexus Dashboard release.

Supported CIMC versions are listed in the Nexus Dashboard [Release Notes](#) for the target release.

CIMC upgrade is described in detail in [Upgrading CIMC](#).

- You must perform configuration backups of your Nexus Dashboard and services before the upgrade to safeguard data and minimize any potential risk before proceeding with the upgrade.
- You must have valid DNS and NTP servers configured and reachable by all cluster nodes.
- Ensure that your current Nexus Dashboard cluster is healthy.

You can check the system status on the **Overview** page of the Nexus Dashboard's **Admin Console** or by logging in to one of the nodes as `rescue-user` and ensuring that the `acs health` command returns **All components are healthy**.

- Ensure that no configuration changes are made to the cluster, such as adding secondary or standby nodes, while the upgrade is in progress.

For a complete list of Nexus Dashboard and services interoperability support, see the [Nexus Dashboard and Services Compatibility Matrix](#).

- Nexus Dashboard does not support platform downgrades.

If you want to downgrade to an earlier release, you will need to deploy a new cluster and reinstall the services.

Adding Images

Before you can upgrade your Nexus Dashboard cluster, you need to make the upgrade image available by adding it using the GUI.

1. Download the Nexus Dashboard image.
 - a. Browse to the Software Download page.

<https://software.cisco.com/download/home/286327743/type/286328258>

- b. Choose the Nexus Dashboard version you want to download.
- c. Download the Cisco Nexus Dashboard image (`nd-dk9.<version>.iso`).



You must download the `.iso` image for all upgrades, even if you used the VMware ESX `.ova`, Linux KVM `.qcow2`, or a cloud provider's marketplace for initial cluster deployment.

- d. (Optional) Host the image on a web server in your environment.

When you upload the image to your Nexus Dashboard cluster, you will have an option to provide a direct URL to the image.

2. Navigate to your Nexus Dashboard's **Admin Console**.
3. Add the image.
 - a. From the main navigation menu, select **Manage > Software Management**.
 - b. In the main pane, select the **Images** tab.

The page will list any previously added images.

- c. In the main pane, click **Add Image**.
4. In the **Add Software Image** window that opens, choose whether your image is stored on a remote server or local system.
 - a. If specifying a remote image, provide the full **URL** to the image.
 - b. If uploading a local image, click **Choose File** and select the image file from your local system.



If uploading from a local machine, slow upload speeds may cause the session to timeout which can interrupt the transfer. We recommend at least 40Mbps upload speed and increasing the session timeout to 1800 seconds (from the default 1200).

You can change session timeout in the **Admin > Security** page in your Nexus Dashboard GUI. System restarts the UI and it may possibly take a minute before you can re-login to the UI.

5. Click **Upload** to upload the image.

The **Images** tab will show the image upload progress, wait for it to finish before proceeding to the next section.

Upgrading the Cluster

Before you Begin

You must have the upgrade image already added to the Nexus Dashboard cluster as described in [Adding Images](#).

To upgrade your cluster:

1. Navigate to your Nexus Dashboard's **Admin Console**.
2. Initiate an update.
 - a. From the main navigation menu, select **Manage > Software Management**.
 - b. In the main pane, select the **Updates** tab.
 - c. Click **Set up Update** or **Modify Details**.

If this is the first time you are upgrading your cluster, simply click the **Setup Update** button in the middle of the page.

If you have previously upgraded the cluster, the last upgrade's details will be displayed in this page instead of the **Setup Update** button. In this case, click the **Modify Details** button at the top right of the screen.

3. In the **Setup/Version Selection** screen, select the target version and click **Next** to proceed.

If you uploaded multiple images to your Nexus Dashboard, they will be listed here.

4. Review the validation report and click **Install** to proceed with the upgrade.

Before the upgrade is triggered, the system will perform a number of validation checks and show the report.

5. In the **Setup/Confirmation** screen, review the details of the update and click **Begin Install** to proceed.

The screen will proceed to the **Install** tab and you will be able to see the progress of each node.

The process can take up to 2 hours and you can navigate away from this screen in the meantime.

6. Wait for the image installation to complete.

You can check the installation status by navigating back to **Operations > Firmware Management** screen and clicking **View Details** link in the **Last Status** tile.

7. Click **Install**.

If you navigated away from the installation screen, navigate back to **Operations > Firmware Management** screen and click **View Details** link in the **Last Status** tile.

It may take up to 20 additional minute for all the cluster services to start and the GUI may become unavailable during this process. The page will automatically reload when the process is completed. You can track the activation process in the **Activate** screen as shown below.

8. After the process is complete, check if services are active and verify health of the cluster. For more information on troubleshooting nodes, see [Cisco Nexus Dashboard Troubleshooting](#).

Deleting Images

After an upgrade is completed, Nexus Dashboard will automatically remove the upgrade image that you uploaded for the upgrade. However, if you upload an upgrade image and then choose not to upgrade, you can delete the uploaded images using the following steps:

1. Navigate to your Nexus Dashboard's **Admin Console**.
2. From the main navigation menu, select **Manage > Software Management**.
3. In the **Nexus Dashboard Releases** tile, click the trash icon next to the specific release image that you want to delete.
4. In the **Confirm Delete** prompt, click **OK** to confirm.

Tech Support

Tech support enables you to collect logs and activities in the system for further troubleshooting by Cisco TAC. Cisco Nexus Dashboard provides tech support collection and gives ability to download tech support for individual nodes, the whole cluster, or applications. Tech support files are hosted on the Cisco Nexus Dashboard and can be downloaded at any time.

To collect Tech Support information:

1. Navigate to your Nexus Dashboard's **Admin Console**.
2. Collect Tech Support.
 - a. From the main navigation menu, select **Analyze > Tech Support**.
 - b. In the main pane, click **Collect Tech Support**.
3. In the **Collect Tech Support** window that opens, provide a description.
4. From the **Scope** dropdown, select the category for which you want to collect tech support information.
 - o **System** collects Infra tech support information.
 - o Service-specific selections collects tech support information for that specific service.
5. Click **Collect**.

After you begin Tech Support collection, you can see the progress in the same screen.

If for any reason the tech support collection process fails, you can also obtain the same information by logging into each node as the **rescue-user** and running one of the **acs techsupport collect** commands. For more information about specific **techsupport collect** command options, see [Useful Commands](#).

6. Download the Tech Support archive.

After the collection is finished, you can download the archive by clicking **Download** next it:

If you want to delete an existing Tech Support package, simply select it in the **Tech Support** screen and choose **Delete Tech Support** from the **Actions** menu.

History and Logs

The **Admin > History and Logs** page allows you to see the system-wide list of events and alerts in your Nexus Dashboard cluster.

Events

The **Events** tab enables you to easily access your Nexus Dashboard's platform-level events and audit logs. The **Audit Logs** tab displays all events that occur during the cluster operation. In addition to viewing the events and logs directly in the Nexus Dashboard GUI, you can also configure the cluster to stream the events to an external syslog server, as described in [System Settings](#).

The **Events** tab includes high severity events that may require your attention to resolve:

The screenshot shows the 'History and Logs' page in the Nexus Dashboard. The left sidebar contains navigation options: Overview, Manage, Analyze, and Admin. The main content area is titled 'History and Logs' and has two tabs: 'Events' (selected) and 'Audit Logs'. A filter bar is present above a table of events. The table has columns for Severity, Life Cycle, Name, and Fault. The events listed include 'Backup Schedule Config Health', 'ND Cluster Health', and several 'ND Node Network Link Health' events. A detailed view of a 'Critical Severity' event is shown on the right, titled 'ND Node Network Link Health Event Analytics'. This view includes an 'Overview' tab and 'Event Records'. The 'General' section shows a red warning icon, detection time (2024-06-25, 23:54:59), fault domain (server), cleared time, and description ('Network device mgmt1 in node sjc1 is down'). The 'Syslog' section shows a status of 'Completed' and a timestamp (2024-06-25, 23:54:59).

Events

You can view a summary of all critical, major, and minor events in the list. Double-click any specific event for additional information about it. After you have viewed and analyzed an event, you can choose to acknowledge and clear it by clicking the **Actions (...)** menu next to the event in the list.

Audit Logs

Nexus Dashboard audit logging is automatically enabled when you first deploy the cluster and captures the operational changes made by the users in the environment.

You can view the audit logs directly in the GUI by selecting **Analyze > History and Logs** from the main navigation menu.

Note that the logs are not sorted by default; you can sort the list by clicking on any of the column headings.

You can choose to filter the list using the **Filter by attributes** field and providing a specific attribute and value pair.

The screenshot shows the 'History and Logs' section of the Nexus Dashboard. The 'Audit Logs' tab is selected. A search bar labeled 'Filter by attributes' is positioned above a table of log entries. The table has the following columns: ID, Description, User, Creation Time, and Client IP. The entries include:

ID	Description	User	Creation Time	Client IP
001a4086-1be7-47a8-8b6d-74b40d69b6d0	DeviceConnector: { "IP": "100.11.11.11", "Leadership": "Primary", "Node": "deviceconnector-9fhfm", "Type": "deviceConnected" }	cisco_intersightdc	2023-07-04, 23:37:42	
006cb090-dbc0-4411-aa43-b56d173c3bc6	DeviceConnector: { "IP": "100.11.11.11", "Leadership": "Secondary", "Node": "deviceconnector-tv5vz", "Type": "deviceDisconnected" }	cisco_intersightdc	2023-07-01, 09:35:05	
00d59400-fcd7-43ea-941a-a5d86aa3fca7	Creation of addcredentials/2023-07-06T18:13:29.214151237-0800	cisco-ndfc	2023-07-06, 11:13:29	2000::4:82b4
00e1f378-dea4-4a79-96f4-af9c34632722	Deletion of ndsitefedmem/2001:420:28e:2023::111:112	admin	2023-07-06, 11:51:51	10.21.66.30
011c5f7a-a374-4054-b13d-4cc0b53c817b	Creation of ndmodifysite/2023-07-10T08:15:11.307032783-0800	cisco-nir	2023-07-10, 01:15:11	2000::4:82ca
	Deletion of			

Audit Logs

Additionally, to view detailed information about a specific entry, simply click the entry in the list to open the **Details** tab.

Exporting Events

Nexus Dashboard can host multiple services one or more of which can generate various events, faults, and alerts. This information is published on and stored using Apache Kafka. You can configure your cluster to export all platform-level, infrastructure-level, and service-level events to external monitoring and management systems. Each service running on Nexus Dashboard can define exactly which service-level events to aggregate and send to the cluster's Kafka service to export.

When configuring event streaming, the following restrictions apply:

- This release supports **syslog** event exporter only.
- The following table shows events that can be exported, along with a short description of the cause.

Event	Description
Node CPU Usage	If the ND node level CPU crosses 80% usage.
Node Memory Usage	If the ND node level memory crosses 80% usage.
Node Disk Usage	If the ND node level disk crosses 80% usage.
Node not reachable	If the ND node is not reachable.
Node rebooted	Determines if the ND node has been rebooted.
Node NTP sync state	Determines if the ND node NTP synchronized.

Event	Description
Node BGP Peer Health	Determines if the ND node BGP peers are established.
etcd cluster health	Determines if the ND node etcd endpoints are healthy.
kubelet software fault	Determines if the ND node kubelet are healthy.
ND Application Health	If any of the app (NDI/NDFC/NDO) state is degraded.
Network link health	If the network devices (data & mgmt) are down.
DNS health	If the DNS servers are reachable.
Cluster Health	ND cluster is not healthy (shows a detailed description of the problem).
Backup Schedule Config Health	ND Backup schedules is not configured.
Scheduled Backup Health	ND Backup was scheduled successfully.

To configure event exporting:

1. Navigate to your Nexus Dashboard's **Admin Console**.
2. From the main navigation menu, select **Admin > System Settings**.
3. In the **Syslog** tile, click the **Edit** icon.

In the **Syslog** dialog that opens, click **+Add Remote Destinations** to add a new server. Then provide the IP address, protocol, and port number for the server and choose whether you want to enable streaming to this syslog server at this time.

Cisco Intersight

Cisco Intersight is a Software-as-a-Service (SaaS) infrastructure management platform that is augmented by other intelligent systems. It provides global management of the Cisco Unified Computing System (Cisco UCS) and Cisco HyperFlex hyperconverged infrastructure, Cisco APIC, and other platforms including Nexus Dashboard.

Data center apps, such as Cisco Nexus Dashboard Insights, connect to the Cisco Intersight portal through a Device Connector that is embedded in the management controller of each system, in this case your Nexus Dashboard platform. Device Connector provides a secure way for the connected devices to send information and receive control instructions from the Cisco Intersight portal, using a secure internet connection.

When an Intersight-enabled device or application starts, the Device Connector starts at boot by default and attempts to connect to the cloud service. If the **Auto Update** option is enabled, the Device Connector is automatically updated to the latest version through a refresh by the Intersight service when you connect to Cisco Intersight. For more information on the **Auto Update** option, see [Configuring Device Connector Settings](#).

For additional information on Cisco Intersight, see https://www.intersight.com/help/saas/getting_started/overview.

Nexus Dashboard does not require additional licensing to claim Nexus Dashboard on Intersight.

The Intersight account used to claim Nexus Dashboard licence should also be registered with Smart Licensing. Please follow [Cisco Intersight Help Center](#) documentation for instructions on how to register Intersight with Cisco Smart Software Manager.

Configuring Device Connector Settings

Devices are connected to the Cisco Intersight portal through a Device Connector, which provides a secure way for the connected devices to send information and receive control instructions from the Cisco Intersight portal.

All device connectors must properly resolve **svc.intersight.com** and allow outbound initiated HTTPS connections on port **443**. If a proxy is required for an HTTPS connection, you must configure the proxy settings in your Nexus Dashboard.

This section describes how to configure the basic Device Connector settings.

1. Navigate to your Nexus Dashboard's **Admin Console**.
2. From the main navigation menu, select **Admin > Intersight**.
3. In the top right of the main pane, click **Settings**.
4. Click the **General** tab to configure basic options.
 - a. Use the **Device Connector** knob to enable or disable the Device Connector.

This enables you to claim the device and leverage the capabilities of Intersight. If it is disabled, no communication is allowed to Cisco Intersight.

- b. In the **Access Mode** area, choose whether to allow Intersight the capability to make changes

to this device.

- **Allow Control** (default) – enables you to perform full read or write operations from the cloud based on the features available in Cisco Intersight.
- **Read-only** – ensures that no changes are made to this device from Cisco Intersight.

For example, actions such as upgrading firmware or a profile deployment will not be allowed in read-only mode. However, the actions depend on the features available for a particular system.

- c. Use the **Auto Update** knob to enable automatic Device Connector updates.

We recommend that you enable automatic updates so that the system automatically updates the Device Connector software. When enabled, the Device Connector will automatically upgrade its image whenever there is any upgrade push from Intersight.

If you disable the automatic updates, you will be asked to manually update the software when new releases become available. Note that if the Device Connector is out-of-date, it may be unable to connect to Cisco Intersight.

5. Click **Save** to save the changes.

6. Click the **Certificate Manager** tab if you want to import additional certificates.

By default, the device connector trusts only the built-in certificate. If the device connector establishes a TLS connection and a server sends a certificate that does not match the built-in certificate, the device connector terminates TLS connections because it cannot determine if the server is a trusted device.

You can choose to upload additional certificates by clicking the **Import** button in this screen. The imported certificates must be in the **.pem** (base64 encoded) format. After a certificate is successfully imported, it is listed in the list of **Trusted Certificates** and if the certificate is correct, it is shown in the **In-Use** column.

You can click the **View** icon at the end of the certificate's row to view its details such as name, issue and expiration dates.

Target Claim

This section describes how to claim the Nexus Dashboard platform as a device for Cisco Intersight.

Before you begin

You must have configured the Intersight Device Connector as described in [Configuring Device Connector Settings](#).

To claim the device:

1. Navigate to your Nexus Dashboard's **Admin Console**.
2. From the main navigation menu, select **Admin > Intersight**.
3. Check whether the Device Connector is already configured.
 - o If you see a green dotted line connecting **Internet** to **Intersight** in the **Device Connector** page

and the text **Claimed**, then your Intersight Device Connector is already configured and connected to the Intersight cloud service, and the device is claimed. In this case, you can skip the rest of this section.

- o If you see a red dotted line connecting to **Internet** in the **Device Connector** page, you must configure a proxy for your Nexus Dashboard cluster to be able to access the Internet, as described in [System Settings](#) before continuing with the rest of this section.
- o If you see a yellow dotted line and a caution icon connecting **Internet** to **Intersight** in the **Device Connector** page and the text **Not Claimed**, then your Intersight Device Connector is not yet configured and connected to the Intersight service, and the device is not yet claimed. Follow these procedures to configure the Intersight Device Connector and connect to the Intersight cloud service, and claim the device. In this case, proceed with the rest of the steps to configure the device.

4. If necessary, update the device connector software.

If there is a new Device Connector software version available and you do not have the **Auto Update** option enabled, you will see a message at the top of the screen informing you that Device Connector has important updates available. Enabling the auto-update feature is described in [Configuring Device Connector Settings](#).

To manually update the Device Connector, click the **Update Now** link.

5. Note down the **Device ID** and **Claim Code** listed on the Nexus Dashboard's **Intersight** page.
6. Log into the Cisco Intersight cloud fabric at <https://www.intersight.com>.
7. Follow the instructions described in the [Target Claim](#) section of the Intersight documentation to claim the device.

After the device is claimed in Intersight, you should see green dotted lines connecting **Internet** to **Intersight** in your Nexus Dashboard's **Device Connector** page along with the text **Claimed**.



You may need to click **Refresh** in top right of the page to update the latest status.

Unclaiming the Device

To unclaim the Nexus Dashboard as a device from Intersight:

1. Navigate to your Nexus Dashboard's **Admin Console**.
2. From the main navigation menu, select **Admin > Intersight**.
3. In the main pane, click **Unclaim**.

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Americas Headquarters

Cisco Systems, Inc.

170 West Tasman Drive

San Jose, CA 95134-1706

USA

<http://www.cisco.com>

Tel: 408 526-4000

800 553-NETS (6387)

Fax: 408 527-0883