

Upgrading Existing ND Cluster to This Release

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Prerequisites and guidelines for upgrading an existing Nexus Dashboard cluster

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.
- After upgrading to Nexus Dashboard release 3.2(2), you might see upgrade attempts through RADIUS failing with the following error:

  ```
  Message-Authenticator attribute was not received from RADIUS server, non-compliant server is in use.
  ```

  Adjust the enable sending of the `Message-Authenticator` attribute in the RADIUS settings to resolve this issue.
- After you upgrade to this release, you can no longer change the number of services enabled in your cluster.

  Previously, each cluster has a "deployment mode" which defines the combination of enabled services and cannot be changed after the cluster is deployed or upgraded. In other words, you will not be able to add or remove services after upgrading to this release without redeploying the cluster. If you were planning to add or remove services in your cluster, we recommend doing so before upgrading to release 3.2(x).

Note In some cases, a deployment mode supported in release 3.2(x) may have not been supported in a prior release (for example, cohosting Insights and Orchestrator is not supported in virtual clusters in release 3.0.1). In this case, if you have a single service (such as Insights) deployed in your current cluster but you plan to add another service (such as Orchestrator) after the upgrade:

1. Disable existing Insights service in your current cluster.
2. Install the additional Orchestrator service in your current cluster.
3. Enable the Orchestrator service in your current cluster.

   At this point you would have both Insights and Orchestrator in your current cluster with Insights disabled and Orchestrator enabled. Note that you must not enable both services at the same time if it is not a supported configuration in your current release.
4. Disable the Orchestrator service and proceed with the upgrade.

- If you are running Nexus Dashboard Insights service in a 4-node or 5-node physical cluster, you can simply upgrade the cluster and the service to this release as you typically would and continue using the 4-node or 5-node cluster.

  Nexus Dashboard release 3.2(x) with Nexus Dashboard Insights supports only 3-node and 6-node profiles for greenfield deployments. However, if you are upgrading an existing 4-node or 5-node cluster from an earlier release without changing your current scale, you can continue using it with release 3.2(x).
- If you are upgrading a physical Nexus Dashboard cluster, ensure that the nodes have the supported CIMC version for the target Nexus Dashboard release.

  Supported CIMC versions are listed in the *Nexus Dashboard Release Notes* for the target release.

Note
- For Nexus Dashboard release 3.2(1), do not upgrade the CIMC version to 4.3(5.x) or higher.
- For Nexus Dashboard release 3.2(2), if you are going to upgrade your UCS server firmware to 4.3(5x), you must first upgrade or install your Nexus Dashboard release to 3.2(2) before you can upgrade your UCS server firmware to 4.3(5x). See the "Supported UCS server firmware" section in the Nexus Dashboard and Services Release Notes, Release 3.2.2 for the UCS server firmware versions that are supported.

CIMC upgrade is described in detail in the "Troubleshooting" article in the Nexus Dashboard *documentation library*.

- If you are upgrading a virtual Nexus Dashboard cluster deployed in Linux KVM, you must enable the `Copy host CPU configuration` option in the **Virtual Machine Manager** UI.
  - The Nexus Dashboard release 3.2.1 release supports CentOS 7.9 or Red Hat Enterprise Linux 8.6 or 8.8 with the following Kernel and KVM versions:

  - For CentOS 7.9, Kernel version `3.10.0-957.el7.x86_64` and KVM version `libvirt-4.5.0-23.el7_7.1.x86_64`
  - For RHEL 8.6, Kernel version `4.18.0-372.9.1.el8.x86_64` and KVM version `libvert 8.0.0`
  - For RHEL 8.8, Kernel version `4.18.0-477.10.1.el8_8.x86_64` amd KVM version `libvirt 8.0.0-19`

- The Nexus Dashboard 3.2.2 release supports Red Hat Enterprise Linux 8.8 or 8.10 but does not support CentOS 7.9. If you deployed your Nexus Dashboard in CentOS 7.9 in a release prior to 3.2.2, see Migrating from CentOS 7.9 to RHEL 8.8 or 8.10, on page 4 before upgrading to Nexus Dashboard release 3.2.2.

- If you are upgrading a virtual Nexus Dashboard cluster deployed in VMware ESX, ensure that the ESX version is still supported by the target release.

  This release supports VMware ESXi 7.0, 7.0.1, 7.0.2, 7.0.3, 8.0, 8.0.2.

Note If you need to upgrade the ESX server, you must do that before upgrading your Nexus Dashboard. ESX upgrades are outside the scope of this document, but in short:

1. Upgrade one of the ESX hosts as you typically would with your existing Nexus Dashboard node VM running.
2. After the host is upgraded, ensure that the Nexus Dashboard cluster is still operational and healthy.
3. Repeat the upgrade on the other ESX hosts one at a time.
4. After all ESX hosts are upgraded and the existing Nexus Dashboard cluster is healthy, proceed with upgrading your Nexus Dashboard to the target release as described in this document.

- You must be running Nexus Dashboard release 3.0(1) or later to upgrade directly to release 3.2(x). If you are running an earlier version of Nexus Dashboard, we recommend first upgrading it to release 3.0(1) as described in the respective deployment guide.

Note Any service version compatible with and deployed in your existing Nexus Dashboard release 3.0(1) or later cluster will be upgraded along with the cluster to the target release.

- 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`.

- You must disable all services running in the cluster before upgrading to this release.

Note Because of the unified installation image in this release, all of your existing services will be automatically upgraded to the version compatible with this Nexus Dashboard release while preserving their configuration. The services will also be automatically re-enabled after the upgrade is completed.

Ensure that any existing services which you want to retain and upgrade to the target release have been enabled at least once. If you have any services that were installed but never enabled in your existing cluster, the upgrade validation will fail and you can either delete the unactivated services or activate them before re-trying the upgrade.

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

Migrating from CentOS 7.9 to RHEL 8.8 or 8.10

CentOS 7.9 is supported for releases prior to Nexus Dashboard release 3.2.2 but is not supported for Nexus Dashboard release 3.2.2 and later, whereas RHEL 8.10 and 8.10 is supported in Nexus Dashboard release 3.2.2 and later. If you deployed your Nexus Dashboard in CentOS 7.9 in a release prior to 3.2.2, this section describes how to migrate from CentOS 7.9 to RHEL 8.8 or 8.10 when you upgrade from that earlier release to Nexus Dashboard release 3.2.2.

Procedure

Step 1 Deploy or upgrade your Nexus Dashboard software to the Nexus Dashboard 3.2.*1* release in Linux KVM, if you're not on Nexus Dashboard release 3.2.1 already, where the KVM host is running on CentOS 7.9.

See Upgrading Existing ND Cluster to This Release, on page 1 for those procedures.

After the upgrade is complete, you should now have Nexus Dashboard 3.2.1 deployed in CentOS 7.9.

Step 2 Take a backup from your Nexus Dashboard in CentOS 7.9.

See *Unified Backup and Restore for Nexus Dashboard and Services, Release 3.2.x* for those procedures.

Step 3 Remaining in Nexus Dashboard release 3.2.1, deploy your Nexus Dashboard in Linux KVM, where the KVM host is running on Red Hat Enterprise Linux (RHEL) 8.8 or 8.10 with KVM.

See Deploying in Linux KVM (Releases Prior to 3.2.2) for those procedures.

Step 4 Remaining in Nexus Dashboard release 3.2.1, restore from the CentOS 7.9 backup that you took in Step 2, on page 4.

See *Unified Backup and Restore for Nexus Dashboard and Services, Release 3.2.x* for those procedures.

Step 5 Upgrade your Nexus Dashboard software to the Nexus Dashboard 3.2.*2* release.

See Upgrading Existing ND Cluster to This Release, on page 1 for those procedures.

Supported Upgrade Paths

Prior to Nexus Dashboard release 3.1(1), the platform software and individual services could be upgraded independent of each other but within a specific set of supported version combinations. Because of that, prior releases' documentation provided specific upgrade paths across multiple releases to ensure compatibility between all components at each upgrade stage.

This requirement has now been removed due to a much tighter coupling between the Nexus Dashboard and individual services with only a single version of each service compatible with each version of the platform. As a result, as long as you are currently on the minimum required version of the Nexus Dashboard software (listed in Prerequisites and guidelines for upgrading an existing Nexus Dashboard cluster, on page 1), you can upgrade both the platform and all currently enabled services directly to this release.

The following table provides a few example scenarios for specific deployment combinations:

Table 1:

Current Nexus Dashboard Release	**Compatible Services** **(depending on form factor and cluster size, you may have one or more of these services currently enabled)**	**Upgrade Workflow**
3.2(1)	Fabric Controller: 12.2(2) Orchestrator: 4.4(1) Insights: 6.5(1)	Upgrade directly to release 3.2(2) as described in the following section. All services will be automatically upgraded along with the platform.
3.1(1)	Fabric Controller: 12.2(1) Orchestrator: 4.3(x) Insights: 6.4(1)	Upgrade directly to release 3.2(1) or 3.2(2) as described in the following section. All services will be automatically upgraded along with the platform.
3.0(1)	Fabric Controller: 12.1(3) Orchestrator: 4.2(x) Insights: 6.3(1)	Upgrade directly to release 3.2(1) or 3.2(2) as described in the following section. All services will be automatically upgraded along with the platform.
2.3(2)	Fabric Controller: 12.1(2) Orchestrator: 4.1(x) Insights: 6.2(x)	**1.** Upgrade the Nexus Dashboard platform to release 3.1(1) as described in *Nexus Dashboard Deployment Guide, Release 3.1.x* All services will be automatically upgraded along with the platform. **2.** Upgrade from release 3.1(1) to release 3.2(1) or 3.2(2) . All services will be automatically upgraded along with the platform.

Current Nexus Dashboard Release	Compatible Services (depending on form factor and cluster size, you may have one or more of these services currently enabled)	Upgrade Workflow
2.3(1) and earlier	Fabric Controller: 12.1(1) or earlier Orchestrator: 4.0(x) or earlier Insights: 6.1(x) or earlier	1. Upgrade the Nexus Dashboard platform to release 3.0(1) as described in *Nexus Dashboard Deployment Guide, Release 3.0.x* 2. Upgrade the individual services to any version compatible with Nexus Dashboard release 3.0(1) as you typically would using the upgrade paths or minimum version requirements described in the service-specific documentation: • Fabric Controller • Orchestrator • Insights 3. Upgrade from release 3.0(1) to release 3.2(1) or 3.2(2) . All services will be automatically upgraded along with the platform.

Upgrading Nexus Dashboard

This section describes how to upgrade an existing Nexus Dashboard cluster.

Note While the upgrade workflow and functionality remains similar whether you are upgrading from release 3.0(1) or 3.1(1), the UI has changed across the past few releases and the differences are called out within each step below.

Before you begin

Ensure that you have completed the prerequisites described in Prerequisites and guidelines for upgrading an existing Nexus Dashboard cluster, on page 1

Procedure

Step 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 Nexus Dashboard image for your target release.

Note
The upgrade process is the same for all Nexus Dashboard form factors and uses the Nexus Dashboard ISO image (`nd-dk9.<version>.iso`). In other words, even if you used the virtual form factors (such as the ESX `.ova`) or a cloud provider's marketplace for initial cluster deployment, you must still use the `.iso` image for upgrades.

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

We recommend hosting the image on a 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, which can significantly speed up the process.

Step 2 Log in to your current Nexus Dashboard's **Admin Console** as an `Administrator` user.

Step 3 If you are upgrading from release 3.0(1), disable any existing services installed in the cluster.

If you are upgrading from release 3.1(1), you can skip this step.

Note
In release 3.0(1), you must disable all services before you upgrade the cluster. You must not delete any services after disabling them. The disabled services will be automatically re-activated once the upgrade process is complete.

a) From the main navigation menu, **Operate** > **Services**.
b) In the service's tile, click the actions (**…**) menu and choose **Disable**.
c) Repeat this step for all services deployed in the cluster.

Step 4 Delete any older, non-active upgrade images from your cluster.

If this is the first time you're upgrading your cluster, you can skip this step.

a) Navigate to the **Software Management** page.
   - In release 3.0(1), navigate to **Admin** > **Software Management**.
   - In release 3.1(1), navigate to **Manage** > **Software Management**.

b) Delete any older, non-active upgrade **Images**.
   - In release 3.0(1), choose the **Images** tab. Then from the actions menu (**…**) next to an upgrade image, choose **Delete Image**.
   - In release 3.1(1), click the trash icon on an upgrade image's tile.

c) Repeat this step for all older, non-active upgrade images.

Step 5 Upload the new image to the cluster.

a) Navigate to the **Software Management** page.
   - In release 3.0(1), navigate to **Admin** > **Software Management**.
   - In release 3.1(1), navigate to **Manage** > **Software Management**.

b) Click **Add Image**.
   - In release 3.0(1), first choose the **Images** tab, then click **Add Image**.
   - In release 3.1(1), simply click **Add Image**.

c) In the **Add Software Image** window, select whether the image is **Local** on your machine or **Remote** on a web server.
d) Click **Choose file** or provide the **URL** to the image you downloaded in the first step.
e) Click **Upload** to add the image.
f) Wait for the image status to change to `Downloaded`.

The image will be uploaded to the Nexus Dashboard cluster, unpacked, processed, and made available for the upgrade. The whole process may take several minutes and you will be able to see the status of the process in the **Images** tab.

Step 6 Set up the upgrade.

a) Navigate to the **Software Management** page.

- In release 3.0(1), navigate to **Admin** > **Software Management**.
- In release 3.1(1), navigate to **Manage** > **Software Management**.

b) Click **Set Up Update**.

Note
If you had upgraded your cluster before, the page shows the previous upgrade's details instead. In that case, click the **Modify Details** button in the top right of the page to provide new upgrade information.

The **Firmware Update** screen opens.

c) In the **Setup** > **Version selection** screen, select the firmware version you uploaded and click **Next**.
d) In the **Setup** > **Confirmation** screen, verify the details and click **Validate**.

The setup goes through a number of preparation and validation stages to ensure successful upgrade. This may take several minutes to complete.

e) After the validation is complete, click **Install**.

The installation progress window is displayed. You can navigate away from this screen while the update is in progress. To check on the update status at a later time, navigate to the **Software Management** screen and click **Continue**.

This step may take up to 20 minutes, during which the upgrade will set up the required Kubernetes images and services, and the new image will be activated.

Step 7 (Optional) Migrate to the new UCS-C225-M6 hardware.

Note
If you do not plan to replace your Nexus Dashboard nodes with the new UCS-C225-M6 servers, you can skip this step.

To migrate your existing Nexus Dashboard cluster deployed using UCS-C220-M5 hardware, you can simply add a new UCS-C225-M6 node as a `stadby` node to the existing cluster and fail over one of the older nodes. Then repeat the process one node at a time for the remaining nodes of the older cluster. Adding and using `stadby` nodes is described in detail in the "Infrastructure Management" article in the Nexus Dashboard *documentation library*.

Step 8 If you upgraded a 9-node virtual ND cluster, we recommend removing 3 secondary nodes to reduce the resource footprint as described in Converting Existing 9-Node Cluster to 6-Node Cluster, on page 9.

Prior to release 3.2(1), virtual Nexus Dashboard clusters with Nexus Dashboard Insights for highest supported scale required 9 nodes (3 `primar` OVA-Data and 6 `secondary` OVA-App). Due to the platform improvements, release 3.2(1) of Nexus Dashboard is able to support the same scale with just 6 nodes instead (3 `primar` OVA-Data and 3 `secondary` OVA-App).

Converting Existing 9-Node Cluster to 6-Node Cluster

Prior to release 3.2(1), virtual Nexus Dashboard clusters with Nexus Dashboard Insights for highest supported scale required 9 nodes (3 `primar` OVA-Data and 6 `secondary` OVA-App). Due to the platform improvements, release 3.2(1) of Nexus Dashboard is able to support the same scale with just 6 nodes instead (3 `primar` OVA-Data and 3 `secondary` OVA-App).

After you have completed upgrading the cluster as described in the previous sections, we recommend you reduce the footprint of the cluster by removing 3 OVA-App nodes.

Before you begin

- If you are not upgrading a 9-node cluster, skip this section.
- If you are upgrading a 9-node cluster, you must have completed the upgrade process as described in the previous section before reducing the size of your cluster.

Procedure

Step 1 Log in to your Nexus Dashboard **Admin Console** as an `admin` user.

Step 2 Ensure that the cluster has been upgraded successfully and it is healthy.

a) On the **Admin Console**'s **Overview** > **Platform View** page, ensure that the **Cluster Health** is `OK`.

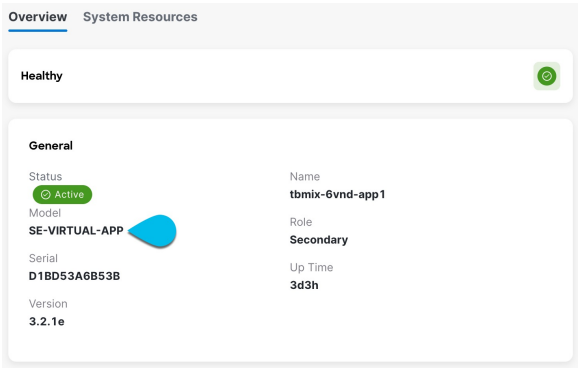
b) On the **Admin Console**'s **Admin** > **System Settings** page, ensure that no system issues are displayed.

Step 3 Navigate to **Manage** > **Nodes**.

Step 4 Remove 3 non-primary nodes one at a time.

a) Click the actions (**...**) menu next to one of the non-primary nodes (`OVA-App`) and click **Delete**.

The node's **Role** is shown in the table on the page, but you can verify that node profile by clicking on the node's name first:



b) Wait at least 10 minutes after deleting a node and ensure that the cluster stabilizes and there are no errors show in **Overview** > **Platform View** and **Admin** > **System Settings**.

c) Repeat this step 2 more times to remove 2 more non-primary OVA-App nodes.

You must remove one node at a time and let the cluster stabilize before removing another node.

Step 5 After you've removed the 3 OVA-App nodes, verify that the cluster is healthy and delete those nodes' VMs from your ESXi host.

Troubleshooting Upgrades

After all the nodes restart during new image activation stage described in the previous section, you may log in to the GUI to check the status of the upgrade workflows. Initially, you can see the bootstrap process similar to the initial cluster deployment and once the nodes come up, you can see additional information about service activation in the GUI's **Overview** page.

In case the upgrade fails for any reason, the GUI will display the error and additional workaround steps. However, if you are unable to resolve the issues through the GUI, you can re-try the upgrade manually by logging in to the nodes as the `rescue-user` and running the commands described in this section.

Procedure

Step 1 Log in to all of your Nexus Dashboard cluster nodes as the `rescue-user`.

You will need to perform recovery commands on all nodes simultaneously, so log in to each node before continuing with the next step.

Step 2 Ensure that you are logged in to all nodes as the `rescue-user`.

Step 3 Run the required commands depending on the specific scenarios.

If the upgrade failed where one or more nodes did not reboot and are still running a older release, you can attempt a manual upgrade; however, you must contact Cisco TAC for assistance with the manual upgrade because this requires root access that only Cisco TAC can generate.

Step 4 Wait for the installer to finish on all nodes.

Step 5 Restart all nodes simultaneously using the `acs reboot` command.

After the nodes restart, you can log into the UI to see the bootstrap progress similar to regular UI-based upgrades.

Step 6 After the node upgrade tasks are completed, verify that the nodes are healthy and you can log into the UI.

Once the bootstrap process completes, you can view the Nexus Dashboard UI as you typically would.

You can check the **Overview** page for overall system health and the **Manage** > **Software Management** page to see the current `Running` version.

In addition, verify the services' status in the **Analyze** > **Service Status** page.