



# Upgrading Existing ND Cluster to This Release

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## 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.
- Ensure that you have read the [Release Notes](#) for any services you have enabled in the existing cluster for service-specific changes in behavior, guidelines, and issues that may affect your upgrade.

You can find the service-specific [Release Notes](#) at the following links:

- [Nexus Dashboard Fabric Controller Release Notes](#)
  - [Nexus Dashboard Insights Release Notes](#)
  - [Nexus Dashboard Orchestrator Release Notes](#)
- After you upgrade to this release, you can no longer change the number of services enabled in your cluster.

Beginning with release 3.1.1, 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 3.1.1.



**Note** In some cases, a deployment mode supported in release 3.1.1 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.

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- 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 3.1(1) 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 3.1(1).

- If you are upgrading a physical Nexus Dashboard cluster, ensure that the nodes have the minimum 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 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.

This release supports CentOS 7.9 or Red Hat Enterprise Linux 8.6 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`

- 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.



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**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.

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- You must be running Nexus Dashboard release 2.3(2) or later to upgrade directly to release 3.1(1).

If you are running an earlier version of Nexus Dashboard, we recommend first upgrading it to release 2.3(2) or 3.0(1) as described in the respective [deployment guide](#).

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While upgrading ND version 2.3.2b to version 3.1.1k, verification of the current ND deployment fails with an error: + NDO + NDI is not a valid deployment mode - please check ND product documentation for supported configurations

Contact TAC or raise a support case for assistance on further course of action.

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**Note** Any service version compatible with and deployed in your existing Nexus Dashboard release 2.3(2) or later cluster will be upgraded along with the cluster to the target release.

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- 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.




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**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.

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- 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.

## Upgrading Nexus Dashboard

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




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**Note** The following steps illustrate the upgrade workflow from Nexus Dashboard release 3.0(1). If you are upgrading from release 2.3(x), the UI may differ slightly but the upgrade workflow and functionality remains the same.

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### Before you begin

- Ensure that you have completed the prerequisites described in [Prerequisites and Guidelines, on page 1](#)

### Step 1

Download the Nexus Dashboard image.

- Browse to the Software Download page.

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

- Choose the Nexus Dashboard version you want to download.
- 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** Disable any existing services installed in the cluster.

**Note** 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, select **Services** (release 2.3.2) or **Operate > Services** (release 3.0.1 or later).

b) In the service's tile, click the actions (...) menu and choose **Disable**.

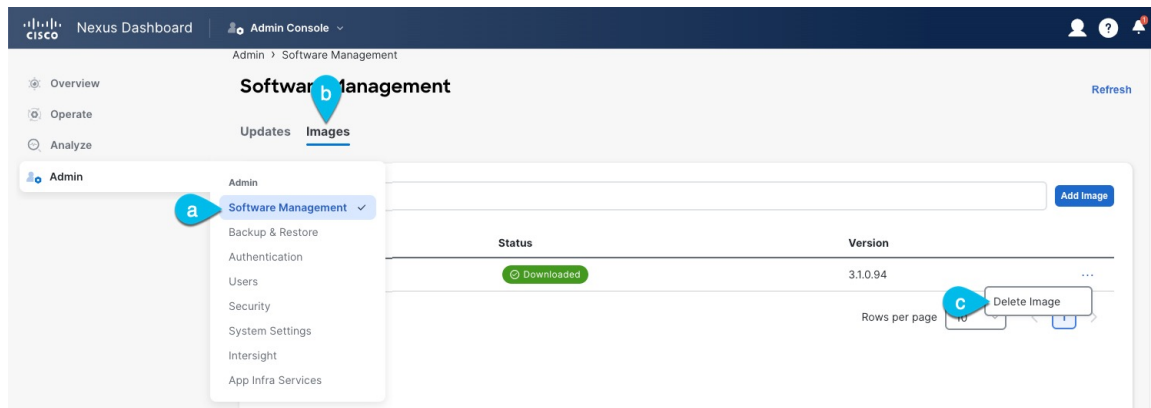
c) Repeat this step for all services deployed in the cluster.

**Step 4** Delete any existing upgrade images from your cluster.

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

If you had previously upgraded your cluster to your current version, you must delete all previous upgrade images.

**Note** In release 2.3.2, this page is located under **Operations > Firmware Management** instead.



a) Navigate to **Admin > Software Management**.

b) Select the **Images** tab.

c) From the actions (...) next to an existing upgrade image, choose **Delete Image**.

d) Repeat this step for all existing upgrade images.

**Step 5** Upload the new image to the cluster.

a) In the **Admin > Software Management** page's **Images** tab, click **Add Image**.

b) In the **Add Software Image** window, select whether the image is **Local** on your machine or **Remote** on a web server.

c) Click **Choose file** or provide the **URL** to the image you downloaded in the first step.

d) Click **Upload** to add the image.

e) 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 **Admin > Software Management**.

**Note** In release 2.3.2, this page is located under **Operations > Firmware Management** instead.

- b) Select the **Updates** tab.
- c) 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.

- d) In the **Setup > Version selection** screen, select the firmware version you uploaded and click **Next**.
- e) 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.

- f) 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 but will not switch the cluster to the new version. The cluster will continue to run the existing version until you activate the new image in the next step.

## Step 7 Activate the new image.

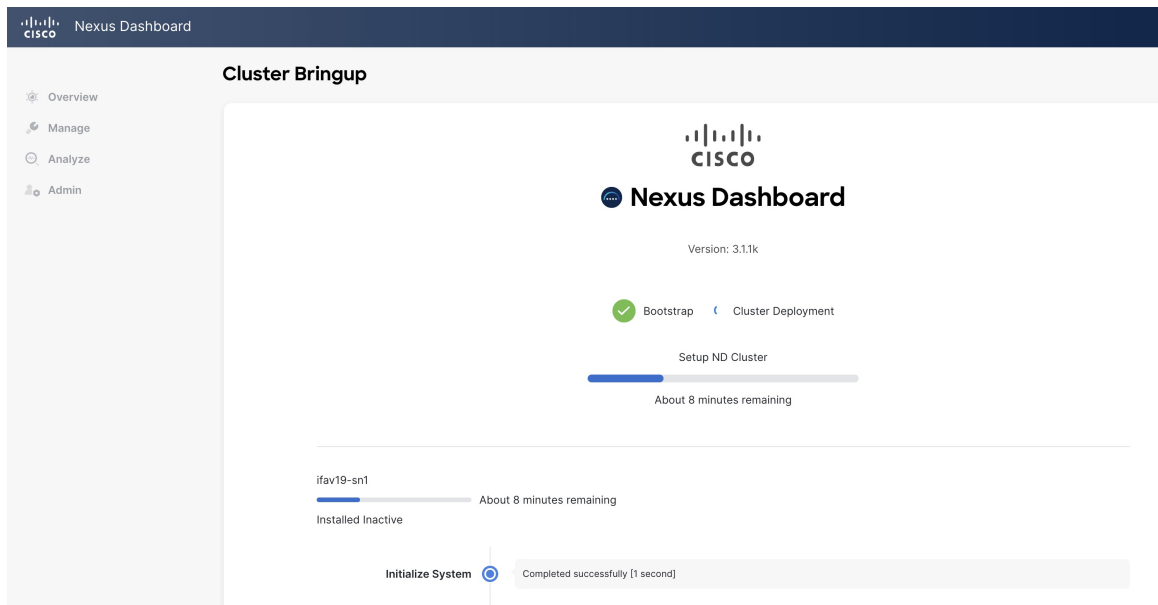
If you never navigated away from the upgrade screen, simply click **Activate** to activate the new image, otherwise:

- a) Navigate back to the **Admin > Software Management** screen.

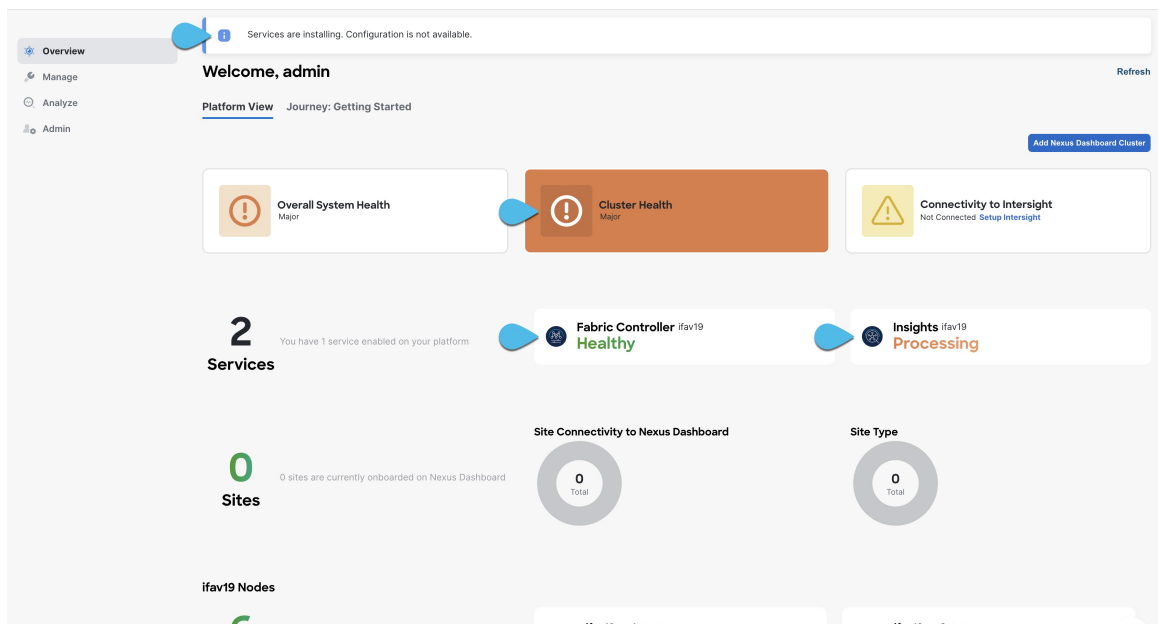
In release 2.3.2, this page is located under **Operations > Firmware Management** instead.

- b) In the **Last Update Status** tile, click **Continue**.
- c) In the **Firmware Update > Install** screen, click **Activate**.

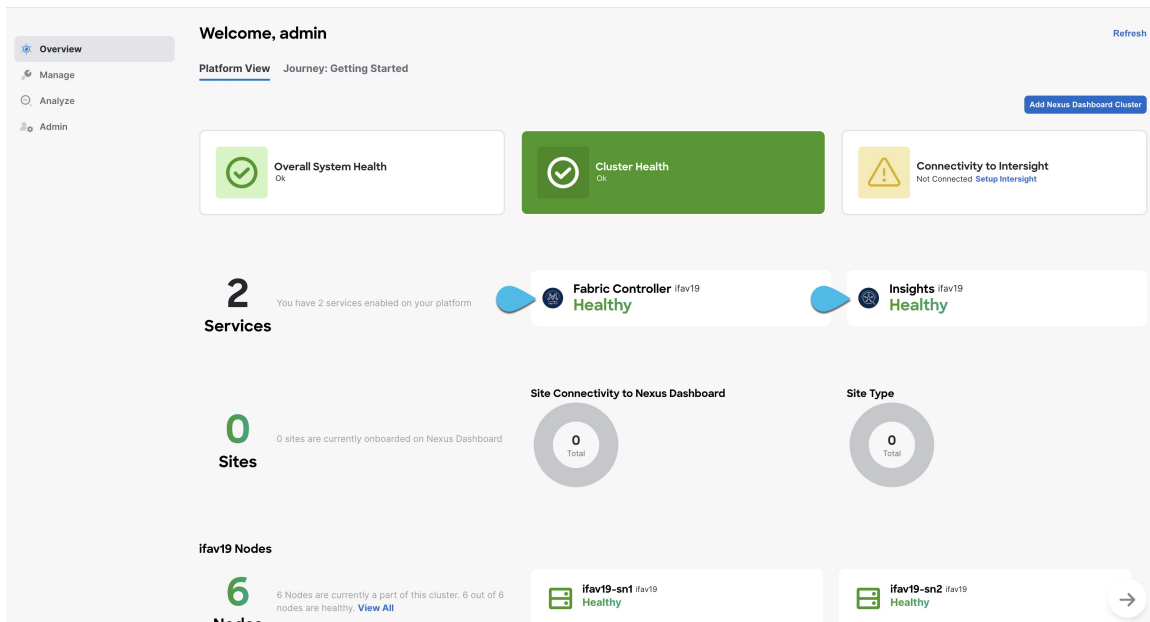
After you click **Activate**, the cluster will bring down the background services, which may take several minutes, and then restart. Note that all nodes will restart simultaneously during the activation stage and it may take up to 20 additional minutes for all the cluster services to start and the GUI to become available after the nodes restart:



You can check the **Overview** page for the progress and service status:



Once the upgrade is finalized, any existing services will show as **Healthy** in the **Overview** page:



**Step 8** (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 `standby` 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 `standby` nodes is described in detail in the "Infrastructure Management" article in the Nexus Dashboard [documentation library](#).

## 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.

**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.



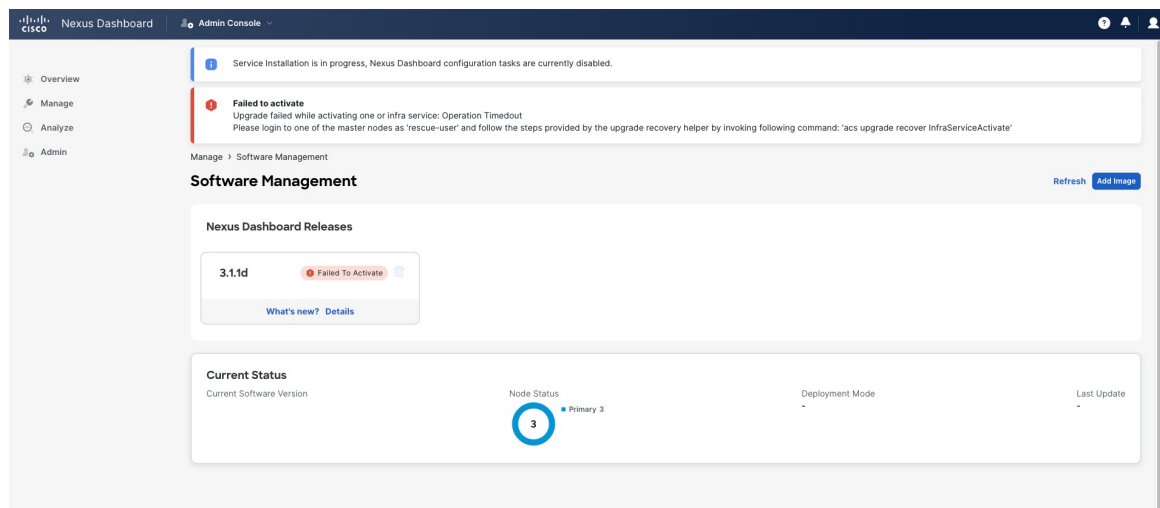
If upgrade failed where one or more nodes did not reboot and are still running a older release:

- a) On all nodes that did not restart, run the `acs installer update -f <iso>` command.
- b) On all nodes in parallel, run the `acs reboot` command.

**Note** After the failed nodes update in Step 3a, you must restart all nodes in the cluster simultaneously.

If upgrade fails after all nodes have rebooted, the failure can come from different upgrade stages and the UI will display the recommended troubleshooting commands:

- If the bootstrap or cluster bring-up phase failed, the UI will indicate that all nodes should be rebooted simultaneously using the `acs reboot` command.
- If the failure is due to one or more Infra services, the UI will indicate that you need to run the `acs upgrade recover <StageName>` command from one of the nodes:



The following `acs upgrade recover` options are supported:

```
# acs upgrade recover -h
usage: recover [-h]
{FirmwareInstall,AppDisable,ClusterShutdown,BootInstall,InfraServiceActivate,AppActivate,BootstrapFailed}
```

positional arguments:

```
{FirmwareInstall,AppDisable,ClusterShutdown,BootInstall,InfraServiceActivate,AppActivate,BootstrapFailed}
```

```
FirmwareInstall:    recover failed firmware install stage
AppDisable:        recover failed app disable stage
ClusterShutdown:   recover failed cluster shutdown stage
BootInstall:       recover failed boot install stage
InfraServiceActivate: recover failed infra service activate stage

AppActivate:      recover failed app activate stage
BootstrapFailed:   recover failed bootstrap stage
```

**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.
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