

Deploying Nexus Dashboard Orchestrator

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Deployment Overview

Beginning with Release 3.2(1), you must deploy the Cisco Nexus Dashboard Orchestrator (NDO) as an application in Cisco Nexus Dashboard.

Note While Release 3.2(1) supported only the physical form factor of Nexus Dashboard, Release 3.3(1) and later can be deployed in physical, virtual, or cloud Nexus Dashboard clusters.

If you are upgrading from a release prior to release 3.2(1), familiarize yourself with deployment overview described in this section, then follow the instructions in Migrating Existing Cluster to Nexus Dashboard.

Cisco Nexus Dashboard is a central management console for multiple data center sites and a common platform for hosting Cisco data center applications, such as the Nexus Dashboard Orchestrator or Nexus Insights. Nexus Dashboard provides a common platform and modern technology stack for these micro-services-based applications, simplifying the life cycle management of the different modern applications and reducing the operational overhead to run and maintain those applications.

Each Nexus Dashboard cluster consists of 3 `master` nodes. You can also deploy additional `worker` nodes to enable horizontal scaling and a `standby` node for easy cluster recovery in case of a master node failure.

For detailed information about Nexus Dashboard cluster initial deployment and configuration, see *Cisco Nexus Dashboard Deployment Guide*.

For more information about using Nexus Dashboard, see the *Cisco Nexus Dashboard User Guide*.

This document describes initial installation requirements and procedures for the Nexus Dashboard Orchestrator service. Detailed configuration and use case information is available from the *Cisco Nexus Dashboard Orchestrator Configuration Guide for Cisco ACI* or *Cisco Nexus Dashboard Orchestrator Configuration Guide for Cisco DCNM* for your release, depending on the type of fabrics you plan to manage.

Prerequisites and Guidelines

Nexus Dashboard

You must have Cisco Nexus Dashboard cluster deployed and its fabric connectivity configured, as described in *Cisco Nexus Dashboard Deployment Guide* before proceeding with any additional requirements and the Nexus Dashboard Orchestrator service installation described here.

Orchestrator Release	Minimum Nexus Dashboard Release
Release 3.5(1) and later	Cisco Nexus Dashboard, Release 2.0.2h or later **Note** We recommend deploying Nexus Dashboard release 2.1.1 or later. Any features that require Nexus Dashboard release 2.1.1 or later will be disabled until you upgrade the platform. For more information, see *Release Notes*.

Nexus Dashboard Orchestrator Image Format

Starting with release 2.1.1 of Nexus Dashboard, services can be deployed using a new `.nap` image format which allows the services to provide additional features and greatly reduces initial deployment time. For all new Nexus Dashboard Orchestrator deployments, we recommend deploying in Nexus Dashboard release 2.1.1 or later using the new format.

Note that for backwards compatibility with Nexus Dashboard release 2.0, the NDO image on Cisco AppCenter and Nexus Dashboard's App Store will continue to use the older `.aci` format. To deploy using the new format, follow the steps described in Installing Nexus Dashboard Orchestrator Service Manually, on page 7.

Nexus Dashboard Networks

When first configuring Nexus Dashboard, you will need to provide two IP addresses for the two Nexus Dashboard interfaces—one connected to the Data Network and the other to the Management Network. The data network is used for the nodes' clustering and Cisco fabrics traffic. The management network is used to connect to the Cisco Nexus Dashboard GUI, CLI, or API.

The two interfaces can be in the same or different subnets. In addition, each network's interfaces across different nodes in the cluster can also be in different subnets.

Connectivity between the nodes is required on both networks with the round trip time (RTT) not exceeding 150ms for Nexus Dashboard Orchestrator. Other application running in the same Nexus Dashboard cluster may have lower RTT requirements and you must always use the lowest RTT requirement when deploying multiple applications in the same Nexus Dashboard cluster. We recommend consulting the *Cisco Nexus Dashboard Deployment Guide* for more information.

When Nexus Dashboard Orchestrator app is deployed in Nexus Dashboard, it uses each of the two networks for different purposes as shown in the following table:

NDO Traffic Type	Nexus Dashboard Network
Any traffic to and from: • Cisco APIC • Cisco DCNM • Any other remote devices or controllers	Data network
Intra-cluster communication	Data network
Audit log streaming (Splunk/syslog)	Management network
Remote backup	Management network

Nexus Dashboard Cluster Sizing

Nexus Dashboard supports co-hosting of services. Depending on the type and number of services you choose to run, you may be required to deploy additional worker nodes in your cluster. For cluster sizing information and recommended number of nodes based on specific use cases, see the Cisco Nexus Dashboard Capacity Planning tool.

If you plan to host other applications in addition to the Nexus Dashboard Orchestrator, ensure that you deploy and configure additional Nexus Dashboard nodes based on the cluster sizing tool recommendation, as described in the *Cisco Nexus Dashboard User Guide*, which is also available directly from the Nexus Dashboard GUI.

Note This release of Nexus Dashboard Orchestrator can be co-hosted with other services on physical or virtual (ESX) Nexus Dashboard clusters only. If you are deploying the Nexus Dashboard Orchestrator service in a virtual (KVM) or cloud Nexus Dashboard cluster, you must not install other applications in the same cluster.

Network Time Protocol (NTP)

Nexus Dashboard Orchestrator uses NTP for clock synchronization, so you must have an NTP server configured in your environment.

Hardware Requirements For ACI Fabrics

Spine Switch Requirements

Multi-Site requires second generation (Cloud Scale) spine switches for intersite connectivity. All Cloud Scale spine switches supported by a given ACI release are supported by Multi-Site Orchestrator.

Nexus 9000 first generation switches are not supported for Multi-Site intersite connectivity, but can still be used within a single fabric as long as that fabric is running an APIC release prior to 5.0(1).

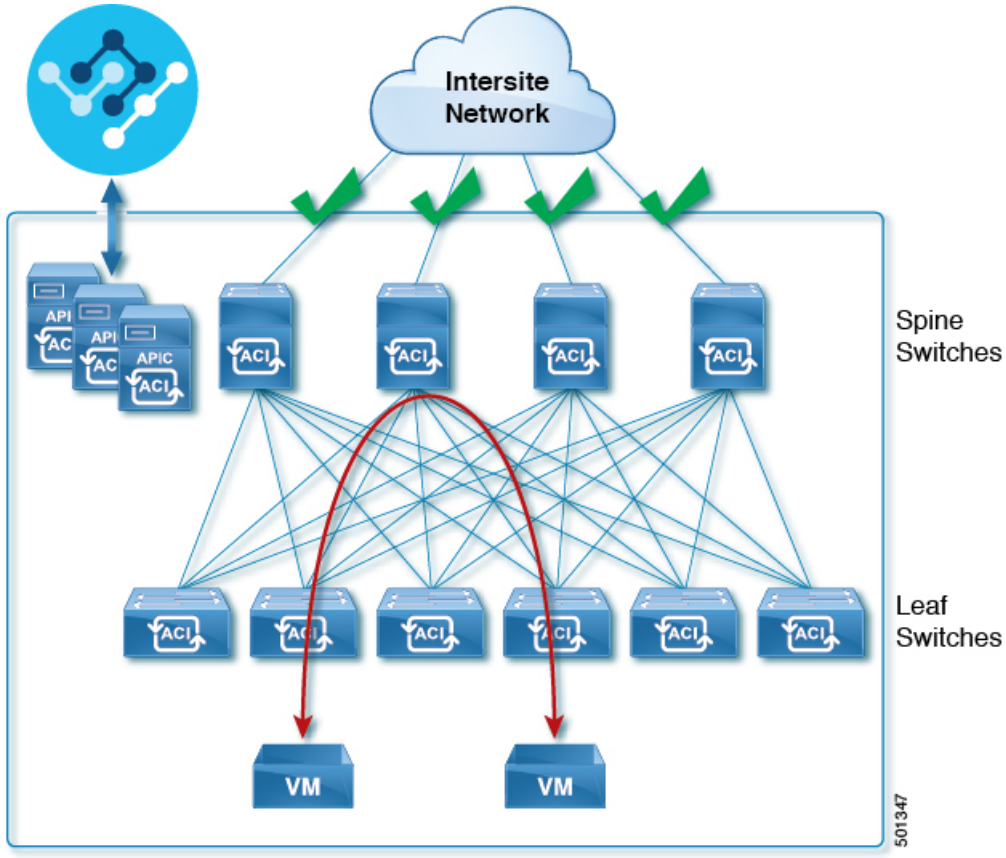
Refer to the ACI-mode Switches Hardware Support Matrix for the complete list of supported spines for each release.

Leaf Switch Requirements

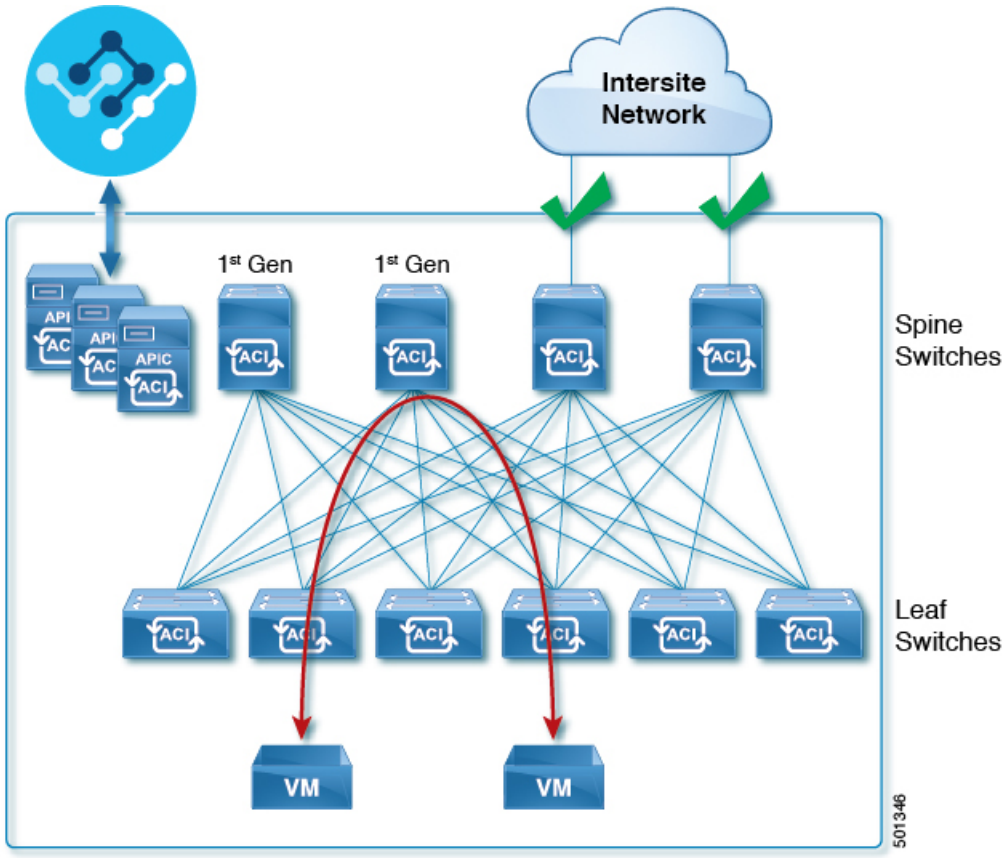
Multi-Site has no dependency on the fabrics' leaf switches and as such supports the same leaf switch models as the Cisco APIC. The full list of supported hardware is available in the ACI-mode Switches Hardware Support Matrix.

IPN Connectivity Across Sites

The following figure shows how spine switches supported with ACI Multi-Site are connected to the intersite network.



You can choose to mix spine switches supported by Multi-Site with switches that are not supported within the same Cisco APIC fabric, but only the supported switches can connect to the intersite network as shown in the following figure.



Hardware Requirements For DCNM Fabrics

Border Gateways Requirements

The following table summarizes the hardware requirements for EVPN Multi-Site Architecture:

- Cisco Nexus 9300 EX platform
- Cisco Nexus 9300 FX platform
- Cisco Nexus 9300 FX2 platform
- Cisco Nexus 9300-GX platform
- Cisco Nexus 9332C platform
- Cisco Nexus 9364C platform
- Cisco Nexus 9500 platform with X9700-EX line card
- Cisco Nexus 9500 platform with X9700-FX line card

The hardware requirements for the site-internal BGP Route Reflector (RR) and VTEP of a VXLAN BGP EVPN site remain the same as those without the EVPN Multi-Site Border Gateways (BGW). This document does not cover the hardware and software requirements for the VXLAN EVPN site-internal network.

Installing Nexus Dashboard Orchestrator Service Using App Store

This section describes how to install Cisco Nexus Dashboard Orchestrator service in an existing Cisco Nexus Dashboard cluster.

Before you begin

- Ensure that you meet the requirements and guidelines described in Prerequisites and Guidelines, on page 2.
- The Cisco DC App Center must be reachable from the Nexus Dashboard via the Management Network directly or using a proxy configuration. Nexus Dashboard proxy configuration is described in the *Nexus Dashboard User Guide*.

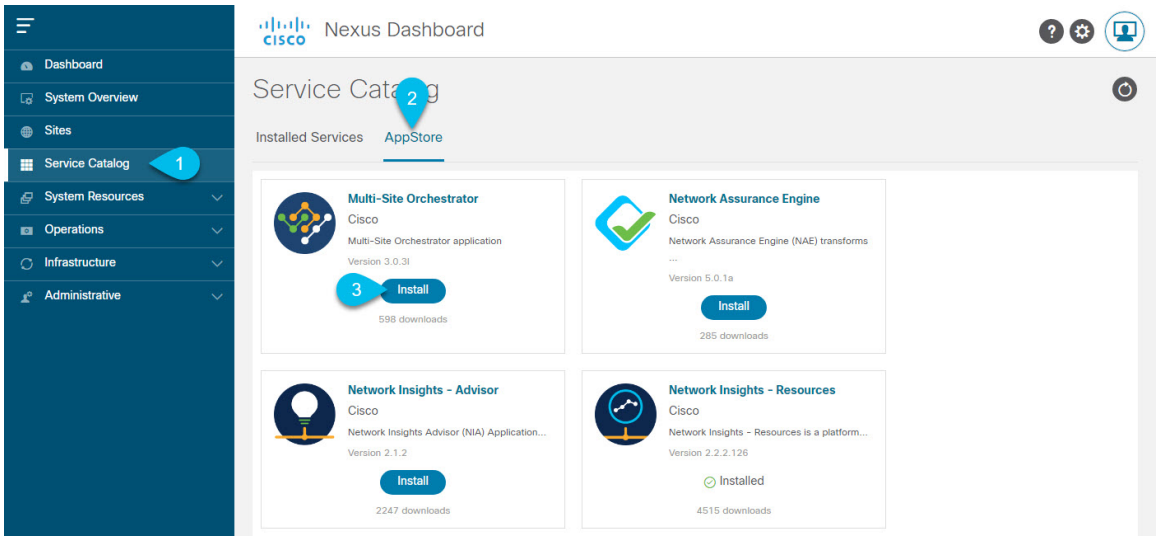
  If you are unable to establish the connection to the DC App Center, skip this section and follow the steps described in Installing Nexus Dashboard Orchestrator Service Manually, on page 7.
- The App Store allows you to install the latest version of the service only.

  If you want to install a version prior to Release 3.3(1), see the *Nexus Dashboard Orchestrator Installation Guide* specific to that release for the available deployment options and procedures.

Procedure

Step 1 Log in to the Nexus Dashboard GUI

Step 2 Navigate to the App Store and choose Nexus Dashboard Orchestrator app.



a) From the left navigation menu, select **Service Catalog**.
b) Select the **App Store** tab.
c) In the Nexus Dashboard Orchestrator tile, click **Install**.

Step 3 In the License Agreement window that opens, click **Agree and Download**.

Step 4 Wait for the application to be downloaded to the Nexus Dashboard and deployed.

It may take up to 30 minutes for the application to replicate to all nodes and all services to fully deploy.

Step 5 Enable the app.

After installation is complete, the application will remain in the `Disabled` state by default and you must enable it.

To enable the app, click the **...** menu on the app and select **Enable**.

Step 6 Launch the app.

To launch the app, simply click **Open** on the application tile in the Nexus Dashboard's **Service Catalog** page.

The single sign-on (SSO) feature allows you to log in to the application using the same credentials as you used for the Nexus Dashboard.

Installing Nexus Dashboard Orchestrator Service Manually

This section describes how to manually upload and install Cisco Nexus Dashboard Orchestrator service in an existing Cisco Nexus Dashboard cluster.

Before you begin

- Ensure that you meet the requirements and guidelines described in Prerequisites and Guidelines, on page 2.

Procedure

Step 1 Download the Cisco Nexus Dashboard Orchestrator service.

If you are deploying in Nexus Dashboard release 2.1.1 or later, we recommend using the new `.nap` image:

a) Browse to the Nexus Dashboard Orchestrator download page:
https://software.cisco.com/download/home/285968390/type/286317465
b) From the left navigation menu, select the 3.5 release.
c) Click the download icon next to the `.nap` image.
d) Click **Agree and download** to accept the license agreement and download the image.

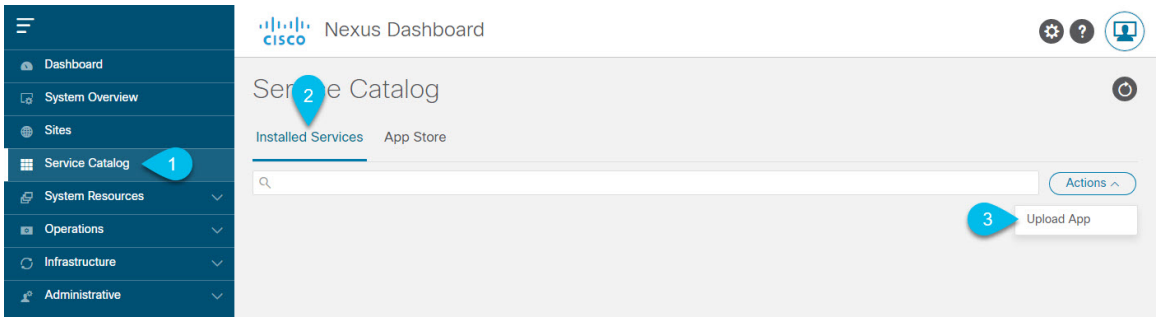
If you are deploying in Nexus Dashboard release 2.0.2h, you must use the older `.aci` image:

a) Browse to the Nexus Dashboard Orchestrator page on DC App Center:
https://dcappcenter.cisco.com/nexus-dashboard-orchestrator.html
b) From the **Version** drop-down, choose the version you want to install and click **Download**.
c) Click **Agree and download** to accept the license agreement and download the image.

Step 2 Log in to your Cisco Nexus Dashboard dashboard.

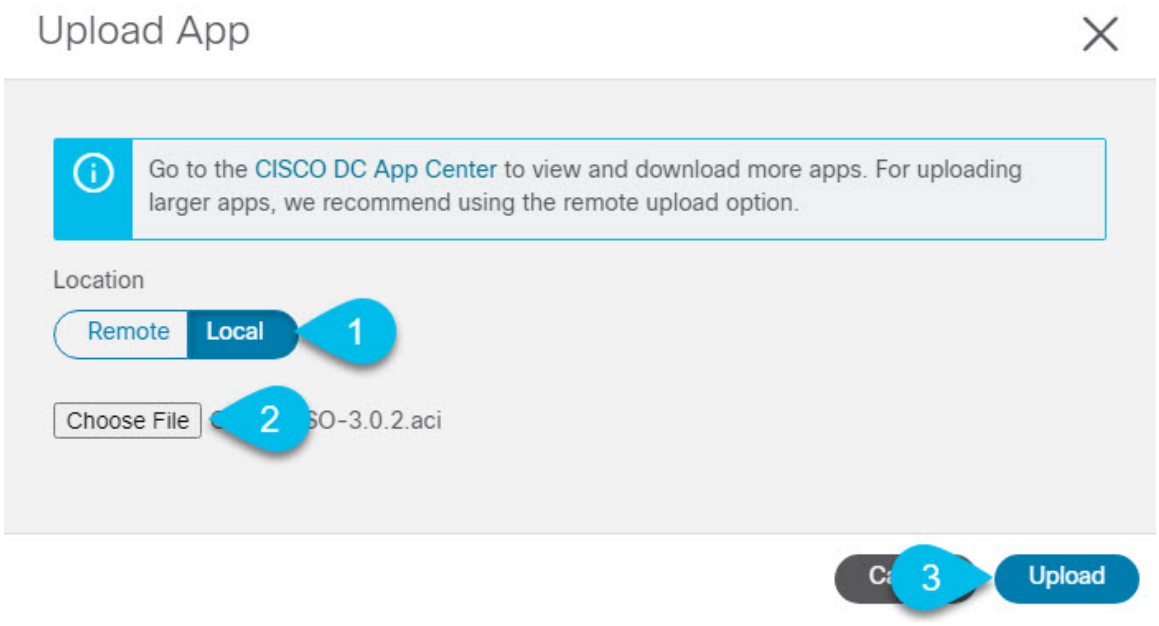
When deploying an app, you need to install it in only one of the Nexus Dashboard nodes, the application will be replicated to the other nodes in the cluster automatically. So you can log in to any one of your Nexus Dashboard nodes using its management IP address.

Step 3 Upload the app image.



a) In the left navigation bar, click **Service Catalog**.
b) Select the **Installed Services** tab.
c) In the top right of the main pane, select **Actions** > **Upload App**.

Step 4 Upload the image file to the Nexus Dashboard cluster.



a) Choose the location of the image.

   If you downloaded the application image to your system, choose **Local**.

   If you are hosting the image on a server, choose **Remote**.

b) Choose the file.

   If you chose **Local** in the previous substep, click **Select File** and select the app image you downloaded.

   If you chose **Remote**, provide the full URL to the image file, for example `http://<ip-address>:<port>/<full-path>/cisco-mso-<version>.aci`.

c) Click **Upload** to add the app to the cluster.

Step 5 Wait for the application to be downloaded to the Nexus Dashboard and deployed.

It may take up to 30 minutes for the application to replicate to all nodes and all services to fully deploy.

Step 6 Enable the app.

After installation is complete, the application will remain in the `Disabled` state by default and you must enable it.

To enable the app, click the **...** menu on the app and select **Enable**.

Step 7 Launch the app.

To launch the app, simply click **Open** on the application tile in the Nexus Dashboard's **Service Catalog** page.

The single sign-on (SSO) feature allows you to log in to the application using the same credentials as you used for the Nexus Dashboard.