

Deploying Nexus Dashboard Orchestrator

- Deployment Overview, on page 1
- Prerequisites and Guidelines, on page 2
- Installing Nexus Dashboard Orchestrator Service Using App Store, on page 6
- Installing Nexus Dashboard Orchestrator Service Manually, on page 7

Deployment Overview

Cisco Nexus Dashboard Orchestrator (NDO) must be deployed as a service in Cisco Nexus Dashboard.

Cisco Nexus Dashboard is a central management console for multiple data center sites and a common platform for hosting Cisco data center operation services, such as Nexus Dashboard Insights and Nexus Dashboard Orchestrator. These services are available for all the data center sites and provide real time analytics, visibility, assurance for network policies and operations, as well as policy orchestration for the data center fabrics, such as Cisco ACI or Cisco NDFC.

Nexus Dashboard provides a common platform and modern technology stack for the above-mentioned micro-services-based applications, simplifying the life cycle management of the different modern applications and reducing the operational overhead to run and maintain these applications. It also provides a central integration point for external 3rd party applications with the locally hosted applications.

Each Nexus Dashboard cluster typically consists of 1 or 3 `master` nodes. For 3-node clusters, you can also provision a number of `worker` nodes to enable horizontal scaling and `standby` nodes for easy cluster recovery in case of a master node failure. For maximum number of `worker` and `standby` nodes supported in this release, see the "Verified Scalability Limits" sections of the *Cisco Nexus Dashboard Release Notes*.

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 4.1(2) and later **Note** We do not recommend deploying releases prior to 4.1(2).	Cisco Nexus Dashboard, Release 2.2(2) or later

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.

Note The two interfaces must 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 services running in the same Nexus Dashboard cluster may have lower RTT requirements and you must always use the lowest RTT requirement when deploying multiple services in the same Nexus Dashboard cluster. We recommend consulting the *Cisco Nexus Dashboard Deployment Guide* for more information.

When Nexus Dashboard Orchestrator service 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 NDFC • 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 and Services Cohosting

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 services 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 services in the same cluster.

Network Time Protocol (NTP) and Domain Name System (DNS)

The Nexus Dashboard nodes require valid DNS and NTP servers for all deployments and upgrades.

Lack of valid DNS connectivity (such as if using an unreachable or a placeholder IP address) can prevent the system from deploying or upgrading successfully.

Note Nexus Dashboard acts as both a DNS client and resolver. It uses an internal Core DNS server which acts as DNS resolver for internal services. It also acts as a DNS client to reach external hosts within the intranet or the Internet, hence it requires an external DNS server to be configured.

Additionally, Nexus Dashboard does not support DNS servers with wildcard records.

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 Nexus Dashboard 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).

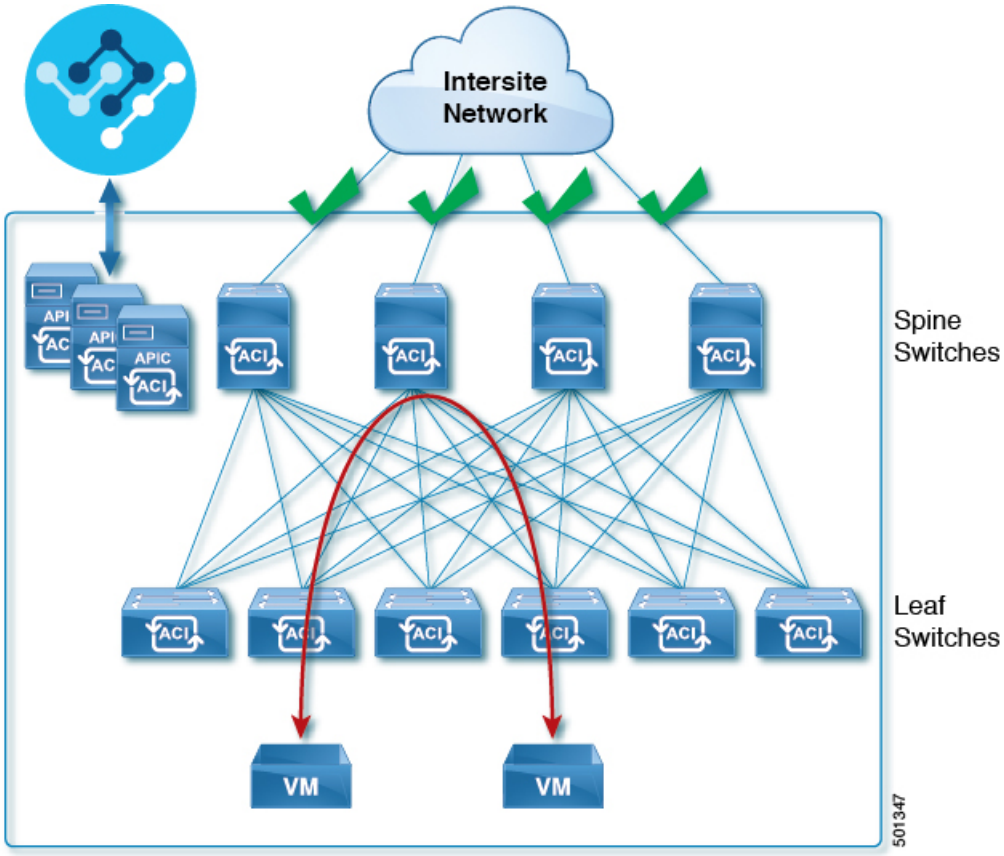
Refer to the ACI-mode Switches Hardware Support Matrix for the complete list of supported spines for each release.

Leaf Switch Requirements

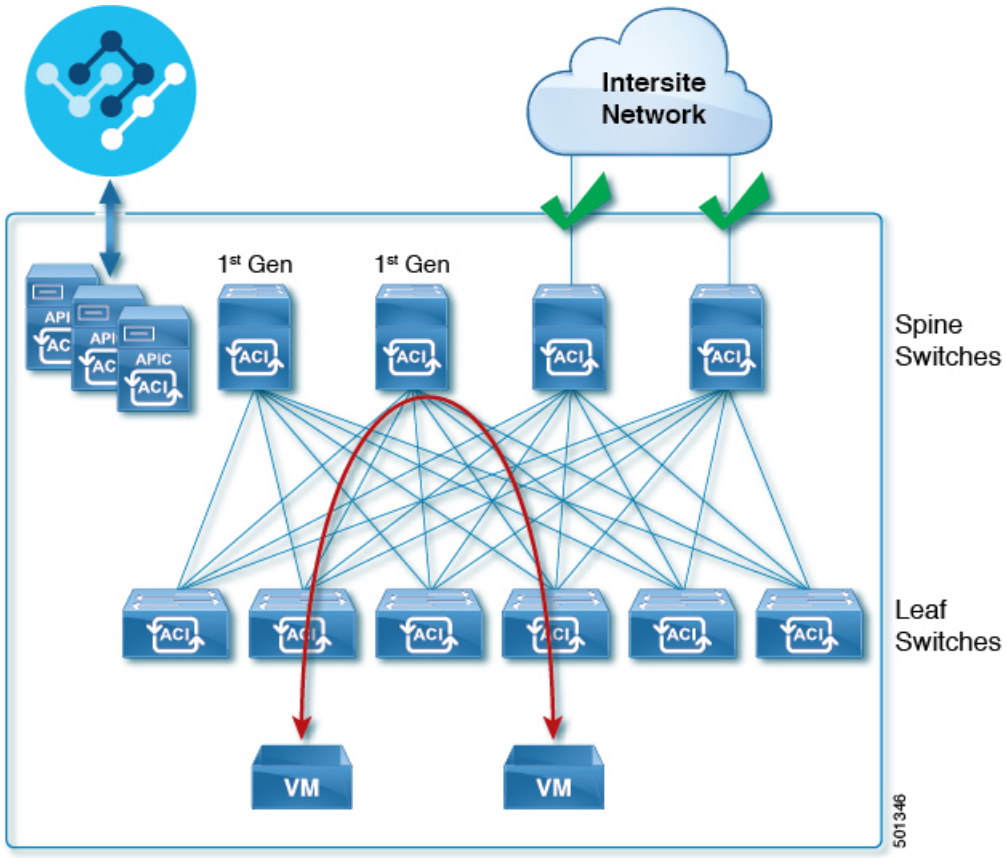
Multi-Site has no dependency on the fabrics' leaf switches and as such supports the same leaf switch models as the Cisco APIC. The full list of supported hardware is available in the ACI-mode Switches Hardware Support Matrix.

IPN Connectivity Across Sites

The following figure shows how spine switches supported with 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 NDFC 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.

  f you want to install a version that's different from the one in the App Store, you must follow the steps in Installing Nexus Dashboard Orchestrator Service Manually, on page 7 instead.

Procedure

Step 1 Log in to your Nexus Dashboard GUI.

When deploying a service, you need to install it in only one of the Nexus Dashboard nodes, the service 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 2 From the dropdown in the top navigation menu, select **Admin Console**.

You must have `admin` privileges to deploy services.

Step 3 Navigate to the App Store and choose Nexus Dashboard Orchestrator app.

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

Step 4 In the License Agreement window that opens, click **Agree and Download**.

Step 5 Wait for the service to be downloaded to your Nexus Dashboard and installed.

Step 6 Enable and launch the app.

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

a) In the **Services** page, select the **Installed Services** tab.
b) In the **Nexus Dashboard Orchestrator** tile, click **Enable**.

Once the service is enabled, the **Enable** button will change to **Open**.

c) In the **Nexus Dashboard Orchestrator** tile, click **Open**.

The single sign-on (SSO) feature allows you to log in to the service 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.

a) Browse to the Nexus Dashboard Orchestrator page on DC App Center:
https://dcappcenter.cisco.com/nexus-dashboard-orchestrator.html

b) From the **Version** dropdown, 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 Nexus Dashboard GUI.

When deploying a service, you need to install it in only one of the Nexus Dashboard nodes, the service 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 From the dropdown in the top navigation menu, select **Admin Console**.

You must have `admin` privileges to deploy services.

Step 4 Manually upload the image.

a) From the left navigation menu, select **Services**.

b) Select the **Installed Services** tab.

c) In the top right of the main pane, select **Actions** > **Upload Service**.

d) Choose the location of the image.

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

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

e) Choose the image file.

If you chose **Local** in the previous substep, click **Select File** and locate the 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>.nap`.

f) Click **Upload** to add the service to the cluster.

Step 5 Wait for the service to be downloaded to your Nexus Dashboard and installed.

Step 6 Enable and launch the app.

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

a) In the **Services** page, select the **Installed Services** tab.

b) In the **Nexus Dashboard Orchestrator** tile, click **Enable**.

Once the service is enabled, the **Enable** button will change to **Open**.

c) In the **Nexus Dashboard Orchestrator** tile, click **Open**.

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