Cisco Nexus Dashboard Fabric Controller Release Notes

Release 12.1.1e

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Note: Cisco Data Center Network Manager (DCNM) is renamed as Cisco Nexus Dashboard Fabric Controller (NDFC) from Release 12.0.1a.

Note: The documentation set for this product strives to use bias-free language. For this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation or language that is used by a referenced third-party product.

Overview

Cisco Nexus Dashboard Fabric Controller is the comprehensive management solution for all NX-OS deployments spanning LAN Fabric, SAN, and IP Fabric for Media (IPFM) networks in data centers powered by Cisco. Cisco Nexus Dashboard Fabric Controller also supports other devices, such as IOS-XE switches, IOS-XR routers, and non-Cisco devices. Being a multi-fabric controller, Cisco Nexus Dashboard Fabric Controller manages multiple deployment models like VXLAN EVPN, Classic 3-Tier, FabricPath, and Routed based fabrics for LAN while providing ready-to-use control, management, monitoring, and automation capabilities for all these environments. In addition, Cisco NDFC when enabled as a SAN Controller automates Cisco MDS Switches and Cisco Nexus Family infrastructure in NX-OS mode with a focus on storage-specific features and analytics capabilities.

This document describes the features, bugs, and limitations for the Cisco Nexus Dashboard Fabric Controller software. For more information about this product, see Related Content.

Nexus Dashboard Fabric Controller primarily focuses on Control and Management for three primary market segments:

- LAN networking including VXLAN, Multi-Site, Classic Ethernet, and External Fabrics supporting Cisco Nexus switches running standalone NX-OS, with additional support for IOS-XR, IOS-XE, and adjacent Host, Compute, Virtual Machine, and Container Management systems.
- SAN networking for Cisco MDS and Cisco Nexus switches running standalone NX-OS, including support for integration with storage arrays and additionally Host, Compute, Virtual Machine, and Container Orchestration systems.
- Media Control for Multicast Video production networks running Cisco Nexus switches operated as standalone NX-OS, with additional integrations for 3rd party media control systems.

Previously, DCNM was an application server running on a VM deployed via OVA or ISO, a physical appliance deployed via ISO, or software installed on a qualified Windows or Linux machine. Cisco Nexus Dashboard Fabric Controller, Release 12 is available as an application running exclusively on top of the Cisco Nexus Dashboard Virtual or Physical Appliance.

Virtual Nexus Dashboard deployment with OVA is also referred to as virtual Nexus Dashboard (vND) deployment, while the deployment of Nexus Dashboard on physical appliance (Service Engine) is known as physical Nexus Dashboard (pND) deployment. To deploy Nexus Dashboard based on your requirement, refer to Cisco Nexus Dashboard Deployment Guide.

Beginning with Release 12, Cisco Nexus Dashboard Fabric Controller has a single installation mode. Post-installation, it supports selection from multiple personas at run-time. After the Nexus Dashboard Fabric Controller Release 12.1.1e is installed, you can choose from one of the following personas:

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- **Fabric Discovery**—Discover, Monitor, and Visualize LAN Deployments.
- **Fabric Controller**—LAN Controller for Classic Ethernet (vPC), Routed, VXLAN, Multi-Site, and IP Fabric for Media Deployments.
- **SAN Controller**—SAN Controller for MDS and Nexus switches. Includes SAN Insights with streaming telemetry.

All features/services are modularized, broken into smaller microservices, and the required microservices are orchestrated based on the feature set or feature selections. Therefore, if any feature or microservice is down, only that microservice is restarted and recovered, resulting in minimal disruption.

In contrast to the previous DCNM Active-Standby HA model, Cisco NDFC introduces Active-Active HA deployment model utilizing all three nodes in a cluster for deploying microservices. This has significant improvement in both latency and effective resource utilization.

Note: For NDFC to run on top of the virtual Nexus Dashboard (vND) instance, you must enable promiscuous mode on port groups that are associated with Nexus Dashboard interfaces where External Service IP addresses are specified. vND comprises of Nexus Dashboard management interface and data interface. By default, for LAN deployments, 2 external service IP addresses are required for the Nexus Dashboard management interface subnet. Therefore, you must enable promiscuous mode for the associated port-group. If inband management or Endpoint Locator (EPL) is enabled, you must specify External Service IP addresses in the Nexus Dashboard data interface subnet. You must also enable the promiscuous mode for the Nexus Dashboard data/fabric interface port-group. For NDFC SAN Controller, promiscuous mode must be enabled only on the Nexus Dashboard data interface associated port-group. For more information, refer to Cisco Nexus Dashboard Fabric Controller Deployment Guide.

For more information, see Cisco Nexus Dashboard Fabric Controller (Formerly DCNM).

Change History

Date	Description
08 June 2022	Release 12.1.1e became available.

Deployment Options

The following deployment options are available for Cisco Nexus Dashboard Fabric Controller:

- NDFC on Single node (non-HA Cluster)

  On Single node Nexus Dashboard, you can deploy NDFC with the following personas:

  - Fabric Discovery for lab/non-production environments (<= 25 switches)
  - Fabric Controller for lab/non-production environments (<= 25 switches)
  - Fabric Controller in IP Fabric for Media controller mode for production environments
  - SAN Controller for production environments (<= 80 switches)

Note: Fabric Controller/Fabric Discovery deployment is for Lab purposes only. Do not deploy this in your production environment.

- NDFC on a 3-node Cluster (Active-Active HA mode)

  On 3-Node Nexus Dashboard, you can deploy NDFC with the following personas:

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    - Fabric Discovery
    - Fabric Controller
    - SAN Controller with or without SAN Insights
- NDFC on a 5-node virtual Nexus Dashboard (vND) Cluster (Active-Active HA mode)

  On 5-Node Nexus Dashboard, you can deploy NDFC with the following personas:

    - Fabric Discovery
    - Fabric Controller
- NDFC on a 3-node/4-node/5-node physical Nexus Dashboard (pND) Cluster (Active-Active HA mode)

  On a 4-node or 5-node Nexus Dashboard, you can deploy Nexus Dashboard Insights (NDI) along with NDFC with the following personas:

    - NDI and NDFC in Fabric Discovery persona (NDFC-Monitored mode) – 4 pND nodes
    - NDI and NDFC in Fabric Controller persona (NDFC-Managed mode) – 5 pND nodes
- NDFC on a Nexus Dashboard running on top of Red Hat Enterprise Linux (RHEL)

  From Release 12.1.1e, on a 1-node or 3-node Nexus Dashboard on the RHEL server, you can deploy NDFC with the following personas:

    - SAN Controller with or without SAN Insights
- NDFC on a virtual Nexus Dashboard (vND) with KVM hypervisor

  Supports Fabric Controller, Fabric Discovery, and SAN Controller personas.

Refer to Nexus Dashboard Capacity Planning to determine the number of switches supported for each deployment.

In the 3-node and 5-node deployment, there are 3 Nexus Dashboard master nodes. In the 5-node deployment, the additional 2 nodes serve as worker nodes. The 3-node or 5-node cluster deployment is an active-active solution, that is, all nodes are utilized to run micro-services of Nexus Dashboard Fabric Controller. When a node fails, microservices running on the node, are moved to the other nodes. Nexus Dashboard Fabric Controller functions normally in a one-node failure scenario. However, it is expected that there will be a brief disruption to services that must be migrated on node failure. After the migration of services is complete, the supported scale will continue to be supported albeit at degraded performance. To restore optimal NDFC performance, a system running with one failed node is not the desired situation and must be rectified at the earliest. A 3-node or 5-node cluster cannot tolerate the failure of two Master nodes or all NDFC services will be disrupted.

For virtual Nexus Dashboard (vND) OVA deployments on ESXi environments, it is imperative that promiscuous mode is enabled on the port groups that are associated with Nexus Dashboard management and Nexus Dashboard data/fabric interfaces. Otherwise, some of the functionality such as SNMP trap, Image management, Endpoint Locator, SAN Insights, and so on, will not work.

Note that promiscuous mode settings are not required for the port group associated with the Data interface for Layer-3 adjacent network.

Note: Nexus Dashboard cluster federation is not supported with Nexus Dashboard Fabric Controller.

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Cohosting of NDFC-Managed mode with Nexus Dashboard Insights

From Release 12.1.1e, you can host NDFC and Nexus Dashboard Insights on the same Nexus Dashboard Cluster in Managed mode to manage fabrics and Nexus Dashboard Insights to monitor the same fabrics. Note that NDFC in Fabric discovery mode, that is, monitored mode with NDI on the same Nexus Dashboard cluster is supported with NDFC Release 12.0.2f. This required 4 physical Nexus Dashboard nodes for a maximum scale of up to 50 switches. This functionality is also supported on NDFC Release 12.1.1e with the corresponding paired Nexus Dashboard Insights release.

Note: Nexus Dashboard deployed on KVM doesn't support cohosting NDFC and Insights service on the same Nexus Dashboard cluster.

Note: For cohosting NDFC and Insights on the same Nexus Dashboard cluster, the Nexus Dashboard nodes must be Layer 2 adjacent. Support for Layer 3 adjacency for cohosted deployments will be introduced in future releases.

The following table shows the compatible versions for Nexus Dashboard and services.

Services	Compatible Version
Nexus Dashboard	2.2.1h
Nexus Dashboard Insights	6.1.2
Nexus Dashboard Fabric Controller	12.1.1e

The following table shows the system requirements for Nexus Dashboard.

Specification	Supported Scale
Number of physical Nexus Dashboard nodes	5
Number of switches supported	50
Number of flows supported in Nexus Dashboard Insights	10000

For more information, refer to Cisco Nexus Dashboard Fabric Controller Installation and Upgrade Guide, Release 12.1.1e.

Deployment Profile Simplification

Nexus Dashboard deployment profile simplification is intended to help streamline the onboarding of services against a given deployment scale and relieve the task of remembering the cross-connect of deployments.

Beginning with Cisco Nexus Dashboard Release 2.2.1h, resource profile selection has been reduced to several more intuitive parameters directly related to your deployment use case. These parameters, such as number of switches or flows describe the fabric size and use case intent, and allow the cluster to intelligently determine the resources needed for the service. The parameters are categorized as **Network Scale**.

NDFC selects an appropriate profile from among the predefined set of profiles to match the scale.

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Note: You must restart the services on the Nexus Dashboard after modifying the network scale parameters.

To view or modify the Network Scale parameters on Cisco Nexus Dashboard, perform the following steps:

1. Choose **Nexus Dashboard > Cluster Configuration > Network Scale**.
2. Click the edit icon to modify the network scale parameters.
3. In the **Number of Sites** field, provide the target number of sites for your deployment that this Nexus Dashboard cluster manages.
4. In the **Number of Switches** field, provide the target number of switch nodes for your deployment.
5. In the **Flows per second** field, provide the target number of flows for LAN/IPFM/SAN-Insights deployments or scale that is supported by NDFC and Nexus Dashboard Insights cohosted setup.

The deployment profiles in NDFC Release 12.1.1e use a different naming convention for these deployment profiles which is more in line with the scale numbers that each profile supports.

On the fresh install of Nexus Dashboard, the “Network Scale” is empty. We recommend that you define the number of sites, switches, and flows per second in the Network Scale. In such a scenario, the service selects a default profile based on the number of cluster nodes.

If the available cluster compute capacity is less than the desired Network Scale, Cisco NDFC installation displays an error. You must resolve the network scale values on Nexus Dashboard and proceed to install NDFC. Note that the recommendations specified in the error message provide useful suggestions about remedial action.

Nexus Dashboard assigns profile names for supported scale values with NDFC Release 12.1.1e. For validated scale numbers, refer to Cisco NDFC Verified Scalability, Release 12.1.1e.

When you upgrade to NDFC 12.1.1e, the individual containers are restarted and the newly spawned 12.1.1e containers start with new resource requests and limit values.

Layer-3 Reachability between Cluster Nodes

From Release 12.1.1e, NDFC can be deployed as a service on Nexus Dashboard with Layer 3 adjacent nodes. A sample NDFC Layer3 adjacent Physical Connectivity topology is shown in the following image.

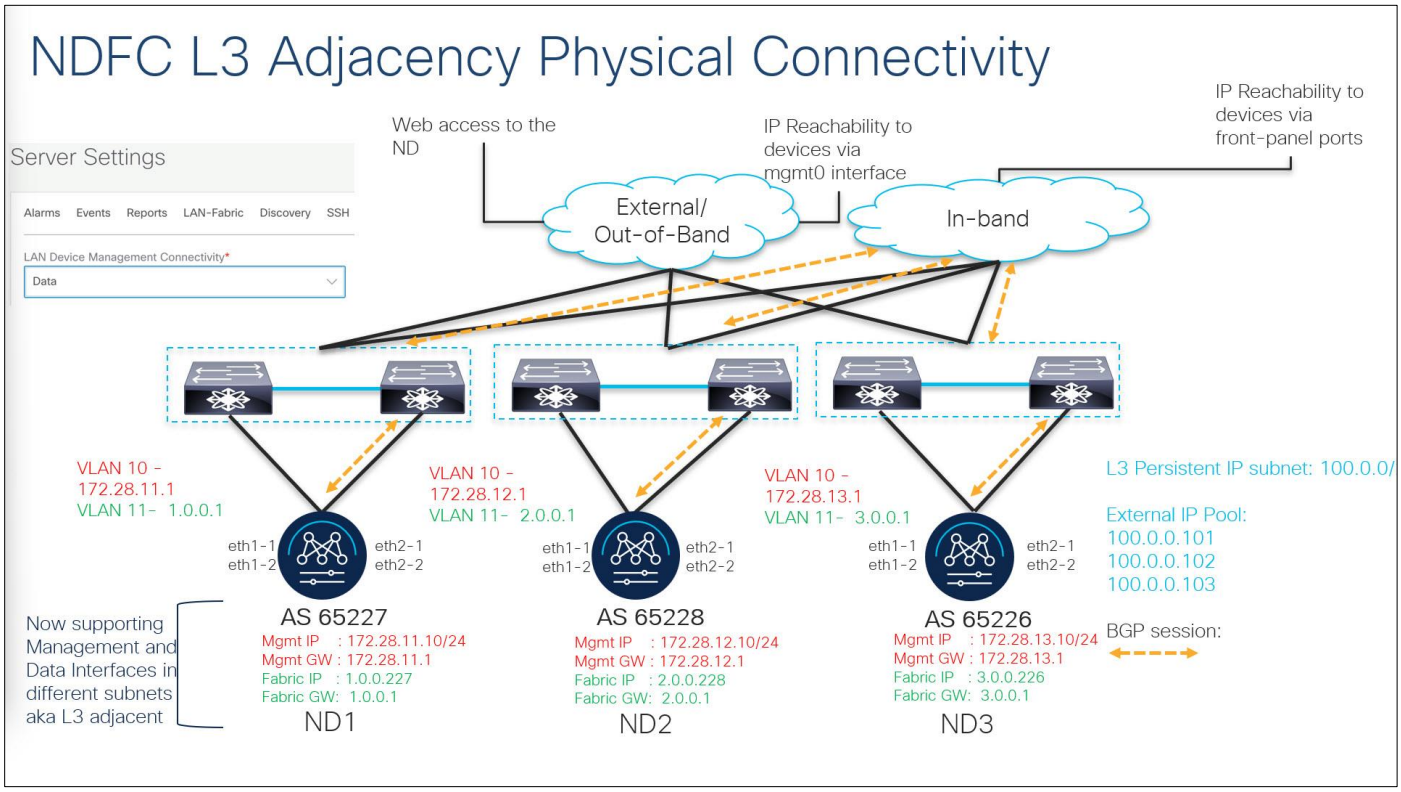
When using Layer 3 adjacency between the Nexus Dashboard nodes on which the NDFC service is running, the persistent IP addresses are advertised using the Nexus Dashboard Data or Fabric interface. The Layer 3 Persistent IP subnet pool must be unique and will be advertised to the fabric using BGP on Nexus Dashboard. Cisco NDFC container pods, such as EPL/SNMP Trap/SCP that requires Persistent IPs, are advertised as /32 BGP entries with the next hop of Nexus Dashboard Data Interface. Also, the BGP session between the Nexus Dashboard node and the uplink switches must be configured using directly connected links.

To deploy Layer 3 cluster connectivity, Nexus Dashboard nodes use BGP local and remote autonomous system configuration, along with Data Network gateway of the node to establish eBGP sessions with neighboring routers over the Data interface. As Nexus Dashboard nodes use gateway IPs to establish sessions, the neighboring BGP peers must be Layer 2 adjacent. Peers without Layer 2 adjacent connectivity are not supported. You must configure the BGP network correctly to ensure that the Nexus Dashboard routes are transmitted correctly.

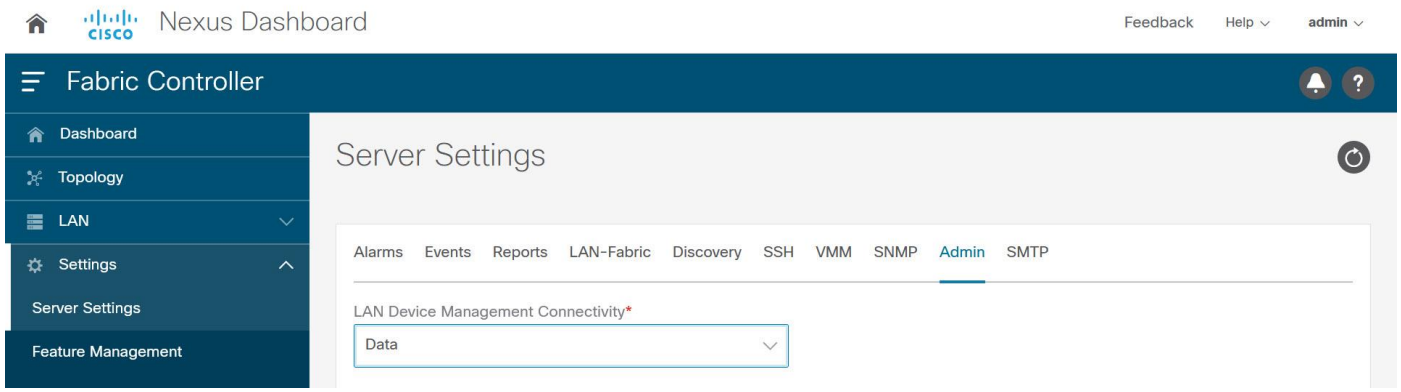
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Nexus Dashboard uses BGP session to publish /32 routes for reaching NDFC features using external IPs obtained from the Persistent IP subnet. If a node or network fails, the external IPs are not reachable until recovery is complete (if the network can recover itself).



Upgrade or modification from an existing Layer-2 adjacent Nexus Dashboard cluster to a Layer-3 adjacent cluster is not supported. When using Layer 3 adjacency, NDFC service is supported only when the switch connectivity is through the Nexus Dashboard Data interface. Choose NDFC **UI > Settings > Admin** tab. From the **LAN Device Management Connectivity** drop-down list, select **Data**.



The following table provides information about different scenarios about Layer 3 adjacent cluster nodes connectivity.

Network details	Support provided
Modify or upgrade from Layer 2 adjacency to Layer 3 adjacency	Not supported; redeploy cluster if necessary

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Network details	Support provided
Modify or upgrade from Layer 3 adjacency to Layer 2 adjacency	Not supported; redeploy cluster if necessary
NDFC to Switch connectivity over the Management interface	Supported (The traffic initiated by the switch to NDFC is routed via the Data Interface)
NDFC to Switch connectivity over Data interface	Supported
Nexus Dashboard BGP traffic over Nexus Dashboard Management interface	Not supported
Nexus Dashboard BGP traffic over Nexus Dashboard Data interface	Supported
Nexus Dashboard BGP peer L2-Adjacent	Supported
Nexus Dashboard BGP peer L3-Adjacent	Not supported

Refer to Cisco Nexus Dashboard User Guide, Release 2.2.x for more information.

System Requirements

This chapter lists the tested and supported hardware and software specifications for Cisco Nexus Dashboard Fabric Controller architecture. The application is in English locales only.

The following sections describe the various system requirements for the proper functioning of your Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Note: We recommend that you do not upgrade any underlying third-party software separately. All the necessary software components will be updated during the inline upgrade procedure. Upgrading the components outside of the Nexus Dashboard Fabric Controller causes functionality issues.

Cisco Nexus Dashboard Version Compatibility

Cisco Nexus Dashboard Fabric Controller (NDFC) requires Nexus Dashboard version 2.2(1g) or higher. If you try to upload NDFC 12.1.1e on a Nexus Dashboard version earlier than 2.2(1g), you will not be allowed to upload the application. To download the correct version of Nexus Dashboard, visit Software Download - Nexus Dashboard.

Nexus Dashboard Server Resource (CPU/Memory) Requirements

The following table provides information about Server Resource (CPU/Memory) Requirements to run NDFC on top of Nexus Dashboard. Refer to Nexus Dashboard Capacity Planning to determine the number of switches supported for each deployment.

Management Interface	Node Type	CPUs	Memory	Storage (Throughput: 40-50MB/s)
Fabric Discovery	Virtual Node (vND) - app OVA	16vCPUs	64GB	550GB SSD

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Management Interface	Node Type	CPUs	Memory	Storage (Throughput: 40-50MB/s)
	Physical Node (pND) (PID: SE-NODE-G2)	2x 10-core 2.2G Intel Xeon Silver CPU	256 GB of RAM	4x 2.4TB HDDs 400GB SSD 1.2TB NVME drive
Fabric Controller	Virtual Node (vND) – app OVA	16vCPUs	64GB	550GB SSD
	Physical Node (pND) (PID: SE-NODE-G2)	2x 10-core 2.2G Intel Xeon Silver CPU	256 GB of RAM	4x 2.4TB HDDs 400GB SSD 1.2TB NVME drive
SAN Controller	Virtual Node (vND) – app OVA (without SAN Insights)	16vCPUs with physical reservation	64GB with physical reservation	550GB SSD
	Data Node (vND) – Data OVA (with SAN Insights)	32vCPUs with physical reservation	128GB with physical reservation	3TB SSD
	Physical Node (pND) (PID: SE-NODE-G2)	2x 10-core 2.2G Intel Xeon Silver CPU	256 GB of RAM	4x 2.4TB HDDs 400GB SSD 1.2TB NVME drive

Nexus Dashboard Networks

When first configuring Nexus Dashboard, on every node, you must 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 typically used for the nodes' clustering and north-south connectivity to the physical network. The management network typically connects to the Cisco Nexus Dashboard Web UI, CLI, or API.

For enabling the Nexus Dashboard Fabric Controller, the Management and Data Interfaces on a Nexus Dashboard node must be in different subnets. Different nodes that belong to the same Nexus Dashboard cluster can either be Layer-2 adjacent or Layer-3 adjacent. Refer to Layer-3 Reachability between Cluster Nodes for more information.

Connectivity between the Nexus Dashboard nodes is required on both networks with the round trip time (RTT) not exceeding 50ms. Other applications running on 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. Refer to the Cisco Nexus Dashboard Deployment Guide for more information.

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The following table provides information about network requirements for NDFC on Nexus Dashboard.

Management Interface	Data Interface	Persistent IPs
Layer 2 adjacent	Layer 2 adjacent	One of the following for LAN: • If using default LAN Device Management Connectivity (set to Management): ◦ 2 IPs in management network for SNMP/Syslog and SCP services ◦ Plus one IP per fabric for EPL (if enabled) in data network ◦ Plus one IP for Telemetry receiver in management network if IP Fabric for Media is enabled • If LAN Device Management Connectivity is set to Data: ◦ 2 IPs in data network for SNMP/Syslog and SCP services ◦ Plus one IP per fabric for EPL (if enabled) in data network ◦ Plus one IP for Telemetry receiver in data network if IP Fabric for Media is enabled For SAN: • 2 IPs in data network for SNMP/Syslog and SCP services • Plus one IP per Nexus Dashboard node in data network if SAN Insights receivers is enabled
Layer 3 adjacent	Layer 3 adjacent	For LAN: • LAN Device Management Connectivity on NDFC must be set to Data • 2 IPs for SNMP/Syslog and SCP/POAP services • Plus one IP per fabric for EPL These IPs must be part of a subnet that is different from Nexus Dashboard management and Nexus Dashboard data subnets associated with any of Nexus Dashboard nodes. These IPs must belong to the Layer-3 External Persistent Service Pool. **Note:** SAN Controller and IP Fabric for Media modes are not supported in this deployment.

Virtual Nexus Dashboard (vND) Prerequisites

For virtual Nexus Dashboard deployments, each vND node has 2 interfaces or vNICs. The Data vNIC maps to bond0 (also known as bond0br) interface and Management vNIC maps to bond1 (also known as bond1br) interface. The requirement is to enable/accept promiscuous mode on the port groups that are associated with the Nexus Dashboard Management and/or Data vNICs where IP stickiness is required. The Persistent IP addresses are given to the pods (for example, SNMP Trap or Syslog receiver, Endpoint Locator instance per Fabric, SAN Insights receiver, and so on). Every pod in Kubernetes can have multiple virtual interfaces. Specifically for IP stickiness, an extra virtual interface is associated with the pod that is allocated an appropriate free IP from the external service IP pool. The vNIC has its own unique MAC address that is different from the MAC addresses associated with the vND virtual vNICs. Moreover, all

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North-to-South communication to and from these pods go out of the same bond interface. By default, the VMware ESXi systems check if the traffic flows out of a particular VM vNIC that matches the Source-MAC that is associated with that vNIC. If NDFC pods with an external service IP, the traffic flows are sourced with the Persistent IP addresses of the given pods that map to the individual pod MAC associated with the virtual pod interface. Therefore, enable the required settings on the VMware side to allow this traffic to flow seamlessly in and out of the vND node.

When vND nodes are deployed with the new Layer-3 HA feature, you need not enable Promiscuous mode on the vND vNIC interfaces. Promiscuous mode is required only for vND deployments when the vNDs are layer-2 adjacent from each other.

For more information, refer to Cisco Nexus Dashboard Deployment Guide.

Supported Latency

As Cisco Nexus Dashboard Fabric Controller is deployed atop Cisco Nexus Dashboard, the latency factor depends on Cisco Nexus Dashboard. See Cisco Nexus Dashboard Deployment Guide for information about latency.

Supported Web Browsers

Cisco Nexus Dashboard Fabric Controller is supported on the following web browsers:

- Google Chrome version 101.0.4951.64
- Microsoft Edge version 101.0.1210.47 (64 bit)
- Mozilla Firefox version 100.0.1 (64 bit)

Other Supported Software

The following table lists the other software that is supported by Cisco Nexus Dashboard Fabric Controller Release 12.1.1e.

Component	Features
Security	• ACS versions 4.0, 5.1, 5.5, and 5.8 • ISE version 2.6 • ISE version 3.0 • Telnet Disabled: SSH Version 1, SSH Version 2, Global Enforce SNMP Privacy Encryption. • Web Client: HTTPS with TLS 1, 1.1, 1.2, and 1.3

New Software Features

The following sections include information about the new features, enhancements, and hardware support introduced in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

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Common Enhancements to all Personas

The following features are new in Cisco NDFC Release 12.1.1e for all personas in Cisco Nexus Dashboard Fabric Controller.

Features	Description
Support NDFC with Nexus Dashboard on KVM	NDFC can be installed on virtual Nexus Dashboard cluster running on top of KVM hypervisor. This is supported for Fabric Controller, Fabric Discovery and SAN Controller modes. For more information about deploying a cluster, see Cisco Nexus Dashboard Deployment Guide.

Fabric Controller Enhancements

The following features are new in Cisco NDFC Release 12.1.1e for the Fabric Controller.

Feature	Description
Layer-2 ToR visibility and management in Easy fabric	This feature enables onboarding and integrated automation of Layer-2 Top-of-Rack (ToR) switches as fabric devices attached to leaf switches in VXLAN EVPN based Easy Fabric deployments. This allows for a single configuration point for deploying and extending overlay networks for VXLAN EVPN fabrics.
NDFC HA with Layer-3 reachability between cluster nodes	Nexus Dashboard cluster nodes support NDFC with Layer 3 connectivity between Nexus Dashboard nodes.
Inband management and Inband POAP for Easy and External fabrics	NDFC Release 12.1.1e supports inband management for devices that are part of VXLAN EVPN based Easy fabrics. In addition, for touch-less Day-0 device bring up, Inband Power-On Auto Provisioning also known as POAP functionality is introduced. Inband POAP is supported for both point-to-point (p2p) and IP un-numbered scenarios with a choice to use the internal pre-packaged DHCP server or an external DHCP server. Inband POAP is also supported for External and Classic LAN fabrics.
Cohosting NDFC-Managed mode with Nexus Dashboard Insights	Nexus Dashboard Fabric Controller and Insights services can be installed in the same physical Nexus Dashboard cluster. This is supported for both Fabric Discovery and Fabric Controller personas.
Routed fabrics with IPv6 underlay	eBGP Routed fabrics with **Easy_Fabric_eBGP** template supports super spines and IPv6 underlay. This allows eBGP-based routed fabrics to carry both IPv4 and IPv6 traffic over an IPv6 underlay.
Interface Group Support for Border Devices	The interface groups capability for overlay network provisioning is extended to also support Border devices.
Swap Serial Number for pre-provisioned devices	NDFC Release 12.1.1e allows users to provide dummy values for the serial numbers associated with pre-provisioned switches. Subsequently, when the real device serial number is known, the swap serial number workflow allows a serial number swap to the real device serial number while retaining all the user-defined device configurations.
Pre-provisioning of sub-interfaces	NDFC allows sub-interface configuration on pre-provisioned switches. This is especially useful for VRF-Lite configuration on pre-provisioned border devices. You can provide dummy values for the Serial number after configuration and the appropriate serial number can be updated.
IPv6 support in VXLAN OAM	NDFC VXLAN OAM IPv4 capabilities are enhanced to also support IPv6 underlay and IPv6 overlay deployments.

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Feature	Description
Image Management Groups	NDFC allows you to select groups of switches to perform bulk upgrades. This provides the capability to set or unset an upgrade group designation per switch.
Support for IOS-XR based Cisco 8000 platforms	NDFC supports managing or monitoring IOS-XR-based Cisco 8000 Series Switches in External Fabrics.
L4-7 Service Enhancements	NDFC services use-cases are extended to support One-arm firewall. In addition, NDFC also supports use cases where multiple virtual service nodes are connected to the same interface of a service switch. All L4-7 services workflow are now supported with both IPv4 and IPv6.
PTP monitoring for non-IPFM fabrics	Release 12.1.1e supports PTP monitoring for non-IPFM fabrics like Classic LAN and VXLAN fabrics with up to 35 switches.
PTP Topology View	PTP visibility is available in tabular format. NDFC Release 12.1.1e introduces PTP data visibility in topology view.

Fabric Controller with IP Fabric for Media (IPFM) Enhancements

The following features are new in Cisco NDFC Release 12.1.1e for the Fabric Controller with IP Fabric for Media (IPFM).

Feature	Description
Multicast to Unicast NAT for IPFM flows	NDFC Release 12.1.1e supports configuration of Multicast to Unicast NAT for IPFM flows and provides end-to-end flow visualization.
Unicast to Multicast NAT for IPFM flows	NDFC Release 12.1.1e supports configuration of Unicast to Multicast NAT for IPFM flows and provides end-to-end flow visualization.

SAN Controller Enhancements

The following features are new in Cisco Nexus Dashboard Fabric Controller Release 12.1.1e for the SAN Controller.

Feature	Description
NDFC delivered on RHEL for SAN deployments	Nexus Dashboard can be deployed on Red Hat Enterprise Linux and allows you to install NDFC SAN Controller persona. For more information, see Cisco Nexus Dashboard Deployment Guide.
DIRL Congestion Management Visualization	Beginning from Release 12.1.1e, NDFC provides visualization of DIRL information to highlight congestion points within a SAN fabric.
One View for multiple SAN Controllers	This feature provides a single pane of glass for multiple NDFC SAN Controller instances. It provides information about the status of switches, ports, and fabrics across multiple controllers.
Interface to execute CLI Commands	With this release, NDFC provides an interface to execute CLI commands on multiple Cisco MDS 9000 Series Switches simultaneously.
Smart Licensing using Policy support for Cisco MDS 9000 Series Switches	NDFC allows you to discover Cisco MDS 9000 Series Switches that are configured with Smart Licensing using Policy.
Endpoint Visibility	You can now view transceiver information in Fibre Chanel interfaces.

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Feature	Description
Enhancement to SAN Insights	• Enhanced SAN Insights scale now supports up to 500K ITLs/ITNs. • Support for SAN Insights for 64G modules

New Hardware Features

The following new hardware is supported with Cisco Nexus Dashboard Fabric Controller Release 12.1.1e.

- DS-X9748-3072K9 - 48 port 8/16/32/64 Gbps Advanced FC Module line card

Upgrade Paths

The following table summarizes the type of upgrade that you must follow to upgrade to Release 12.1.1e.

Go to Software Download to download the Upgrade Tool scripts.

Current Release Number	Deployment Type	Upgrade type when upgrade to Release 12.1.1e
12.0.2f	All	Upgrade Nexus Dashboard version to 2.2.1h Upgrade NDFC application to 12.1.1e.
12.0.1a	All	Upgrade Nexus Dashboard version to 2.2.1h Upgrade NDFC application to 12.1.1e.
11.5(4)	All	Not Supported
11.5(3)	LAN Fabric Deployment **Note:** Media Controller and all SAN deployments are not supported in Release 11.5(3).	Backup using **DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**
11.5(2)	SAN Deployment on Windows and Linux	Backup using **DCNM_To_NDFC_Upgrade_Tool_LIN_WIN.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**
	SAN Deployment on OVA/ISO/SE	Backup using **DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**
	LAN Fabric Deployment on OVA/ISO/SE	Backup using **DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**
11.5(1)	SAN Deployment on Windows and Linux	Backup using **DCNM_To_NDFC_Upgrade_Tool_LIN_WIN.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**

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Current Release Number	Deployment Type	Upgrade type when upgrade to Release 12.1.1e
	SAN Deployment on OVA/ISO/SE	Backup using **DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**
	LAN Fabric Deployment on OVA/ISO/SE	Backup using **DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**
	Media Controller Deployment on OVA/ISO	Backup using **DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip** Restore on Nexus Dashboard Fabric Controller **Web UI > Operations > Backup & Restore**

Supported Cisco Platforms and Software Versions

Compatibility Matrix for Fabric Controller

Fabric Type	Supported Releases	Recommended Releases
Newly provisioned VXLAN fabrics N9000, N9000v	7.0(3)I7(9), 7.0(3)I7(10), 9.3(3), 9.3(4), 9.3(5), 9.3(6), 9.3(7), 9.3(7a), 9.3(8), 9.3(9), 9.3(10), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(9)
Newly provisioned VXLAN fabrics N3600	9.3(3), 9.3(4), 9.3(5), 9.3(6), 9.3(7), 9.3(7a), 9.3(8), 9.3(9), 9.3(10), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(9)
Brownfield deployment for N9000	7.0(3)I7(9), 7.0(3)I7(10), 9.3(3), 9.3(4), 9.3(5), 9.3(6), 9.3(7), 9.3(7a), 9.3(8), 9.3(9), 9.3(10), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(9)
Brownfield deployment for N3600	9.3(3), 9.3(4), 9.3(5), 9.3(6), 9.3(7), 9.3(7a), 9.3(8), 9.3(9), 9.3(10), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(9)
External/LAN Classic Fabric N3000/3100/3500	7.0(3)I7(9), 7.0(3)I7(10), 9.3(3), 9.3(4), 9.3(5), 9.3(6), 9.3(7), 9.3(7a), 9.3(8), 9.3(9), 9.3(10), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(9)
External/LAN Classic Fabric N3600	9.3(3), 9.3(4), 9.3(5), 9.3(6), 9.3(7), 9.3(7a), 9.3(8), 9.3(9), 9.3(10), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(9)
External/LAN Classic Fabric N5000/5600/6000	7.3(8)N1(1), 7.3(9)N1(1), 7.3(10)N1(1), 7.3(11)N1(1)	7.3(9)N1(1)
External/LAN Classic Fabric N7000/7700	7.3(5)D1(1), 7.3(7)D1(1), 7.3(8)D1(1), 7.3(9)D1(1), 8.2(5), 8.2(7), 8.2(7a), 8.2(8), 8.4(4), 8.4(4a), 8.4(5)	7.3(8)D1(1), 8.2(7a)
External/LAN Classic/LAN Monitor Fabric N9000, N9000v	7.0(3)I7(9), 7.0(3)I7(10), 9.3(3), 9.3(4), 9.3(5), 9.3(6), 9.3(7), 9.3(7a), 9.3(8), 9.3(9), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(9)

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Fabric Type	Supported Releases	Recommended Releases
Easy Fabric for IOS XE [1]	IOS XE • 17.3.3, 17.3.4 for ASR 1K and CSR 1KV • 17.3.4a for Catalyst 9K	
External Fabric for Non-Nexus Devices [2]	IOS XE • 17.3.3, 17.3.4 for ASR 1K and CSR 1KV • 17.3.4a for Catalyst 9K IOS XR • 6.8.1 for ASR 9K • 6.5.3 for NCS 5500 • EOS 4.23.4.2M for Arista	
IPFM Fabric	9.3(5), 9.3(6), 9.3(7), 9.3(8), 9.3(9), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)	9.3(8), 9.3(9), 10.1(1), 10.1(2), 10.2(1)F, 10.2(2)F, 10.2(3)F, 10.2(4), 10.3(1)

[1] Only Catalyst 9K series supported. For qualified models, refer Supported Hardware section in Cisco NDFC Release Notes.

[2] ASR 1K, ASR 9K, Catalyst 9K, CSR 1KV, NCS 5500, Arista DCS series supported. For qualified models, refer Supported Hardware section in Cisco NDFC Release Notes.

Compatibility Matrix for SAN Controller

Switches	Supported Switch Releases
Cisco MDS 9100	8.4(2d), 9.2(2), 9.2(1), 8.4(2c), 8.5(1), 6.2(33), 8.4(2b), 8.1(1b), 6.2(31), 6.2(29), 8.4(2a), 8.4(2), 8.4.(1a), 6.2(29), 8.4(1), 6.2(27), 8.3(2), 8.3(1), 8.2(2), 8.2(1), 8.1(1a), 7.3(1)DY(1), 7.3(1)D1(1), 7.3(0)DY(1), 7.3(0)D1(1), 6.2(25), 6.2(23), 6.2.(21), 6.2(19), 6.2(17), 6.2(15), 6.2(13b), 6.2(13a), 6.2(13), 6.2(11c), 6.2(11b), 6.2(11), 6.2(9c), 6.2(9b), 6.2(9a), 6.2(9), 6.2(7), 6.2(5a), 6.2(5), 6.2(3), 6.2(1), 5.2(8i), 5.2(8h), 5.2(8g), 5.2(8f), 5.2(8e), 5.2(8d), 5.2(8c)
Cisco MDS 9200	8.5(1), 8.3(2), 8.3(1), 7.3(1)DY(1), 7.3(1)D1(1), 7.3(0)DY(1), 7.3(0)D1(1), 6.2(25), 6.2(23), 6.2(21), 6.2(19), 6.2(17), 6.2(15), 6.2(13b), 6.2(13a), 6.2(13), 6.2(11c), 6.2(11b), 6.2(11), 6.2(9c), 6.2(9b), 6.2(9a), 6.2(9), 6.2(7), 6.2(5a), 6.2(5), 6.2(3), 6.2(1), 5.2(8h), 5.2(8c), 5.2(8d), 5.2(8e), 5.2(8f), 5.2(8g)
Cisco MDS 9250i	8.4(2d), 9.2(2), 9.2(1), 8.4(2c), 8.5(1), 8.4(2b), 8.4(2a), 8.4(2), 8.1(1b), 8.4(1a), 6.2(31), 6.2(29), 8.4(1), 6.2(27), 8.3(2), 8.3(1), 8.2(2), 8.2(1), 8.1(1a), 7.3(1)DY(1), 7.3(1)D1(1), 7.3(0)DY(1), 7.3(0)D1(1), 6.2(25), 6.2(23), 6.2.(21), 6.2(19), 6.2(17), 6.2(15), 6.2(13b), 6.2(13a), 6.2(13), 6.2(11c), 6.2(11b), 6.2(11), 6.2(9c), 6.2(9b), 6.2(9a), 6.2(9), 6.2(7), 6.2(5a), 6.2(5)
Cisco MDS 9220i	8.4(2d), 9.2(2), 9.2(1), 8.5(1)
Cisco MDS 9300	8.4(2d), 9.2(2), 9.2(1), 8.4(2c), 8.5(1), 6.2(33), 8.4(2b), 8.1(1b), 6.2(31), 6.2(29), 8.4(2a), 8.4(2), 8.4(1a), 6.2(29), 8.4(1), 6.2(27), 8.3(2), 8.3(1), 8.2(2), 8.2(1), 8.1(1a), 8.1(1), 7.3(1)DY(1), 7.3(1)D1(1), 7.3(0)DY(1), 7.3(0)D1(1), 6.2(25), 6.2(23), 6.2(21), 6.2(19), 6.2(17), 6.2(15), 6.2(13b), 6.2(13a), 6.2(13)
Cisco MDS 9500	6.2(33), 7.3(1)DY(1), 7.3(1)D1(1), 7.3(0)DY(1), 7.3(0)D1(1), 6.2(31), 6.2(29), 6.2(25), 6.2(23), 6.2(21), 6.2(19), 6.2(17), 6.2(15), 6.2(13b), 6.2(13a), 6.2(13), 6.2(11c), 6.2(11b), 6.2(11), 6.2(9c), 6.2(9b), 6.2(9a), 6.2(9), 6.2(7), 6.2(5a), 6.2(5), 6.2(3), 6.2(1), 5.2(8h), 5.2(8c), 5.2(8d), 5.2(8e), 5.2(8f), 5.2(8g)

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Switches	Supported Switch Releases
Cisco MDS 9700	8.4(2d), 9.2(2), 9.2(1), 8.4(2c), 8.5(1), 6.2(33), 8.4(2b), 8.1(1b), 6.2(31), 6.2(29), 8.4(2a), 8.4(2), 8.4(1a), 6.2(29), 8.4(1), 6.2(27), 8.3(2), 8.3(1), 8.2(2), 8.2(1), 8.1(1a), 8.1(1), 7.3(1)DY(1), 7.3(1)D1(1), 7.3(0)DY(1), 7.3(0)D1(1), 6.2(25), 6.2(23), 6.2(21), 6.2(19), 6.2(17), 6.2(15), 6.2(13b), 6.2(13a), 6.2(13), 6.2(11c), 6.2(11b), 6.2(11), 6.2(9c), 6.2(9b), 6.2(9a), 6.2(9), 6.2(7), 6.2(5a), 6.2(5), 6.2(3), 6.2(1)
Cisco Nexus 9000 Series	10.2(3)F, 9.3(9), 10.2(2)F, 10.2(1)F, 7.0(3)I7(10), 9.3(8), 10.1(2), 10.1(1), 9.3(7), 9.3(6), 7.0(3)I7(9), 9.3(5), 9.3(4), 7.0(3)I7(8), 9.3(3), 7.0(3)I7(7), 9.3(2), 9.2(4), 9.3(1), 9.2(3), 7.0(3)I4(9), 7.0(3)I7(6), 9.2(2), 9.2(1), 7.0(3)I7(5), 7.0(3)I7(4), 7.0(3)I7(3), 7.0(3)I7(2), 7.0(3)I7(1), 7.0(3)I4(8), 7.0(3)I4(7), 7.0(3)I4(6), 7.0(3)I4(5), 7.0(3)I4(4), 7.0(3)I4(3), 7.0(3)I4(2), 7.0(3)I4(1), 7.0(3)F3(2), 7.0(3)F3(1), 7.0(3)F1(2), 7.0(3)I6(2), 7.0(3)I6(1), 7.0(3)F2(1), 7.0(3)F1(1), 7.0(3)I2(4), 7.0(3)I2(5), 7.0(3)I5(2), 7.0(3)I5(1), 7.0(3)I3(2), 7.0(3)I3(1), 7.0(3)I2.3, 7.0.3.I2.2c, 7.0(3)I2.2a, 7.0(3)I2.1, 7.0(3)I1.3, 7.0(3)I1.2, 6.2(9), 6.1(2)I3.4, 6.1(2)I3.2, 6.1(2)I3(1), 6.1(2)I2(1), 6.1(2)I1(2), 6.1(2)I1(1)
Cisco Nexus 7000 Series	7.3(9)D1(1), 8.2(8), 8.4(5), 8.4(4a), 7.3(8)D1(1), 8.2(7a), 8.4(4), 7.3(7)D1(1), 8.2(6), 8.4(3), 8.4(2), 7.3(6)D1(1), 8.2(5), 7.3(5)D1(1), 8.4(1), 8.2(4), 7.3(4)D1(1), 8.3(2), 8.3(1), 8.2(3), 8.2(2), 8.2(1), 8.1(2), 8.1(1), 8.0(1), 7.3(3)D1(1), 7.3(2)D1(3), 7.3(2)D1(2), 7.3(2)D1(1), 7.3(1)D1(1), 7.3(0)D1(1), 7.2(2)D1(4), 7.2(2)D1(2), 7.2(2)D1(1), 7.2(1)D1(1), 7.2(0)D1(2), 7.2(0)D1(1)
Cisco Nexus 7700 Series	7.3(9)D1(1), 8.2(8), 8.4(5), 8.4(4a), 7.3(8)D1(1), 8.2(7a), 8.4(4), 7.3(7)D1(1), 8.2(6), 8.4(3), 8.4(2), 7.3(6)D1(1), 8.2(5), 7.3(5)D1(1), 8.4(1), 8.2(4), 7.3(4)D1(1), 8.3(2), 8.3(1), 8.2(3), 8.2(2), 8.2(1), 8.1(2), 8.1(1), 8.0(1), 7.3(3) D1(1), 7.3(2)D1(3), 7.3(2)D1(2), 7.3(2)D1(1), 7.3(1)D1(1), 7.3(0)DX(1), 7.3(0)D1(1), 7.2(2)D1(4), 7.2(2)D1(2), 7.2(2)D1(1), 7.2(1)D1(1), 7.2(0)D1(2), 7.2(0)D1(1)
Cisco Nexus 6000/5600 Series	7.3(11)N1(1), 7.3(10)N1(1), 7.3(9)N1(1), 7.3(8)N1(1), 7.3(7)N1(1b), 7.3(7)N1(1a), 7.3(7)N1(1), 7.3(6)N1(1), 7.3(5)N1(1), 7.1(5)N1(1b), 7.3(4)N1(1), 7.3(3)N1(1), 7.3(2)N1(1e), 7.3(2)N1(1), 7.3(1)N1(1), 7.3(0)N1(1), 7.2(1)N1(1), 7.1(5)N1(1), 7.2(0)N1(1), 7.1(5)N1(1), 7.1(4)N1(1), 7.1(3)N1(2), 7.1(3)N1(1), 7.1(2)N1(1), 7.1(1)N1(1), 7.1(0)N1(1), 7.0(8)N1(1), 7.0(7)N1(1), 7.0(6)N1(1), 7.0(5)N1(1), 7.0(4)N1(1), 7.0(3)N1(1), 7.0(2)N1(1), 7.0(1)N1(1), 6.0(2)N2(7), 6.0(2)N2(2), 6.0(2)N2(1), 6.0(2)N1(2)
Cisco Nexus 5000 Series	7.3(11)N1(1), 7.3(10)N1(1), 7.3(9)N1(1), 7.3(8)N1(1), 7.3(7)N1(1b), 7.3(7)N1(1a), 7.3(7)N1(1), 7.3(6)N1(1), 7.3(5)N1(1), 7.1(5)N1(1b), 7.3(4)N1(1), 7.3(3)N1(1), 7.3(2)N1(1e), 7.3(2)N1(1), 7.3(1)N1(1), 7.3(0)N1(1), 7.2(1)N1(1), 7.2(0)N1(1), 7.1(5)N1(1), 7.1(4)N1(1), 7.1(3)N1(2), 7.1(3)N1(1), 7.1(2)N1(1), 7.1(1)N1(1), 7.1(0)N1(1), 7.0(8)N1(1), 7.0(7)N1(1), 7.0(6)N1(1), 7.0(5)N1(1), 7.0(4)N1(1), 7.0(3)N1(1), 7.0(2)N1(1), 7.0(1)N1(1), 6.0(2)N2(7), 6.0(2), 5.2(1)N1(9a), 5.2(1)N1(9), 5.2(1), 5.1(3), 5.0(3), 5.0(2), 4.2(1), 4.1(3)
UCS Infrastructure and UCS Manager Software	4.2(1d), 4.0.4g, 4.1.1a, 3.2.3n, 4.0.4, 4.0.1, 3.2(3k), 2.2.5a

Note: The Cisco NX-OS version of the Cisco Nexus 2000 Series Fabric Extenders will be the same as the NX-OS version of the supported Nexus switch (that is, Cisco Nexus 5000, Cisco Nexus 7000, or Cisco Nexus 9000).

Compatibility Matrix for Cisco Nexus Dashboard and Applications

Cisco Nexus Dashboard and Services compatibility information for specific Cisco Nexus Dashboard, services, and fabric versions. See Cisco Nexus Dashboard and Services Compatibility Matrix.

For recommendation on Nexus Dashboard cluster sizing for cohosting services, see the Nexus Dashboard Capacity Planning tool instead.

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Supported Hardware

UCS Fabric Interconnect Integration

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
Cisco UCS Unified Computing System 6454 1-RU In-Chassis FI with 36x10G/25G + 4x 1G/10G/25G + 6x40G/100G + 8 UP Ports	UCS-FI-6454-U
Cisco UCS Unified Computing System 6332 1-RU In-Chassis FI with 16UP + 24x40G Fixed Ports	UCS-FI-6332-16UP
Cisco UCS Unified Computing System 6332 1-RU In-Chassis FI with 32x40G Fixed Ports	UCS-FI-6332
Cisco UCS Unified Computing System 6324 In-Chassis FI with 4UP, 1x40G Exp Port	UCS-FI-M-6324
Cisco UCS Unified Computing System 6296UP 96-Unified Port Fabric Interconnect	UCS-FI-6296UP
Cisco UCS Unified Computing System 6248UP 48-Unified Port Fabric Interconnect	UCS-FI-6248UP

Cisco MDS 9000 Series Switches Family

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
Cisco MDS 9718 Supervisor-1E Modules	DS-X97-SF1-K9
Cisco MDS 9710 Crossbar Fabric-3 Switching Module	DS-X9710-FAB3
Cisco MDS 9700 Series Supervisor-4 Module	DS-X97-SF4-K9
MDS 9706 Crossbar Switching Fabric-3 Module	DS-X9706-FAB3
Cisco MDS 9396T 32 Gbps 96-Port Fibre Channel Switch	DS-C9396T-K9
Cisco MDS 9148T 32 Gbps 48-Port Fibre Channel Switch	DS-C9148T-K9
Cisco MDS 9700 48-Port 32-Gbps Fibre Channel Switching Module	DS-X9648-1536K9
Cisco MDS 9700 64-Gbps 48-port Fibre Channel Switching Module	DS-X9748-3072K9
Cisco MDS 9250i Multilayer Fabric Switch	DS-9250I-K9
Cisco MDS 9124 24-Port Multilayer Fabric Switch	DS-C9124-K9
Cisco MDS 9134 34-Port Multilayer Fabric Switch	DS-C9134-K9
Cisco MDS 9148 48-Port Multilayer Fabric Switch	DS-C9148-K9
Cisco MDS 9148 48-Port Multilayer Fabric Switch	DS-C9148S-K9
Cisco MDS 9216i Multilayer Fabric Switch	DS-C9216i-K9

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Product/Component	Part Number
Cisco MDS 9222i Multilayer Fabric Switch	DS-C9222i-K9
Cisco MDS 9220i Intelligent fabric switch chassis, 12X32G FC+6IPS	DS-C9220I-K9
Cisco MDS 9506 Multilayer Director	DS-C9506
Cisco MDS 9509 Multilayer Director	DS-C9509
Cisco MDS 9513 Multilayer Director	DS-C9513
Cisco MDS 9706 Multilayer Director	DS-C9706
Cisco MDS 9710 Multilayer Director	DS-C9710
Cisco MDS 9718 Multilayer Director	DS-C9718
Cisco MDS 9000 32-Port 2-Gbps Fibre Channel Switching Module	DS-X9032
Cisco MDS 9000 32-Port Storage Services Module	DS-X9032-SSM
Cisco MDS 9000 12-port 4-Gbps Fibre Channel Switching Module	DS-X9112
Cisco MDS 9000 12-port 4-Gbps Fibre Channel Switching Module	DS-X9112
Cisco MDS 9000 12-port 4-Gbps Fibre Channel Switching Module	DS-X9112
Cisco MDS 9000 24-port 4-Gbps Fibre Channel Switching Module	DS-X9124
Cisco MDS 9000 48-port 4-Gbps Fibre Channel Switching Module	DS-X9148
Cisco MDS 9000 24-Port 8-Gbps Fibre Channel Switching Module	DS-X9224-96K9
Cisco MDS 9000 32-port 8-Gbps Advanced Fibre Channel Switching Module	DS-X9232-256K9
Cisco MDS 9000 48-port 8-Gbps Advanced Fibre Channel Switching Module	DS-X9248-256K9
Cisco MDS 9000 4/44-Port Host-Optimized 8-Gbps Fibre Channel Switching Module	DS-X9248-48K9
Cisco MDS 9000 48-Port 8-Gbps Fibre Channel Switching Module	DS-X9248-96K9
Cisco MDS 9000 Family 14-Port Fibre Channel and 2-port Gigabit Ethernet Module	DS-X9302-14K9
Cisco MDS 9000 18/4-Port Multiservice Module (MSM-18/4)	DS-X9304-18K9
Cisco MDS 9000 4-port 1-Gbps IP Storage Module	DS-X9304-SMIP
Cisco MDS 9000 8-port 1-Gbps IP Storage Module	DS-X9308-SMIP
Cisco MDS 9000 Family 16-Port Storage Services Node (SSN-16)	DS-X9316-SSNK9
Cisco MDS 9000 Family 24/10 SAN Extension Module	DS-X9334-K9
Cisco MDS 9000 48-port 16-Gbps Fibre Channel Switching Module with SFP LC connectors	DS-X9448-768K9

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Product/Component	Part Number
Cisco MDS 9500 Series Supervisor-1 Module	DS-X9530-SF1-K9
Cisco MDS 9500 Series Supervisor-2 Module	DS-X9530-SF2-K9
Cisco MDS 9500 Series Supervisor-2A Module	DS-X9530-SF2A-K9
Cisco MDS 9000 Family 4-Port 10-Gbps Fibre Channel Switching Module	DS-X9704
Cisco MDS 9000 8-port 10-Gbps Fibre Channel over Ethernet (FCoE) Module	DS-X9708-K9
Cisco MDS 48-Port 10-Gigabit Fibre Channel over Ethernet (FCoE) Module with SFP LC connectors	DS-X9848-480K9
Cisco MDS 9132T 32 Gbps 32-Port Fibre Channel Switch	DS-C9132T-K9

Cisco Nexus 9000 Series Switches

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
Cisco Nexus 9000 Series Switches	
32P 40/100G QSFP28, 2P 1/10G SFP	N9K-C9332C
1-RU 48x1/10GT + 6x40G/100G Ethernet Ports	N9K-C93180TC-FX
Cisco Nexus 7700 F4 40G line card	Cisco Nexus 7700 F4 40G line card
Cisco Nexus 9336C-FX2, 1-RU, fixed-port switch	N9K-C9336C-FX2
Cisco Nexus 9000 Fixed with 48p 1/10G/25G SFP and 12p 40G/100G QSFP28	N9K-C93240YC-FX2
32-port 100-Gigabit EthernetQuad Small Form-Factor Pluggable 28 (QSFP28) line card	N9K-X9732C-FX
48-port 1 and 10GBASE-T plus 4-port 40/100Gigabit Ethernet QSFP 28 line card	N9K-X9788TC-FX
48-port 1 and 10GBASE-T plus 4-port 40/100Gigabit Ethernet QSFP 28 line card (BMA)	N9K-X9788TC2-FX
FabricModule for Nexus 9516 chassis 100G support (100G/flow), NX-OS and ACI Spine	N9K-C9516-FM-E2
FabricModule for Nexus 9504 R-Series line card, NX-OS only	N9K-C9504-FM-R
Freta 48p 1/10/25G + 4p 100G line card	N9K-X96160YC-R
100-Gigabit N9K-C9508-FM-E2 Fabric Module	N9K-C9508-FM-E2
48P 1/10/25G + 6x100G QSFP28 1-RU	N3K-C36180YC-R
36 40/100G Ethernet module for Nexus 9500 Series	N9K-X9736C-FX
64x100G QSFP28 + 2x10GSFP 1-RU	N9K-C9364C

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Product/Component	Part Number
36x100G Ethernet module for Nexus 9000 Series	N9K-X9636C-RX
1-RU ToR, fixed module 48 100/1000Mbps + 4 25G SFP28 + 2 100G QSFP28	N9K-C9348GC-FXP
1-RU ToR, fixed module 48 100/1000Mbps + 4 25G SFP28 + 2 100G QSFP28 (BMA)	N9K-C9348GC2-FXP
1-RU ToR, fixed module 48 10/25G SFP28 + 6 40/100G QSFP28	N9K-C93180YC-FX
1-RU ToR, fixed module 48 10/25G SFP28 + 6 40/100G QSFP28 (BMA)	N9K-C93180YC2-FX
1-RU ToR, fixed module for Nexus 9300 Series 6 40G/100G QSFP28 + 48 10G BASE-T	N9K-C93108TC-FX
1-RU ToR, fixed module for Nexus 9300 Series 6 40G/100G QSFP28 + 48 10G BASE-T (BMA)	N9K-C93108TC2-FX
Broadwell CPU-based supervisor module for Nexus 9400 Series	N9K-SUPA-PLUS
Broadwell CPU-based supervisor module for Nexus 9400 Series	N9K-SUPB-PLUS
Nexus 9K Fixed with 48p 10G BASE-T and 6p 40G/100G QSFP28	N9K-C93108TC-EX
N9K-C92300YC-Fixed Module	N9K-C92300YC
48-port 1/10/25 Gigabit Ethernet SFP+ and 4-port 40/100 Gigabit Ethernet QSFP Line Card	N9K-X97160YC-EX
Nexus N9K-C9232C Series fixed module with 32x40G/100G	N9K-C9232C
Nexus 9K Fixed with 48p 1/10G/25G SFP+ and 6p 40G/100G QSFP28	N9K-C93180YC-EX
Cisco Nexus 9000 Series 40GE Modules	
N9K 32p 40G Ethernet Module	N9K-X9432PQ
36p 40G Ethernet Module	N9K-X9636PQ
36-port 40/100 Gigabit Ethernet QSFP28 line card	N9K-X9636C-R
24-port 400/100 Gigabit Ethernet QSFP-DD line card	N9K-X9624D-R2
Fabric Module for Cisco Nexus 9508 R2-Series line cards – Cisco NX-OS only	N9K-C9508-FM-R2
Cisco Nexus 9364D-GX2A Switch with 64p 400/100-Gbps QSFP-DD ports and 2p 1/10 SFP+ ports	N9K-C9364D-GX2A
Cisco Nexus 9332D-GX2B Switch with 32p 400/100-Gbps QSFP-DD ports and 2p 1/10 SFP+ ports	N9K-C9332D-GX2B
Cisco Nexus 9000 Series 10GE Fiber and Copper Modules	
8-port 100-Gigabit CFP2 I/O module	N9K-X9408PC-CFP2
100-Gigabit Ethernet uplink ports	N9K-M4PC-CFP2
Cisco Nexus 9500 Line Card support	N9K-X9564PX

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Product/Component	Part Number
N9K 48x1/10G-T 4x40G Ethernet Module	N9K-X9464PX
Cisco Nexus 9500 Line Card support	N9K-X9564TX
N9K 48x1/10G SFP+ 4x40G Ethernet Module	N9K-X9464TX
Cisco Nexus 9000 Series GEM Module	
N9K 40G Ethernet Expansion Module	N9K-M12PQ
N9K 40G Ethernet Expansion Module	N9K-M6PQ
Cisco Nexus 9200 Switches	
Nexus 92160YC-X with High-performance 1-RU box, 48 1/10/25-Gb host ports	N9K-C92160YC-X
Nexus 9272Q with high-performance, 72-port/40-Gb fixed switching 2-RU box, 5.76 Tbps of bandwidth	N9K-C9272Q
Nexus 9200 with 56p 40G QSFP+ and 8p 100G QSFP28	N9K-C92304QC
Nexus 9200 with 36p 40G 100G QSFP28	N9K-C9236C
Nexus 9200 with 48p 1/10G/25G SFP+ and 6p 40G QSFP or 4p 100G QSFP28	N9K-C92160YC-X
Nexus 9200 with 72p 40G QSFP+	N9K-C9272Q
Cisco Nexus 9300 Fixed Switches	
Nexus 9300 with 1-rack unit (RU), switch with following fixed ports: • 48 100M/1/10/25-Gigabit Ethernet SFP28 ports (ports 1-48). • 6 10/25/40/50/100-Gigabit QSFP28 ports (ports 49-54) • One management port (one 10/100/1000BASE-T port) • One console port (RS-232) • 1 USB port	N9K-C93180YC-FX3
Nexus 9300 with 48p 10G BASE-T and 6p 40G/100G QSFP28, MACsec capable	N9K-C93108TC-FX3P
Nexus 9300 with 48p 1/10G/25G SFP and 6p 40G/100G QSFP28, MACsec, and Unified Ports capable	N9K-C93180YC-FX3S
Nexus 9K Fixed with 96p 1/10G/25G SFP and 12p 40G/100G QSFP28	N9K-C93360YC-FX2
96p 100M/1/10GBASE-T and 12p 40G/100G QSFP28	N9K-C93216TC-FX2
Nexus 9200 with 48p 100M/1G Base-T ports and 4p 1/10/25G SPF28 and 2p 40/100G QSFP28	N9K-C92348GC-X
Nexus 9316D Spine and Leaf switch with 28p 100/40G QSFP28 and 8p 400/100G QSFP-DD	N9K-C93600CD-GX
Cisco Nexus 9364C ACI Spine Switch with 64p 40/100G QSFP28, 2p 1/10G SFP	N9K-C9364C-GX

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Product/Component	Part Number
Nexus 9316D spine switch with 16p 400/100G QSFP-DD	N9K-C9316D-GX
Nexus 9300 with 24p 40/50G QSFP+ and 6p 40G/100G QSFP28	N9K-C93180LC-EX
9372-PXE - 48 1/10-Gbps (SFP+) ports and 6 Quad SFP+ (QSFP+) uplink port, 1-RU box	N9K-C9372PX-E
Cisco Nexus 9396PX Switch	N9K-C9396PX
Cisco Nexus 9396TX Switch	N9K-C9396TX
Cisco Nexus 9372PX Switch	N9K-C9372TX
Cisco Nexus 9372PX Switch	N9K-C9372TX
Cisco Nexus 9372TX Switch	N9K-C9372TX
Cisco Nexus 9372TX Switch	N9K-C9372PX
Cisco Nexus 9332PQ Switch	N9K-C9332PQ
Cisco Nexus 93128TX Switch	N9K-C93128TX
Nexus 9300 with 48p 1/10G-T and 6p 40G QSFP+	N9K-C9372TX-E
Cisco Nexus 9500 Modular Chassis	
New fabric module for the Cisco Nexus 9516 Switch chassis	N9K-C9516-FM-E
40/100G Ethernet Module for Nexus 9500 Series chassis	N9K-X9736C-EX
Cisco Nexus 9504 Switch	N9K-C9504
Cisco Nexus 9508 Switch	N9K-C9508
Cisco Nexus 9516 Switch	N9K-C9516
Nexus 9500 line card, 32p 100G QSFP aggregation line card	N9K-X9732C-EX
Nexus 9500 line card, 32p 100G QSFP28 aggregation line card (line rate >250 Bytes)	N9K-X9432C-S
Cisco Nexus 9500 Fabric Modules	
Fabric Module for Nexus 9504 with 100G support, NX-OS, and ACI spine	N9K-C9504-FM-E
Fabric Module for Nexus 9504 chassis	N9K-C9504-FM-G
Fan tray for Nexus 9504 chassis	N9K-C9504-FAN2
Fabric Module for Nexus 9504 with 100G support, NX-OS only	N9K-C9504-FM-S
Fan tray for Nexus 9508 chassis	N9K-C9508-FAN2
Fabric Module for Nexus 9508 chassis 100G support, NX-OS, and ACI spine	N9K-C9508-FM-E

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Product/Component	Part Number
Fabric Module for Nexus 9508 chassis	N9K-C9508-FM-G
Fabric Module for Nexus 9508 chassis 100G support, NX-OS only	N9K-C9508-FM-S
Cisco Nexus 9500 16p 400G QSFP-DD cloud-scale line card	N9K-X9716D-GX

Cisco Nexus 7000 Series Switches

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
Supported Chassis	
CiscoNexus7702 chassis	N77-C7702
Cisco Nexus 7004 chassis	N7K-C7004
Cisco Nexus 7706 chassis	N77-C7706-FAB2
Cisco Nexus 7009 chassis	N7K-C7009
Cisco Nexus 7010 chassis	N7K-C7010
Cisco Nexus 7018 chassis	N7K-C7018
Cisco Nexus 7710 chassis	N7K-C7710
Cisco Nexus 7718 chassis	N7K-C7718
Fabric module, Cisco Nexus 7009 chassis	N7K-C7009-FAB-2
Fabric module, Cisco Nexus 7010 chassis	N7K-C7010-FAB-1
Fabric module, Cisco Nexus 7010 chassis	N7K-C7010-FAB-2
Fabric module, Cisco Nexus 7018 chassis	N7K-C7018-FAB-1
Fabric module, Cisco Nexus 7018 chassis	N7K-C7018-FAB-2
Fabric module, Cisco Nexus 7710 chassis	N77-C7710-FAB-1
Fabric module, Cisco Nexus 7710 chassis	N77-C7710-FAB-2
Fabric module, Cisco Nexus 7718 chassis	N77-C7718-FAB-2
Supported Supervisor	
Cisco Nexus 7000 Supervisor 1 Module	N7K-SUP1
Cisco Nexus 7000 Supervisor 2 Module	N7K-SUP2
Cisco Nexus 7000 Supervisor 2 Enhanced Module	N7K-SUP2E

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Product/Component	Part Number
Cisco Nexus 7700 Supervisor 2 Enhanced Module	N77-SUP2E
Cisco Nexus 7700 Supervisor 3	N77-SUP3E
Supported F Line Cards	
Cisco Nexus 7700 Fabric module 3	N77-C7706-FAB-3, N77-C7710-FAB-3
Line card, N77, FANGIO CB100, 30PT, 40GE, zQFSP+	N77-F430CQ-36
32-port 1/10 Gigabit Ethernet SFP+ I/O Module	N7K-F132XP-15
48-port 1/10 Gigabit Ethernet SFP+ I/O Module (F2 Series)	N7K-F248XP-25
48-port 1/10 Gigabit Ethernet SFP+ I/O Module (Enhanced F2 Series)	N7K-F248XP-25E
48-port 1/10 GBase-T RJ-45 Module (Enhanced F2-Series)	N7K-F248XT-25E
Cisco Nexus 7700 Enhanced 48-port 1/10 Gigabit Ethernet SFP+ I/O Module (F2 Series)	N77-F248XP-23E
Cisco Nexus 7000 1 F3 100G	N7K-F306CK-25
Cisco Nexus 7000 F3-Series 6-Port 100G Ethernet Module	N7K-F306CK-25
Cisco Nexus 7000 F3-Series 12-Port 40G Ethernet Module	N7K-F312FQ-25
Cisco Nexus 7700 F3-Series 24-Port 40G Ethernet Module	N77-F324FQ-25
Cisco Nexus 7700 F3-Series 48-Port Fiber 1 and 10G Ethernet Module	N77-F348XP-23
Nexus 7000 F3-Series 48-Port Fiber 1 and 10G Ethernet Module	N7K-F348XP-25
Supported M Line Cards	
8-port 10-Gigabit Ethernet Module with XL Option (requires X2)	N7K-M108X2-12L
32-port 10-Gigabit Ethernet SFP+ I/O Module	N7K-M132XP-12
32-port 10-Gigabit Ethernet SFP+ I/O Module with XL Option	N7K-M132XP-12L
48-port 10/100/1000 Ethernet I/O Module	N7K-M148GT-11
48-port 1-Gigabit Ethernet SFP I/O Module	N7K-M148GS-11
48-port 1-Gigabit Ethernet Module with XL Option	N7K-M148GS-11L
2-port 100 Gigabit Ethernet I/O Module with XL Option	N7K-M202CF-22L
6-port 40 Gigabit Ethernet I/O Module with XL Option	N7K-M206FQ-23L
24-port 10 Gigabit Ethernet I/O Module with XL Option	N7K-M224XP-23L
Network Analysis Module NAM-NX1	N7K-SM-NAM-K9

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Cisco Nexus 6000 Series Switches

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
N6004X/5696 chassis **Note:** This has been rebranded as Cisco Nexus 5000 Series Switches Chassis.	N5K-C5696Q
Cisco Nexus 6001-64T Switch	N6K-C6001-64T
Cisco Nexus 6001-64P Switch	N6K-C6001-64P
Cisco Nexus 6004 EF Switch	N6K-C6004
Cisco Nexus 6004 module 12Q 40-Gigabit Ethernet line card Expansion Module/FCoE, spare	N6004X-M12Q
Cisco Nexus 6004 M20UP LEM	N6004X-M20UP
Cisco Nexus 6004P-96Q Switch	N6K-6004-96Q

Cisco Nexus 5000 Series Switches

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
Cisco Nexus 5648Q Switch is a 2-RU switch, 24 fixed 40-Gbps QSFP+ ports, and 24 additional 40-Gbps QSFP+ ports	N5K-C5648Q
Cisco Nexus 5624Q Switch 1-RU, -12 fixed 40-Gbps QSFP+ ports and 12 X 40-Gbps QSFP+ ports expansion module	N5K-C5624Q
20 port UP LEM	N5696-M20UP
12 port 40G LEM	N5696-M12Q
4 port 100G LEM	N5696-M4C
N5000 1000 Series Module 6-port 10GE	N5K-M1600(=)
N5000 1000 Series Module 4x10GE 4xFC 4/2/1G	N5K-M1404=
N5000 1000 Series Module 8-port 4/2/1G	N5K-M1008=
N5000 1000 Series Module 6-port 8/4/2G	N5K-M1060=
Cisco Nexus 56128P Switch	N5K-C56128P
Cisco Nexus 5010 chassis	N5K-C5010P-BF

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Product/Component	Part Number
Cisco Nexus 5020 chassis	N5K-C5020P-BF N5K-C5020P-BF-XL
Cisco Nexus 5548P Switch	N5K-C5548P-FA
Cisco Nexus 5548UP Switch	N5K-C5548UP-FA
Cisco Nexus 5672UP Switch	N5K-C5672UP
Cisco Nexus 5596T Switch	N5K-C5596T-FA
Cisco Nexus 5596UP Switch	N5K-C5596UP-FA
Cisco Nexus 0296-UPT chassis and GEM N55-M12T support	N5K-C5596T-FA-SUP
16-port Universal GEM, Cisco Nexus 5500	N5K-M16UP
Version 2, Layer 3 daughter card	N55-D160L3-V2

Cisco Nexus 3000 Series Switches

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
Quad Small Form-Factor Pluggable – Double Density (QSFP-DD) switch with 32 ports	N3K-C3432D-S
Nexus 3408-S switch with 32 ports of QSFP-DD	N3K-C3408-S
1-RU 48 x SFP+/SFP28 and 6 x QSFP+/QSFP28	N3K-C34180YC
Cisco Nexus 34200YC-SM Switch with top-of-rack, Layer 2 and 3 switching	N3K-C34200YC-SM
1-RU 32 Port QSFP28 10/25/40/50/100 Gbps	N3K-C3132C-Z
Nexus 3548-XL Switch, 48 SFP+	N3K-C3548P-XL
Nexus 3264C-E switch with 64 QSFP28	N3K-C3264C-E
Cisco Nexus 3132Q Switch	N3K-C3132C-Z
Cisco Nexus 3132Q-V Switch	N3K-C3132Q-V
Nexus 34180YC programmable switch, 48 10/25G SFP, and 6 40/100G QSFP28 ports	N3K-C34180YC
Cisco Nexus 3464C Switch, 64 x QSFP+/QSFP28 ports and 2 x SFP+	N3K-C3464C
Cisco Nexus 3016 Switch	N3K-C3016Q-40GE
Cisco Nexus 3048 Switch	N3K-C3048TP-1GE

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Product/Component	Part Number
Cisco Nexus 3064-E Switch	N3K-C3064PQ-10GE
Cisco Nexus 3064-X Switch	N3K-C3064PQ-10GX
Cisco Nexus 3064-T Switch	N3K-C3064TQ-10GT
Nexus 31108PC-V, 48 SFP+ and 6 QSFP28 ports	N3K-C31108PC-V
Nexus 31108TC-V, 48 10GBase-T RJ-45, and 6 QSFP28 ports	N3K-C31108TC-V
Cisco Nexus 3132Q Switch	N3K-C3132Q-40GE
Nexus 3132 Chassis	N3K-C3132Q-40GX
Cisco Nexus 3172PQ Switch	N3K-C3172PQ-10GE
Cisco Nexus 3548 Switch	N3K-C3548P-10GX
Cisco Nexus 3636C-R Switch	N3K-C3636C-R

Cisco Nexus 2000 Series Fabric Extenders

The following tables list the products and components that are supported in the Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e.

Product/Component	Part Number
Nexus 2348 Chassis	N2K-C2348TQ-10GE
Cisco Nexus 2348UPQ 10GE 48 x 1/10 Gigabit Ethernet and unified port host interfaces (SFP+) and up to 6 QSFP+ 10/40 Gigabit Ethernet fabric interfaces	N2K-C2348UPQ
Cisco Nexus 2148 1 GE Fabric Extender	N2K-C2148T-1GE
Cisco Nexus 2224TP Fabric Extender	N2K-C2224TP-1GE
Cisco Nexus 2232TM 10GE Fabric Extender	N2K-C2232TM-10GE
Cisco Nexus 2232TM 10GE Fabric Extender	N2K-C2232TM-E-10GE
Cisco Nexus 2232PP 10 GE Fabric Extender	N2K-C2232PP-10GE
Cisco Nexus 2248TP 1 GE Fabric Extender	N2K-C2248TP-1GE
Cisco Nexus 2248TP E GE Fabric Extender	N2K-C2248TP-E GE
Cisco Nexus 2248PQ Fabric Extender	N2K-C2248PQ-10GE
Cisco Nexus B22 Fabric Extender for HP	N2K-B22HP-P
Cisco Nexus B22 Fabric Extender for Fujitsu	N2K-B22FTS-P
Cisco Nexus B22 Fabric Extender for Dell	N2K-B22DELL-P

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Product/Component	Part Number
Cisco Nexus 2348TQ-E 10GE Fabric Extender	N2K-C2348TQ-E++

Supported Non-Nexus Devices

- Cisco ASR 1001-X
- Cisco ASR 1002-HX
- Cisco ASR-9001
- Cisco Catalyst 9300-48U
- Cisco Catalyst 9300-24T
- Cisco Catalyst 9300-48P
- Cisco Catalyst 9500-48YC
- Cisco Catalyst 9500-32C
- Cisco CSR 1000v
- Cisco NCS 5501
- Arista DCS-7050SX3-48YC12

Supported IBM Directors and Switches

- IBM SAN192C-6 8978-E04 (4 Module) SAN Director
- IBM SAN384C-6 8978-E08 (8 Module) SAN Director
- IBM SAN768C-6 8978-E16 (16 Module) SAN Director
- IBM SAN50C-R 8977-R50 50-Port SAN Extension Switch
- IBM SAN32C-6 8977-T32 32X32G FC SAN Switch
- IBM SAN48C-6 8977-T48 48X32G FC SAN Switch
- IBM SAN96C-6 8977-T96 96X32G FC SAN Switch
- IBM SAN16C-R 8977-R16 SAN Switch Extension Switch

Resolved Issues

The following table lists the Open bugs for Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e. Click the bug ID to access the Bug Search Tool and see additional information about the bug.

Bug ID	Description
CSCvx12393	CC handling for " vlan configuration <>" command
CSCvz70009	DCNM Sanity: Pending Config After deletion of Port-channels in IOSXE and External Fabric
CSCwa20154	RBAC: Interface Rediscover throwing unauthorised error for RBAC user with network-operator role
CSCwa34762	Vcenter is not visible in topology page after Upgrade

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Bug ID	Description
CSCwa42433	NDFC12.0(2) : Kubernetes cluster discovery failed after backup and restore
CSCwa43652	Network goes from pending to NA state if multiple attachments are pending and 1 is deployed
CSCwa48168	AUTO_VRF_LITE_FLAG value passed is empty on edit of IFC on upgraded 12.0.2 setup
CSCwa48178	Post multi-hop upgrade 11.2->12.0.2, meta switch name is empty
CSCwa48267	Traceback on edit of VRF-Lite IFC post upgrade to 12.0.2
CSCwa49987	Restored the backup file twice to complete the NDFC upgrade
CSCwa84457	Scale Longevity: Memory leak on Java built in HTTP client lib. - NDFC ISSU Wizard will fail

Open Issues

The following table lists the Open bugs for Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e. Click the bug ID to access the Bug Search Tool and see additional information about the caveat.

Bug ID	Description
CSCvy36545	Overlay mode CLI: Preview config for multiple networks are clubbed based on parent command
CSCvz24846	[PMN-Soln] SE-Node , reboot one node and unable to open dcnm app
CSCvz39076	Extra space generated on network attachment post upgrade to NDFC 12
CSCvz70302	Enable Smart licensing is taking more time than expected in VND/PND Setup
CSCvz73651	Rep: Programmable Report for performance failed with no error details on SAN setup
CSCwa21528	VRF attachments - Sorting not working on columns
CSCwb13035	NDFC12.1 : hyperlink in e-mail report does not redirect to the statistics view
CSCwb20987	San insights dashboard page taking 2 mins to load with 500k itl/itn
CSCwb57420	After upgrade VRFs edit without any change moves the vrf to pending state
CSCwb62482	[MSG Scale] power off one node (pnd2) and config status changed to NA for many switches
CSCwb73342	NDFC server setting to Data from mgmt, disable and reenable NDFC has POAP container is not running
CSCwb75527	NDFC Scale Regression:Performance Monitoring stopped - ES red -Blocking
CSCwb80045	Deploy of one network changes status of other pending nw to deployed for interface attach/detach
CSCwb84876	[ipfm_easyfabric] failed to load data on running recalculate config
CSCwb90993	Automation - Upgrade ND Only-Compliance call failed. Error connecting to Appo
CSCwb92517	DIRL is failing to fetch status and events data after the password change in all my fabric switches

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Bug ID	Description
CSCwb94545	When RBAC user has only DashboardUser for All domain with MSD fabrics tab UI is broken
CSCwb94757	NDFC Sanity: Serial Number of Stack Wise Config switch is incorrect
CSCwb96335	Gray area is not shown for the vPC with MCTless
CSCwb94545	When RBAC user has only DashboardUser for All domain with MSD fabrics tab UI is broken
CSCwb96335	Gray area is not shown for the vPC with MCTless
CSCwb96429	Replacement device's links are all red in the topology after completing manual RMA
CSCwb98046	CLI Mode: Edit vrf from NDO seen as pending on the ndfc
CSCwc02069	Easy Fabric: 'Unshut Host Interfaces by Default' does not take effect for preserve config = no
CSCwc02779	Deploy failure on BGW for L3 networks when fabric is in CLI mode
CSCvz73651	Rep: Programmable Report for performance failed with no error details on SAN setup
CSCvz49031	in Large fabric,there can be several reasons for arc-backup to fail on switch,reason should be soon
CSCwc06397	Topology for Host enclosures is not getting displayed for scale fabrics

Related Content

Navigating the Cisco Nexus Dashboard Fabric Controller Documentation

This document describes and provides links to the user documentation available for Cisco Nexus Dashboard Fabric Controller. To find a document online, use one of the links in this section.

Document Title	Description
Cisco Nexus Dashboard Fabric Controller Compatibility Matrix, Release 12.1.1e	Lists the Cisco Nexus and the Cisco MDS platforms and their software releases that are compatible with Cisco Nexus Dashboard Fabric Controller.
Verified Scalability Guide for Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e	Lists the supported scalability parameters for Cisco Nexus Dashboard Fabric Controller.
Cisco Nexus Dashboard Fabric Controller Configuration Guides	These configuration guides provide conceptual and procedural information on the Cisco Nexus Dashboard Fabric Controller Web GUI. • Cisco Nexus Dashboard Fabric Controller for LAN Configuration Guide, Release 12.1.x • Cisco Nexus Dashboard Fabric Controller for SAN Configuration Guide, Release 12.1.x
Cisco Nexus Dashboard Fabric Controller Installation Guide, Release 12.1.1e	These documents guide you to plan your requirements and deployment of the Cisco Nexus Dashboard Fabric Controller.
Cisco Nexus Dashboard Fabric Controller Software Upgrade Matrix	Lists the software upgrade paths that are supported for Cisco Nexus Dashboard Fabric Controller.

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Document Title	Description
Cisco Nexus Dashboard Fabric Controller Open Source Licensing, Release 12.1.1e	Provides information about the Cisco Nexus Dashboard Fabric Controller Open-Source Licensing Information.

Platform-Specific Documents

The documentation set for platform-specific documents that Cisco Nexus Dashboard Fabric Controller manages includes the following:

Cisco Nexus 2000 Series Fabric Extender Documentation

https://www.cisco.com/c/en/us/products/switches/nexus-2000-series-fabric-extenders/index.html

Cisco Nexus 3000 Series Switch Documentation

https://www.cisco.com/c/en/us/support/switches/nexus-3000-series-switches/series.html

Cisco Nexus 4000 Series Switch Documentation

https://www.cisco.com/c/en/us/support/switches/nexus-4000-series-switches/series.html

Cisco Nexus 5000 Series Switch Documentation

https://www.cisco.com/c/en/us/support/switches/nexus-5000-series-switches/series.html

Cisco Nexus 6000 Series Switch Documentation

https://www.cisco.com/c/en/us/support/switches/nexus-6000-series-switches/series.html

Cisco Nexus 7000 Series Switch Documentation

https://www.cisco.com/c/en/us/support/switches/nexus-7000-series-switches/series.html

Cisco Nexus 9000 Series Switch Documentation

https://www.cisco.com/c/en/us/support/switches/nexus-9000-series-switches/series.html

Nexus Dashboard and Services Documentation

- Cisco Nexus Dashboard Release Notes, Release 2.2.1
- Cisco Nexus Dashboard Orchestrator Release Notes, Release 3.7(1)
- Cisco Nexus Dashboard Insights Release Notes, Release 6.1.1 for Cisco DCNM
- Cisco Nexus Dashboard Capacity Planning
- Cisco Nexus Dashboard and Services Compatibility Matrix

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