

Dell Connectrix® Cisco Nexus Dashboard Fabric Controller

Version 12.0(2f)

Release Notes

Rev 01

February 7, 2022

The Dell Connectrix Cisco Nexus Dashboard Fabric Controller (NDFC) Release Notes contains information that is exclusive to NDFC Storage (SAN) functionality as a management tool for NX-OS MDS 9000 Family switches. Use this document in conjunction with related Nexus Dashboard Fabric Controller documentation located on <http://cisco.com>.

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Revision history

The following table presents the revision history of this document.

Revision	Date	Description
12.0(2f)	February 07, 2022	New Release
11.5(1)	March 8, 2021	New Release
11.4(1)	September 7, 2020	New Release
11.3(1)	February 24, 2020	New Release
11.2(1)	August 19, 2019	New Release
11.1(1)	February 11, 2019	New Release
11.0(1)	September 17, 2018	New Release
10.4(1)	November 13, 2017	New Release
10.2(1)	June 12, 2017	New Release
10.1(2)	April 3, 2017	New Release
10.1(1)	November 14, 2016	New Release
10.0(1)	August 15, 2016	New Release
7.2(3)	May 9, 2016	New Release
7.2(2a)	November 30, 2015	New Release
7.2(1)	August 10, 2015	New Release
7.1(2)	June 15, 2015	New Release
7.1(1)	March 2, 2015	New Release

Product description

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

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, 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.

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 Management 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 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 12.0.2f is installed, you can choose from one of the following personas:

- * Fabric Discovery-Discover, Monitor, and Visualize LAN Deployments.
- * Fabric Controller-LAN Controller for Classic Ethernet (vPC), Routed, VXLAN, and IP Fabric for Media Deployments.
- * SAN Controller-SAN Controller for MDS and Nexus switches. Enhanced SAN Analytics 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 for deploying microservices. This has significant improvement in both latency and effective resource utilization.

For NDFC to run on top of virtual Nexus Dashboard (vND) instance, you must enable promiscuous mode on port groups 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 EPL is enabled, you must specify External Service IP addresses in the Nexus Dashboard data interface subnet. The promiscuous mode also

needs to be enabled for the Nexus Dashboard data/fabric interface port-group. For NDFC SAN Controller, promiscuous mode only needs to be enabled 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 \(Formerly DCNM\)](#)

As always in a Dell environment, refer to the *Dell Support Matrix* available through E-Lab™ Interoperability Navigator at: <https://elabnavigator.dell.com/elc/elc/home> for the latest information on supported configurations.

The answers to many DCNM or NDFC related questions can be found in the Dell Knowledgebase located at Dell Online Support at: <http://www.dell.com/support>.

New Features and Enhancements

New Features and Enhancements in Cisco NDFC, Release 12.0(2f) and 12.0(1a)

Netflow Support

NDFC supports easy of provisioning of NX-OS NetFlow configurations in managed fabrics via new options in the Fabric Settings, Overlay Network templates and Layer-3 interface policies. After Netflow is enabled for a Fabric via fabric settings, you can turn on Netflow on an overlay network, or an interface (vlan, SVI, physical interface, sub-interface or port-channel).

Layer 4-7 Services

NDFC allows you to easily configure service leafs where L4-7 service appliances are attached. This includes the ability to steer only selective traffic to the service appliances using custom redirection policies. For enhanced visibility, NDFC also provides monitoring of redirected traffic flows using the PBR statistics data. The redirected flows in the topology view, depict the service leaf where the service node is attached, and the switches where the source and destination networks are attached along with their appropriate configuration/operational status information.

vCenter Visualizer

Virtual Machine Visualizer is a monitoring application that provides the capability to visualize and monitor the VMware vSphere cluster workloads running on the data centers managed by NDFC.

The Web UI displays the topology, a visual representation of the vCenter resources and their relationships with the data center fabric. Topology displays real-time connectivity and state information which helps in monitoring and debugging potential issues. The Web UI also provides various controls to visualize different perspectives of the topology and resource search capabilities for ease of operation.

Kubernetes Visualizer

Kubernetes Cluster Visualizer is a monitoring application that provides the capability to monitor the Kubernetes cluster workloads running on the data centers managed by NDFC.

The Web UI displays the topology, a visual representation of the Kubernetes resources and their relationships with the data center fabric. Topology displays real-time connectivity and state information which helps in monitoring and debugging potential issues. The Web UI also provides various controls to visualize different perspectives of the topology and resource search capabilities for ease of operation.

OpenStack Visualizer

OpenStack Visualizer (OpenstackViz) is a day-2 monitoring application that provides the capability to visualize and monitor the OpenStack `cluster` workloads running on the data centers managed by NDFC.

Note: This is a preview feature in Cisco Nexus Dashboard Fabric Controller, Release 12.0.2f. We recommend that you use this feature marked as BETA in your lab setup only. Do not use these features in your production deployment.

OpenstackViz establishes relationship between the OpenStack cluster workload and its host/server infrastructure running in the data center network. The Web UI displays the topology diagram, to view the compute resources and their relationships with the data center fabric. Topology displays real-time connectivity and state information which helps in monitoring and debugging potential issues.

Nexus Dashboard Orchestrator Support

You can extend multisite configuration across multiple NDFC instances using the Nexus Dashboard Orchestrator. Overlay VRF/Network configuration across multiple sites belonging to different NDFC instances can then be centrally managed via Nexus Dashboard Orchestrator.

For information about Nexus Dashboard Orchestrator Support, refer to [Nexus Dashboard Orchestrator Configuration Guide](#).

Nexus Dashboard Insights Support

Sites belonging to the NDFC can be onboarded on a remote Nexus Dashboard cluster running the Nexus Dashboard Insights application. Then appropriate Day-2 operations functionality such as software, hardware/flow telemetry, assurance, and so on, can be enabled on Nexus Dashboard Insights for the onboarded NDFC sites.

Cohosting of Fabric Discovery with Nexus Dashboard Insights

After you enable Nexus Dashboard Fabric Automation in Fabric Discovery mode, you can deploy Nexus Dashboard Insights on the same Nexus Dashboard cluster. This deployment requires a 4-node physical Nexus Dashboard cluster and supports up to 50 switches.

Two Factor User Authentication - DUO

Nexus Dashboard provides user management for all applications. Nexus Dashboard Release 2.1.2d supports Two Factor Authentication with Duo Release 6.1.1. Nexus Dashboard authenticates the user using MFA mechanism and provides Cisco-AVPair for every external call coming through the API gateway. This ensures that NDFC provides uniform authorization experience to the user like already supported RADIUS/TACACS/LDAP based remote authentication methods.

Support Real Time Notifications

In IPFM/NBM mode, the following real-time notifications are supported:

- * Switches generate real-time notifications based on Flow policy. NDFC consumes and generates Kafka notifications.
- * Egress switches generate notification on success Flow setup or tear down. NDFC generates corresponding Kafka notifications.

Storage Array Discovery

NDFC SAN Controller displays the details of a Storage Array based on the type of array discovered, and the provider's adherence to the SMI-S standards. Click on the array to load the inventory page, starting with a summary tab, and other context specific tabs based on the type of array.

New User Interface

NDFC implements a new look and feel with an intuitive React JavaScript GUI that aligns with Nexus Dashboard GUI and supports modernized topology views. Various dashboards are introduced at the global, fabric, and device level, with up-to-date health scores and performance summary.

Microservices architecture

NDFC embraces a complete Kubernetes-based microservices architecture on Nexus Dashboard. By moving away from a monolithic infrastructure to a containerized and modular infrastructure, IT can leverage this new model to enable elastic scale and improve performance and reliability.

Three-node Active-Active Cluster support

NDFC supports Active-Active high availability (HA) with a 3 node ND cluster. The Nexus Dashboard nodes must be Layer-2 adjacent on the management and data interfaces. Layer 3 reachability among Nexus Dashboard nodes will be introduced in future releases.

Single Installation mode with Feature Enabler

NDFC uses a run-time feature enabler. This feature management capability allows you to enable or disable different features and feature-sets (personas) including Fabric Controller (LAN), SAN Controller, IP Fabric for Media (IPFM), and Fabric Discovery. Depending on what features/feature-sets are enabled or disabled, the menus are dynamically updated with appropriate parent or sub-options for improved user experience.

Granular RBAC Model

NDFC supports the fine-grained Role Based Access Control (RBAC) offered by the Nexus Dashboard platform. A user can be assigned different roles in different fabrics/sites that they have access to. For this purpose, one can create different security domains on the Nexus Dashboard, associate appropriate NDFC sites/fabrics to those security domains and then indicate which user has what roles in what security domains. In summary, a user can have different roles on different ND security domains. By default, all NDFC sites are part of an 'all' domain unless they are moved to a user-defined security domain.

Email Programmable Reports

Beginning with Release 12.0.1a, you can configure NDFC to receive programmable reports over email.

User Feedback

From Release 12.0.1a, you can provide feedback on the application through the Cisco Nexus Dashboard Fabric Controller Web UI. You can ask for new features/enhancements using this feature. The request is sent to Cisco Nexus Dashboard Fabric Controller marketing team, who evaluate the requirement so that they can be included as features or enhancements in the upcoming releases.

Tech-Support and Backup & Restore

All NDFC operations including tech-support collection, scheduled backups and restore operations are now supported via an intuitive GUI-based workflow. The same process can be used to restore a DCNM 11.x backup (aka upgrade) or a NDFC 12.0.1a backup on a new NDFC installation.

Visualize Templates usage

From Release 12.0.1a, a column on **Operations > Templates** displays the number of times the template is used in the Reference Count column.

Smart Licensing using Policy

Beginning with Cisco Nexus Dashboard Fabric Controller Release 12.0.1a, you can use the Smart Licensing feature to manage licenses at device-level and renew them if required. Cisco Smart Licensing Using Policy aims to increase ease of use by enforcing fewer restrictions with a goal of not interrupting the operations of customer networks.

Easy Fabric Support for Cisco Catalyst Switches

The Fabric Builder functionality has been enhanced in release 12.0.1a, to support a new fabric template **Easy_Fabric_IOS_XE** that allows full configuration automation of a VXLAN EVPN fabric for Catalyst 9000 IOS-XE switches.

Managed Support for IOS-XR Devices

In NDFC12.0.1a and above, Cisco IOS-XR devices such as ASR-9000, NCS-5500, and Cisco 8000 (preview feature) series routers can be managed in External Fabrics in managed mode. NDFC packages several best-practice configuration templates for IOS-XR systems to support various use cases related to edge router and core router scenarios. In managed mode, **Configuration Compliance** is enabled for all Cisco devices in External Fabrics including IOS-XR devices.

Configuring Overlay VRFs/Networks in Easy Fabrics using CLI or Configuration Profiles

In DCNM 11.x release, in Easy Fabric based VXLAN EVPN deployments, overlay configuration intent was created and deployed on Nexus switches using configuration profiles. Now with NDFC 12.0.1a release and above, one can configure overlays using either vanilla CLIs or using configuration profiles. The user can make this choice on a per fabric basis where a configuration knob has been provided to select the desired overlay mode.

Bulk Import of Network Attachments

For quick overlay provisioning, NDFC 12.0.1a and above supports a csv import/export option that allows bulk attach/detach of multiple networks on multiple switches at one go.

Changing Switch management IP address

After importing and management of NX-OS device via its seed IP address, now can you change the seed IP address of a switch on the NDFC in a nondisruptive manner without requiring the device to be deleted and reimported. This ensures that all state about that device is maintained on the NDFC during this entire transition.

New view for All Fabrics

For quick overlay provisioning, NDFC 12.0.1a and above supports importing or exporting (in .csv format) that allows bulk attaching or detaching of multiple networks on multiple switches at one go.

Easy Fabric for IP for Media Network underlay

From Release 12.0.1a, you can configure IP for Media (IPFM) fabrics using the new IPFM fabric templates and policies. Two new templates, namely **IPFM_Classic** and **Easy_Fabric_IPFM**, allow you to easily provision the underlay network for the IPFM fabrics. This allows closed loop automation of IPFM networks with the built-in Fabric Builder functionality of Fabric Controller deployments.

IPFM_Classic template supports IPFM_Classic and Generic_Multicast mode.
Easy_Fabric_IPFM template supports Greenfield deployments only.

Support for EDI monitoring

From Release 12.0.1a, Cisco NDFC allows you to view all the active RTP streams along with the existing EDI streams on the RTP/EDI Flow Monitor tab in IPFM Fabric Overview.

Multi-tenancy at VRF level for IPFM fabric

By configuring IPFM VRF and related attributes, you can manage and monitor VRF-specific host/flow policies, endpoints, and flows. Also, VRF aware flow visibility for Generic Multicast Fabric is also supported.

IPFM dashboard

Endpoints/Hosts and Flows cards display details about IPFM fabrics on **Fabrics > Fabric Overview > Overview** tab for the selected IPFM Fabric. **Hosts** card displays details such as host role and count. **Flows** card displays Multicast flow class and count.

Monitor Optics Metrics

You can view optic metric information for devices connected to FC ports. You can view the top 10 worst optic dashlets on the Dashboard.

Rename Device Alias

From NDFC Release 12.0.1a, you can edit and modify the device aliases.

Zoning

From SAN Controller Release 12.0.1a, Regular zones and IVR zones are merged into a single zoning page. Enhanced Zoning and FC Alias features are supported for regular zones. CFS feature is supported for IVR zones.

Port Monitoring

- ‡ New port monitoring policy **fabricmon_edge_policy** is introduced.
- ‡ You can change the required port type for the selected policy, apart from the predefined port.
- ‡ New port guards FPIN, DURL, and cong-isolate-recover are added for edge port type only.
- ‡ Dynamic Ingress Rate Limiting (DIRL) allows you to automatically limit the rate of ingress commands and other traffic to reduce or eliminate the congestion that is occurring in the egress direction. DIRL Congestion is a preview feature in SAN Controller Release 12.0.1a. Don't use this feature in your production environment.

SAN Insights Enhancements

- ‡ You can configure SAN fabrics on the topology page and on the fabric listing page.
- ‡ The new SAN Insights Anomaly policy enables you to create customized alarms to identify issues in fabric using SAN Insight data. You can create an alarm policy based on specific flows to retain per interval data for analysis. You can view the metric charts and dashlets for this policy.
- ‡ Scale Enhancements: Three node virtual Nexus Dashboard supports 150,000 ITLs/ITNs.

Topology Enhancements

From Release 12.0.1a, NDFC displays information about the following on **Web UI > Topology**.

- ‡ VSANs
- ‡ s Zones
- ‡ Hosts
- ‡ Storage
- ‡ Last Poll Metric

Licensing model

Two types of Cisco DCNM-SAN licenses are available:

- † Cisco DCNM-SAN Essentials Edition (comparable to Cisco Fabric Manager) is included at no charge with every Cisco MDS 9000 hardware purchase. No license is required to use these features because they are unlocked with the image.
- † Cisco DCNM-SAN Advanced Edition (comparable to Cisco Fabric Manager Server) provides additional capabilities and is required to use the Virtual Machine Topology and Performance feature and the Performance Forecasting Charts feature. The Advanced Edition licenses have the following part numbers:

Product Name	Part Number
DCNM for SAN Advanced Edition for MDS 9700	DCNM-SAN-M97EK9
DCNM for SAN Advanced Edition for MDS 9500	DCNM-SAN-M95EK9
DCNM for SAN Advanced Edition for MDS 9200	DCNM-SAN-M92EK9
DCNM for SAN Advanced Edition for MDS 9100	DCNM-SAN-M91EK9

For a description of the license differences between Fabric Manager and Data Center Network Manager, refer to the following tech note:

<https://www.cisco.com/c/en/us/td/docs/dcn/ndfc/1201/licensing/smart-licensing-using-policy-for-cisco-ndfc-1201.html>

Fixed problems

Cisco-specific caveats for resolved problems can be found in the Cisco release-noted documentation at the following Cisco website:

http://www.cisco.com/en/US/products/ps9369/tsd_products_support_series_home.html

Environment and system requirements

The following sections describes the various system requirements for the proper functioning of your Cisco Nexus Dashboard Fabric Controller, Release 12.0.2f:

- † [“Cisco Nexus Dashboard Version Compatibility” on page 10](#)
- † [“Nexus Dashboard Server Resource \(CPU/Memory\) Requirements” on page 11](#)
- † [“Nexus Dashboard Networks” on page 11](#)
- † [“For more information, refer to Cisco Nexus Dashboard Deployment Guide.” on page 13](#)
- † [“Supported Web Browsers” on page 13](#)
- † [“Other Supported Software” on page 13](#)

Cisco Nexus Dashboard Version Compatibility

Cisco Nexus Dashboard Fabric Controller (NDFC) requires Nexus Dashboard version **2.1(2d)** or higher. If you try to upload NDFC 12.0.2f on a Nexus Dashboard version earlier than 2.1(2d), 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

Table 1 Server Resource (CPU/Memory) Requirements to run NDFC on top of ND

Deployment Type	Node Type	CPUs	Memory	Storage (Throughput: 40-50MB/s)
Fabric Discovery	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
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	64GB	550GB SSD
	Data Node (vND) - Data OVA (with SAN Insights)	32vCPUs	128GB	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. The interfaces between different nodes that belong to the same Nexus Dashboard cluster, must be within the same Layer-2 Network and Layer-3 subnet.

Connectivity between the Nexus Dashboard nodes is required on both networks with the round-trip time (RTT) not exceeding 50ms. Other application 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. We recommend consulting the [Cisco Nexus Dashboard Deployment Guide](#) for more information.

Table 2 Network Requirements for NDFC on Nexus Dashboard

Management Interface	Data Interface	Persistent IPs	Support for Data and Management in the same subnet
Layer 2 adjacent	Layer 2 adjacent	One of the following for LAN: • 2 IPs in management network if using the default LAN Device Management Connectivity setting • 2 IPs in data network if setting LAN Device Management Connectivity to Data Plus one IP per fabric for EPL in data network Plus one IP for Telemetry receiver in data or management network if IP Fabric for Media is enabled. For SAN: • 2 IPs in data network Plus one IP per node in data network for SAN Insights receiver if enabled.	Not supported

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 associated with the Nexus Dashboard Management and/or Data vNICs where IP stickiness is required. The Persistent IP addresses are given to the pods (e.g., SNMP Trap/Syslog receiver, Endpoint Locator instance per Fabric, SAN Insights receiver, etc.). 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 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 matches the Source-MAC associated with that vNIC. In the case of 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, we need to enable the required settings on the VMware side to allow this traffic to flow seamless in and out of the vND node.

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 is dependent on Cisco Nexus Dashboard. Refer to [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 96.0.4664.93
- * Microsoft Edge version 96.0.1054.43 (64-bit)
- * Mozilla Firefox version 94.0.2 (64-bit)

Other Supported Software

The following table lists the other software that is supported by Cisco Nexus Dashboard Fabric Controller Release 12.0.2f.

Table 3 Other software supported by Cisco Nexus Fabric Controller Release 12.0(2f)

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 and 1.2 • TLS 1.3

In addition, Cisco NDFC supports the following types of events:

Dell Call Home events, fabric change events, and events that are forwarded by traps and email.

Hardware supported

Table 4 lists the products and components that Cisco NDFC Release 12.0(1) supports.

Table 4 Hardware features supported by Cisco NDFC Release 12.0(2f) (page 1 of 2)

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
Cisco MDS 9222i Multilayer Fabric Switch	DS-C9222i-K9
Hardware features supported by Cisco NDFC Release 12.0.(2f)	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

**Table 4 Hardware features supported by Cisco NFDC
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Product/Component	Part Number
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
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

Compatibility with Cisco MDS 9000 Family switches

[Table 5](#) shows the Cisco NDFC Compatibility Matrix for Release 12.0(1).

Table 5 Cisco NDFC Compatibility Matrix

Switches	Supported Switch Releases
Cisco MDS 9100	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	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	9.2(1), 8.5(1)
Cisco MDS 9300	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	9.2(1), 8.4(2c), 8.5(1), 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)
Cisco MDS 9700	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)

Compatibility with Cisco MDS 9000 Family switches

Table 6 shows the Cisco NDFC Compatibility Matrix for Release 12.0(1).

Table 6 Cisco NDFC Compatibility Matrix (page 1 of 2)

Platform/Compatible	Cisco NX-OS Release Where Specified
Cisco MDS 9100	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)
Switches	Supported Switch Releases
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	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	9.2(1), 8.5(1)

Table 6 Cisco NDFC Compatibility Matrix (page 2 of 2)

Platform/Compatible	Cisco NX-OS Release Where Specified
Cisco MDS 9300	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	9.2(1), 8.4(2c), 8.5(1), 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)
Cisco MDS 9700	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)

Known problems and limitations

For a list of problems with this release, please refer to the Cisco release notes located at:

<https://www.cisco.com/c/en/us/support/cloud-systems-management/prime-data-center-network-manager/series.html>

Technical notes

This section contains technical notes.

Dell Email Home for Cisco MDS switches

Configuration and troubleshooting instructions, prerequisites, and other caveats can be found in the Dell Connectrix Procedure Generator. The Connectrix Procedure Generator can be downloaded from Dell Online Support, <https://www.dell.com/support>. Search for **Connectrix Procedure Generator**.

Customers requiring installation of this solution should contact their Dell EMC Customer Engineer to assist with the installation and provide the documentation.

Documentation

Send documentation comments to www.cisco.com.

Location of Cisco NDFC documentation

The Cisco NDFC documentation is available at the following URL:

<https://www.cisco.com/c/en/us/support/cloud-systems-management/prime-data-center-network-manager/series.html>

The documentation set for Cisco NDFC includes the following Cisco NDFC Release Notes, release 12.x documents:

Release Notes

Cisco NDFC Release Notes, release 12.0.1x

Cisco NDFC Release Notes, Release 12.0.2.x

Installation and Licensing

Cisco NDFC OVA Installation Guide, Release 12.0.x

Cisco NDFC Fundamentals Guide

Cisco NDFC Configuration, Release 12.0.x

Cisco NDFC REST API Guide

Cisco NDFC REST API Guide, Release 12.0.x

Cisco NDFC Troubleshooting Guide

<https://www.cisco.com/c/en/us/support/cloud-systems-management/prime-data-center-network-manager/series.html>

Software media, organization, and files

For information on related software environment and system requirements refer to the *Dell Support Matrix* located on E-Lab Interoperability Navigator at <https://elabnavigator.dell.com/eln/elnhome> under the **PDFs and Guides** tab.

To download the latest Nexus Dashboard Fabric Controller software, navigate to Dell Online Support, <https://www.dell.com/support>. Search for **Nexus Dashboard Fabric Controller**.

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:

- * SAN Controller with SAN Insights
- * Fabric Controller for IP Fabric for Media (IPFM) deployments
- * Fabric Controller for lab/non-production environments (<= 25 switches)

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

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

- * Fabric Discovery
- * Fabric Controller
- * SAN Controller with or without SAN Insights

Note: For NDFC deployments, the Nexus Dashboard node should have a different subnet on the management interface and the data/fabric interface. In addition, in a 3-node Nexus Dashboard cluster, all Nexus Dashboard nodes should be layer-2 adjacent. In other words, the 3 Nexus Dashboard nodes must all belong to the same management and data networks respectively. In summary, Nexus Dashboard Fabric Controller is not supported on Nexus Dashboard nodes that are deployed with management and data networks using overlapping subnets.

NDFC on a 5-node vND Cluster (Active-Active HA mode)

From Release 12.0.2f, on 5-Node Nexus Dashboard, you can deploy NDFC with the following personas:

- * Fabric Discovery
- * Fabric Controller

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 will perform normally under one node failure scenarios. 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 function 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 failure of two nodes and all NDFC services will be disrupted.

For virtual Nexus Dashboard OVA deployments on ESXi environments, it is imperative that promiscuous mode is enabled on the port groups 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.

For more information on Installation, refer to

<https://www.cisco.com/c/en/us/td/docs/dcn/ndfc/1202/installation/cisco-ndfc-install-and-upgrade-guide-1202.html>

Deployment Profiles

While enabling Cisco Nexus Dashboard Fabric Automation, based on the persona, you can choose a deployment profile. When deploying the application, the Nexus Dashboard indicates the deployment profile that is chosen for the cluster form factor. This generally does not need to be overridden, unless explicitly stated below:

To choose an appropriate profile, refer to the following recommendations.

virtual-demo

This deployment profile must be selected for the application running on a virtual Nexus Dashboard cluster deployed using the app OVA.

Note: You can override this profile only when enabling the application on the Nexus Dashboard.

Supported deployment personas include:

- ‡ Fabric Discovery in a single node cluster
- ‡ Fabric Controller deployment in single node cluster
- ‡ Fabric Controller with IPFM in a single node cluster
- ‡ SAN Controller deployment with SAN Insights in a single node cluster

Note: **virtual-demo** profile is purely for demo purposes and not intended to be used for production environments.

virtual-app

This deployment profile must be selected for the application running on a virtual Nexus Dashboard cluster deployed using the app OVA. By default, this profile is selected when the application is enabled on a app node virtual Nexus Dashboard.

Supported deployment personas include:

- ‡ Fabric Controller in 3-node or 5-node cluster
- ‡ Fabric Controller with IPFM in single or 3-node cluster
- ‡ SAN Controller in single or 3-node cluster

Note: SAN Insights is not supported with this deployment profile.

virtual-data

This deployment profile must be selected for the application running on a virtual Nexus Dashboard cluster deployed using the data OVA. This profile should be used for the SAN Controller persona with SAN Insights.

By default, this profile will be selected when the application is enabled on a data node virtual Nexus Dashboard.

Supported deployment personas include:

- * SAN Controller in single or 3 node cluster

Note: SAN Insights is supported with this deployment profile in single or 3 master cluster node

Physical

This deployment profile must be selected for the application running on a physical Nexus Dashboard cluster.

By default, this profile will be selected when the application is enabled on a physical Nexus Dashboard.

Supported deployment personas include:

- * Fabric Controller in 3 node cluster
- * Fabric Controller with IPFM in single or 3 node cluster
- * SAN Controller in single or 3 node cluster

Note: SAN Insights is supported with this deployment profile.

For more information, refer to

<https://www.cisco.com/c/en/us/td/docs/dcn/ndfc/1202/installation/cisco-ndfc-install-and-upgrade-guide-1202.html>

Upgrade Paths to Release 12.0.2f

The following table summarizes the type of upgrade that you must follow to upgrade to Release 12.0.2f. Go to [Software Download](#) to download the Upgrade Tool scripts.

Table 7 (page 1 of 2) Upgrade paths to release 12.0(2f) (page 1 of 2)

Current Release Number	Deployment Type	Upgrade type when upgrade to Release 12.0.2f
12.0.1a	All	1. Upgrade Nexus Dashboard version 2.1.1e to version 2.1.2d 2. Upgrade NDFC application to 12.0.2f.
11.5(3)	LAN Fabric Deployment Note: Media Controller and all SAN deployments are not supported in Release 11.5(3).	1. Backup using DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip 2. Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore
11.5(2)	SAN Deployment on Windows and Linux	1. Backup using DCNM_To_NDFC_Upgrade_Tool_LIN_WIN.zip 2. Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore
	SAN Deployment on OVA/ISO/SE	1. Backup using DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip 2. Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore
	LAN Fabric Deployment on OVA/ISO/SE	1. Backup using DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip 2. Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore

Table 7 (page 2 of 2) Upgrade paths to release 12.0(2f) (page 2 of 2)

Current Release Number	Deployment Type	Upgrade type when upgrade to Release 12.0.2f
11.5(1)	SAN Deployment on Windows and Linux	1.Backup using DCNM_To_NDFC_Upgrade_Tool_LIN_WIN.zip 2.Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore
	SAN Deployment on OVA/ISO/SE	1.Backup using DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip 2.Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore
	LAN Fabric Deployment on OVA/ISO/SE	1.Backup using DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip 2.Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore
	Media Controller Deployment on OVA/ISO	1.Backup using DCNM_To_NDFC_Upgrade_Tool_OVA_ISO.zip 2.Restore on Nexus Dashboard Fabric Controller Web UI > Operations > Backup & Restore

Persona Compatibility for Upgrade

By using the appropriate Upgrade Tool, you can restore data that is backed up from DCNM Release 11.5(1) or 11.5(2) or 11.5(3) on a newly deployed Cisco Nexus Dashboard Fabric Controller for the personas as mentioned in the following table:

Backup from DCNM 11.5(x) ^{1,2}	Persona Enabled in NDFC 12.0.2f after Upgrade
DCNM 11.5(x) LAN Fabric Deployment on OVA/ISO/SE	Fabric Controller + Fabric Builder
DCNM 11.5(x) PMN Deployment on OVA/ISO/SE	Fabric Controller + IP Fabric for Media (IPFM)
DCNM 11.5(x) SAN Deployment on OVA/ISO/SE	SAN Controller
DCNM 11.5(x) SAN Deployment on Linux	SAN Controller
DCNM 11.5(x) SAN Deployment on Windows	SAN Controller

1. All references to 11.5(x) are for 11.5(1) or 11.5(2). Upgrade to NDFC 12 from DCNM 11.5(3) is supported for LAN Fabric Deployments only.
2. DCNM Release 11.5(3) does not support Media Controller and SAN deployments

Feature Compatibility Post Upgrade

The following table lists caveats associated with features that are restored from DCNM 11.5(x) backup after upgrade to NDFC, Release 12.0.2f.

Feature in DCNM 11.5(x)	Upgrade Support
Nexus Dashboard Insights configured Refer to Nexus Dashboard Insights User Guide for more information.	Supported
Container Orchestrator (K8s) Visualizer	Supported
VMM Visibility with vCenter	Supported
Nexus Dashboard Orchestrator configured	Not Supported
Preview features configured	Not Supported
LAN switches in SAN installations	Not Supported
Switches discovered over IPv6	Not Supported
DCNM Tracker	Not Supported
SAN CLI templates	Not carried over from 11.5(x) to 12.0.2f
Switch images/Image Management data	Not carried over from 11.5(x) to 12.0.2f
Slow drain data	Not carried over from 11.5(x) to 12.0.2f
Infoblox configuration	Not carried over from 11.5(x) to 12.0.2f
Endpoint Locator configuration	You must reconfigure Endpoint Locator (EPL) post upgrade to Release 12.0.2f. However, historical data is retained up to a maximum size of 500 MB.
Alarm Policy configuration	Not carried over from 11.5(x) to 12.0.2f
Performance Management data	CPU/Memory/Interface statistics up to 90 days is restored post upgrade.

Troubleshooting and getting help

Dell support, product, and licensing information can be obtained on the Dell Online Support site as described below.

Note: To open a service request through the Dell Online Support site, you must have a valid support agreement. Contact your Dell sales representative for details about obtaining a valid support agreement or to answer any questions about your account.

Product information

For documentation, release notes, software updates, or for information about Dell products, licensing, and service, go to the Dell Online Support site (registration required) at:

<https://dell.com/support>

Technical support

Dell offers a variety of support options.

Support by Product — Dell offers consolidated, product-specific information on the Web at:

<https://dell.com/support/products>

The Support by Product web pages offer quick links to Documentation, White Papers, Advisories (such as frequently used Knowledgebase articles), and Downloads, as well as more dynamic content, such as presentations, discussion, relevant Customer Support Forum entries, and a link to Dell Live Chat.

Dell Live Chat — Open a chat or instant message session with an Dell Support Engineer.

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