Cisco Nexus Dashboard Fabric Controller Release Notes

Release 12.1.3b

Change History

Date	Description
September 13, 2023	Added links to relevant documents in New Software Features.
September 12, 2023	Additional open issue CSCwh53141.
August 23, 2023	Release 12.1.3b became available.

Product Overview

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

This document describes the features, bugs, and limitations for Cisco NDFC release 12.1.3b.

Cisco NDFC focuses on control and management for three primary market segments:

- LAN including VXLAN EVPN, VXLAN EVPN Multi-Site, Classic Ethernet, and External fabrics supporting Cisco Nexus switches with NX-OS, additional support for IOS XR, IOS XE, and adjacent host, compute, virtual machine, and container management systems.
- SAN for Cisco MDS and Cisco Nexus switches with NX-OS, including support for integration with storage arrays and additionally host, and Virtual Machine systems.
- Media control for Multicast video production networks using Cisco Nexus switches operating as standalone NX-OS, with additional integrations for 3rd party media control systems.

Cisco NDFC and Nexus Dashboard

Cisco NDFC is available as an application running exclusively with 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.

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

Services	Compatible Version
Nexus Dashboard	3.0.1f
Nexus Dashboard Fabric Controller	12.1.3b

Note: Cisco will no longer support the deployment of Nexus Dashboard (ND) on Red Hat Enterprise Linux (RHEL) in any future releases. Cisco Nexus Dashboard release 3.0.1 and Cisco Nexus Fabric Controller

(NDFC) 12.1.3 will be the last releases that this form factor will be supported. Please work with partners or Cisco representative to leverage other supported form factors for future releases.

Cohosting of NDFC-Managed mode with Nexus Dashboard Insights (NDI)

For information about supported scale for NDFC and NDI co-hosted on the same Nexus Dashboard Cluster, see Verified Scalability Guide for Cisco Nexus Dashboard Fabric Controller.

For information about supported scale for NDFC on Nexus Dashboard Cluster, and Insights and Orchestrator services on a different Nexus Dashboard Cluster, see Verified Scalability Limits for Nexus Dashboard Insights.

System Requirements

For details about the tested and verified hardware and software specifications for Cisco NDFC, see Verified Scalability Guide for Cisco Nexus Dashboard Fabric Controller.

New Software Features

The following sections include information about the new features, enhancements, and hardware support introduced in this release.

Preview Features

The following Preview Features are available in Cisco NDFC Release 12.1.3b for Fabric Controller persona.

Product Impact	Features	Description
Performance and Scalability	Layer 4 to Layer 7 service load balancing, and traffic steering and redirection for a single site using enhanced policy-based redirect (ePBR)	Support is available for Layer 4 to Layer 7 service load balancing, and traffic steering and redirection for a single site using enhanced ePBR.

Common Enhancements to all Personas

Product Impact	Features	Description
Base Functionality	IPv6 support	Prior releases of Nexus Dashboard supported either pure IPv4 or dual stack IPv4/IPv6 (for management network only) configurations for the cluster nodes. With release 3.0(1), Nexus Dashboard supports pure IPv4, pure IPv6, or dual stack IPv4/IPv6 configurations for the cluster nodes and services. For more information about IPv4 and IPv6 Support, see the Nexus Dashboard Deployment Guide.

Product Impact	Features	Description
Ease of Use	Enhanced License Management workflow	The workflow for the License Management feature has been enhanced to make it easier to configure license management in the NDFC. With 12.1.3b, you can configure switched-based licenses, NDFC smart licenses, or a combination of both in a streamlined manner. For more information, see • LAN: License Management • SAN: License Management

Fabric Controller Enhancements

Product Impact	Feature	Description
Base Functionality	Private VLAN support in Data Center VXLAN EVPN Fabric	NDFC supports provisioning of private VLANs in Data Center VXLAN EVPN, BGP with EVPN VXLAN enabled, and External fabrics. The overlay network deployment workflow is enhanced to support flexible provisioning of primary and secondary VLANs on Virtual Tunnel End Points (VTEPs). For more information, see About Fabric Overview for LAN Operational Mode Setups.
	Shared Group Policy	You can now create group policies for switches that share common configurations. Policy groups provides a method of configuring and managing switches collectively. For more information, see About Fabric Overview for LAN Operational Mode Setups.
	VXLANv6 support in BGP fabrics	BGP fabric now supports EVPN VXLAN fabric with IPv6 as the underlay. VXLANv6 BGP fabric supports IPv6 link local address for intra-fabric links and eBGP unnumbered peering between the switches. For more information, see BGP Fabric.
	Super-Spine support in BGP fabrics	BGP fabric now supports Super-Spine and Border Super-Spine roles on VXLAN EVPN fabrics with BGP as the underlay protocol. For more information, see BGP Fabric.
	Unique IP address allocation for Virtual Routing and Forwarding (VRF) extensions	Support is available for automatically allocating a unique IPv4 address for the source and the destination interfaces for VRF extensions using VRF Lite Inter-Fabric Connection (IFC). For more information, see Data Center VXLAN EVPN.
	Loopback IP address allocation on VTEPs for VRF attachment	NDFC automatically allocates an IPv4 address from the IP address pool assigned to the loopback interfaces on VTEPs for each VRF instance. For more information, see Data Center VXLAN EVPN.

Product Impact	Feature	Description
Ease of Use	Single-node virtual Nexus Dashboard (vND) deployment	NDFC now supports single-node vND deployment (Production Deployments) for Fabric Controller and Fabric Discovery modes for up to 50 switches. For more information, see Verified Scalability Guide for Cisco Nexus Dashboard Fabric Controller.
	Enhanced Classic LAN Fabric support for greenfield and brownfield deployments	A new fabric template is available for automated provisioning of 3-tier Access-Aggregation-Core related vPC deployments. This includes easy provisioning of FHRP and VRF Lite connectivity on the Aggregation-Core tiers, with support for greenfield and brownfield deployments of Nexus 7000 and 9000 switches. The Classic LAN, Enhanced Classic LAN, and External Connectivity Network fabrics can be part of a Fabric Group. For more information, see: • Enhanced Classic LAN • Managing Legacy/Classic Networks
	Ability to export multiple templates	You can now export multiple template configuration files to a local directory. For more information, see Templates.
	One view for multi-cluster NDFC deployments	When you federate multiple NDFC-managed fabric clusters in Nexus Dashboard, you can view their aggregated status information in the One View Dashboard for NDFC LAN. This allows a remote user to monitor a multi-cluster network from one screen. For more information, see One View Dashboard for NDFC LAN.
	Ability to clear invalid alarms	You can now clear fabric discovery-related invalid alarms from Event Analytics. For more information, see Event Analytics.
Interoperability	VXLAN EVPN Multi-Site across Data Center and Campus VXLAN fabrics	You can now deploy Campus EVPN VXLAN fabrics as member fabrics in VXLAN EVPN Multi-Site fabric. For more information, see VXLAN EVPN Multi-Site.
	Layer 4 to Layer 7 Services support for Virtual Network Functions (VNF) attachment	You can now use remote peering for Virtual Network Functions (VNF) Layer 4 to Layer 7 service devices, which allows for the separation of a VNF service node's control plane peering from the physical port attachment. Support is also available for configuring per-VRF peering through the vPC peer-link so that you do not have to configure the vPC advertise-pip setting for all the vPC pairs in a fabric. For more information, see Layer 4 to Layer 7 Services Configuration.

Product Impact	Feature	Description
	Nexus 9000 Series switches supported on Campus VXLAN EVPN fabric	Existing Campus VXLAN EVPN fabric supports automating and managing enterprise Campus VXLAN BGP EVPN networks with Catalyst 9000 series switches. With this release, you can integrate a Nexus 9000 switch with border gateway functionality to connect remote Data Centers and Campus with VXLAN EVPN Multi-Site Layer 2 and Layer 3 extensions. For more information, see Campus VXLAN EVPN.
Licensing	Licensing support for third-party devices	Licenses for third-party devices are supported in the Data Center Networking (DCN) Essentials subscription. You can purchase the DCN Essentials subscription for Arista and Juniper devices onboarded on NDFC. For more information, see License Management.
Security	Intent-based change control management	You can track configuration changes using a unique ticket that is associated with an action. For more information, see Change Control and Rollback.
	Rollback capability of change control tickets	This feature allows you to roll back deployed or undeployed change control tickets in situations where a change was started but then a decision was made to abandon that change. For more information, see Change Control and Rollback.
Performance and Scalability	Basic performance monitoring for Catalyst 9000 switches	You can monitor CPU utilization, inbound and outbound traffic, and temperature data of Catalyst switches. For more information, see About Fabric Overview for LAN Operational Mode Setups.
Upgrade/Downgrade	Cisco Catalyst 9000 Out-of-Band (OOB) Plug and Play (PnP)	This feature simplifies the process of onboarding new devices with a zero-touch deployment experience. PnP automates the day-zero provisioning of Cisco Catalyst 9000 Series switches using NDFC. For more information, see Out-of-Band PnP in Campus VXLAN EVPN Fabrics.
	Software Image Management and Return Material Authorization (RMA)	All functionalities of NDFC Image Management and RMA features are available for the Cisco Catalyst switches. For more information, see Add Switches for LAN Operational Mode.

Fabric Controller with IP Fabric for Media (IPFM) Enhancements

Product Impact	Feature	Description
Base Functionality	Sub-interface support	A new fabric template is added to support sub-interfaces with Non-Blocking Multicast (NBM) active and passive modes. You can use the same sub-interfaces to create intra-fabric links between switches in an IPFM fabric.

Product Impact	Feature	Description
	Ability to manage interface and sub-interface multicast bandwidth capacity	Using IPFM interface templates, you can manage and distribute multicast bandwidth capacity among physical and sub-interfaces.
Security	Real-time PTP notifications	You can subscribe to switch-related real time events to get additional notifications for PTP grandmaster clock, parent clock or PTP port status changes.

SAN Controller Enhancements

Product Impact	Feature	Description
Base Functionality	Automatic registration of syslogs	Support is available for switches to automatically configure syslog and send syslog messages to the NDFC server. For more information, see Event Analytics.
	Enhancements to Feature Management	Fibre Connection (FICON) in Feature Management enables switch communication with IBM z Systems Mainframes. When enabled, NDFC provides details about the FICON interfaces on the switches. For more information, see Overview and Initial Setup of Cisco NDFC.
	Integration of Fabric-Device Management Interface (FDMI) and Read Diagnostics Parameters (RDP)	NDFC introduces additional monitoring features for Host and Storage Devices. FDMI retrieves management information about the attached Fibre Channel HBAs and host operating systems. RDP provides diagnostic data from the switch and the connected end devices which you can use for analyzing and troubleshooting link issues. For more information, see • Overview and Initial Setup of Cisco NDFC • Storage
Ease of Use	Enhancements to SAN Controller Dashboard	SAN Controller Dashboard now displays details about the top 10 congested end devices and Inter Switch Links (ISL). For more information, see Overview and Initial Setup of Cisco NDFC.
	Navigation changes to Hosts and Storage Devices	With this release, the configuration pages for Hosts and Storage Devices are available from SAN > Hosts and SAN > Storage Devices. Prior to this release, these features were available in the SAN Dashboard. For more information, see • Overview and Initial Setup of Cisco NDFC • Storage

Product Impact	Feature	Description
	Optics alerts with alarm policies	You can configure alarm policies to monitor Rx/Tx power, current and voltage for a switch interface. For more information, see Event Analytics.
	Zone migration	You can migrate SAN zones from a Brocade switch to an MDS switch using the Zone Migration wizard. NDFC also provides an option to view the list of unzoned end devices in a fabric. For more information, see Configure Zoning.
	Execute CLI feature	The Execute CLI feature has been updated with the following enhancements: • Includes a Session Timeout field. • Has additional options when providing the CLI commands to be executed on the switches and when viewing the Execute CLI output. For more information, see Add Switches for SAN Operational Mode.
	Enabling or disabling switch interfaces	You can run the shutdown or no shutdown commands on a switch interface. NDFC also supports adding a description for an interface. For more information, see About Fabric Overview for SAN Operational Mode Setups.
	Ability to download Device Manager application	With this release, you can download and install a standalone Device Manager application on your local system. For more information, see Add Switches for SAN Operational Mode.
	New and improved NPV configuration workflow	The NPV configuration wizard simplifies configuring NPV links. For more information, see Add SAN Links.
Interoperability	Support for app node deployments with SAN Insights	Prior to the NDFC 12.1.3b release, SAN Insights was supported on physical and data nodes. With this release, the SAN Insights feature is also supported on app node deployments for Nexus Dashboard; however, the app node supports SAN Insights at the Initiator-Target (IT) flow level only. For more information, see SAN Insights.
Performance and Scalability	Support for management and data interfaces in a single subnet	With this release, for SAN deployments, the management and data interfaces on a Nexus Dashboard node can now be in a single subnet. For more information, see Cisco Nexus Dashboard Fabric Controller Installation and Upgrade Guide, Release 12.1.3.

Product Impact	Feature	Description
	Performance monitoring and slow drain data collection with NX-API	For Cisco MDS 9000 Series switches using NX-OS release 9.x and later, performance monitoring data is polled using NX-API for fibre channel. In addition, the slow drain job is integrated with performance monitoring and runs together with the performance monitoring collection for 24 hours, by default. For more information, see About Fabric Overview for SAN Operational Mode Setups.

New Hardware Features

The following is the list of new hardware supported with this release.

- DS-C9396V-K9 – Chassis for 96 port 8/16/32/64G FC/SUP-4 switch
- DS-C9396V-K9 – SUP: Supervisor module for MDS-9396V 64G x 96 FC ports fabric switch
- N9K-C9348GC-FX3 – 48 10/100/1000M copper RJ45 downlink ports, 4 10-/25G SFP28 uplink ports, and 2 40-/100G QSFP28 uplink ports.
- N9K-C9348GC-FX3PH – 40 10M/100M/1G copper RJ45 downlink ports that support PoE/PoE+/PoE++ and 8 10M/100M copper RJ45 downlink ports that support PoE/PoE+/PoE++, 4 10-/25G SFP28 uplink ports, and 2 40-/100G QSFP28 uplink ports.
- N9K-C9804 – Cisco Nexus 9800 Series 4-slot chassis
- N9K-C9332D-H2R – Cisco Nexus 9300 series Leaf/Spine/TOR chassis with 32 400G ports and 2 1/10 ports
- N9K-X98900CD-A – Cisco Nexus 9800 34-port 100G and 14-port 400G Line Card

Compatibility

Cisco Nexus Dashboard Version Compatibility

NDFC requires Nexus Dashboard version 3.0.1f or later. If you try to upload NDFC 12.1.3b on a Nexus Dashboard version earlier than 3.0.1f, you will not be allowed to upload the application.

Supported Cisco Platforms and Software Versions

For compatibility of NDFC release 12.1.3b with various switches, applications, and other devices, see Compatibility Matrix for Nexus Dashboard Fabric Controller.

For compatibility of NDFC release 12.1.3b with specific Nexus Dashboard, services, and fabric versions, see the Cisco Nexus Dashboard and Services Compatibility Matrix.

For information on cluster sizing guidelines, co-hosting scenarios, and supported form factors, see Nexus Dashboard Capacity Planning tool.

For the list of supported non-Nexus and third-party platforms in this release, see the Compatibility Matrix for Cisco NDFC.

Supported Web Browsers

Cisco NDFC is supported on the following Web browsers:

- Google Chrome version 109.0.5414.87 (64 bit)
- Microsoft Edge version 109.0.1518.61 (64 bit)
- Mozilla Firefox version 108.0.1 (64 bit)

Other Supported Software

The following table lists the other software that is supported by Cisco NDFC Release 12.1.3b.

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

Open Issues

The following table lists the Open bugs for Cisco NDFC, Release 12.1.3b. Click the bug ID to access the Bug Search Tool and see additional information about the caveat.

Bug ID	Description	Exists in
CSCwe53978	Persistent configuration difference is observed for 'ip dhcp relay address' command.	12.1.2 and later
CSCwe60313	When creating port-channel interfaces on Cisco Catalyst 9000 series switches, your deployment might fail and display one of the following messages: • Deployment failure of " channel-group 6 mode active" with error " Delivery failed with message:%Command rejected : MTU Config mismatch for interface Te8/1/6 in group 6" • Deployment failure of " channel-group 2 mode active" with error " Delivery failed with message:Command rejected: Either port is L2 and port-channel is L3, or vice-versa" , or deployment failure on " switchport mode" with message " Po6 is not a switching port" on a Layer 2 PO.	12.1(2p) and later
CSCwf12259	For a SAN fabric, the timelines beneath the graph on Congestion Analysis are not accurately aligned for the interface graphs.	12.1.3b and later
CSCwf14008	On SAN Insights for a host, the Rx/Tx graphs for a switch interface appears as truncated.	12.1.3b and later
CSCwh08204	If a primary node with Elasticsearch in a 3-node cluster shuts down, the active alarm pod goes down and becomes active on another node. In this case, Operations > Event Analytics > Alarms > Alarms Policies may not show any default or existing policies.	12.1.3b and later

Bug ID	Description	Exists in
CSCwh15025	When deleting Border Gateway switches with overlay extensions which has 'Force delete border role switches' enabled, the system may not remove some switches at the first attempt.	12.1.3b and later
CSCwh24600	The Cluster View does not display a dual-stack setup and hence the associated configuration data is not accessible on the unified One View Dashboard.	12.1.3b and later
CSCwh26528	The credentials from Credentials Management System (CMS) that appear on Actions > Edit Fabric misses an entry of UCS SNMP credential. This happens due to a schema change after restoring NDFC from 11.5.4 to 12.1.x. However, this does not have an impact on SAN discovery as it reconstructs the UCS SNMP user and saves to its own cache.	12.1.3b and later
CSCwh28637	After you enter the scale limits in Nexus Dashboard and enable Nexus Dashboard Fabric Controller (NDFC) for the first time, the system generates an error message and fails to enable NDFC.	12.1.3b and later
CSCwh29489	The address family for VRF context of BGP gets negated in Pending Config when Export Gateway IP for service_static_route and service_ebgp_route templates is changed from enabled to disabled in the Route Peering of L4-L7 services for VXLAN EVPN fabric.	12.1.3b and later
CSCwh29913	Missing policies or configuration diffs are observed after manual RMA on the Catalyst 9K switches in a Campus VXLAN EVPN fabric.	12.1.3b and later
CSCwh30266	When you run pre-ISSU and post-ISSU reports using the custom_swift_issu template on a switch, the post-ISSU report fails for the 'Validate License Usage' category in the report.	12.1.3b and later
CSCwh30277	When you perform an install or upgrade using a Software Maintenance Upgrades (SMU) image, the upgrade status fails to change from out-of-sync to in-sync.	12.1.3b and later
CSCwh31460	While performing Recalculate & Deploy, you may get a traceback with getPersistentIp(): expected 2 args.	12.1.3b and later
CSCwh35272	While performing a Recalculate & Deploy on switches that are imported with preserve-config ‘yes’ in an Enhanced Classic Lan fabric (Brownfield migration), the following error appears: Error updating VRF Id [50000] Name [default]. Reason [OSPFv3 Process Tag needs to be defined in Fabric Settings for VRF default of IP version IPv4_and_IPv6]	12.1.3b and later
CSCwh53141	After a reload of any one of the nodes, all the fabric data may appear to be lost in NDFC user interface.	12.1.3b and later

Resolved Issues

The following table lists the Open bugs for Cisco NDFC Release 12.1.3b. Click the bug ID to access the Bug Search Tool and see additional information about the bug.

Bug ID	Description	Fixed in
CSCwb80045	Deploy of one network changes status of other pending nw to deployed for interface attach/detach.	12.1.3

Bug ID	Description	Fixed in
CSCwd86943	[MSG Scale] power off one node (pnd2) and config status changed to NA for many switches.	12.1.3
CSCwd95598	Network Export failed to save " dhcpServers" fields properly.	12.1.1
CSCwd98202	Longevity: telemetry-sycn status API failing on flows/RTP flow monitoring page.	12.1.3
CSCwe00204	API output is getting truncated for allowed vlan list.	12.1.3
CSCwe05045	[LAN]: Action menu items for events under fabric overview and switch overview are greyed out.	12.1.3
CSCwe12223	IPFM Longevity: CDB pod reset 137.	12.1.3
CSCwe12281	Quick detach of network with IG on leaf and tor interfaces deployed.	12.1.3
CSCwe21895	Navigating to NDFC URL in browser address is reaching ND-OneView after sign-in - bookmarks fail.	12.1.3
CSCwe52834	Error message in fabric setting page states to enable promiscuous mode.	12.1.3

Known Issues

Bug ID	Description	Exists in
CSCwd85885	Network creation error on upgraded setup.	12.0.1a
CSCwd84563	Upgrade to v2.3 from v2.1.2d - No warning messages to disable old App/containers.	Nexus Dashboard Release 2.1.2d
CSCwf66965	After the upgrade to release 12.1.3b, the default VRF is no longer deployed.	12.1.1
CSCwh62924	vCenter Visualization plugin crash when VMware DVS configured with PVLAN.	Releases prior to 12.1.3b

Related Content

Navigating the Cisco Nexus Dashboard Fabric Controller Documentation

The documentation for Nexus NDFC is available on the Help Center in the GUI. To access Help Center:

1. Log in to your Nexus Dashboard Fabric Controller GUI.
2. In the top-right corner of the main window, click the help icon (**?**), and then click **Help Center**. The Nexus Dashboard Help Center opens in another tab of your Web browser.
3. In the **Services** area, click on **Fabric Controller** to open the Fabric Controller Help Center.
4. From the **User Content for** drop-down list, choose **LAN** or **SAN** to view the list of documents for LAN or SAN, as required.

Platform-Specific Documents

The documentation set for platform-specific documents that Cisco NDFC 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
- Cisco Nexus Dashboard Orchestrator Release Notes
- Cisco Nexus Dashboard Insights Release Notes
- Cisco Nexus Dashboard Capacity Planning
- Cisco Nexus Dashboard and Services Compatibility Matrix

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