Release Notes for Cisco NCS 2000 Series SVO, Release 12.3.1

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The Cisco Network Convergence System 2000 sets the industry benchmark for dense wavelength-division multiplexing (DWDM) solutions. It delivers the touchless programmability, massive scale, and ultra-long-haul performance necessary for tomorrow's converged network architectures.

The Cisco Network Convergence System (NCS) 2000 platform is enhanced with the introduction of programmability onto the network with the inclusion of NETCONF interface and YANG models automating the network turn-up, operation, and maintenance. The NCS 2000 Shelf Virtualization Orchestrator is available with a server on a blade encasing a high-speed processor with virtualized instances of multiple Reconfigurable Optical Add/Drop Multiplexer (ROADM), Optical Line Amplifier (OLA), and Dynamic Gain Equalizer (DGE) sites of the network. An SVO line card along with the application software provides functionality-based licenses for alarm correlation, performance monitoring, connection verification, and Optical Time Domain Reflectometry (OTDR).

Cisco NCS 2000 Shelf Virtualization Orchestrator supports the following modes of deployment in the optical network:

- SVO line card equipped inside the NCS 2000 chassis
- SVO application software hosted on an external server

The SVO web user interface (UI), also called the nodal craft, is designed to manage the NCS 2000 network elements and replaces CTC. The SVO web UI runs on the browser without the need to download any JAR or Java files. The SVO web UI can be used across multiple operating systems and browsers.

The SVO web UI performs the following functions:

- Manages the chassis, cards, and passive devices
- Manages alarms, faults, and conditions
- Manages users and user profiles
- Administers devices
- Troubleshoots issues
- Provides a seamless user experience with Cisco Evolved Programmable Network Manager (EPNM)

Software and Hardware Requirements

Before you use the SVO web user interface, ensure your system meets the following minimum software and hardware requirements:

- Hardware—Intel Core i5, i7, or faster processor. A minimum of 4 GB RAM, 100 GB hard disk with 250 MB of available hard drive space
- Operating System—Windows 10; macOS Mojave (10.14) and later
- Browsers—Mozilla Firefox 71 and later; Google Chrome 78.0 and later

What's New in NCS 2000 Series SVO, Release 12.3.1

Cisco is continuously enhancing the product with every release and this section covers a brief description of key features and enhancements. It also includes links to detailed documentation, where available.

Feature	Description
Cisco NCS 2000 Series SVO	
Additional payloads in OTN Cross-Connect Operating Mode on 400G-XP Card	The OTN cross-connect (OTNXC) operating mode on the 400G-XP card supports OTU2E, OC-192, STM-64, and OTU-4 payloads. With these additional payloads, the 400G-XP Card is fully functional with OTN Cross-Connect functionality for 10/100G client protocols over 100/200G DWDM wavelengths. You can have optimized utilization of the DWDM trunk capacity in the network.
Admin Plane UI Enhancements	The following admin plane UI enhancements are done to improve the user experience: • SVO containers now have the limit memory besides the reseved memory. The limit memory is a threshold that is set by the Admin Plane at 2 GB higher than the reserved memory. When you configure the reserved memory, the Admin Plane automatically assigns the limit memory that is shared by the SVO containers. The limit memory acts a buffer to absorb the temporary peak memory requirements. • In **IP Assignment Policy** page, you can enter multiple IP addresses using Range, List, and Wildcard inputs. This approach reduces the tedious and error-prone task of manually typing multiple IP addresses. • **Troubleshooting** menu is introduced to perform on-demand health checks on the network infrastructure and identify the common misconfiguration. You can view the report in the **Network Troubleshooting** page. • The new **Properties** menu enables you to easily modify and customize multiple admin plane properties. This menu reduces the task of manually editing each property file in the local system.
Display the Number of Active Circuits	You can now view the total number of active circuits passing through a particular card on a degree. The active circuit count is visible on the **Node Functional View** window of the SVO Web User Interface.

Feature	Description
Export PM Data for SVO Card	From this release onwards, you can download the complete PM data for an SVO card through the SVO Web User Interface. This data can be used offline for device monitoring. The downloaded data is in an Excel format and is collated for the past 15 minutes and 1-day time duration. This feature eliminates the need for individually accessing data for each PM parameter separately.
DCN Extension	External links are the logical links between two optical degrees that belong to two adjacent nodes. From this release, you can add one or more external links on a node using different optical degrees configured on that node. The creation of an external link allows the management of a remote node and these external links are used when it is not possible to create an optical-service-channel (OSC) communication.
FPD Upgrade for MR-MXP Card	The SVO web interface now displays the running firmware information for the MR-MXP card. It also displays the latest available firmware for the NCS 2000 software release. You can compare and upgrade the firmware to the required release directly from SVO.
FPD Upgrade for Passive Chassis	The SVO web interface allows you to make an FPD upgrade for the passive chassis NCS2K-MF-6RU and NCS2K-MF10-6RU to the latest version released as part of the NCS 2000 software release. You can selectively upgrade the versions of BOOTROM, OS_BOOT, and OS_KERNEL, one by one, directly from SVO.
License Deployment from SVO for NCS 2000 cards	After procuring licenses from the Software Licensing Tool, the SVO web user interface now allows you to install, rehost, save these licenses, and save device credentials on the following line cards: • 9-SMR17FS • 9-SMR24FS • 9-SMR34FS Only three express (EXP) ports are active by default on these cards. This feature allows you to activate the remaining EXP ports using a license. You can use those ports to create the required ROADM services.
Managing 15216-FLD-4 in SVO	You can now manage ten new Cisco ONS 15216 4 Channel Optical Add/Drop Multiplexers (OADMs), which are passive FLD units in a 100-GHz channel plan. These passive FLD units in SVO provide Multiservice Transport Platform (MSTP) to address the edge of the optical network in a cost-effective manner.

Feature	Description
Card and Port Status LED	You can now accurately identify the status of a card and a port through different LED colors. A card has following color indicators: • Green- active; represents card is operational • Red- inactive; represents hardware issue • Amber- inactive; represents signal fail and loss of frame In addition to the gray color, which indicates the inactive state of a port, A port has following color indicators: • Green- active • Red- inactive; represents availibility of major alarms • Yellow- active; represents availibility of minor alarms
Remote Node Management Using General Communication Channel (GCC)	You can manage remote nodes using fiber optics connection through GCC channels. You can only use the Cisco Light Web UI bring up the remote nodes.
SVO extends card provisioning on the NCS 2002 Chassis	This release enables you to provision the control cards on slot 1 and the following service cards on the slots 2 and 3 of the NCS 2002 chassis: • Transponder and muxponder cards • Optical service channel cards • Optical amplifier cards • Optical add/drop cards • Reconfigurable optical add/drop cards You can set operating mode, and provision features that are supported on these cards. You can also monitor performance, view fault monitoring details, and download and activate the latest available software package for SVO.
Software Upgrade Enhancements	The following Software Upgrade enhancements are done: • The software repository capacity is increased to maintain up to eight software packages. The **Software Packages** tab lists the packages and their contents. This feature improves the installation process by making more packages readily available for activation. • The operating system of the SVO device can be remotely upgraded from the **Device Software** tab. This eliminates the need to perform an on-site operating system upgrade of the SVO device. • An "Active session" label is displayed against the SVO card in the **Device Software** tab to indicate that it is running the active SVO session. This makes it simple to identify the active SVO card for operating system upgrades.

Feature	Description
Suboperating modes on 1.2T-MXP card	The new suboperating mode OPM-2x100G-DD is introduced on the 1.2T-MXP card to configure 6x100GE muxponder mode exclusively for QDD clients. Also, the 9x100GE muxponder mode can now be configured using OPM-3x100G-DD suboperating mode. These muxponder modes add the capability to configure QDD-400G-DR4-S pluggable in the breakout mode on all three slices with different data rates.
Layer 3 Management Network Connectivity through BGP	Management interconnection for servers or VMs in different locations is now supported at Layer 3 through the Border Gateway Protocol (BGP). This simplifies the management of the Admin Plane servers by using core routers, which use the BGP applications in the VMs to route to the correct SVO instances. This approach allows you to configure the same management subnet for the SVO instances and different management subnets for distributed servers or VMs. Unlike in L2, which uses multiple protocols, the L3 management network needs only the BGP protocol to improve the performance of the network.

The following new alarm was introduced in this release:

- NE-VER-NOT-SUPP

See Alarms chapter in the *Cisco NCS 2000 Series SVO Troubleshooting Guide, Release 12.3* for more information on new alarms.

Caveats

Open Caveats

The following table lists the open caveats:

Caveat ID Number	Description
CSCwc50738	Reach is not available for BIDI pluggable port Module
CSCwb20654	Live Status not present or not updated (within same Netconf/JSON-rpc session)
CSCwc34086	400G-XP Traffic down as Trunk WL Changing from 1st Tunable WL to 1530.33 During 11.123-12.31 Upgrade
CSCwc20422	XML file import failed
CSCwc27888	Sub Mode info is not correct for LCs
CSCwb99459	MFGMEM/MEA alarm on QSFP PPM during Upgrade and Controller Reboot Scenarios on 400G-XP card
CSCwc45174	[Licensing]:Need proper error message when no valid licenses are available on 200G-CK-C card for cr
CSCwc49713	[1.2T MXP]: FPD upgrade button is not greyed out for Framer1 and Framer 2
CSCwc70009	Deletion of DCN connection (side to side PPC) is failing sometimes

Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

Other Important Information and References

Supported Upgrade Paths

The following table lists the software releases that can be upgraded:

Table 1: Upgrade Paths

Source Release	Source Package	Destination Release	Destination Package
R11.1.2	SSON	R 12.3.1	SSON
	NCS-L		NCS-L
	NCS-FLEX		SSON
R11.1.2.3	SSON	R 12.3.1	SSON
	NCS-L		NCS-L
	NCS-FLEX		SSON
R12.3	SSON	R 12.3.1	SSON
	NCS-L		NCS-L
	NCS-FLEX		SSON

References

The following link points to the NCS 2000 Series and SVO documentation.

- Cisco Network Convergence System 2000 Series

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