Release Notes for Cisco ONS 15454 DWDM, Release 10.6.1.x

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Cisco ONS 15454 DWDM Release Notes

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This Release Notes document contains information about new features and enhancements, in the Cisco ONS 15454 DWDM platforms.

For the latest version of the Release Notes for Cisco ONS 15454, visit the following URL:

http://www.cisco.com/en/US/products/ps13234/prod_release_notes_list.html

Cisco also provides Bug Search Tool, a web resource for tracking defects. To access Bug Search Tool, visit the following URL: https://bst.cloudapps.cisco.com/bugsearch.

Revision History

Date	Notes
September 2020	Added Critical Bug Fixes in Release 10.6.1.2, on page 2 section.
July 2017	Added Critical Bug Fix in Release 10.6.1.1, on page 3 section.
November 2016	This is the first release of this publication.

Software and Hardware Requirements

Before you begin to install the software, you must check whether 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.
- One of the following operating systems:
  - Windows 7, Windows Server 2008, or later
  - Apple Mac OS X
  - UNIX workstation with Solaris Version 9 or 10 on an UltraSPARC-III or faster processor, with a minimum of 1 GB RAM and a minimum of 250 MB of available hard drive space.
  - Ubuntu 12.10
- Java Runtime Environment—JRE 1.8 and later.
- Java version 8.0
- Browser:
  - Internet Explorer
  - Mozilla Firefox
  - Safari
  - Google Chrome

JRE Compatibility

The JRE Compatibility table displays the JRE compatibility with ONS 15454 software releases.

Supported Pluggables

The document at the following URL lists the GBIC, SFP, SFP+, QSFP, XFP, CXP, CFP, and CPAK modules that are supported on the Cisco ONS 15454 platforms:

https://www.cisco.com/c/en/us/td/docs/optical/spares/gbic/guides/b_ons_pluggables.html

Critical Bug Fixes in Release 10.6.1.2

The following critical issues have been resolved in Release 10.6.1.2.

- The SOCKS server on NE gets flooded with requests sent by CTC towards NE.
- Single bucket memory drop was randomly seen in size range of 1 to 80 MB single memory chunk.
- EMS access is slow on CTC, TL1, and Telnet sessions after upgrade to R10.6.1.1

Critical Bug Fix in Release 10.6.1.1

The following critical issue has been resolved in Release 10.6.1.1.

- When the TCC2P card is the shelf controller, the TXP-MR-10E cards in the subtended shelves do not boot.

New Features in Release 10.6.1

This section highlights the new features in Release 10.6.1. For detailed information of each of these features, see the user documentation.

Hardware

400G-XP-LC Card

(ONS 15454 M6and Cisco NCS 2015)

The 400G-XP-LC card is a tunable DWDM trunk card that simplifies the integration and transport of 10 Gigabit and 100 Gigabit Ethernet interfaces and services into enterprises and service provider optical networks. The card is a double-slot unit that provides 400 Gbps of client and 400 Gbps of trunk capacity. The card supports six QSFP+ based client ports that can be equipped with 4x10 Gbps optics and four QSFP28 or QSFP+ based client ports that can be equipped with 100 Gbps QSFP28 or 4x 10 Gbps QSFP+ optics. The card is capable of aggregating client traffic to either of the two 200 Gbps coherent CFP2 trunk ports. The 400G-XP-LC card supports 10 GE and 100 GE client signals.

For more information about the 400G-XP-LC card, see the *Cisco ONS 15454 DWDM Line Card Configuration Guide, Release 10.x.x* .

Passive Optical Modules

The following passive optical modules are supported in Release 10.6.1:

- **6 Port Add/Drop Module (NCS2K-MF-6AD-CFS=)**

  The six port add/drop module is a single slot module. It contains a 6x1 combiner and a 1x6 splitter. It contains seven embedded photodiodes for connectivity check and monitoring at all the input ports (ADD-i-RX, and COM-RX). Virtual photodiodes are implemented at the output ports (DROP-i-TX, and COM-TX).

  The features of the six port add/drop module are:

  - It combines six channels from the ADD-i-RX ports into one signal at the COM-TX port.
  - It splits the optical signal from the COM-RX port into six identical signals at the DROP-i-TX ports.
  - It operates in the 1520 nm to 1570 nm wavelength range.

- **MPO-12 to 8-LC Fan-out Module (NCS2K-MF-8X10G-FO=)**

  The MPO-12 to 8-LC fan-out module is a double slot module with two MPO-12 connector (COM) and eight LC duplex connectors (Port-i-TX/RX). It contains 16 photodiodes to monitor the power of the channel input ports.

The features of the MPO-12 to 8-LC fan-out module are:

- It provides fan-out of the MPO-12 connector to or from eight LC-PC connections.
- It is used as client interconnection between two QSFP+ interfaces.
- It splits 4x10G signals from the QSFP+ MPO cable into four single 10G bidirectional connections.
- It operates in two wavelength ranges: 126 nm to 1365 nm and 1520 nm to 1570 nm.

For more information about these passive modules, see the *Installing the Cisco ONS 15454 M2 and ONS 15454 M6 Passive Optical Modules*

New MPO Cables

The following table lists the MPO cables that can be used with the passive modules from Release 10.6.1:

- ONS-MPO-16LC-2—Fan-out cable with one MPO-24 connector on one side and 16 LC connectors on the other side. The cable is two meters long and can be used in ROADM configurations with the NCS2K-MF-6AD-CFS module. This cable can also be used as a fan-out cable to connect the LC interface directly to the SMR20 FS MPO ports.
- ONS-12MPO-MPO-x—Multi-fiber patch cord with MPO-12 connectors. The 12 fibers have straight connections. There are four variants: two, four, six, and eight meters. The cables can interconnect the QSFP+ client ports of NCS2K-400G-2C2 and NCS4K-4H-OPW-QC2 with the NCS2K-MF-8X10G-FO passive module.
- ONS-12MPO-XMPO-x—Multi-fiber patch cord with MPO-12 connectors. The 12 fibers have crossed fiber interconnections. The cable is used to interconnect the NCS2K-MF-DEG-5-CV and the NCS2K-MF-UPG-4-CV passive modules with the NCS2K-MF-MPO-8LC adapter.
- ONS-16MPO-MPO-x—Multi-fiber patch cord with MPO-24 connectors that has only 16 fibers connected. Fibers 1, 2, 11, 12, 13, 14, 23, and 24 are not connected. The cable is used for interconnections inside the ROADM with MPO-24 standard. The patch cord can be used for interconnections between SMR20 FS and NCS2K-MF-M16LC-CV, or NCS2K-MF-2MPO-ADP or NCS2K-PPMESH8-5AD. The patch cord can also be used for interconnections between NCS2K-16-AD-CCOFS and NCS2K-MF-M16LC-CV.

For more information about the MPO cables, see the *Installing the Cisco ONS 15454 DWDM Passive Optical Modules*

ROADM Configurations

For passive modules, two new colorless, omnidirectional A/D stages are available for coherent trunk interfaces:

- Omnidir colorless A/D with low channel count—Provides A/D capability for 16 channels
- Omnidir colorless A/D with high channel count—Provides A/D capability for 96 channels

Contentionless A/D features are available for ROADM node with more than 12 degrees (up to 16 degrees) cascading up to four 16-AD-CCOFS units. Also, to increase the number of contentionless A/D channels, a second layer of SMR can be used. Multiple Layer2 parallel extensions can be used to further increase the A/D capacity. For more information, see the *Node Reference* chapter of the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .

Filler Card Detection

Passive cards such as fillers are used to prevent air leakage in the chassis, as it not recommended to have empty slots in a chassis (M15, M6, M2). Empty slots in a chassis lead to thermal failures due to increased temperature of the line cards. For details, see the *Cisco ONS 15454 Hardware Installation Guide*

Pluggable Port Modules Support

The supported pluggables for the 400G-XP-LC card are:

- ONS-QSFP28-LR4
- QSFP-100G-SR4-S
- QSFP-100G-LR4-S
- ONS-QSFP-4x10-MLR
- QSFP-4x10G-LR-S
- ONS-CFP2-WDM

For more information on the above pluggables, see the *Installing the GBIC, SFP, SFP+, QSFP, XFP, CXP, CFP and CPAK Optical Modules in Cisco ONS Platforms*

ONS 15454 M6 ECU60-S

ONS 15454 M6 ECU60-S is a new type of ECU-S introduced for the ONS 15454 M6 when the shelf is powered at –60 VDC nominal input voltage. This module has eight USB 2.0 ports and two USB 3.0 ports. For more information about ONS 15454 M6 ECU60-S, see the *Cisco ONS 15454 Hardware Installation Guide*

CPAK-100G-SR4 Pluggable Port Module

CPAK-100G-SR4 pluggable port module is supported on the MR-MXP, 100G-CK-C, 200G-CK-C cards. For more details of the pluggable, see the *Installing the GBIC, SFP, SFP+, QSFP, XFP, CXP, CFP and CPAK Optical Modules in Cisco ONS Platforms*

TCC2/TCC2P Card Support

Due to memory limitations, TCC2 or TCC2P cards are not supported as the node controller in multi-shelf configuration from R10.5.2.6. Hence, it is recommended to use TCC3 card as the node controller in multi-shelf configuration. However, the TCC2 or TCC2P cards can be used as a subtended controller and also in a stand-alone configuration. For more information, see the *Cisco NCS 2000 Series Control Card and Node Configuration Guide, Release 10.x.x*

Limitations

When the control card prior to the R10.6.1 is provisioned on the network element having R10.6.1 in USB, the network element goes for roll boot. Hence, it is recommended to remove the control card and synchronize from R10.6.1 active control card.

Software Features

This section lists the software features and enhancements introduced in Release 10.6.1.

- **Synchronous Ethernet**

Synchronous Ethernet (SyncE) provides synchronized timing to multiple remote network elements (NEs) without using an external circuit for timing. SyncE provides the required synchronization at the physical level and uses the Ethernet Synchronization Message Channel (ESMC) to enable traceability of the best clock source. SyncE clocks are compatible with the clocks used in the SONET or SDH synchronization network.

SyncE is supported on TNCS and TNCS-O controller cards. You must enable ESMC on an OSC port to configure it as a clock source.

For more information, see the *Synchronizing Node Timing* chapter of the *Cisco ONS 15454 DWDM Control Card and Node Configuration Guide, Release 10.x.x* .

- **OTDR Enhancements**
  - Two types of OTDR scans are available for TNCS-O cards: hybrid scan and fast scan.

    When you start a fast scan on a TX or an RX port, an OTDR_FAST_SCAN_IN PROGRESS_TX or an OTDR_FAST_SCAN_IN PROGRESS_RX alarm is raised. Fast scan shuts down the OSC channel.

    When you start a hybrid scan on a TX or an RX port, an OTDR_HYBRID_SCAN_IN_PROGRESS_TX or an OTDR_HYBRID_SCAN_IN_PROGRESS_RX alarm is raised. Hybrid scan does not shut down the OSC channel and takes more time to complete.
  - New OTDR alarms are introduced to provide more information about the OTDR events which are cross provisioned with the alarm thresholds.
  - A list of events that raises alarms is provided to point out the correct sector where the cause of the event is found. Select an event to view its details as a graph or in a tabular format.
  - CTC logs the data of a maximum of 32 historical OTDR scans. The history is maintained for OTDR scans in the same zone and direction. The values of the back reflection and insertion loss are listed for each scan along with the date and timestamp.

  For more information about the OTDR enhancements, see the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .
- **Connection Verification Enhancements**
  - View and troubleshoot patch cords that have an excess insertion loss higher than the threshold value.
  - View the originating and destination slots for the connection verification along with the patch cords in the cable view and front panel view of the card.
  - If there is at least one patch cord highlighted in yellow and no patch cords highlighted in orange on a node, an IPC-VERIFICATION-DEGRADE alarm is raised on the node.
  - If there is at least one patch cord highlighted in orange on the node, an IPC-VERIFICATION-FAIL alarm is raised on the node.
  - When the insertion loss is greater than the insertion loss degrade threshold and less than the insertion loss fail threshold, the value of the insertion loss verification of the patch cord is degrade. The corresponding row of the patch cord in the Connection Verification pane is highlighted in yellow.
  - When the insertion loss is greater than the insertion loss fail threshold, the value of the insertion loss verification of the patch cord is fail. The corresponding row of the patch cord in the Connection Verification pane is highlighted in orange.

- Connectivity verification is displayed only for an MPO cable and not for each of the patch cords in it.

For more information about the connection verification enhancements, see the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .

- **GMPLS Enhancements**

  The GMPLS enhancements introduced are:

  - The Explicit Route Object (ERO) defines the routes to be used through a list of specified nodes for a LSP.
  - The Record Route Object (RRO) functionality enables the user to obtain a list of used resources. Each node through which the message passes, adds its address to the list within the RRO.
  - SRLG diversity allows the user to create a new circuit with resources that are not used in the reference circuit. With this, the created new circuit has a set of risks which are not associated to the reference circuit. This enables data protection and redundancy from link failure.

  For more information on the GMPLS enhancements, see the *Node Reference* chapter of the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .

  - **LMP Extension for Trunk Ports**

    Static LMP is enabled between NCS4000 series routers and NCS 2000 series routers (or MSTP) to support physical connectivity of ports at OTU2 and higher rates. With the extension of LMP for trunk ports, traffic is directed to the NCS 4000 series router from the trunk ports of the NCS 2000 series router. For more information, see the *Turning Up a Node* chapter of the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .

- **Feature Enhancements**

  - 200G-CK-LC card supports additional configurations in the MXP_200G and MXP_CK_100G operating modes.
  - Payload authentication can be enabled on the MR-MXP card to validate the integrity of the received payloads.
  - Payload authentication error thresholds can be set on the MR-MXP card.
  - MR-MXP-K9 and MR-MXP-K9= PIDs of MR-MXP card are introduced and are referred as Encryption as an appliance PIDs. The card authentication and payload encryption are enabled by default and cannot be disabled for these PIDs.
  - When a fault occurs on the working path of a FAPs ring, all the SVLANs, whose protection is set, are moved to the protection path of the FAPS ring. Up to 1024 SVLANs can be protected or a range of SVLANs can be protected.

  For more information on the above software enhancements, see the *Provisioning Transponder and Muxponder Cards* chapter in the *Cisco ONS 15454 DWDM Line Card Configuration Guide, Release 10.x.x* .

  - As part of the CTC GUI enhancement, the cells which have been recently updated by the user are highlighted.
  - Channel frequency of OCHNC, OCHCC, and OCHTrail circuits can be displayed in THz or GHz.

- Fast restoration of circuits can be enabled by setting the NODE.circuits.FastCircuitActivation default to TRUE. You must perform this configuration for every node in the network.
- OCHCC UNI-N circuits and OCHCC circuits between two transponder cards can be retuned to a different wavelength. The path and constraints of the circuits remain unchanged.
- Pre-routed circuits in the DWDM network functional view are in the DISCOVERED Preroute state and are highlighted in blue on the map. To restart the preroute operation at a later time, use the **Continue PreRoute** button.

  For more information about the above enhancements, see the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .
- The Split ROADM feature is enhanced to support a 40 channel two-degree ROADM node with direct interconnection between the 40-SMR1-C cards. For more information, see the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .
- Current and historical statistical PM counts are available for an interface on the Cisco CRS router. Click the **Clear** button to reset the statistics in the Curr column to zero for the 15 minutes and 1 day intervals respectively. For more information, see the *Monitor Performance* document.
- System mode can be changed from ANSI (SONET) to ETSI (SDH) or vice-versa. Changing the system mode removes the provisioned data and the system reverts to the default configuration. You can change the mode, by either using the CTC or the LCD. For more details, see the *Manage the Node* chapter of the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .
- Link Management Protocol (LMP) link can be created between the DWDM node and non DWDM node using a wizard in CTC. For more information about the above enhancements, see the *Cisco ONS 15454 DWDM Network Configuration Guide, Release 10.x.x* .
- RADIUS authentication is supported for security super user, security user, and root user. For more information, see the *Connect the PC and Log into the GUI* document.
- Security policy can be changed for the security level that you want to provision: Retrieve, Maintenance, Provisioning, Superuser, Security user, Security super user, or ROOT15 user. For more information, see the *Manage the Node* document.
- RSA-based authentication is supported for dynamic challenge response security feature. For more information, see the *Connect the PC and Log into the GUI* document.
- Node reauthentication is supported in CTC for Cisco NCS 2000 and Cisco CRS nodes. For more information, see the *Connect the PC and Log into the GUI* document.
- Text string in the **Shared Secret** field is masked and the shared secret serves as a password between a RADIUS client and RADIUS server. For more information, see the *Manage the Node* document.
- From R10.6.1, the amplifier offset is not limited to +/- 6dB in the non-DWDM mode of operation. The offset can be used to access the entire gain range of the amplifier.

Alarms

The alarms introduced in Release 10.6.1 are:

- OTDR-ABSOLUTE-A-EXCEEDED-TX
- OTDR-ABSOLUTE-A-EXCEEDED-RX
- OTDR-ABSOLUTE-R-EXCEEDED-TX

- OTDR-ABSOLUTE-R-EXCEEDED-RX
- OTDR-BASELINE-A-EXCEEDED-TX
- OTDR-BASELINE-A-EXCEEDED-RX
- OTDR-BASELINE-R-EXCEEDED-TX
- OTDR-BASELINE-R-EXCEEDED-RX
- OTDR-FAST-SCAN-IN-PROGRESS-TX
- OTDR-FAST-SCAN-IN-PROGRESS-RX
- OTDR-HYBRID-SCAN-IN-PROGRESS-TX
- OTDR-HYBRID-SCAN-IN-PROGRESS-RX
- OTDR-SCAN-FAILED
- TRUNK-OPU-CSF
- AUTH-EC
- EQPT-FPGA-IMAGE-AVAILABLE
- PRBS-ENABLED
- IPC-VERIFICATION-RUNNING
- REROUTE-IN-PROG
- REVERT-IN-PROG
- OCHNC-BDI
- OCHNC-SIP
- TRAF-AFFECT-RESET-REQUIRED
- MASTERKEY-SUCCESS

For more information about these alarms, see the *Alarm Troubleshooting* chapter in the *Cisco ONS 15454 DWDM Troubleshooting Guide, Releases 9.8 and 10.x.x* .

New TL1 Commands

The TL1 commands introduced in Release 10.6.1 are:

- RTRV-OTDRALMEVENTS
- RTRV-OTDRFAILEDSCAN
- OPR-OTDR
- ENT-CKTINFOCC
- ENT-CKTINFONC
- RTRV-BWP-ETH
- RTRV-COS-ETH
- RTRV-CRS-ETH
- RTRV-L2-ETH
- RTRV-NE-APC
- RTRV-NE-WDMANS
- RTRV-PATH-OCH
- RTRV-SLV-WDMANS
- RTRV-SRLG-NODE
- RTRV-SRLG-WDMSIDE
- RTRV-STCN-REP
- RTRV-VLB-REP
- SET-SRLG-NODE
- SET-SRLG-WDMSIDE

Important Notes

- **Control Card Limitation**

  The synchronization from the Release 10.6.1 USB flash to control card fails on the Cisco ONS 15454 M2, Cisco ONS 15454 M6 , or Cisco NCS 2015 nodes when the control card is running a software release prior to Release 10.6.1. This is due to a RAM disk size limitation.

- **Hard Reset in WSE Card**

  When the Cisco ONS 15454 M6 or Cisco NCS 2015 chassis is upgraded from a release earlier to Release 10.6.1 to Release 10.6.1, a bootcode change causes the WSE card to undergo a hard reset in the following manner:

  - Cisco ONS 15454 M6 —Only during the first upgrade to Release 10.6.1
  - Cisco NCS 2015—During every upgrade to Release 10.6.1 or revert from Release 10.6.1

- VTXP feature is not supported in Release 10.6.1.
- CTC font size is small in Windows 10 with Java 1.8.

Cisco Bug Search Tool

Use the Bug Search Tool (BST) to view the list of outstanding and resolved bugs in a release.

BST, the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The tool allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The tool has provision to filter bugs based on credentials to provide external and internal bug views for the search input.

To search for a specific bug, go to Bug Search Tool (BST) and search the bug ID in the **Search For** field. For more information on BST, see Bug Search Help.

Search Bugs in BST

Follow the instructions below to search bugs specific to a software release in BST.

Procedure

Step 1 Go to https://bst.cloudapps.cisco.com/bugsearch/.

You will be prompted to log into Cisco.com. After successful login, the Bug Toolkit page opens.

Step 2 To search for release specific bugs, enter the following parameters in the page:

a) Search For — Enter **ONS 15454** in the text box.
b) Releases — Enter the appropriate release number.
c) Show Bugs — Select **Affecting or Fixed in these Releases**.

Step 3 Press **Enter**.

Note:

- By default, the search results include bugs with all severity levels and statuses. After you perform a search, you can filter your search results to meet your search requirements.
- An initial set of 25 search results is shown in the bottom pane. Drag the scroll bar to display the next set of 25 results. Pagination of search results is not supported.

Additional References

Related Documents

Use this document in conjunction with the other release-specific documentation listed in the table below:

Link	Description
Cisco NCS Documentation Roadmap	Provides quick access to publications of Cisco NCS releases.
Cisco NCS 2000 Series Configuration Guides	Provides background and reference material, procedures for installation, turn up, provisioning, and maintenance of Cisco NCS 2000 Series systems.
Cisco NCS 2000 Series Troubleshooting Guide	Provides general troubleshooting instructions, alarm troubleshooting instructions, and a list of error messages that apply to the Cisco NCS 2000 Series systems.
Cisco NCS 2000 Series Hardware Installation Guide	Provides installation information about the Cisco NCS 2000 Series hardware.
Installing the Cisco NCS 2000 Series Passive Optical Modules	Provides installation information about the Cisco NCS 2000 Series passive optical modules.
Cisco NCS 2000 Series Licensing Configuration Guide	Provides information about installing and managing Cisco NCS licenses.
Cisco NCS TL1 Command Guide	Provides a comprehensive list of TL1 commands.
Installing the GBIC, SFP, SFP+, XFP, CXP, CFP, and CPAK Optical Modules in Cisco NCS Platforms	Provides information about the Pluggable Port Modules support.

Link	Description
Cisco ONS Documentation Roadmap	Provides quick access to publications of Cisco ONS releases.
Cisco ONS 15454 DWDM Configuration Guides	Provides background and reference material, procedures for installation, turn up, provisioning, and maintenance of Cisco ONS 15454 dense wavelength division multiplexing (DWDM) systems.

Link	Description
Cisco ONS 15454 DWDM Troubleshooting Guide	Provides general troubleshooting instructions, alarm troubleshooting instructions, and a list of error messages that apply to the Cisco ONS 15454 DWDM systems.
Cisco ONS 15454 Hardware Installation Guide	Provides installation information about the Cisco ONS 15454 (ANSI and ETSI) DWDM hardware.
Installing the Cisco ONS 15454 M2 and ONS 15454 M6 Passive Optical Modules	Provides installation information about the Cisco ONS 15454 DWDM passive optical modules.
Cisco ONS 15454 DWDM Licensing Configuration Guide	Provides information about installing and managing Cisco ONS 15454 DWDM licenses.
Cisco ONS SONET TL1 Command Guide and Cisco ONS SDH TL1 Command Guide	Provides a comprehensive list of TL1 commands.
Installing the GBIC, SFP, SFP+, XFP, CXP, CFP, and CPAK Optical Modules in Cisco ONS Platforms	Provides information about the Pluggable Port Modules support.

Technical Assistance

Link	Description
http://www.cisco.com/support	The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.

Short Description

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