



# Upgrading the Cisco ONS 15454 to Release 8.0

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This document explains how to upgrade Cisco ONS 15454 Cisco Transport Controller (CTC) software from Release 5.0.x, Release 6.0.x, Release 6.1.x, Release 6.2.x, Release 7.0 and Release 7.2 to Release 8.0, using the Advanced Timing, Communications, and Control (TCC2) or Advanced Timing, Communications, and Control Plus (TCC2P) card.



Note

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The TCC2P card is an enhanced version of the TCC2 card. The primary enhancements are Ethernetsecurity features and 64K composite clock building integrated timing supply (BITS).

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Note

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The OC-48 IR 1310 card is not supported in the 8.0 release. These cards should be removed from the system before upgrading.

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## Before You Begin

Before beginning, write down the following information about your site: date, street address, site phone number, and dialup number. The data will be useful during and after the upgrade.



### Caution

Read all procedures before you begin the upgrade.



### Caution

This upgrade is supported only for software from Release 5.0.x, Release 6.0.x, Release 6.1.x, Release 6.2.x, Release 7.0 and Release 7.2 upgrading to Software R8.0. If you wish to upgrade from an earlier software release than those supported, you must contact Cisco Technical Assistance Center (Cisco TAC). For more information, see the [“Obtaining Technical Assistance” section on page 31](#).



### Note

Software R8.0 supports parallel upgrades for multiple nodes in a network. In a parallel upgrade you can still only activate one node at a time; however, you can begin activation of the next node as soon as the controller cards for the current node have rebooted successfully (or five minutes after the onset of activation, if you do not have visibility to the node).

## Errorless Upgrades and Exceptions

The following tables, organized by cross-connect card type, define where errorless upgrades are expected for Software R8.0 and where exceptions can occur.

**Caution**

When managing end-to-end circuits participating in an ML-Series resilient packet ring (RPR) across multiple nodes involved in a parallel upgrade, all nodes participating in these circuits must have completed the activation before the end-to-end traffic will resume.

**Note**

Upgrades for dense wavelength division multiplexing (DWDM) configurations are expected to be errorless with the following exception:

The MXP\_MR\_2.5 and MXPP\_MR\_2.5 cards automatically download a new field-programmable gate array (FPGA) image during a software upgrade from a pre-Software R7.2 release to Software R8.0. For cards with no Y-cable protection, the data path incurs a traffic hit of up to 10 seconds (typically less). Y-cable-protected cards with Fibre Channel (FC) payloads incur an FC link reinitialization as traffic switches away from the card downloading the new FPGA. Y-cable-protected cards with Gigabit Ethernet (GE) payloads are not expected to incur a traffic hit.

**Note**

On nodes with DS3/EC1-48 cards, where port line buildouts are set to long (for use with 900 foot cables), a software upgrade from R5.0 or maintenance R5.0.2 to any release after R5.0.2 can result in traffic hits up to 50 ms on the ports set to long line buildout. The length of the hit depends on the operative slot, port, actual cable length, Universal Backplane Interface Connector (UBIC) type, and cable type. This issue cannot be resolved for upgrades from the two affected releases. No other release has this issue.

**Caution**

G1000 cards purchased prior to Software R7.2 will incur a traffic hit of 2 to 3 minutes per card during activation, while an FPGA upgrade to the card takes place. Cards thus upgraded will also incur the same traffic hit if the software is subsequently reverted, as the FPGA will be downgraded in the case of such a revert.

## XC-VXC-10G

[Table 1](#) applies to nodes equipped with XC-VXC-10G cards.

**Table 1** *XC-VXC-10G*

Card Type	Expected Traffic Effect
DS-1	Errorless
DS-3	Errorless
DS3E	Errorless
DS3XM	Errorless
EC-1	Errorless
OC-N (including MRC-2.5G-4, MRC-12 and OC192-XFP)	Errorless
E-Series Ethernet	Traffic hits up to 5 minutes (approximately)
ML-Series Ethernet	Traffic hits 3–8 minutes (approximately)

*Table 1 XC-VXC-10G (Continued)*

Card Type	Expected Traffic Effect
CE-Series Ethernet	Errorless
G-Series Ethernet	Errorless (except as noted in <a href="#">“Errorless Upgrades and Exceptions”</a> section on page 2)

## XC10G

Table 2 applies to nodes equipped with XC10G cards.

*Table 2 XC10G*

Card Type	Expected Traffic Effect
DS-1	Errorless
DS-3	Errorless
DS3E	Errorless
DS3XM	Errorless
EC-1	Errorless
OC-N (including MRC-2.5G-4, MRC-12 and OC192-XFP)	Errorless
E-Series Ethernet	Traffic hits up to 5 minutes (approximately)
ML-Series Ethernet	Traffic hits 3–8 minutes (approximately)
CE-Series Ethernet	Errorless
G-Series Ethernet	Errorless (except as noted in <a href="#">“Errorless Upgrades and Exceptions”</a> section on page 2)

## XCVT

Table 3 applies to nodes equipped with XCVT cards. (Errorless upgrade is not guaranteed in this case.)

*Table 3 XCVT*

Card Type	Expected Traffic Effect
DS-1	Traffic hits < 60 ms (hitless)
DS-3	Traffic hits < 60 ms (hitless)
DS3E	Traffic hits < 60 ms (hitless)
DS3XM	Traffic hits < 60 ms (hitless)
EC-1	Traffic hits < 60 ms (hitless)
OC-N	Traffic hits < 60 ms (hitless)
E-Series Ethernet	Traffic hits up to 5 minutes (approximately)
ML-Series Ethernet	Traffic hits 3 to 8 minutes (approximately)

*Table 3 XCVT*

Card Type	Expected Traffic Effect
CE-Series Ethernet	Traffic hits < 60 ms (hitless)
G-Series Ethernet	Hitless; Traffic hits < 60 ms (except as noted in <a href="#">“Errorless Upgrades and Exceptions”</a> section on page 2)

## Document Procedures

Procedures in this document are to be performed in consecutive order unless otherwise noted. In general, you are not done with a procedure until you have completed it for each node you are upgrading, and you are not done with the upgrade until you have completed each procedure that applies to your network. If you are new to upgrading the ONS 15454, you might want to check off each procedure on your printed copy of this document as you complete it.

Each non-trouble procedure (NTP) is a list of steps designed to accomplish a specific procedure. Follow the steps until the procedure is complete. If you need more detailed instructions, refer to the detail-level procedure (DLP) specified in the procedure steps. Throughout this guide, NTPs are referred to as “procedures” and DLPs are termed “tasks.” Every reference to a procedure includes its NTP number, and every reference to a task includes its DLP number.

The DLP (task) supplies additional task details to support the NTP. The DLP lists numbered steps that lead you through completion of a task. Some steps require that equipment indications be checked for verification. When the proper response is not obtained, a trouble clearing reference is provided.

This section lists the document procedures (NTPs). Turn to a procedure for applicable tasks (DLPs).

1. [NTP-U207 Prepare for Upgrade to ONS 15454 Release 8.0, page 6](#)—This section contains critical information and tasks that you must read and complete before beginning the upgrade process.
2. [NTP-U208 Back Up the Software Database, page 8](#)—Complete the database backup to ensure that you have preserved your node and network provisioning in the event that you need to restore them.
3. [NTP-U209 Upgrade to ONS 15454 Release 8.0, page 9](#)—You must complete this entire procedure before the upgrade is finished.
4. [NTP-U210 Install Public-Key Security Certificate, page 19](#)—You must complete this procedure to be able to run ONS 15454 Software R8.0.
5. [NTP-U211 Revert to Previous Software Load and Database, page 20](#)—Complete this procedure only if you need to return to the software load you were running before activating Software R8.0.
6. [NTP-U212 Upgrade to ONS 15454 Release 8.0 Using TL1, page 23](#)—Complete this procedure only if you want to upgrade to Software R8.0 using TL1.

## NTP-U207 Prepare for Upgrade to ONS 15454 Release 8.0

<b>Purpose</b>	This procedure provides the critical information checks and tasks you must complete before beginning an upgrade.
<b>Tools/Equipment</b>	ONS 15454s to upgrade PC or UNIX workstation Cisco ONS 15454 Software R8.0
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser

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- Step 1** Read the *Release Notes for Cisco ONS 15454 Release 8.0*.
- Step 2** Log into the node that you will upgrade. For detailed instructions, refer to the *Cisco ONS 15454 Procedure Guide* or the *Cisco ONS 15454 DWDM Procedure Guide*.
- Step 3** Complete the “[DLP-U308 Verify CTC Workstation Requirements](#)” task on page 6.
- Step 4** Complete the “[DLP-U309 Verify Common Control Cards](#)” task on page 7.
- Step 5** When you have completed the tasks for this section, proceed with the “[NTP-U208 Back Up the Software Database](#)” procedure on page 8.

**Stop. You have completed this procedure.**

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## DLP-U308 Verify CTC Workstation Requirements

<b>Purpose</b>	This task verifies all PC or UNIX workstation hardware and software requirements. Perform this task before upgrading the workstation to run CTC Software R8.0.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser

- 
- Step 1** Ensure that your workstation is one of the following:
- IBM-compatible PC with a Pentium III/700 or faster processor, CD-ROM drive, a minimum of 384 MB RAM and 190 MB of available hard drive space, running Windows 98, Windows NT 4.0 (with Service Pack 6a), Windows 2000 Professional (with Service Pack 3), or Windows XP Professional (with Service Pack 1)
  - UNIX workstation with Solaris Versions 8, 9, or 10 on an UltraSPARC or faster processor, with a minimum of 384 MB RAM and a minimum of 190 MB of available hard drive space
- Step 2** Ensure that your web browser software is one of the following:

- Netscape Navigator 7.x or higher on Windows
- Internet Explorer 6.x or higher on Windows
- Mozilla 1.7 or higher on Solaris

**Step 3** Verify that the following are installed on your computer:

- Java Runtime Environment (JRE) version 5.0.
- Java Plug-in 5.0.
- The Java Policy file.



**Tip**

You can check the JRE version in your browser window after entering the node IP address in the URL window under Java Version.



**Note**

For important information on CTC backward compatibility affected by your choice of JRE versions, see the *Readme.txt* or *Readme.html* file on the software CD.



**Note**

To install JRE 1.5.0\_09, the Java Policy file, or the Software R8.0 online help, refer to the installation instructions in the *Cisco ONS 15454 Procedure Guide* or the *Cisco ONS 15454 DWDM Procedure Guide*.

**Step 4** Return to your originating procedure (NTP).

## DLP-U309 Verify Common Control Cards

<b>Purpose</b>	This task verifies that two TCC2 or TCC2P cards, and two XC-VXC-10G, XC10G, or XCVT cards (SONET only) are installed at each node, as appropriate for your network configuration.
<b>Tools/Equipment</b>	PC or UNIX workstation with CTC installed
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser



**Note**

The TCC2P card is an enhanced version of the TCC2 card. The primary enhancements are Ethernet security features and 64K composite clock BITS timing.



**Note**

DWDM nodes need only TCC2/TCC2P cards installed during the upgrade.

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- Step 1** Ensure that the cards are installed. The TCC2 or TCC2P cards are in Slots 7 and 11 and the XC-VXC-10G, XC10G, or XCVT cards (as needed for SONET operation) are in Slots 8 and 10. Software R8.0 does not support simplex operation.
- Step 2** Repeat Step 1 at every node in the network.
- Step 3** Return to your originating procedure (NTP).
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## NTP-U208 Back Up the Software Database

<b>Purpose</b>	This procedure preserves all configuration data for your network before performing the upgrade.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">NTP-U207 Prepare for Upgrade to ONS 15454 Release 8.0, page 6</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Maintenance user or higher

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- Step 1** Log into CTC. For detailed instructions, refer to the *Cisco ONS 15454 Procedure Guide* or the *Cisco ONS 15454 DWDM Procedure Guide*. When you are logged in, continue with [Step 2](#).



**Note** (BLSR nodes only) The database must be backed up prior to locking the bidirectional line switched ring.

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- Step 2** In CTC node (default) view, click the **Maintenance** tab, then click the **Database** button.
- Step 3** In the database view, click the **Backup** button.
- Step 4** In the Database Backup dialog box, click the **Browse** button, then navigate to a local PC directory or network directory and type a database name using the IP address of the node for upgrade (such as database10108087010107.db) in the File Name field.
- Step 5** In the Database Backup dialog box, click the **OK** button. If you are overwriting an existing file, click **Yes** in the confirmation dialog box.
- Step 6** In the Database Backup dialog box, click to select the **Alarms** and the **Performance** check boxes, in order to choose these database items in addition to provisioning information.



**Note** The Provisioning selection in the Database Backup dialog box is a default component of the backup file, and this selection is dimmed.

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- Step 7** Click the **Save** button to save the database on the workstation's hard drive or on network storage.
- Step 8** When the backup has finished, click **OK**.
- Step 9** Repeat Steps [1](#) through [8](#) for each node in the network.
- Step 10** (Optional) Cisco recommends that you manually log critical information by either writing it down or printing screens where applicable. Use [Table 4](#) to determine the information you should log; complete the table (or your own version) for every node in the network.



**Table 4** *Manually Recorded Data*

Item	Record Data Here (If Applicable)
IP address of the node.	
Node name.	
Timing settings.	
DCC <sup>1</sup> connections; list all optical ports that have DCCs activated.	
User IDs; list all, including at least one Superuser.	
Inventory; do a print screen from the Inventory window.	
Active TCC2/TCC2P.	Slot 7 or Slot 11 (circle one)
Active XC-VXC-10G, XC10G, or XCVT (as needed for SONET or SDH configurations).	Slot 8 or Slot 10 (circle one)
Network information; do a print screen from the Provisioning tab in the network view.	
Current configuration (BLSR, linear, etc.); do print screens as needed.	
List all protection groups in the system; do a print screen from the Protection group window.	
List alarms; do a print screen from the Alarm window.	
List circuits; do a print screen from the Circuit window.	

1. DCC = data communications channel

**Stop. You have completed this procedure.**

## NTP-U209 Upgrade to ONS 15454 Release 8.0

<b>Purpose</b>	This procedure upgrades your CTC software to Software R8.0.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">NTP-U208 Back Up the Software Database, page 8</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser



**Caution**

Do not perform maintenance or provisioning activities during the activation task.



**Caution**

When managing end-to-end circuits participating in an ML-Series RPR ring across multiple nodes involved in a parallel upgrade, all nodes participating in these circuits must have completed the activation before the end-to-end traffic will resume.

**Note**

If you are upgrading multiple nodes from a release prior to Software R7.0 and have at least one optical channel network connection {OCHNC} circuit you will see transient OCHTERM-INC conditions raised during the upgrade. These will clear after all the nodes have been upgraded.

- Step 1** Insert the Software R8.0 CD into the workstation CD-ROM (or otherwise acquire access to the software) to begin the upgrade process.

**Note**

Inserting the software CD activates the CTC Java Setup Wizard. You can use the setup wizard to install components or click **Cancel** to continue with the upgrade.

- Step 2** Complete this procedure for all nodes, or groups of nodes, that you are upgrading.
- Step 3** (For BLSR nodes only) The database must be backed up prior to locking the BLSR. See [“NTP-U208 Back Up the Software Database” procedure on page 8](#) for details.
- Step 4** (BLSR nodes only) Complete the [“DLP-U311 Perform a BLSR Lockout” task on page 12](#).
- Step 5** Complete the [“DLP-U312 Activate the New ONS 15454 Software Load” task on page 13](#) for all nodes you are upgrading.

**Note**

You can only activate one node at a time; however, in a parallel upgrade you can begin activation of the next node as soon as the controller cards for the current node have rebooted successfully. If you wish to perform a parallel upgrade remotely, wait five minutes for the controller cards to complete the reboot.

- Step 6** If necessary, complete the [“DLP-U313 Delete Cached JAR Files” task on page 16](#).

**Caution**

If you download the R8.0 software a second time following activation you cannot revert to the previous software version.

- Step 7** (Optional) If you wish to ensure that a software revert to the previous software release is longer possible, complete the [“DLP-U310 Download ONS 15454 Release 8.0 Software” task on page 11](#) for all nodes, or groups of nodes you are upgrading a second time.
- Step 8** Complete the [“DLP-U314 Remove the BLSR Lockout” task on page 17](#) for all BLSR nodes in the network.

**Note**

Leave the BLSR in the lockout state until you have finished activating all nodes.

- Step 9** Complete the [“DLP-U315 Set the Date and Time” task on page 18](#) (any nodes not using Simple Network Time Protocol [SNTP]).
- Step 10** As needed, upgrade any spare TCC2 or TCC2P cards by installing the spare in the standby slot of a Software R8.0 node.

**Note**

The standby TCC2 or TCC2P card copies one or both software releases from the active TCC2 or TCC2P card, as needed. Each software copy takes about 5 minutes, and the TCC2 or TCC2P card resets after each copy. Thus, for a TCC2 or TCC2P card that has no matching software with the active TCC2 or TCC2P card, you should expect to see two TCC2 or TCC2P card resets and software copying lasting about 10 minutes total.

- Step 11** If you need to return to the software and database you had before activating Software R8.0, proceed with the [“NTP-U211 Revert to Previous Software Load and Database” procedure on page 20.](#)

**Note**

When you upgrade a TCC2 to card to a TCC2P, the SFTWDOWN alarm can be raised and cleared more than once before the software download is complete. For example, when you remove the standby TCC2 card in Slot 11 and replace it with a TCC2P card, the SFTWDOWN alarm occurs within moments of this replacement. It can briefly clear and then occur again before the alarm is finally cleared at the end of the upgrade process.

- Step 12** To back up the Software R8.0 database for the working software load, see [“NTP-U208 Back Up the Software Database” procedure on page 8.](#)

**Stop. You have completed this procedure.**

## DLP-U310 Download ONS 15454 Release 8.0 Software

<b>Purpose</b>	This task downloads Software R8.0 to the ONS 15454 nodes prior to activation.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">NTP-U208 Back Up the Software Database, page 8</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Maintenance user or higher

**Note**

The TCC2/TCC2P card has two flash RAMs. An upgrade downloads the software to the backup RAM on both the standby and active TCC2/TCC2P cards. The download task does not affect traffic because the active software continues to run at the primary RAM location; therefore, you can download the software at any time.

**Note**

To download and upgrade the software using TL1, see the [“NTP-U212 Upgrade to ONS 15454 Release 8.0 Using TL1” procedure on page 23.](#)

- Step 1** From CTC View menu, choose **Go to Network View**.
- Step 2** Verify that the alarm filter is not on. Click the **Filter** tool at the lower-left of the window.
- Step 3** The Alarm Filter dialog box appears. Click to deselect any selections in the Show Severity section of the **General** tab.
- Step 4** On the **Alarms** tab, check all nodes for existing alarms. Resolve any outstanding alarms before proceeding.

**Note**

During the software download process, the SWFTDWN alarm is raised twice, once on standby and again on active, to indicate that the software download is taking place. The alarm is normal and clears when the download is complete.

- Step 5** Verify that the TCC/TCC2 card in Slot 7 is the active card. If it is not, complete the following:
- Right-click the TCC/TCC2 card in Slot11 and choose **Soft-reset Card**.
  - Click **Yes** in the confirmation dialog box.
  - Click **OK** in the Connection Lost dialog box.




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**Note** The TCC2/TCC2P card takes several minutes to reboot.

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- Step 6** Return to node view and click the **Maintenance** tab, then click the **Software** button.
- Step 7** Click the **Download** button. The Download Selection dialog box appears.
- Step 8** Browse to locate the software files on the ONS 15454 software CD or on your hard drive, if you are working from a local copy.
- Step 9** To open the **Cisco15454** folder, choose the file with the PKG extension and click **Open**.
- Step 10** In the list of compatible nodes, click the check boxes for all nodes for software download.




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**Note** Cisco advises that you limit concurrent software downloads on a section data communications channel (SDCC) to eight nodes at once, using the central node to complete the download.

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**Note** If you attempt more than eight concurrent software downloads at once, the downloads in excess of eight will be placed in a queue.

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- Step 11** Click OK. The Download Status column monitors the progress of the download.




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**Note** The software download process can take typically less than 10 minutes per node.

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- Step 12** Return to your originating procedure (NTP).
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## DLP-U311 Perform a BLSR Lockout

<b>Purpose</b>	This task performs a SoftwareR8.0 BLSR lockout. If you have a BLSR provisioned, you must perform this task before beginning the upgrade.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">NTP-U208 Back Up the Software Database, page 8</a>
<b>Required/As Needed</b>	Required for BLSR only
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Maintenance




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**Note** (BLSR nodes only) The database must be backed up prior to locking the BLSR. See [“NTP-U208 Back Up the Software Database” procedure on page 8](#) for details.

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**Note** During the activation, BLSR spans are not protected. You must leave the BLSR in the lockout state until you have finished activating all nodes in the ring, but then you must be sure to remove the lockout after you are finished activating.



**Note** To prevent ring or span switching, perform the lockout on both the east and west spans of each node.

**Step 1** In node view, click the **Maintenance** tab, then click the **BLSR** button.

**Step 2** For each of the BLSR trunk (span) cards (OC-12, OC-48, OC-192, OC192-XFP, MRC-2.5-4, MRC-12), perform the following steps:

- a. Next to the trunk card row, click the East Switch column to show the drop-down menu.
- b. From the menu options, choose Lockout Protect.
- c. Click the **Apply** button.
- d. In the same row, click the West Switch column to show the drop-down menu.
- e. From the menu options, choose Lockout Protect.
- f. Click the **Apply** button.



**Note** Ignore any Default K alarms that occur on the protect STS time slots during this lockout period.



**Note** Certain BLSR or Multiservice Switching Platform (MSSP)-related alarms might be raised following activation of the first node in the ring. The following alarms, if raised, are normal, and should not cause concern. They clear upon completion of the upgrade, after all nodes have been activated.

- BLSR-OOSYNC (MN)
- RING-MISMATCH (MJ)
- APSCDFLTK (MN)
- BLSR-RESYNC (NA)

**Step 3** Return to your originating procedure (NTP).

## DLP-U312 Activate the New ONS 15454 Software Load

<b>Purpose</b>	This task activates Software R8.0 in each node in the network.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">DLP-U310 Download ONS 15454 Release 8.0 Software, page 11</a> <a href="#">DLP-U311 Perform a BLSR Lockout, page 12</a> (if required)
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser

**Caution**

G1000 cards purchased prior to Software R7.2 will incur a traffic hit of 2 to 3 minutes per card during activation, while an FPGA upgrade to the card takes place, and will also incur the same traffic hit if the software is subsequently reverted, as the FPGA will be downgraded in the case of such a revert.

**Note**

Ensure that all cards that are part of a protection group (1+1, 1:1, 1:N, or Y-cable) are active on the working card of that protection group and that no protection switches are occurring. To ensure that traffic carrying protect cards are in a standby state, in the node view, click the Maintenance tab, and then click the **Protection** button. Click to select each of the listed protection groups, then view the active/standby status of each card in the Selected Group area.

**Note**

Cisco recommends you run the optional Cache Loader pre-caching utility in [Step 14](#) of the activation task. If you do not plan to run the pre-caching utility, Cisco recommends that the first node you activate be a LAN-connected node. This ensures that the new CTC JAR files download to your workstation as quickly as possible.

**Note**

ML-Series cards undergo a cold restart during an upgrade. The following alarms might be raised in conjunction with the ML cold restart. These should clear after the upgrade is complete.

On the ML port:

- LOA
- TPTFAIL
- VCG DOWN

On the paths traversed by the ML-Series circuits:

- SD-P
- SF-P
- PDI-P

**Note**

If the Cisco IOS version has changed from the previous release to the new release, an ERROR-CONFIG alarm is raised on each ML card after the reset. To clear this alarm, perform a “copy running-config startup-config” (or a “write mem”) on each ML card. See the “Initial Configuration” chapter of the *Ethernet Card Software Feature and Configuration Guide for the Cisco ONS 15454, Cisco ONS 15454 SDH, and Cisco ONS 15327*.

- 
- Step 1** If CTC is not already started, start CTC.
- Step 2** Record the IP address of the node. The IP address can be obtained either on the LCD or on the upper left corner of the CTC window.
- Step 3** Verify that the alarm filter is not on. Click the **Filter** tool at the lower-left of the window.
- Step 4** The Alarm Filter dialog box appears. Click to deselect any selections in the Show Severity section of the **General** tab.

**Step 5** In the shelf view, click the **Maintenance** tab, then click the **Software** button.

**Step 6** Verify that the version in the Protect Version column is 8.0.



**Note** After activating Software 8.0 software on both working and protection, you cannot revert to a prior software version.

**Step 7** Click the **Activate** button. The Activate dialog box displays a warning message.

**Step 8** Click **Yes** to proceed with the activation. An Activation Successful message indicates that the software is successfully activated.

**Step 9** Click **OK** in the message box.

**When you click OK, CTC loses connection to the node and displays the network view.**

**Step 10** After activating the node, the software upgrade reboot occurs as follows:

- Each card in the node reboots, beginning with the standby TCC2 or TCC2P card. When the standby TCC2/TCC2P card reboots, it signals to the active TCC2/TCC2P card that it is ready to take over. When the active TCC2/TCC2P receives this signal, it resets itself, and the standby TCC2/TCC2P takes over and transitions to active. The pre-upgrade version of the TCC2/TCC2P card is now the standby TCC2/TCC2P.
- While the second TCC2/TCC2P is rebooting, the cross-connect card (SONET only) in Slot 8 reboots, and then the cross-connect card (SONET only) in Slot 10 reboots.
- Next, the E-Series Ethernet cards reset simultaneously.
- Any cards in Y-cable protection groups boot next, one at a time (protect card first), in order of first creation (refer to the CTC protection group list for order of first creation).
- Next, the traffic cards, G-Series Ethernet cards, CE-Series Ethernet cards, and ML-Series Ethernet cards boot consecutively, in ascending order of slot number.
- A system reboot (SYSBOOT) alarm is raised while activation is in progress (following the TCC2/TCC2P and cross connect card resets). When all cards have reset, this alarm clears. The complete activation process can take up to 30 minutes, depending on how many cards are installed.

After the common control cards finish resetting and all associated alarms clear, you can safely proceed to the next step. (If you are upgrading remotely and cannot see the nodes, wait for 5 minutes for the process to complete, then check to ensure that related alarms have cleared before proceeding.)



**Note** During the software upgrade, a reset alarm is raised on all the cards. When upgrading from release 6.0.x, 6.1.x, 6.2.x, 7.0, 7.2, 7.2.x to 8.x, a MANRESET alarm is raised on Standby TCC cards and an AUTORESET alarm in all the other cards. However, from release 8.0, the MANRESET alarm is not raised and the AUTORESET alarm is raised on all the cards.

**Step 11** In CTC, choose **File > Exit**.

**Step 12** In your browser window, click **Delete CTC Cache**.



**Note** You must ensure that CTC is closed before clicking the Delete CTC Cache button. CTC behavior is unreliable if the button is clicked while the software is still running.

**Note**

It might also be necessary to delete cached files from your browser's directory, or from the TEMP directory on your Microsoft Windows workstation. If you have trouble reconnecting to CTC, complete the [“DLP-U313 Delete Cached JAR Files” task on page 16](#).

- Step 13** Close your browser and then reopen it.
- Step 14** (Optional) Run the Cache Loader pre-caching utility, which can improve your speed logging back into CTC after an upgrade, and which is required to log into nodes running releases prior to R4.6. Perform the following steps to run the Cache Loader.
- Load the Software R8.0 CD into your CD-ROM drive. If the directory of the CD does not open automatically, open it.
  - Double-click the setup.exe file to run the Installation Wizard. The CTC Installation Wizard dialog box opens.
  - Click the **Next** button. The Setup Options dialog box opens.
  - Choose **Custom**, and click the **Next** button. The Custom Options dialog box opens.
  - Click to select **Cisco Transport Controller**, and **CTC JAR files** (deselect any other preselected options), then click the **Next** button. A confirmation dialog box opens.
  - Click the **Next** button again. The CTC Cache Loader pre-caches the JAR files to your workstation, displaying a progress status box.
  - When the utility finishes, click **OK**, and then in the wizard, click Finish.
- Step 15** Reconnect to CTC using the IP address from [Step 2](#). The new CTC applet for Software R8.0 uploads. During this login, type the user name CISCO15. A password is not required.

**Note**


Steps [11](#) through [15](#) are necessary only after upgrading the first node in a network because cached files need to be removed from your workstation only once. For the remaining nodes, you will still be disconnected and removed to the network view during the node reboot, but after the reboot is complete, CTC restores connectivity to the node.

- Step 16** Return to your originating procedure (NTP).

## DLP-U313 Delete Cached JAR Files

<b>Purpose</b>	This task deletes cached JAR files. When you upgrade or revert to a different CTC software load, you must reload CTC to your browser. Before you can reload CTC, you must ensure that previously cached files are cleared from your browser and hard drive.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	You need to complete this task after you activate the first network node.
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Maintenance user or higher



- 
- Step 1** Delete cache files from your browser directory.
- In Netscape:
- Choose **Edit > Preferences**, click the **Advanced** tab, then click the **Cache** button.
  - Click the **Clear Memory Cache** button, and click **OK**.
  - Click the **Clear Disk Cache** button, and click **OK** twice.
- In Microsoft Internet Explorer:
- Choose **Tools > Internet Options**. The Internet Options dialog box appears.
  - Click the **General** tab, and then click the **Delete Files** button.
  - Click the **Delete all offline content** check box.
  - Click **OK** twice.
- Step 2** Close your browser.
-  **Note** You cannot delete cached JAR files from your hard drive until you have closed your browser. If you have other applications open that use JAR files, you must also close them.
- 
- Step 3** (Windows systems only) Delete cached files from your workstation.
- In your Windows Start menu, choose **Control Panel > System** and click the **Advanced** tab.
  - Click the **Environment Variables** button. The resulting display will show a list of user variables and a list of system variables.
  - In the list of user variables, look for the TEMP variable. The value associated with this variable is the path to your temporary directory where JAR files are stored.
  - Open the **TEMP** directory located in the discovered path.
  - Click **View > Details**.
  - Click to select and delete all files with “jar” in the Name or Type field.
- Step 4** Reopen your browser. You should now be able to connect to CTC.
- Step 5** Return to your originating procedure (NTP).
- 

## DLP-U314 Remove the BLSR Lockout

<b>Purpose</b>	This task removes a BLSR lockout. Release the span lockouts on all BLSR nodes after the new software load is activated on all nodes.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">DLP-U312 Activate the New ONS 15454 Software Load, page 13</a>
<b>Required/As Needed</b>	Required for BLSR
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Maintenance

- 
- Step 1** In CTC node view, click the **Maintenance** tab, then click the **BLSR** button.

- Step 2** For each of the BLSR trunk (span) cards (OC-12, OC-48, OC-192, OC192-XFP, MRC-2.5-4, MRC-12), perform the following steps:
- Next to the trunk card row, click the West Switch column to show the drop-down menu.
  - From the drop-down menu, click **Lockout Protect**.



**Note** When removing a lockout, be sure to apply your changes each time you choose the Clear option. If you try to select Clear for more than one lockout at a time, you risk traffic loss on the first ring switch.

- In the same row, click the East Switch column to show the drop-down menu.
  - From the drop-down menu, click **Lockout Protect**.
- Step 3** Repeat this task as many times as necessary to remove all BLSR span lockouts on the upgrade nodes.
- Step 4** Return to your originating procedure (NTP).

## DLP-U315 Set the Date and Time

<b>Purpose</b>	This task sets the date and time. If you are not using SNTP, the upgrade procedure can cause the Date/Time setting to change. Perform this task to reset the date and time at each node.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser



**Note** If you are using SNTP, you do not need this task.

- Step 1** In CTC node view, click the **Provisioning** tab and then click the **General** button.
- Step 2** Set the correct date and time, then click the **Apply** button.
- Step 3** Repeat Steps 1 and 2 for each remaining node.
- Step 4** Return to your originating procedure (NTP).

# NTP-U210 Install Public-Key Security Certificate

<b>Purpose</b>	This procedure installs the ITU Recommendation X.509 public-key security certificate. The public-key certificate is required to run Software R4.1 or later.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	This procedure is performed when logging into CTC. You cannot perform it at any other time.
<b>Required/As Needed</b>	This procedure is required to run ONS 15454 Software R4.1 or later.
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

---

**Step 1** Log into CTC.

**Step 2** If the Java Plug-in Security Warning dialog box appears, choose one of the following options:

- **Grant This Session**—Installs the public-key certificate to your PC only for the current session. After the session is ended, the certificate is deleted. This dialog box will appear the next time you log into the ONS 15454.
- **Deny**—Denies permission to install the certificate. If you choose this option, you cannot log into the ONS 15454.
- **Grant always**—Installs the public-key certificate and does not delete it after the session is over. Cisco recommends this option.
- **View Certificate**—Allows you to view the public-key security certificate.

After you complete the security certificate dialog boxes, the web browser displays information about your Java and system environments. If this is the first login, a CTC downloading message appears while CTC files are downloaded to your computer. The first time you connect to an ONS 15454, this process can take several minutes. After the download, the CTC Login dialog box appears.

**Step 3** If you need to return to the software and database you had before activating Software R8.0, proceed with the [“NTP-U211 Revert to Previous Software Load and Database” procedure on page 20](#).

**Stop. You have completed this procedure.**

---

# NTP-U211 Revert to Previous Software Load and Database

<b>Purpose</b>	This procedure returns you to the software and database provisioning you had before you activated Software R8.0. You cannot revert backwards to a previous version of the protect load if the software on both the working and protect side is Software 8.0.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">NTP-U207 Prepare for Upgrade to ONS 15454 Release 8.0, page 6</a> <a href="#">NTP-U208 Back Up the Software Database, page 8</a> <a href="#">NTP-U209 Upgrade to ONS 15454 Release 8.0, page 9</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser



## Note

Tasks to revert to a previous load are not a part of the upgrade, and are provided here as a convenience to those wishing to perform a revert after an upgrade. If you have successfully performed all necessary procedures up to this point, you have finished the software upgrade.



## Note

Before you upgraded to Software R8.0, you should have backed up the existing database at all nodes in the network (this is part of the [“NTP-U208 Back Up the Software Database” procedure on page 8](#)). Cisco recommends that you record or export all critical information to your hard drive.



## Caution

If you have converted a node to secure, dual-IP mode, the database information is overwritten with this configuration and you cannot revert it to single-IP repeater mode.



## Caution

G1000 cards purchased prior to Software R7.2 will incur a traffic hit of 2 to 3 minutes per card during activation while an FPGA upgrade takes place. Cards thus upgraded will also incur the same traffic hit if the software is subsequently reverted, as the FPGA will be downgraded in the case of such a revert.



## Note

TCC2P cards act as TCC2 cards in releases prior to Software R6.0.

- 
- Step 1** Log into the node. For detailed instructions, refer to the *Cisco ONS 15454 Procedure Guide*, or the *Cisco ONS 15454 DWDM Procedure Guide*. If you are already logged in, and this is not a BLSR, continue with Step 3.
- Step 2** (BLSR nodes only) The database must be backed up prior to locking the BLSR. See [“NTP-U208 Back Up the Software Database” procedure on page 8](#) for details.
- Step 3** (BLSR nodes only) Complete the [“DLP-U311 Perform a BLSR Lockout” task on page 12](#).
- Step 4** Complete the [“DLP-U316 Revert to Protect Load” task on page 21](#).
- Step 5** (BLSR nodes only) Complete the [“DLP-U314 Remove the BLSR Lockout” task on page 17](#).
- Step 6** If the software revert to your previous release failed to restore the database, complete the [“DLP-U317 Manually Restore the Database” task on page 22](#).
- Step 7** **Stop. You have completed this procedure.**
-

## DLP-U316 Revert to Protect Load

<b>Purpose</b>	This task reverts to the software you were running prior to the last activation.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">NTP-U207 Prepare for Upgrade to ONS 15454 Release 8.0, page 6</a> <a href="#">NTP-U208 Back Up the Software Database, page 8</a> <a href="#">NTP-U209 Upgrade to ONS 15454 Release 8.0, page 9</a> <a href="#">DLP-U311 Perform a BLSR Lockout, page 12</a>
<b>Required/As Needed</b>	Required for revert
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser



### Note

To perform a supported (non-service-affecting) revert from Software R8.0, the release you want to revert to must have been working at the time you activated to Software R8.0 on that node. Also, a supported revert automatically restores the node configuration at the time of the previous activation. Any configuration changes made after activation is lost when you revert. The exception to this is when you have downloaded Software R8.0 a second time, ensuring that no revert to a previous load can take place. In this case, the revert occurs, but is not be traffic-affecting and does not change you database.



### Note

Ensure that all cards that are part of a protection group (1+1, 1:1, 1:N, or Y-cable) are active on the working card of that protection group and that no protection switches are occurring. To ensure that traffic carrying protect cards are in a standby state, in the node view click the Maintenance tab, and view the Protect column for each of the listed protection groups, then view the active/standby status of each card in the Maintenance tab.

- Step 1** From the node view, click the **Maintenance** tab, then click the **Software** button.
- Step 2** Verify that the protect software displays the release you upgraded from.
- Step 3** Click the **Revert** button. Revert activates the protect software and restores the database from the previous load. A dialog box asks you to confirm the choice.
- Step 4** Click **OK**. This begins the reversion and drops the connection to the node.
- Step 5** Wait until the software reversion finishes before continuing.



### Note

The system reboot might take up to 30 minutes to complete.

- Step 6** Wait one minute before restoring another node.
- Step 7** Perform the [“DLP-U313 Delete Cached JAR Files” task on page 16](#).
- Step 8** After reverting all of the nodes in the network, restart the browser and log back into the last node that was reverted. This uploads the appropriate CTC applet to your workstation.
- Step 9** Return to your originating procedure (NTP).

## DLP-U317 Manually Restore the Database

<b>Purpose</b>	This task manually restores the database. Use this task if you were unable to perform a revert successfully and need to restore the database.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">DLP-U316 Revert to Protect Load, page 21</a> <a href="#">DLP-U314 Remove the BLSR Lockout, page 17</a> (if required)
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser




---

**Caution**

Do not perform these steps unless the software revert failed.

---




---

**Caution**

This process is service affecting and should be performed during a maintenance window.

---

- 
- Step 1** In CTC node view, click the **Maintenance** tab, then click the **Database** button.
- Step 2** Click the **Restore** button. The Open dialog box appears.
- Step 3** Select the previously saved database file and click the **Open** button.  
The database is restored and the TCC2/TCC2P cards reboot.
- Step 4** When the TCC2/TCC2P cards have finished rebooting, log back into CTC and verify that the database is restored.  
Wait one minute before restoring the next node.
- Step 5** Repeat Steps 1 to 4 for each node in the network.  
You have now completed the manual database restore.
- Step 6** Return to your originating procedure (NTP).
-

# NTP-U212 Upgrade to ONS 15454 Release 8.0 Using TL1

<b>Purpose</b>	This procedure upgrades the software to R8.0.x using TL1 rather than CTC.
<b>Tools/Equipment</b>	PC or UNIX workstation
<b>Prerequisite Procedures</b>	<a href="#">NTP-U207 Prepare for Upgrade to ONS 15454 Release 8.0, page 6</a> <a href="#">NTP-U208 Back Up the Software Database, page 8</a>
<b>Required/As Needed</b>	Optional
<b>Onsite/Remote</b>	Onsite or remote (but in the presence of the workstation)
<b>Security Level</b>	Superuser



## Note

This procedure assumes you are upgrading using TL1 Release 6.x. TL1. Commands that are issued prior to activation to ONS 15454 vary in syntax depending on the ONS 15454 release that you are actually upgrading from. To ensure that your syntax for each command is correct, use the TL1 syntax supplied in the *Cisco ONS SONET TL1 Command Guide* for your particular release when issuing the following commands:

- ACT-USER
- COPY-RFILE
- REPT EVT FXFR
- OPR-PROTNSW-<OCN\_TYPE>
- RTRV-COND-ALL
- RTRV-ALM-ALL



## Note

To perform a Software R8.0 download using TL1, you must first have an FTP server or a terminal emulation program like HyperTerminal running on your workstation.



## Note

In the following conditions, the download (COPY-RFILE) command is different when downloading software to a gateway network element (GNE) or an end network element (ENE):

- - FTP is being used.
- - The server is set up with a login and password of FTPUSER1 and FTPUSERPASSWORD1.
- - The FTP server has an IP address of 10.1.1.1.
- - The FTP server is running on the standard FTP port.
- - The software package is called "15454-03xx-A04K-1405.pkg."

The GNE and ENE commands are as follows:

- When downloading software to a GNE, use a command similar to:

```
COPY-RFILE:NODENAME:RFILE-PKG:CTAG::TYPE=SWDL,
SRC="ftp://FTPUSER1:FTPUSERPASSWORD1@10.1.1.1/15454-03xx-A04K-1405.pkg";
```

- When downloading software to an ENE, use a command similar to:

```
COPY-RFILE:NODENAME:RFILE-PKG:CTAG::TYPE=SWDL,
SRC="ftp://FTPUSER1:FTPUSERPASSWORD1@10.111.11.1:2361@90.90.90.90/15454-03xx-A04K-1405
.pkg";
```

The ":2361" after the FTP server IP address 10.111.11.1 denotes port 21 on the server.

The software PKG file in the preceding example is located in the home directory of the FTP server. If the software PKG file is not in the home directory on the FTP server, insert the directory path where the software PKG resides between the last IP address and the PKG file in the command line. An example is shown here.

```
COPY-RFILE:NODENAME:RFILE-PKG:CTAG::TYPE=SWDL,
SRC="ftp://FTPUSER1:FTPUSERPASSWORD1@10.1.1.1:21@90.90.90.90/CISCO/SOFTWARE/15454-03xx
-A04K-1405.pkg";
```

**Step 1** To use TL1 commands, set up an FTP session or use HyperTerminal or a similar terminal emulation package to establish a session with the ONS 15454 node.

**Step 2** Type the IP address for the node, using port 3083 or 2361.

The terminal emulation interface displays a warning message and a command prompt (usually >). You issue TL1 commands at this prompt.

**Step 3** Type the **ACT-USER** (Activate User) command in the TL1 request window to open a TL1 session:

```
ACT-USER:[<TID>]:<uid>:<CTAG>[::<pid>];
```

where:

- <TID> is the target identifier (optional).
- <UID> is the Operation Support System (OSS) profile user ID (required).
- <CTAG> is the correlation tag that correlates command and response messages (optional).
- <PID> is the password identifier (required).

For example, in the TL1 command:

```
ACT-USER::CISCO99:100::PASSWORD;
```

ACT-USER is the activation command, CISCO99 is the user ID, 100 is the correlation tag (used to correlate commands to command responses), and PASSWORD is the password associated with the user ID.

A response message containing the CTAG that you specified indicates the completion status of the command.

**Step 4** Select the IP address for the node, using port 3083 or 2361.

**Step 5** Type the **COPY-RFILE** command in the TL1 window or, if using HyperTerminal, Click **Transfer > Receive File**, and use the associated dialog box to select a file to receive. The **COPY-RFILE** command downloads a new software package from the location specified by the FTP URL into the inactive Flash partition residing on either of the TCC2/TCC2P cards.

```
COPY-RFILE:[<TID>]:<src>:<CTAG>::TYPE=<xferftype>,[SRC=<src1>],[DEST=<dest>],[OVWRT=<ovwrt>
],[FTTD=<fttd>];
```

where:

- <TID> is the target identifier (optional).
- <SRC> is the source AID (required).



- <CTAG> is the correlation tag that correlates command and response messages (optional).
- <TYPE> is the file transfer protocol (required).
- <SRC1> specifies the source of the file to be transferred (required).
- <DEST> is the destination of the file to be transferred (required).
- <OVWRT> is overwrite. If <OVWRT> is yes, then files should be overwritten. If <OVWRT> is no, then file transfers will fail if the file already exists at the destination (required).
- <FTTD> is the URL format (required).

**Step 6** Repeat [Step 5](#) for all nodes to be upgraded.

**Step 7** Look for the **REPT EVT FXFR** message in the TL1 window. REPT EVT FXFR is an autonomous message used to report the start, completion, and completed percentage status of the software download. REPT EVT FXFR also reports any failure during the software upgrade, including invalid package, invalid path, invalid user ID/password, and loss of network connection.

The format of the message is:

```
REPT EVT FXFR

      SID DATE TIME
A  ATAG REPT EVT FXFR
   "<FILENAME>,<FXFR_STATUS>,[<FXFR_RSLT>],[<BYTES_XFRD>]"
;
```

where:

- <FILENAME> indicates the transferred file path name and is a string.
- <FXFR\_STATUS> indicates the file transferred status: Start, IP (in progress), or COMPLD.
- <FXFR\_RSLT> indicates the file transferred result: success or failure. FXFR\_RSLT is optional (the FXFR\_RSLT is only sent when the FXFR\_STATUS is COMPLD).
- <BYTES\_XFRD> indicates the percentage transfer complete and is optional (the BYTES\_XFRD is only sent when the FXFR\_STATUS is IP or COMPLD).

**Step 8** Complete [NTP-U207 Prepare for Upgrade to ONS 15454 Release 8.0, page 6](#) for each node to be upgraded.

**Step 9** Complete [NTP-U208 Back Up the Software Database, page 8](#) for each node to be upgraded.

**Step 10** Lock out each BLSR span on each node being upgraded using the following command.

```
OPR-PROTNSW-<OCN_TYPE>:[<TID>]:<AID>:<CTAG>::<SC>,[<SWITCHTYPE>][:<DIRN>];
```

where:

- <AID> is the Access IDentifier that indicates the facility in the node to which the switch request is directed.
- <CTAG> is the correlation tag that correlates command and response messages (optional).
- <SC> is the switch command that is to be initiated on the paths.
- <SWITCHTYPE> is the BLSR switch type.
- <DIRN> is the direction of transmission in which switching is to be made and is relative to the SONET line or path identified by the AID. The default value is RCV and should be changed to BTH.



**Note** Some nodes might have more than one BLSR. If this is the case, all BLSR spans on all nodes being upgraded need to be locked out. Nodes that are not being upgraded do not need to have the BLSR spans locked out. You must be aware of each span that is part of a BLSR to make sure all necessary spans are locked out.



**Note** BLSR lockouts must remain in place until the upgrade is complete for all nodes.



**Note** Ignore any Default K alarms that occur on the protect STS time slots during the lockout.



**Note** Certain BLSR-related alarms might be raised following activation of the first node in the ring. The following alarms, if raised, are normal, and should not cause concern. They clear upon completion of the upgrade, after all nodes have been activated: BLSR-OOSYNC (MN); RING-MISMATCH (MJ); APSCDFLTK (MN); BLSR-RESYNC (NA).

**Step 11** Verify that all necessary BLSR spans on each node being upgraded have been locked out using the following command:

```
RTRV-PROTNSW-<OCN_TYPE>:[<TID>]:<AID>:<CTAG>[:::];
```

where:

- <TID> is the target identifier (optional)
- <AID> is the Access IDentifier that indicates the facility in the node to which the switch request is directed (must not be null) (required)
- <CTAG> is the correlation tag that correlates command and response messages (optional)

**Step 12** Verify that there are no outstanding alarms or conditions on each node using the following commands:

```
RTRV-COND-ALL:[<TID>]:[<AID>]:<CTAG>:[<TYPEREQ>][,,,];
```

where:

- <TYPEREQ> is the type of condition to be retrieved. A null value is equivalent to ALL.

```
RTRV-ALM-ALL:[<TID>]:[<AID>]:<CTAG>:[<NTFCNCDE>],[<CONDITION>],[<SRVEFF>][,,,];
```

where:

- <TID> is the target identifier
- <AID> is the Access IDentifier that indicates the facility in the node to which the switch request is directed (must not be null)
- <CTAG> is the correlation tag that correlates command and response messages (optional)
- <NTFCNCDE> is a notification code. A null value is equivalent to ALL.
- <CONDITION> is the type of alarm condition. A null value is equivalent to ALL.
- <SRVEFF> is the effect on service caused by the alarm condition. A null value is equivalent to ALL.

Resolve all issues before proceeding.



**Note** You can only activate one node at a time; however, in a parallel upgrade you can begin activation of the next node as soon as the controller cards for the current node have rebooted successfully. If you wish to perform a parallel upgrade remotely, wait five minutes for the controller cards to complete the reboot.

**Step 13** Starting at the node farthest from the GNE, type the **APPLY** command to activate the system software.

```
APPLY: [ <TID> ] : : <CTAG> [ : : <MEM_SW_TYPE> ] ;
```

where:

- <CTAG> is the correlation tag that correlates command and response messages.
- <MEM\_SW\_TYPE> indicates a memory switch action during the software upgrade. MEM\_SW\_TYPE is ACT for activate.

If the command is successful, the appropriate flash is selected and the TCC2/TCC2P card reboots.

The following occurs:

- Each card in the node reboots, beginning with the standby TCC2 or TCC2P card. When the standby TCC2/TCC2P card reboots, it signals to the active TCC2/TCC2P card that it is ready to take over. When the active TCC2/TCC2P receives this signal, it resets itself, and the standby TCC2/TCC2P takes over and transitions to active. The pre-upgrade version of the TCC2/TCC2P card is now the standby TCC2/TCC2P.
- While the second TCC2/TCC2P is rebooting, the cross-connect card (SONET/SDH only) in Slot 8 reboots, and then the cross-connect card (SONET only) in Slot 10 reboots.
- Next, the E-Series Ethernet cards reset simultaneously.
- Any cards in Y-cable protection groups boot next, one at a time (protect card first), in order of first creation (refer to the CTC protection group list for order of first creation).
- Next, the traffic cards, G-Series Ethernet cards, CE-Series Ethernet cards, and ML-Series Ethernet cards boot consecutively, in ascending order of slot number, first standby, then working, for each card pair, with the exception that E1-42 protect cards will always be reset before any of their peer working cards.
- A system reboot (SYSBOOT) alarm is raised while activation is in progress (following the TCC2/TCC2P and cross-connect card resets). When all cards have reset, this alarm clears. The complete activation process can take up to 30 minutes, depending on how many cards are installed.

After the common control cards finish resetting and all associated alarms clear, you can safely proceed to the next step. (If you are upgrading remotely and cannot see the nodes, wait for 5 minutes for the process to complete, then check to ensure that related alarms have cleared before proceeding.)

**Step 14** Perform [Step 13](#) for each node that will be upgraded, moving from the furthest node from the GNE toward the GNE itself, which should be activated last.



**Note** You might have to log in ([Step 1](#) and [Step 3](#)) to each node again to activate the software ([Step 13](#)).

**Step 15** After all nodes have been activated, log in using CTC or Telnet ([Step 1](#) and [Step 3](#)) and verify there are no outstanding alarms.

**Step 16** Remove all BLSR lockouts using the following TL1 command:

```
RLS-PROTNSW-<OCN_TYPE> : [ <TID> ] : <AID> : <CTAG> [ : : <DIRECTION> ] ;
```

where:

- <TID> is the target identifier (optional)
- <AID> is the Access IDentifier that indicates the facility in the node to which the switch request is directed (must not be null) (required)
- <CTAG> is the correlation tag that correlates command and response messages (optional)
- <DIRECTION> is the direction of transmission (transmit or receive). The possible values are
  - RCV—Receive direction only (default), or
  - TRMT—Transmit direction only,
  - BTH—Both transmit and receive directions

For example:

```
RLS-PROTNSW-OC48:PETALUMA:FAC-6-1:209::BTH;
```

- Step 17** To back up the database for the working software load, see [“NTP-U208 Back Up the Software Database” procedure on page 8](#) in order to preserve the database for the current software.

**Stop. You have completed this procedure.**

---

## Related Documentation

Use this document in conjunction with the following publications:

- *Cisco ONS 15454 Procedure Guide*  
Provides installation, turn-up, test, and maintenance procedures for ONS 15454SONET networks
- *Cisco ONS 15454 Reference Manual*  
Provides technical reference information for 15454 SONET cards, nodes, and networks
- *Cisco ONS 15454 Troubleshooting Guide*  
Lists alarms, errors, and transient conditions and provides alarm and general troubleshooting procedures
- *Cisco ONS 15454 DWDM Procedure Guide*  
Provides installation, turn up, test, and maintenance procedures for DWDM networks
- *Cisco ONS 15454 DWDM Reference Manual*  
Provides technical reference information for DWDM cards, nodes, and networks
- *Cisco ONS 15454 DWDM Troubleshooting Guide*  
Lists alarms, errors, and transient conditions and provides alarm and general troubleshooting procedures
- *Cisco ONS SONET TLI Command Guide*  
Provides a full TL1 command and autonomous message set including parameters, AIDs, conditions, and modifiers for the Cisco ONS 15454, ONS 15327, ONS 15600, ONS 15310-MA, and ONS 15310-CL systems.
- *Cisco ONS SONET TLI Reference Guide*  
Provides general information, procedures, and errors for TL1 in the Cisco ONS 15454, ONS 15327, ONS 15600, ONS 15310-CL, and ONS 15310-MA systems

- *Ethernet Card Software Feature and Configuration Guide for the Cisco ONS 15454, Cisco ONS 15454 SDH, and Cisco ONS 15327*  
Provides software features for all Ethernet cards and configuration information for Cisco IOS on ML-Series cards.
- *Release Notes for Cisco ONS 15454 Release 8.0*  
Provides caveats, closed issues, and new feature and functionality information

## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

### Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

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[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

### Product Documentation DVD

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The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

### Cisco Optical Networking Product Documentation CD-ROM

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## Ordering Documentation

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<http://www.cisco.com/go/marketplace/>

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## Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

From this site, you will find information about how to:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

[http://www.cisco.com/en/US/products/products\\_psirt\\_rss\\_feed.html](http://www.cisco.com/en/US/products/products_psirt_rss_feed.html)

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For Emergencies only — [security-alert@cisco.com](mailto:security-alert@cisco.com)

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered non-emergencies.

- For non-emergencies — [psirt@cisco.com](mailto:psirt@cisco.com)

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

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We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT at the aforementioned e-mail addresses or phone numbers before sending any sensitive material to find other means of encrypting the data.

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## Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Technical Support & Documentation Website

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<http://tools.cisco.com/RPF/register/register.do>

**Note**

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

## Submitting a Service Request

Using the online Cisco TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the Cisco TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The Cisco TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

**Severity 1 (S1)**—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

**Severity 2 (S2)**—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.



Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

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- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

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- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

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- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

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or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:  
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- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:  
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