Maintain the Node

This chapter provides procedures for maintaining the Cisco ONS 15454.

Note Except where noted, the procedures and tasks in this chapter apply to both DWDM (Software Release 4.5) and non-DWDM (Software R4.1 and earlier) nodes.

Before You Begin

Before performing any of the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15454 Troubleshooting Guide* as necessary. This section lists the chapter procedures (NTPs). Turn to a procedure to view its tasks (DLPs).

1. NTP-A107 Inspect and Maintain the Air Filter, page 17-2—Complete as needed.
2. NTP-A108 Back Up the Database, page 17-7—Complete as needed.
3. NTP-A109 Restore the Database, page 17-9—Complete as needed.
4. NTP-A163 Restore the Node to Factory Configuration, page 17-11—Complete as needed to clear the database and upload a blank database and the latest software.
5. NTP-A214 Off Load the Security Audit Trail Log, page 17-16—Complete as needed.
6. NTP-A110 Inhibit Card Protection Switching, page 17-17—Complete as needed.
7. NTP-A111 Revert to an Earlier Software Load, page 17-20—Complete as needed
8. NTP-A112 Clean Fiber Connectors, page 17-21—Complete as needed.
9. NTP-A113 Reset the TCC+/TCC2 Card Using CTC, page 17-24—Complete as needed to reset the TCC2 card and switch the node to the redundant TCC2.
10. NTP-A215 View G-Series Ethernet Maintenance Information, page 17-25—Complete as needed.
11. NTP-A239 View E-Series Ethernet Maintenance Information, page 17-25--Complete as needed.
12. NTP-A218 Change the Node Timing Reference, page 17-27—Complete as needed.
13. NTP-A223 View ONS 15454 Timing Report, page 17-28—Complete as needed.

NTP-A107 Inspect and Maintain the Air Filter

Purpose	This procedure explains how to inspect and maintain reusable and disposable fan tray air filters.
Tools/Equipment	Spare air filters
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	None

Warning **Do not reach into a vacant slot or chassis while you install or remove a module or a fan. Exposed circuitry could constitute an energy hazard.**

Note Although the filter can work if it is installed with either side facing up, Cisco recommends that you install it with the metal bracing facing up to preserve the surface of the filter.

Step 1 To maintain the reusable air filter, complete the "DLP-A199 Inspect, Clean, and Replace the Reusable Air Filter" task on page 17-2.

Step 2 To maintain the disposable air filter, complete the "DLP-A200 Inspect and Replace the Disposable Air Filter" task on page 17-5.

Stop. You have completed this procedure.

DLP-A199 Inspect, Clean, and Replace the Reusable Air Filter

Purpose	This task ensures that the air filter is free from dirt and dust, which allows optimum air flow and prevents dirt and dust from entering the shelf.
Tools/Equipment	Vacuum or detergent and water faucet, spare filter, pinned hex key tool
Prerequisite Procedures	None
Required/As Needed	Inspection required every 30 days. Clean as needed.
Onsite/Remote	Onsite
Security Level	None

Warning **Do not reach into a vacant slot or chassis while you install or remove a module or a fan. Exposed circuitry could constitute an energy hazard.**

Step 1 Verify that you are replacing a reusable air filter. The reusable filter is made of a gray, open-cell, polyurethane foam that is specially coated to provide fire and fungi resistance. NEBS 3E and later versions of the ONS 15454 use a reusable air filter.

Step 2 If the air filter is installed in the external filter brackets, slide the filter out of the brackets while being careful not to dislodge any dust that may have collected on the filter and proceed to Step 9. Figure 17-1 illustrates a reusable fan-tray air filter in an external filter bracket.

Step 3 If the filter is installed below the fan tray and not in the external filter brackets, open the front door of the shelf assembly. If the front door is already open, proceed to Step 4.

a. Open the front door lock.

The ONS 15454 comes with a pinned hex key for locking and unlocking the front door. Turn the key counterclockwise to unlock the door and clockwise to lock it.

b. Press the door button to release the latch.

c. Swing the door open.

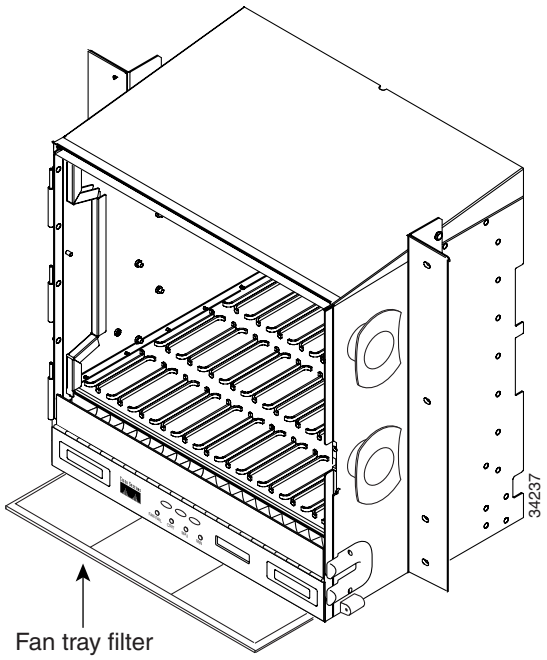
Step 4 Remove the front door (optional). If you do not want to remove the door or it is already removed, proceed to Step 5:

a. Detach the ground strap from either the door or the chassis by removing one of the Kepnuts.

b. Place the Kepnut back on the stud after the ground strap is removed to avoid misplacement.

c. Secure the dangling end of the ground strap to the door or chassis with tape.

Figure 17-1 Reusable Fan-Tray Air Filter in an External Filter Bracket (Front Door Removed)



Step 5 Push the outer side of the handles on the fan-tray assembly to expose the handles.

Step 6 Pull the handles and slide the fan-tray assembly one inch out of the shelf assembly and wait until the fans stop.

Step 7 When the fans have stopped, pull the fan-tray assembly completely out of the shelf assembly.

Step 8 Gently remove the air filter from the shelf assembly. Be careful not to dislodge any dust that may have collected on the filter.

Step 9 Visually inspect the air filter material for dirt and dust.

Step 10 If the reusable air filter contains a concentration of dirt and dust, replace the dirty air filter with a clean air filter (spare filters should be kept in stock) and re-insert the fan-tray assembly. Then, vacuum or wash the dirty air filter under a faucet with a light detergent.

Caution Do not leave the fan tray out of the chassis for an extended period of time because excessive heat can damage the ONS 15454 cards.

Note Cleaning should take place outside the operating environment to avoid releasing dirt and dust near the equipment.

Step 11 If you washed the filter, allow it to completely air dry for at least eight hours.

Warning **Do not put a damp filter back in the ONS 15454.**

Step 12 Replace the clean filter:

a. If the air filter is installed in the external filter brackets, slide the dry air filter all the way to the back of the brackets to complete the procedure.

b. If the filter is installed below the fan-tray assembly, remove the fan-tray assembly and slide the dry/clean air filter into the recessed compartment at the bottom of the shelf assembly. Put the front edge of the air filter flush against the front edge of the recessed compartment. Push the fan tray back into the shelf assembly.

Caution If the fan tray does not slide all the way to the back of the shelf assembly, pull the fan tray out and readjust the position of the reusable filter until the fan tray fits correctly.

Note On a powered-up ONS 15454, the fans start immediately after the fan-tray assembly is correctly inserted.

Step 13 To verify that the tray is plugged into the backplane, ensure that the LCD on the front of the fan-tray assembly is activated and displays node information.

Step 14 Rotate the retractable handles back into their compartments.

Step 15 If you replace the door, also reattach the ground strap.

Step 16 Close and lock the door.

Step 17 Return to your originating procedure (NTP).

DLP-A200 Inspect and Replace the Disposable Air Filter

Purpose	This task ensures that the air filter is free from dirt and dust, thus allowing optimum air flow and preventing dirt and dust from entering the ONS 15454.
Tools/Equipment	Extra filters, pinned hex key
Prerequisite Procedures	None
Required/As Needed	Inspection required every 30 days. Replace as needed.
Onsite/Remote	Onsite
Security Level	None

Note The disposable air filter is installed below the fan-tray assembly only, so you must remove the fan-tray assembly to inspect and replace the disposable air filter.

Step 1 Verify that you are replacing a disposable air filter. The disposable filter is made of spun white polyester that is flame retardant. NEBS 3E and earlier versions of the ONS 15454 use a disposable air filter.

Step 2 Open the front door of the shelf assembly. If the front door is already open, proceed to Step 4.

a. Open the front door lock.

   The ONS 15454 comes with a pinned hex key for locking and unlocking the front door. Turn the key counterclockwise to unlock the door and clockwise to lock it.

b. Press the door button to release the latch.

c. Swing the door open.

Step 3 Remove the front door (optional). If the door is already removed or you do not want to remove it, Step 4:

a. Detach the ground strap from either the door or the chassis by removing one of the Kepnuts.

b. Place the Kepnut back on the stud after the ground strap is removed to avoid misplacement.

c. Secure the dangling end of the ground strap to the door or chassis with tape.

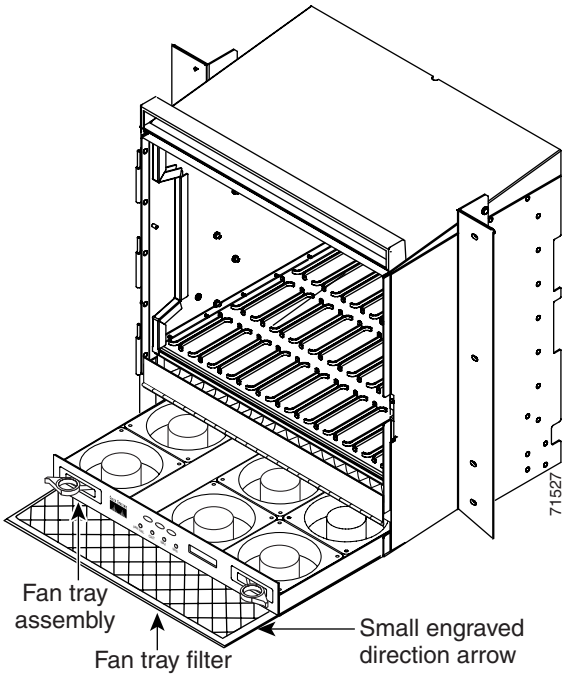
Step 4 Push the outer side of the handles on the fan-tray assembly to expose the handles.

Step 5 Pull the handles and slide the fan-tray assembly one inch out of the shelf assembly and wait until the fans stop.

Step 6 When the fans have stopped, pull the fan-tray assembly completely out of the shelf assembly (Figure 17-2).

Caution Do not leave the fan tray out of the chassis for an extended period of time because excessive heat can damage the ONS 15454 cards.

Figure 17-2 Inserting or Removing the Fan-Tray Assembly (Front Door Removed)

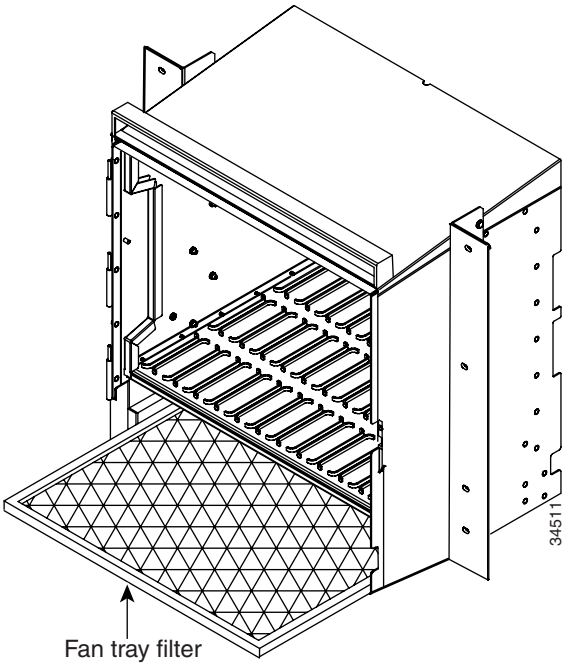


Step 7 Gently remove the air filter from the shelf assembly (Figure 17-3). Be careful not to dislodge any dust that may have collected on the filter.

Step 8 Visually inspect the white filter material for dirt and dust.

Step 9 If the air filter shows a heavy concentration of dirt and dust, replace it with a new filter by sliding the new filter into the bottom of the shelf assembly. Make sure that the front of the filter is flush with the front of the shelf assembly and that the air flow indicators on the filter point upwards.

Figure 17-3 Inserting or Removing a Disposable Fan-Tray Air Filter (Front Door Removed)



Step 10 Slide the fan-tray assembly into the shelf assembly until the electrical plug at the rear of the tray plugs into the corresponding receptacle on the backplane.

Step 11 To verify that the tray is plugged into the backplane, ensure that the LCD on the front of the fan-tray assembly is activated and displays node information.

Step 12 Rotate the retractable handles back into their compartments.

Step 13 If you replace the door, also reattach the group strap.

Step 14 Close and lock the door.

Step 15 Return to your originating procedure (NTP).

NTP-A108 Back Up the Database

Purpose	This procedure stores a backup version of the TCC+/TCC2 (software) database on the workstation running CTC or on a network server.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	Required. Cisco recommends performing a database backup at approximately weekly intervals and prior to and after configuration changes.
Onsite/Remote	Onsite or remote
Security Level	Superuser

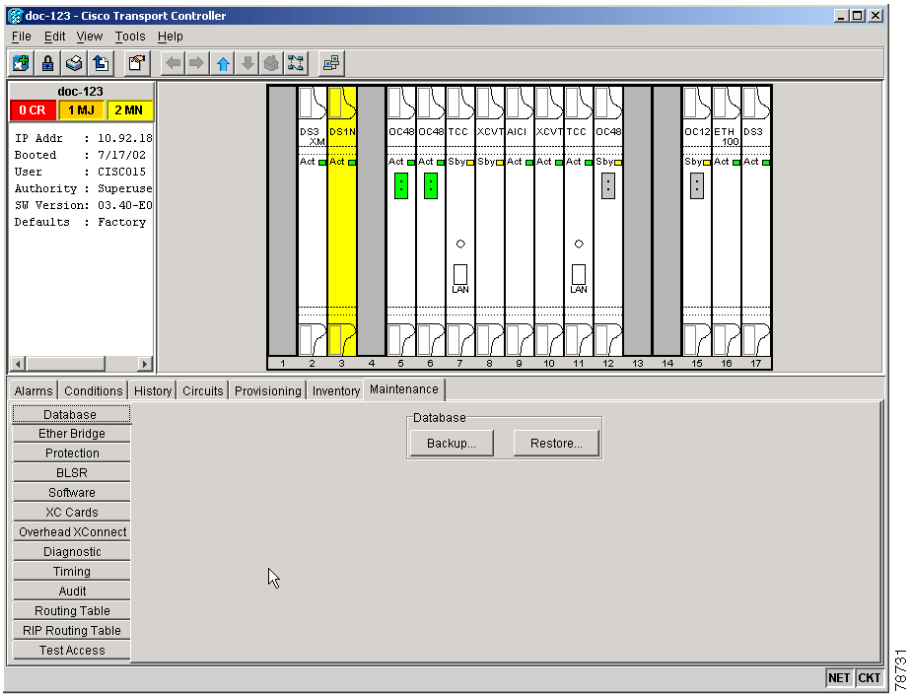
Note You must back up and restore the database for each node on a circuit path in order to maintain a complete circuit.

Note The following parameters are not backed up and restored: node name, IP address, subnet mask and gateway, and IIOP port. If you change the node name and then restore a backed up database with a different node name, the circuits map to the new node name. Cisco recommends keeping a record of the old and new node names.

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26 at the node you want to back up. If you are already logged in, continue with Step 2.

Step 2 Click the **Maintenance > Database** tabs (Figure 17-4).

Figure 17-4 Backing up the TCC2 Database



Step 3 Click **Backup**.

Step 4 Save the database on the workstation's hard drive or on network storage. Use an appropriate file name with the .db file extension; for example, database.db.

Step 5 Click **Save**.

Step 6 Click **OK** in the confirmation dialog box.

Stop. You have completed this procedure.

NTP-A109 Restore the Database

Purpose	This procedure restores the TCC+/TCC2 software database.
Tools/Equipment	None
Prerequisite Procedures	NTP-A108 Back Up the Database, page 17-7
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Note The following parameters are not backed up and restored: node name, IP address, subnet mask and gateway, and IIOP port. If you change the node name and then restore a backed up database with a different node name, the circuits map to the new renamed node. Cisco recommends keeping a record of the old and new node names.

Caution E1000-2 cards lose traffic for approximately 90 seconds when an ONS 15454 database is restored. Traffic is lost during the period of spanning tree reconvergence. The CARLOSS alarm appears and clears during this period.

Caution If you are restoring the database on multiple nodes, wait until the TCC2 reboot has completed on each node before proceeding to the next node.

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26 at the node where you are restoring the database. If you are already logged in, continue with Step 2.

Step 2 Ensure that no ring or span (four-fiber only) switch events are present; for example, ring-switch east or west, and span-switch east or west. In network view, click the **Conditions** tab and click **Retrieve Conditions** to view a list of conditions.

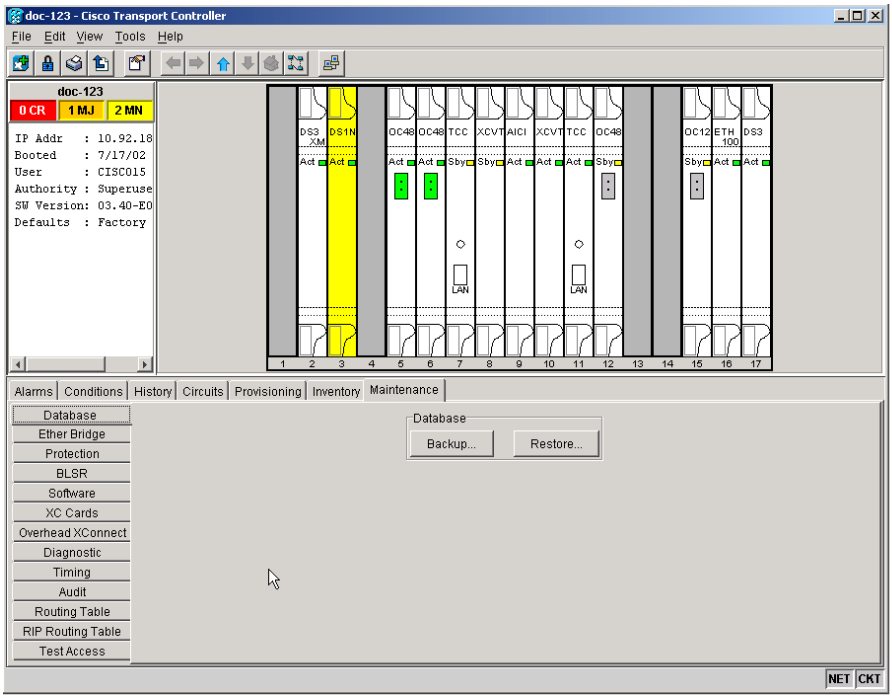
Step 3 If switch events need to be cleared, in node view click the **Maintenance > BLSR** tabs and view the West Switch and East Switch columns.

a. If a switch event (not caused by a line failure) is present, choose **CLEAR** from the drop-down menu and click **Apply**.

b. If a switch event caused by the Wait to Restore (WTR) condition is present, choose **LOCKOUT SPAN** from the drop-down menu and click **Apply**. When the LOCKOUT SPAN is applied, choose **CLEAR** from the drop-down menu and click **Apply**.

Step 4 In node view, click the **Maintenance > Database** tabs (Figure 17-5).

Figure 17-5 Restoring the TCC2 Database



Step 5 Click **Restore**.

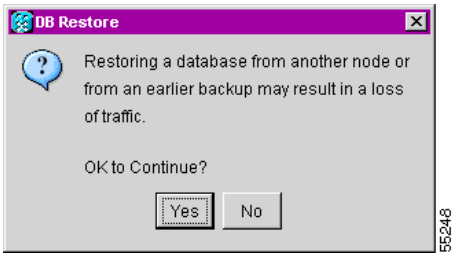
Step 6 Locate the database file stored on the workstation hard drive or on network storage.

Note To clear all existing provisioning, locate and upload the database found on the latest ONS 15454 software CD.

Step 7 Click the database file to highlight it.

Step 8 Click **Open**. The DB Restore dialog box appears. Opening a restore file from another node or from an earlier backup may affect traffic on the login node (Figure 17-6).

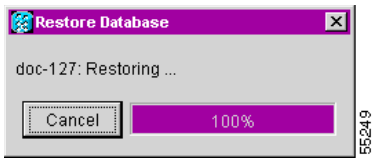
Figure 17-6 Restoring the Database—Traffic Loss Warning



Step 9 Click **Yes**.

The Restore Database dialog box monitors the file transfer (Figure 17-7).

Figure 17-7 Restoring the Database – In-Process Notification



Step 10 Wait for the file to complete the transfer to the TCC2.

Step 11 Click **OK** when the "Lost connection to node, changing to Network View" dialog box appears. Wait for the node to reconnect.

Step 12 If you cleared a switch in Step 3, reapply the switch as needed.

Stop. You have completed this procedure.

NTP-A163 Restore the Node to Factory Configuration

Purpose	This procedure clears the TCC2 database and restores customer or factory defaults by uploading the most recent software package and a blank database. This process is performed using the RE-INIT.jar utility, also called the reinitialization (reinit) tool.
Tools/Equipment	Software CD containing Software Release 3.4 or later, the node NE defaults, and the reinitialization tool. JRE 1.03_02 must also be installed on the computer you use to perform this procedure.
Prerequisite Procedures	NTP-A108 Back Up the Database, page 17-7
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Caution Cisco strongly recommends that you keep different node databases in separate folders. This is because the reinit tool chooses the first product-specific software package in the specified directory if you use the Search Path field instead of the Package and Database fields. You may accidentally copy an incorrect database if multiple databases are kept in the specified directory.

Caution Restoring a node to the factory configuration deletes all cross-connects on the node.

Caution If you are restoring the database on multiple nodes, wait until the TCC2 cards have rebooted on each node before proceeding to the next node.

Caution Restoring a node to factory configuration on a Windows or Unix workstation should only be carried out on a standby TCC+/TCC2 card.

Caution Cisco recommends that you take care to save the node database to safe location if you will not be restoring the node using the database provided on the software CD.

Note The following parameters are not backed up and restored when you delete the database and restore the factory settings: node name, IP address, subnet mask and gateway, and IIOP port. If you change the node name and then restore a backed up database with a different node name, the circuits map to the new renamed node. Cisco recommends keeping a record of the old and new node names.

Step 1 If you need to install or replace one or more TCC+/TCC2 cards, see the "DLP-A36 Install the TCC+/TCC2 Cards" task on page 2-7.

Step 2 If you are using Microsoft Windows, complete the "DLP-A244 Use the Reinitialization Tool to Clear the Database and Upload Software (Windows)" task on page 17-12.

Step 3 If you are using UNIX, complete the "DLP-A245 Use the Reinitialization Tool to Clear the Database and Upload Software (UNIX)" task on page 17-14.

Stop. You have completed this procedure.

DLP-A244 Use the Reinitialization Tool to Clear the Database and Upload Software (Windows)

Purpose	This procedure describes how to use the reinitialization tool in Windows. Use this tool to clear the database on the TCC2, upload software, and restore factory or customer defaults.
Tools/Equipment	Software CD containing Software R3.4 or later, the NE defaults, and the reinitialization tool Straight-through (CAT-5) LAN cable JRE 1.03_02 must be installed on your PC
Prerequisite Procedures	NTP-A108 Back Up the Database, page 17-7
Required/As Needed	As needed to clear the existing database from a TCC2 and restore the node default settings.
Onsite/Remote	Onsite
Security Level	Superuser

Caution Restoring a node to the factory configuration deletes all cross-connects on the node.

Caution Restoring a node to factory configuration on a Windows workstatiion should only be carried out on a standby TCC+/TCC2 card.

Note The TCC2 cards reboot several times during this procedure. Wait until they are completely rebooted before continuing.

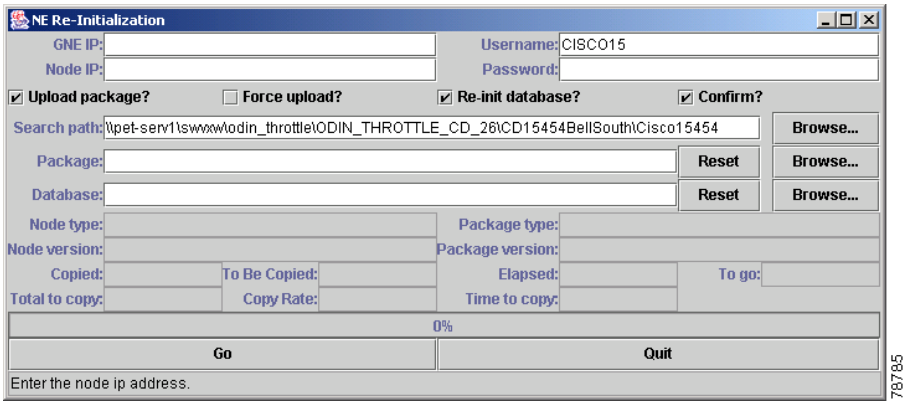
Step 1 Insert the system software CD containing the reinit tool, software, and defaults database into the computer CD-ROM drive. If the CTC Installation Wizard opens, click **Cancel**.

Step 2 To find the recovery tool file, go to **Start > Run > Browse** and select the CD drive.

Step 3 On the CD drive, go to the CISCO15454 folder and choose **All Files from the Files of Type** drop-down menu.

Step 4 Select the RE-INIT.jar file and click **Open** to open the reinit tool (Figure 17-8).

Figure 17-8 Reinitialization Tool in Windows



Step 5 If the node you are reinitializing is an external network element (ENE) in a proxy server network, enter the IP address of the gateway network element (GNE) in the GNE IP field. If not, leave it blank.

Step 6 Enter the node name or IP address of the node you are reinitializing in the Node IP field (Figure 17-8).

Step 7 If the User ID field does not contain your user ID, enter the ID. Enter your password in the Password field.

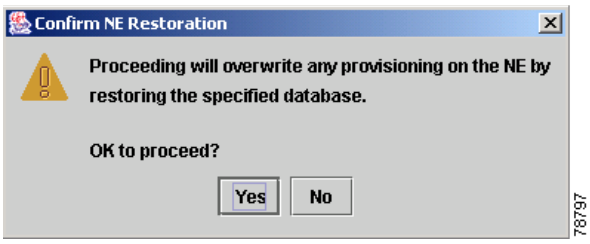
Step 8 Verify that the Re-Init Database, Upload Package, and Confirm checkboxes are checked. If one is not checked, check the checkbox.

Step 9 In the Search Path field, verify that the path to the CISCO15454 folder on the CD drive is listed.

Caution Before you perform the next step, be sure you are uploading the correct database. You cannot reverse the upload process after you click Yes.

Step 10 Click **Go**. A confirmation dialog box opens (Figure 17-9).

Figure 17-9 Confirming NE Restoration



Step 11 Click **Yes**.

Step 12 The status bar at the bottom of the screen displays Complete when the node has activated the software and uploaded the database.

Note The Complete message only indicates that the TCC2 successfully uploaded the database, not that the database restore was successful. The TCC2 then tries to restore the database after it reboots.

Step 13 If you are logged into CTC, close the browser window and disconnect the straight-through LAN cable from the RJ-45 (LAN) port on the TCC2 card or on the hub or switch to which the ONS 15454 is physically connected. Reconnect your straight-through LAN cable to the LAN port and log back into CTC.

Step 14 Manually set the node name and network configuration to site-specific values. See the "NTP-A25 Set Up Name, Date, Time, and Contact Information" procedure on page 4-6 and "NTP-A169 Set Up CTC Network Access" procedure on page 4-8 for information on setting the node name, IP address, mask and gateway, and IIOP port.

Step 15 Return to your originating procedure (NTP).

DLP-A245 Use the Reinitialization Tool to Clear the Database and Upload Software (UNIX)

Purpose	This procedure describes how to use the reinitialization tool in a UNIX environment. Use this tool to clear the database on the TCC2 card and restore factory or customer defaults.
Tools/Equipment	Software CD containing Software R3.4 or later, the node NE defaults, and the reinitialization tool. JRE 1.03_02 must also be installed on the computer you use to perform this procedure.
Prerequisite Procedures	NTP-A108 Back Up the Database, page 17-7
Required/As Needed	As needed to clear the existing database from a TCC2 card and restore the node default settings.
Onsite/Remote	Onsite or remote
Security Level	Superuser

Caution Restoring a node to the factory configuration deletes all cross-connects on the node.

Caution Restoring a node to factory configuration on a Unix workstation should only be carried out on a standby TCC+/TCC2 card.

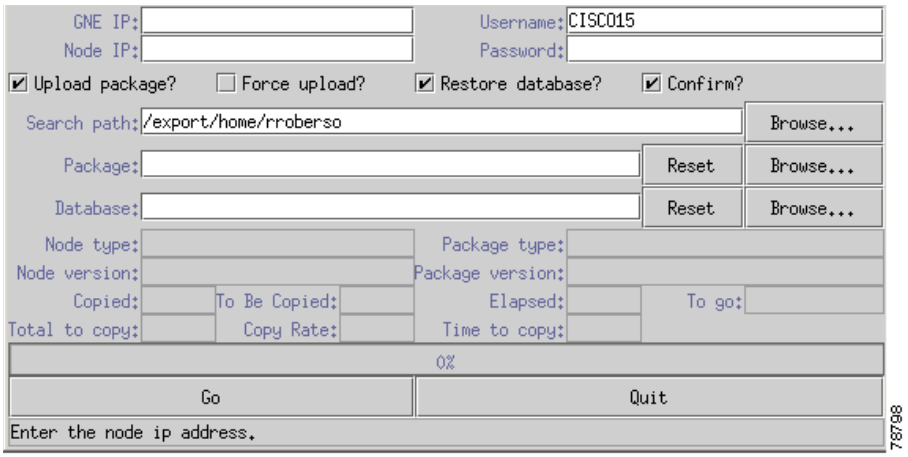
Note The TCC2 cards reboot several times during this procedure. Wait until they are completely rebooted before continuing.

Step 1 Insert the system software CD containing the reinit tool, software, and defaults database into the computer CD-ROM drive. If the CTC Installation Wizard opens, click **Cancel**.

Step 2 To find the recovery tool file, go to the CISCO15454 directory on the CD (usually /cdrom/cdrom0/CISCO15454).

Step 3 If you are using a file explorer, double-click the **RE-INIT.jar** file to open the reinit tool (Figure 17-10). If you are working with a command line interface, run **java -jar RE-INIT.jar**.

Figure 17-10 The Reinitialization Tool in UNIX



Step 4 If the node you are reinitializing is an external network element (ENE) in a proxy server network, enter the IP address of the gateway network element (GNE) in the GNE IP field. If not, leave it blank.

Step 5 Enter the node name or IP address of the node you are reinitializing in the Node IP field (Figure 17-10).

Step 6 If the User ID field does not contain your user ID, enter the ID. Enter your password in the Password field.

Step 7 Verify that the Re-Init Database, Upload Package, and Confirm checkboxes are checked. If one is not checked, check the checkbox.

Step 8 In the Search Path field, verify that the path to the CISCO15454 folder on the CD-ROM drive is listed.

Caution Before you perform the next step, be sure you are uploading the correct database. You cannot reverse the upload process after you click Yes.

Step 9 Click **Go**. A confirmation dialog box opens (Figure 17-9).

Step 10 Click **Yes**.

Step 11 The status bar at the bottom of the screen displays Complete when the node has activated the software and uploaded the database.

Note The Complete message only indicates that the TCC2 successfully uploaded the database, not that the database restore was successful. The TCC2 then tries to restore the database after it reboots.

Step 12 If you are logged into CTC, close the browser window and disconnect the straight-through LAN cable from the RJ-45 (LAN) port on the TCC2 card or on the hub or switch where the ONS 15454 is physically connected. Reconnect your straight-through LAN cable to the LAN port and log back into CTC.

Step 13 Set the node name and network configuration to site-specific values. See the "NTP-A81 Change Node Management Information" procedure on page 12-2 and the "NTP-A201 Change CTC Network Access" procedure on page 12-4 for information on provisioning the node name, IP address, subnet mask and gateway, and IIOP port.

Step 14 Return to your originating procedure (NTP).

NTP-A214 Off Load the Security Audit Trail Log

Purpose	This procedure stores up to 640 audit trail log entries in a local or network drive file to maintain a record of actions performed for the node.If the audit trail log is not off loaded, the oldest entries are overwritten after the log reaches capacity.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26 at the node where you want to off load the audit trail log. If you are already logged in, continue with Step 2.

Step 2 In the node view, click the **Maintenance > Audit** tabs.

Step 3 Click **Retrieve**.

Step 4 Click **Archive**.

Step 5 In the Archive Audit Trail dialog, navigate to the directory (local or network) where you want to save the file.

Step 6 Enter a name in the File Name field.

You do not have to give the archive file a particular extension. It is readable in any application that supports text files, such as WordPad, Microsoft Word (imported), etc.

Step 7 Click **Save**.

The 640 entries are saved in this file. The next entries continue with the next number in the sequence, rather than starting over.

Stop. You have completed this procedure.

NTP-A110 Inhibit Card Protection Switching

Purpose	This procedure describes how to apply and remove a lock on or lock out to a traffic card in a linear protection configuration.This procedure does not apply to DWDM (Software R4.5) nodes.
Tools/Equipment	None
Prerequisite Procedures	NTP-A170 Create Protection Groups, page 4-25
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26 at the node where you want to apply a lock on or lock out. If you are already logged in, continue with Step 2.

Step 2 To prevent traffic on a working or protect card from switching to the other card in the pair, complete the "DLP-A201 Apply a Lock On" task on page 17-17.

Step 3 To prevent traffic from switching to the protect card, complete the "DLP-A202 Apply a Lock Out" task on page 17-18.

Note A combination of Lock On and Lock Out is allowed in 1:1 and 1:N protection; for example, a Lock On on the working card and a Lock Out on the protect card is permissible.

Step 4 To remove a lock on or lock out and return a protection group to its usual switching method, complete the "DLP-A203 Clear a Lock On or Lock Out" task on page 17-19.

Note A non-alarmed event (INHSW) is raised when a card is placed in a Lock On or Lock Out state.

Stop. You have completed this procedure.

DLP-A201 Apply a Lock On

Purpose	This task prevents traffic from being switched from one card to another.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-26
Required/As Needed	As needed

Onsite/Remote	Onsite or remote
Security Level	Maintenance or higher

Note To apply a Lock On to a protect card in a 1:1 or 1:N protection group, the protect card must be active. If the protect card is in standby, the Lock On button is disabled. To make the protect card active, you must switch traffic from the working card to the protect card (Step 4). When the protect card is active, you can apply the Lock On.

Step 1 Use the following rules to determine if you can apply a lock on:

- For a 1:1 electrical protection group, both the working and protect cards can be placed in the Lock On state.
- For a 1:N electrical protection group, both the working and protect cards can be placed in the Lock On state.
- For a 1+1 optical protection group, only the working card can be placed in the Lock On state.

Step 2 In node view, click the **Maintenance > Protection** tabs.

Step 3 In the Protection Groups list, click the protection group where you want to apply a lock on.

Step 4 If you determine that the protect card is in standby and you want to apply the lock on to the protect card, make the protect card active:

a. In the Selected Group area, click the protect card.

b. In the Switch Commands, click **Switch**.

Step 5 In the Selected Group area, click the active card where you want to lock traffic.

Step 6 From Inhibit Switching, click **Lock On**.

Step 7 Click **Yes** in the confirmation dialog box.

The Lock On has been applied and traffic cannot be switched to the working card. To clear the Lock On, see the "DLP-A203 Clear a Lock On or Lock Out" task on page 17-19.

Step 8 Return to your originating procedure (NTP).

DLP-A202 Apply a Lock Out

Purpose	This task switches traffic from one card to another using a lock out, which is a switching mechanism that overrides other external switching commands (Force, Manual, and Exercise).
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-26
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Maintenance or higher

Note Multiple Lock Outs in the same protection group are not allowed.

Step 1 Use the following rules to determine if you can put the intended card in a Lock Out state:

- For a 1:1 electrical protection group, you can apply a lock out to the working and protect cards.
- For a 1:N electrical protection group, you can apply a lock out to the working and protect cards.
- For a 1+1 optical protection group, you can apply a lock out to the protect card.

Step 2 In node view, click the **Maintenance > Protection** tabs.

Step 3 In the Protection Groups area, click the protection group that contains the card you want to lock out.

Step 4 In the Selected Group area, click the card you want to lock traffic out of.

Step 5 From Inhibit Switching, click **Lock Out**.

Step 6 Click **Yes** in the confirmation dialog box.

The lock out has been applied and traffic is switched to the opposite card. To clear the lock out, see the "DLP-A203 Clear a Lock On or Lock Out" task on page 17-19.

Note Provisioning a lock out raises a LOCKOUT-REQ or an FE-LOCKOUT condition on CTC. Clearing the lockout switch request clears these conditions.

Step 7 Return to your originating procedure (NTP).

DLP-A203 Clear a Lock On or Lock Out

Purpose	This task clears a lock on or lock out.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-26 DLP-A201 Apply a Lock On, page 17-17 or DLP-A202 Apply a Lock Out, page 17-18
Required/As Needed	As needed
Onsite/Remote	Both
Security Level	Maintenance or higher

Step 1 In node view, click the **Maintenance > Protection** tabs.

Step 2 In the Protection Groups area, click the protection group that contains the card you want to clear.

Step 3 In the Selected Group area, click the card you want to clear.

Step 4 From Inhibit Switching, click **Unlock**.

Step 5 Click **Yes** in the confirmation dialog box.

The Lock On or Lock Out is cleared.

Step 6 Return to your originating procedure (NTP).

NTP-A111 Revert to an Earlier Software Load

Purpose	This procedure reverts the ONS 15454 database to an earlier software load.
Tools/Equipment	None
Prerequisite Procedures	DLP-A36 Install the TCC+/TCC2 Cards, page 2-7
Required/As Needed	As needed
Onsite/Remote	On site or remote
Security Level	Superuser

Tip The revert feature is useful if a maintenance window closes while you are upgrading CTC software. You can revert to the protect software load without losing traffic. When the next maintenance window opens, complete the upgrade and activate the new software load.

Note Reverting to a 2.2.1 or later load switches to the older software load and its database without affecting traffic or DCC connectivity. This feature requires dual TCC+/TCC2 cards and CTC Software R 2.2.1 or later as the protect version.

Note A revert to a maintenance release software load uses the current active database; therefore, no provisioning is lost. All other reverts do restore the database. (A maintenance release has a three-digit release number, e.g. 2.2.2).

Note Circuits created and provisioning performed after a software load is activated (upgraded to a higher software release) does not reinstate with a revert. The database configuration at the time of activation is reinstated after a revert. This note does not apply to maintenance reverts (e.g. 2.2.2 to 2.2.1), because maintenance releases use the same database.

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26 to log into the node you want to revert. If you are already logged in, continue with Step 2.

Step 2 Record the IP address of that node; the IP address is displayed on the left side of the node view window.

Note To find the IP address you can also click the Provisioning > Network > General tabs.

Step 3 If you are reverting to a previous software release (not a maintenance release) record any new circuits created since the previous software upgrade because these circuits have to be manually recreated (if needed) once the software reversion has taken place.

Step 4 Click the **Maintenance > Software** tabs.

Step 5 Verify that the protect software is Software R2.2.0 or later. If the protect software is not Software R2.2.0 or later, do not revert.

Note The TCC2 card is compatible with Software R4.0 and higher.

Step 6 Click **Revert**. The Revert button activates the protect software load.

Step 7 Click **Yes** on the revert confirmation dialog box. The ONS 15454 reboots and loses the connection to CTC.

Step 8 Wait until the software upgrade finishes. This may take as long as 30 minutes.

Step 9 When the software upgrade is finished, click the **Delete CTC Cache** button in the browser window.

Step 10 Completely close the browser.

Step 11 Restart the browser and log back into the node using the IP address recorded in Step 2.

The browser downloads the CTC applet for the protect software load.

Step 12 If needed, recreate the circuits recorded in Step 3. See Chapter 8, "Create Circuits and VT Tunnels" for specific circuit creation procedures.

Stop. You have completed this procedure.

NTP-A112 Clean Fiber Connectors

Purpose	This procedure cleans the fiber connectors.
Tools/Equipment	Inspection microscope Compressed air/duster "Type A" Fiber Optic Connector Cleaner (Cletop reel) Isopropyl alcohol 70% or higher Optical swab Optical receiver cleaning stick
Prerequisite Procedures	None
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	None

Warning **Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not stare into the beam or view directly with optical instruments.**

Step 1 Using an inspection microscope, inspect each fiber connector for dirt, cracks, or scratches.

Step 2 Replace any damaged fiber connectors.

Note Replace all dust caps whenever the equipment is unused for 30 minutes or more.

Step 3 Complete the "DLP-A204 Scope and Clean Fiber Connectors and Adapters with Alcohol and Dry Wipes" task on page 17-22 as necessary.

Step 4 Complete the "DLP-A205 Clean Fiber Connectors with Cletop" task on page 17-23 as necessary.

Step 5 Complete the "DLP-A206 Clean the Fiber Adapters" task on page 17-23 as necessary.

Caution Do not reuse optical swabs. Keep unused swabs off of work surfaces.

Stop. You have completed this procedure.

DLP-A204 Scope and Clean Fiber Connectors and Adapters with Alcohol and Dry Wipes

Purpose	This task cleans the fiber connectors and adapters with alcohol and dry wipes.
Tools/Equipment	Compressed air/duster Isopropyl alcohol 70% or higher Optical swab Optical receiver cleaning stick
Prerequisite Procedures	None
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	None

Warning **Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not stare into the beam or view directly with optical instruments.**

Step 1 Remove the dust cap from the fiber connector.

Step 2 Wipe the connector tip with the pre-moistened alcohol wipe.

Step 3 Blow dry using filtered air.

Step 4 Use an inspection microscope to inspect each fiber connector for dirt, cracks, or scratches. If the connector is not clean, repeat Steps 1 to 3.

Step 5 Insert the fiber connector into the applicable adapter or attach a dust cap to the fiber connector.

Note If you must replace a dust cap on a connector, first verify that the dust cap is clean. To clean the dust cap, wipe the outside of the cap using a dry lint free wipe and the inside of the dust cap using a Cletop stick swab (14100400).

Step 6 Return to your originating procedure (NTP).

DLP-A205 Clean Fiber Connectors with Cletop

Purpose	This task cleans the fiber connectors with Cletop.
Tools/Equipment	"Type A" Fiber Optic Connector Cleaner (Cletop reel) Optical receiver cleaning stick
Prerequisite Procedures	None
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	None

Step 1 Remove the dust cap from the fiber connector.

Step 2 Press the lever down to open the shutter door. Each time you press the lever, you expose a clean wiping surface.

Step 3 Insert the connector into the Cletop cleaning cassette slot, rotate one quarter turn, and gently swipe downwards.

Step 4 Use an inspection microscope to inspect each fiber connector for dirt, cracks, or scratches. If the connector is not clean, repeat Steps 1 to 3.

Step 5 Insert the fiber connector into the applicable adapter or attach a dust cap to the fiber connector.

Note If you must replace a dust cap on a connector, first verify that the dust cap is clean. To clean the dust cap, wipe the outside of the cap using a dry lint free wipe and the inside of the dust cap using a Cletop stick swab (14100400).

Step 6 Return to your originating procedure (NTP).

DLP-A206 Clean the Fiber Adapters

Purpose	This task cleans the fiber adapters.
Tools/Equipment	Cletop stick swab
Prerequisite Procedures	None
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	None

Step 1 Remove the dust plug from the fiber adapter.

Step 2 Insert a Cletop stick swab (14100400) into the adapter opening and rotate the swab.

Step 3 Place dust plugs on the fiber adapters when not in use.

Step 4 Return to your originating procedure (NTP).

NTP-A113 Reset the TCC+/TCC2 Card Using CTC

Purpose	This procedure resets the TCC+ or TCC2 card and switches the node to the redundant card.
Tools/Equipment	None
Prerequisite Procedures	DLP-A36 Install the TCC+/TCC2 Cards, page 2-7
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Warning **Do not reach into a vacant slot or chassis while you install or remove a module or a fan. Exposed circuitry could constitute an energy hazard.**

Note Before you reset the TCC2, you should wait at least 60 seconds after the last provisioning change you made to avoid losing any changes to the database.

Note When a software reset is performed on an active TCC2, the AIC card goes through an initialization process and also resets. The AIC card reset is normal and happens each time an active TCC2 card goes through a software-initiated reset.

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26 at the node where you want to reset the TCC+/TCC2 card. If you are already logged in, continue with Step 2.

Step 2 In node view, right-click the TCC+/TCC2 card to reveal a drop-down menu.

Step 3 Click **Reset Card**.

Step 4 Click **Yes** when the "Are You Sure?" dialog box appears.

Step 5 Click **OK** when the "Lost connection to node, changing to Network View" dialog box appears.

Note For LED behavior during a TCC2 reboot, see Table 4-1 on page 4-11.

Step 6 Confirm that the TCC+/TCC2 card LED is amber (standby).

Stop. You have completed this procedure.

NTP-A215 View G-Series Ethernet Maintenance Information

Purpose	This procedure enables you to view loopback, bandwidth, and J1 path trace information for G-Series Ethernet cards. This procedure does not apply to DWDM (Software R4.5) nodes.
Tools/Equipment	None
Prerequisite Procedures	NTP-A246 Install Ethernet Cards and Connectors, page 2-18
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26. If you are already logged in, continue with Step 2.

Step 2 In node view, double-click a G-Series Ethernet card. The card view displays.

Step 3 To view loopback status, click the **Maintenance > Loopback** tabs.

The # and State columns identify the port number and current circuit state (IS, OOS, OOS_MT) of each port on the card. The Loopback Type column identifies the type of loopback (None or Terminal) applied to each port on the card.

Step 4 To view Ethernet bandwidth utilization, click the **Maintenance > Bandwidth** tabs.

The current STS bandwidth usage information appears.

Step 5 To view J1 path trace information, click the **Maintenance > J1 Path Trace** tabs and then click the **Retrieve** button.

Stop. You have completed this procedure.

NTP-A239 View E-Series Ethernet Maintenance Information

Purpose	This procedure enables you to view maintenance information for E-Series Ethernet cards. This procedure does not apply to DWDM (Software R4.5) nodes.
Tools/Equipment	None
Prerequisite Procedures	NTP-A246 Install Ethernet Cards and Connectors, page 2-18
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26. If you are already logged in, continue with Step 2.

Step 2 To view spanning tree information, click the **Maintenance > Ether Bridge > Spanning Trees** tabs.

Step 3 As needed, complete the following tasks:

- DLP-A309 View the Ethernet MAC Address Table, page 17-26
- DLP-A310 View Ethernet Trunk Utilization, page 17-26

Stop. You have completed this procedure.

DLP-A309 View the Ethernet MAC Address Table

Purpose	This task displays the Ethernet MAC address table for any node with one or more E-Series Ethernet cards installed.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-26
Required/As Needed	As needed
Onsite/Remote	Onsite or Remote
Security Level	Retrieve or higher

Step 1 In node view, click the **Maintenance > Ether Bridge > MAC Table** tabs.

Step 2 Select the appropriate E-Series Ethernet card in the Layer 2 Domain field.

Step 3 Click **Retrieve**.

The MAC address table information is displayed.

Step 4 Return to your originating procedure (NTP).

DLP-A310 View Ethernet Trunk Utilization

Purpose	This task displays the Ethernet Trunk bandwidth usage on any node with one or more E-Series Ethernet cards installed.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-26
Required/As Needed	As needed
Onsite/Remote	Onsite or Remote
Security Level	Retrieve or higher

Step 1 In node view, click the **Maintenance > Ether Bridge > Trunk Utilization** tabs.

Step 2 Select the desired time interval in the Interval field.

Step 3 Click the **Refresh** button.

The trunk utilization information for the current and previous time intervals is displayed.

Step 4 Return to your originating procedure (NTP).

NTP-A218 Change the Node Timing Reference

Purpose	This procedure enables automatic timing reference switching or returns the node timing to normal operation.
Tools/Equipment	None
Prerequisite Procedures	NTP-A28 Set Up Timing, page 4-21
Required/As Needed	As needed
Onsite/Remote	Onsite or Remote
Security Level	Maintenance or higher

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26at the node where you want to enable timing switching. If you are already logged in, continue with Step 2.

Step 2 Complete the "DLP-A322 Manual or Force Switch the Node Timing Reference" task on page 17-27as needed.

Step 3 Complete the "DLP-A323 Clear a Manual or Force Switch on a Node Timing Reference" task on page 17-28 as needed.

Stop. You have completed this procedure.

DLP-A322 Manual or Force Switch the Node Timing Reference

Purpose	This task commands the node to switch to the timing reference you have selected if the SSM quality of the requested reference is not less than the current reference.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-26
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Maintenance or higher

Step 1 In node view, click the **Maintenance > Timing** tabs. The Timing source window appears.

Step 2 From the Reference drop-down menu for the desired Clock choose the desired reference.

Step 3 From the Operation drop-down menu for the desired Clock choose one of the following options:

- Manual—This operation commands the node to switch to the reference you have selected if the SSM quality of the reference is not lower than the current timing reference.
- Force—This operation commands the node to switch to the reference you have selected, regardless of the SSM quality (if the reference is valid).

Step 4 Click **Apply**.

Step 5 Click **Yes** in the confirmation dialog box. If the selected timing reference is an acceptable valid reference, the node switches to the selected timing reference.

Step 6 If the selected timing reference is invalid, a warning dialog appears. Click **OK**; the node does not revert to the normal timing reference.

Step 7 Return to your originating procedure (NTP).

DLP-A323 Clear a Manual or Force Switch on a Node Timing Reference

Purpose	This task clears a Manual or Force switch on a node timing reference and reverts the timing reference to its provisioned reference.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-26
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Maintenance or higher

Step 1 In node view, click the **Maintenance > Timing** tabs. The Timing source window appears.

Step 2 Find the Clock reference that is currently set to Manual or Force in the Operation menu.

Step 3 From the Operation drop-down menu choose the Clock and choose **Clear**.

Step 4 Click the **Apply** button.

Step 5 Click **Yes** in the confirmation dialog box. If the normal timing reference is an acceptable valid reference, the node switches back to the normal timing reference as defined by the system configuration.

Step 6 If the normal timing reference is invalid or has failed, a warning dialog appears. Click **OK**; the timing reference does not revert.

Step 7 Return to your originating procedure (NTP).

NTP-A223 View ONS 15454 Timing Report

Purpose	This procedure displays the current status of the ONS 15454 timing references.
Tools/Equipment	None
Prerequisite Procedures	NTP-A28 Set Up Timing, page 4-21
Required/As Needed	As needed
Onsite/Remote	Onsite or Remote
Security Level	Maintenance or higher

Step 1 Complete the "DLP-A60 Log into CTC" task on page 3-26 at the node where you want to view the node timing status. If you are already logged in, continue with Step 2.

Step 2 Click the **Maintenance > Timing** tabs.

Step 3 In the Timing Report area you can view node timing information. The date and time of the report appear at the top of the report. The time stamp is the same as the alarms time stamp and can be configured using the "DLP-A112 Display Alarms and Conditions Using Time Zone" task on page 9-10. Table 17-1 describes the report fields and entries.

Step 4 To update the report, click **Reset**.

Table 17-1 ONS 15454 Timing Report

Item	Description	Options	Option Descriptions
Clock	Indicates the timing clock. The report section that follows applies to the timing clock indicated	NE	The node timing clock
		BITS-1 Out	The BITS-1Out timing clock
		BITS-2 Out	The BITS-2Out timing clock

Table 17-1 ONS 15454 Timing Report (continued)

Item	Description	Options	Option Descriptions
Status	Indicates the status of the timing clock	INIT_STATE	The timing reference has not been provisioned. For an NE reference, this status appears just before the first provisioning messages when the TCC is booting. Timing is provisioned to the internal clock of the node.
		HOLDOVER_STATE	The clock was locked onto a valid timing reference for more than 140 seconds when a failure occurred. Holdover state timing is a computation based on timing during Normal State combined with the node's internal clock. The node will hold onto this frequency until the valid reference is restored. This status appears for NE references only.
		FREERUN_STATE	The node is running off its internal clock without any modification except the calibrated value to bring timing to 0 PPM. Freerun state can occur when 1) a Force switch to the Internal clock is initiated; 2) all references fail without the 140 seconds of holdover data; or 3) only Internal timing references are defined. This status appears for NE references only.
		NO_SYNC_STATE	A synchronization timing reference is not defined. BITS-1 Out or BITS-2 Out default to this status until an OC-N card is defined as its reference on the Provisioning > Timing tab. This status appears for external references only.
		NE_SYNCH_STATE	BITS-1Out and/or BITS-2 Out use the same timing source as the NE. This is displayed when NE Reference is selected for BITS-1 Out and/or BITS-2 Out Reference List on the Provisioning > Timing tab.
		NORMAL_STATE	The timing reference is locked onto one of its provisioned references. The reference cannot be Internal or No Sync State.
		FAST_START_STATE	The node has switched references, but the reference is too far away to reach Normal State within an acceptable amount of time. Fast Start is a fast acquisition mode to allow the node to quickly acquire the reference. After it achieves this goal, the node will progress to the Normal State.
		FAST_START_FAILED_STATE	A timing reference is too far away to reach in Normal State, the Fast Start State could not acquire sufficient timing information within the allowable amount of time.
Status Changed At	Date and time of the last status change	—	—
Switch Type	Type of switch	AUTOMATIC	The timing switch was system-generated.
		MANUAL	The timing switch was a user-initiated MANUAL switch.
		FORCE	The timing switch was user-initiated FORCE switch.

Table 17-1 ONS 15454 Timing Report (continued)

Item	Description	Options	Option Descriptions
Reference	Indicates the timing reference.	Three timing references are available on the Provisioning > Timing tab.	—
Selected	Indicates whether the reference is selected	Selected references are indicated with an X.	—
Facility	Indicates the timing facility provisioned for the reference on the Provisioning > Timing tab.	BITS-1	The timing facility is a BITS clock attached to the node's BITS-1 pins
		BITS-2	The timing facility is a BITS clock attached to the node's BITS-2 pins
		OC-N card with port #	If the node is set to line timing, the OC-N card and port provisioned as the timing reference
		Internal clock	The node is using its internal clock,
State	Indicates the timing reference state	IS	The timing reference is in service.
		OOS	The timing reference is out of service
Condition	Indicates the timing reference state	OKAY	The reference is valid to use as a timing reference.
		OOB	Out of bounds; the reference is not valid and cannot be used as a timing reference, for example, a BITS clock is disconnected.
Condition changed	Date and time of the last status change	—	—
SSM	Indicates whether Synchronization Status Messaging is enabled for the timing reference	Enabled	SSM is enabled
		Disabled	SSM is not enabled
SSM Quality	Indicates the SSM timing quality	8-10 SSM quality messages may be displayed.	For a list of SSM message sets, see the Security and Timing chapter in the Cisco ONS 15454 Reference Manual.

Stop. You have completed this procedure.