



## **Cisco ONS 15600 SDH Procedure Guide**

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## About this Guide

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This section explains the objectives, intended audience, and organization of this *Cisco ONS 15600 SDH Procedure Guide* and describes the conventions that convey instructions and other information.

This section provides the following information:

- [Document Objectives](#)
- [Audience](#)
- [Document Organization](#)
- [Related Documentation](#)
- [Document Conventions](#)
- [Where to Find Safety and Warning Information](#)
- [Obtaining Documentation](#)
- [Documentation Feedback](#)
- [Obtaining Technical Assistance](#)
- [Obtaining Additional Publications and Information](#)

## Document Objectives

The *Cisco ONS 15600 SDH Procedure Guide* provides procedures for installation, turn up, provisioning and acceptance of ONS 15600 SDH nodes and ONS 15600 SDH designed networks. It is organized in a Cisco-recommended work flow sequence for new installations, and allows easy access to procedures and tasks associated with adds, moves, and changes for existing installations.

Use the *Cisco ONS 15600 SDH Procedure Guide* in conjunction with the appropriate publications listed in the [Related Documentation](#) section.

## Audience

To use this *Cisco ONS 15600 SDH Procedure Guide*, you should be familiar with Cisco or equivalent optical transmission hardware and cabling, telecommunications hardware and cabling, electronic circuitry and wiring practices, and preferably have experience as a telecommunications technician.

# Document Organization

**Table 1** Cisco ONS 15600 SDH Procedure Guide by Chapter

Chapter	Description
Chapter 1, “Install the Bay and Backplane Connections”	Provides procedures for installing the Cisco ONS 15600 SDH.
Chapter 2, “Install Cards and Fiber-Optic Cable”	Explains how to install the Cisco ONS 15600 SDH cards and fiber-optic cable (fiber).
Chapter 3, “Connect the Computer and Log into the GUI”	Explains how to connect PCs and UNIX workstations to the Cisco ONS 15600 SDH and how to log into Cisco Transport Controller (CTC) software, the Cisco ONS 15600 SDH operation, administration, maintenance, and provisioning (OAM&P) user interface.
Chapter 4, “Turn Up Node”	Explains how to provision a single Cisco ONS 15600 SDH node and turn it up for service.
Chapter 5, “Turn Up Network”	Explains how to turn up and test Cisco ONS 15600 SDH networks in point-to-point networks, subnetwork connection protection rings (SNCPs), and multiplex section-shared protection rings (MS-SPRings).
Chapter 6, “Create Circuits”	Explains how to create Cisco ONS 15600 SDH circuits.
Chapter 7, “Manage Alarms”	Provides procedures required to view and manage the alarms and conditions on a Cisco ONS 15600 SDH node.
Chapter 8, “Monitor Performance”	Explains how to enable and view performance monitoring statistics for the Cisco ONS 15600 SDH.
Chapter 9, “Manage Circuits”	Explains how to manage Cisco ONS 15600 SDH optical circuits.
Chapter 11, “Change Card Settings”	Explains how to modify provisioning.
Chapter 11, “Change Card Settings”	Explains how to change transmission settings on cards in a Cisco ONS 15600 SDH.
Chapter 12, “Convert Network Configurations”	Explains how to upgrade from one SONET topology to another.
Chapter 13, “Add and Drop MS-SPRing and SNCP Nodes”	Explains how to add and remove nodes by forcing a protection switch to route traffic away from the span where you will add or remove the node.
Chapter 14, “Maintain the Node”	Provides procedures for maintaining the Cisco ONS 15600 SDH.
Chapter 15, “Power Down the Node”	Describes how to power down the Cisco ONS 15600 SDH.

**Table 1** Cisco ONS 15600 SDH Procedure Guide by Chapter (continued)

Chapter	Description
<a href="#">Appendix A, “CTC Information and Shortcuts”</a>	Describes navigation within CTC and how to adjust the display of CTC data onscreen.
<a href="#">Appendix B, “Hardware Specifications”</a>	Provides detailed single-shelf rack assembly hardware specifications for the Cisco ONS 15600 SDH.

Verification procedures are provided, where necessary, to allow contract vendors to complete the physical installation and then turn the site over to craft personnel for verification, provisioning, turn up and acceptance. The front matter of the book appears in the following sequence:

1. Title Page
2. Table of Contents
3. List of Figures
4. List of Tables
5. List of Procedures
6. List of Tasks

The information in the book follows a task oriented hierarchy using the elements described in the following sections.

## Chapter (Director Level)

The guide is divided into logical work groups (chapters) that serve as director entry into the procedures. For example, if you are arriving on site after a contractor has installed the shelf hardware, proceed to [Chapter 2, “Install Cards and Fiber-Optic Cable”](#) and begin verifying installation and installing cards. You may proceed sequentially (recommended), or locate the work you want to perform from the list of procedures on the first page of every chapter (or turn to the front matter or index).

## Non-Trouble Procedure (NTP)

Each NTP is a list of steps designed to accomplish a specific task. Follow the steps until the task is complete. For a craftsperson requiring more detailed instructions, refer to the Detailed Level Procedure (DLP) specified in the procedure steps.



### Note

To ensure that users who are not familiar with NTP and DLP acronyms understand the hierarchy within the guide, NTPs are termed “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.

## Detailed Level Procedure (DLP)

The DLP (task) supplies additional task details to support the NTP. The DLP lists numbered steps that lead the craftsperson 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.

## Related Documentation

Use this *Cisco ONS 15600 SDH Procedure Guide, R1.4* in conjunction with the following referenced publications:

- *Cisco ONS 15600 SDH Reference Manual*
- *Cisco ONS 15600 SDH Troubleshooting Guide*
- *Cisco ONS 15600 SDH TL1 Access Guide*

## Document Conventions

This publication uses the following conventions:

Convention	Application
<b>boldface</b>	Commands and keywords in body text.
<i>italic</i>	Command input that is supplied by the user.
[ ]	Keywords or arguments that appear within square brackets are optional.
{ x   x   x }	A choice of keywords (represented by x) appears in braces separated by vertical bars. The user must select one.
Ctrl	The control key. For example, where Ctrl + D is written, hold down the Control key while pressing the D key.
screen font	Examples of information displayed on the screen.
<b>boldface screen font</b>	Examples of information that the user must enter.
< >	Command parameters that must be replaced by module-specific codes.



### Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the document.



**Caution**

Means *reader be careful*. In this situation, the user might do something that could result in equipment damage or loss of data.

**Warning****IMPORTANT SAFETY INSTRUCTIONS**

**This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translations of the warnings that appear in this publication, refer to the translated safety warnings that accompanied this device.**

**Note: SAVE THESE INSTRUCTIONS**

**Note: This documentation is to be used in conjunction with the specific product installation guide that shipped with the product. Please refer to the Installation Guide, Configuration Guide, or other enclosed additional documentation for further details.**

## Where to Find Safety and Warning Information

For safety and warning information, refer to the *Cisco Optical Transport Products Safety and Compliance Information* that accompanied the product. This publication describes the international agency compliance and safety information for the Cisco ONS 15600 SDH systems. It also includes translations of the safety warnings that appear in the Cisco ONS 15600 SDH system documentation.

## 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 on the World Wide Web at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

International Cisco websites can be accessed from this URL:

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

## Ordering Documentation

You can find instructions for ordering documentation at this URL:

[http://www.cisco.com/univercd/cc/td/doc/es\\_inpk/pdi.htm](http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm)

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

<http://www.cisco.com/en/US/partner/ordering/index.shtml>

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

## Cisco Optical Networking Product Documentation CD-ROM

Optical networking-related documentation, including Cisco ONS 15600 SDH product documentation, is available in a CD-ROM package that ships with your product. The Optical Networking Product Documentation CD-ROM is updated periodically and may be more current than printed documentation.

## Documentation Feedback

You can submit e-mail comments about technical documentation to [bug-doc@cisco.com](mailto:bug-doc@cisco.com).

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems  
Attn: Customer Document Ordering  
170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

## Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

## Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

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

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

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

## Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

<http://www.cisco.com/tac/caseopen>

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case 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 listing of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

## TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your 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.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation 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.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Go to this URL to visit the company store:

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

- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:  
<http://cisco.com/univercd/cc/td/doc/pcat/>
- *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 online at this URL:  
<http://www.ciscopress.com>
- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:  
<http://www.cisco.com/packet>
- *iQ Magazine* is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:  
<http://www.cisco.com/go/iqmagazine>
- *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>
- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:  
<http://www.cisco.com/en/US/learning/index.html>



# Install the Bay and Backplane Connections

This chapter provides procedures for installing the Cisco ONS 15600 SDH shelf assembly. To view a summary of the tools and equipment required for installation, see the [“Required Tools and Equipment” section on page 1-2](#).

## Before You Begin

This section lists the chapter procedures (NTPs). Turn to a procedure for applicable tasks (DLPs). Perform these procedures in the order they appear.

1. [NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly, page 1-4](#)—Complete this procedure before continuing with the [“NTP-F2 Install the Bay Assembly” procedure on page 1-7](#).
2. [NTP-F2 Install the Bay Assembly, page 1-7](#)—Complete this procedure to install the bay assembly.
3. [NTP-F3 Open and Remove the Front Door, page 1-13](#)—Complete this procedure to access the equipment before continuing with other procedures in this chapter.
4. [NTP-F4 Install Cable Routing Modules and Kick Plates, page 1-15](#)—Complete as needed to remove the existing cable routers and install the cable routing modules (CRMs).
5. [NTP-F5 Install the Bay Power and Ground, page 1-22](#)—Complete this procedure before continuing with the [“DLP-F159 Remove the Rear Cover” procedure on page 1-35](#).
6. [NTP-F7 Install Wires to Alarm, Timing, LAN, and Craft Pin Connections, page 1-34](#)—Complete as needed to set up connections on the backplane.
7. [NTP-F8 Perform the Bay Installation Acceptance Test, page 1-41](#)—Complete this procedure to determine if you have correctly completed all other procedures in the chapter.

  
Warning

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**Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

---

  
Warning

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**This unit is intended for installation in restricted access areas. A restricted access area is where access can only be gained by service personnel through the use of a special tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.**

---

  
Warning

---

**The Cisco ONS 15600 SDH rack must be secured to the building structure.**

---

**Warning**

**Do not touch electrical terminals. A single point failure of a power diode may energize these parts. Measure voltage before servicing.**

## Required Tools and Equipment

You will need the following tools and equipment to install and test the ONS 15600 SDH.

## Included Materials

The ONS 15600 SDH bay ship kit is shipped with the ONS 15600 SDH system. The under-floor power kit is an optional item and is used in environments where power is supplied through the floor, rather than over head. You can also order installation dollies to help you with unloading the bay from the shipping pallet; for information about obtaining the dollies contact your Cisco sales engineer.

The number in parentheses gives the part number or the quantity of the item included in the package.

- Bay ship kit (53-2141-XX)
  - Bay label
  - Floor template
  - ESD ground strap
  - Rectangular seismic washers (4)
  - *Cisco Optical Transport Products Safety and Compliance Information*
- Under-floor power kit (800-23062-XX) (optional)
  - Screws and washers, #8 x 0.75 inch (19.05 mm) (12)
  - Screws and washers, #8 x 0.375 inch (9.525 mm) (8)
  - Power conduits (2)
  - Cable strain-relief brackets (2)
- Wide cable routing module (CRM) kit (53-2181-XX) (optional)
  - Latch catches (2 left and 2 right)
  - Velcro tie-wrap (26)
  - Wide CRMs (2; left and right)
  - 6-32 pan-head screws (8; for latch catches)
  - 8-32 pan-head screws (10; for wide CRMs)
- Narrow CRM kit (53-2193-01) (optional)
  - Fiber radiuses (2; left and right)
  - Narrow CRMs (2; left and right)
  - 6-32 pan-head screws (4; for fiber radiuses)
  - 8-32 pan-head screws (6; for narrow CRMs)
- 35.4-inches (900-mm) kick plate kit (53-2178-01) (optional)
  - Front kick plate

- Rear kick plate
- Side kick plates (2)
- 8-32 flathead screws (18)
- 23.622 inches (600-mm) kick plate kit (53-2177-XX) (optional)
  - Front kick plate
  - Rear kick plate
  - 8-32 flathead screws (10)

## User-Supplied Materials

The following materials and tools are required but are not supplied with the ONS 15600 SDH:

- Power cable, rated for at least 125-A capacity
- Ground cable, rated for at least 125-A capacity
- Marking pen
- Concrete drill
- Listed pressure terminal connectors such as two-hole ring; connectors must be suitable for the chosen cable
- Two-hole power lugs, 0.625-inch (15.875 mm) hole spacing, 0.25-inch (6.35 mm) bolt holes (2 for grounding, 4 for each shelf), for underfloor-routed power cables (Panduit LCCF2-14AZFW-E)
- #22 or #24 AWG CAT5e alarm wires
- Straight-through (CAT5) LAN cables, shielded (if using an external LAN connection)
- Male 15 pin D-sub shielded cable (if using the audible [external] alarms option)
- EIA/TIA-232C shielded cable (9 pin D-sub to 9 pin D-sub) (2)
- 75-ohm coaxial cable (BNC connectors on both ends) (optional)
- Ladder (optional)

## Tools Needed

- Wire-wrap tool (suitable for #22 to #28 AWG alarm wires)
- Wire cutters
- Wire strippers
- Crimp tool
- Scissors
- #2 Phillips screwdriver, 6 inches (152.4 mm) long
- 3/4-inch (19.05 mm) socket wrench
- Ratchet
- 6-inch (154.2 mm) (or greater) ratchet extension (optional)
- 3/4-inch (19.05 mm) socket
- 1 1/8-inch (28.575 mm) socket

- 15/16-inch (23.8125 mm) socket
- 7/16-inch (11.1125 mm) nut driver or socket
- 9/64-inch (3.5719 mm) Allen wrench

## Test Equipment

- Voltmeter
- Visible laser source
- Optical power meter

# NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly

<b>Purpose</b>	This procedure explains how to unpack the ONS 15600 SDH and verify the contents.
<b>Tools/Equipment</b>	Scissors Phillips screwdriver 3/4-inch socket wrench
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

---

**Step 1** Complete the [“DLP-F1 Unpack and Verify the Bay Assembly”](#) task on page 1-5.

**Step 2** Complete the [“DLP-F2 Inspect the Bay Assembly”](#) task on page 1-7.

**Step 3** Continue with the [“NTP-F2 Install the Bay Assembly”](#) procedure on page 1-7.

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

---



## DLP-F1 Unpack and Verify the Bay Assembly

<b>Purpose</b>	This task removes the bay assembly from the package.
<b>Tools/Equipment</b>	Scissors Phillips screwdriver 3/4-inch socket wrench
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Warning**

---

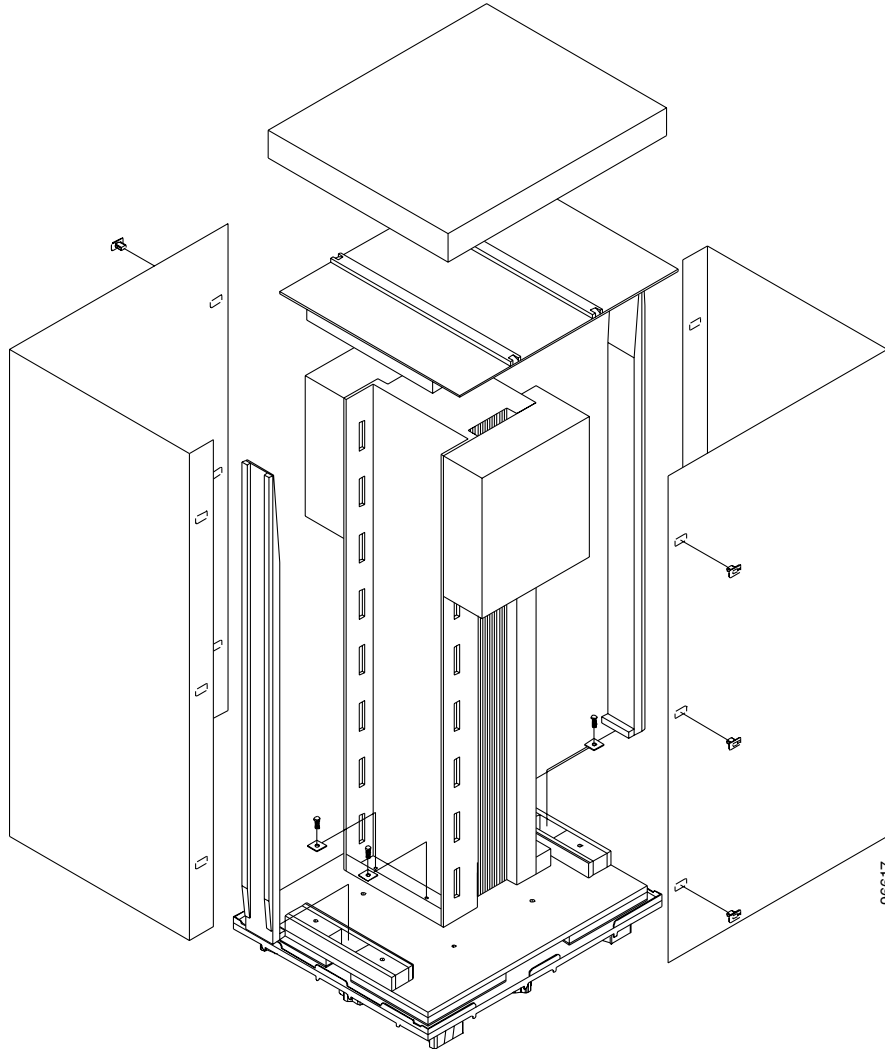
**In order to safeguard both equipment and personnel during the installation process, we recommend that four people participate in moving the unit. Using adequate manpower is the best guarantee that you will avoid harming people or equipment.**

---

**Step 1** Use a pallet jack or forklift to place the shipping container as close to the installation location as possible. Ensure that the space is sufficient to unpack the ONS 15600 SDH.

[Figure 1-1](#) shows the packaging you must remove from the ONS 15600 SDH.

Figure 1-1 ONS 15600 SDH Bay Assembly Packaging



- Step 2** Cut all of the plastic banding off the cardboard shipping container.
- Step 3** Remove the cap from the corrugated container.
- Step 4** Pull the side panels away from the shipping pallet and set them aside.
- Step 5** Cut the banding that holds the top cap and ramps on the bay.
- Step 6** Remove the top cap and ramps and set them aside.
- Step 7** Carefully cut the plastic covering off the bay and remove.
- Step 8** Remove the four bolts that hold the rack to the pallet (rack base bolts) using a 3/4-inch socket wrench.
- Step 9** Open all other boxes shipped with this product. Verify that you have received all of the contents listed in the [“Included Materials”](#) section on page 1-2.
- Step 10** Return to your originating procedure (NTP).

## DLP-F2 Inspect the Bay Assembly

<b>Purpose</b>	This task verifies that all parts of the bay assembly are in good condition.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F1 Unpack and Verify the Bay Assembly, page 1-5</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** Look for any loose parts on the bay assembly.
- Step 2** Verify that the wire-wrap pins on the customer access panel (CAP) at the rear of the bay are not bent or broken.
- Step 3** Verify that the power distribution unit (PDU) is not damaged.
- Step 4** If the pins on the CAP are bent or broken or the PDU is damaged, call your Cisco sales engineer for a replacement.
- Step 5** Return to your originating procedure (NTP).
- 

## NTP-F2 Install the Bay Assembly

<b>Purpose</b>	This procedure explains how to install the bay assembly at the site.
<b>Tools/Equipment</b>	Ratchet 6-inch (or greater) ratchet extension (optional) 1 1/8-inch socket 15/16-inch socket Rectangular seismic washers (4) (53-2141-XX) 5/8-inch floor anchor bolts (4)
<b>Prerequisite Procedures</b>	<a href="#">NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly, page 1-4</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



**Warning**

**The Cisco ONS 15600 SDH rack must be secured to the building structure.**



**Warning**

**To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 122°F (50°C). To prevent airflow restriction, allow at least 24 inches (60 cm) of clearance around the ventilation openings.**

- 
- Step 1** Complete the “DLP-F3 Drill Holes to Anchor and Provide Access to the Bay Assembly” task on page 1-8.
- Step 2** Complete the “DLP-F4 Install the Dollies onto the Bay Assembly” task on page 1-10.
- Step 3** Complete the “DLP-F5 Install the Bay Assembly” task on page 1-12.
- Step 4** Continue with the “NTP-F3 Open and Remove the Front Door” procedure on page 1-13.
- Stop. You have completed this procedure.**
- 

## DLP-F3 Drill Holes to Anchor and Provide Access to the Bay Assembly

<b>Purpose</b>	This procedure describes how to use the floor template to locate and drill the appropriate holes that are needed to anchor and provide additional access to the bay assembly at your site.
<b>Tools/Equipment</b>	Floor template (53-2141-XX) Marking pen Concrete drill Reciprocating saw
<b>Prerequisite Procedures</b>	<a href="#">NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly, page 1-4</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None




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**Note** If the bay will use wide CRMs for cable routing, you need to use 35.4-inches (900-mm) spacing between bays.

---

- Step 1** Determine the proper location of your bay:
- For a 35.4-inches (900-mm) wide bay, position the floor template so that corner indicators “B” fall where you want the corners of the bay to reside ([Figure 1-2](#)).
  - For a 23.62-inches (600-mm) wide bay, position the floor template so that corner indicators “A” fall where you want the corners of the bay to reside ([Figure 1-2](#)).

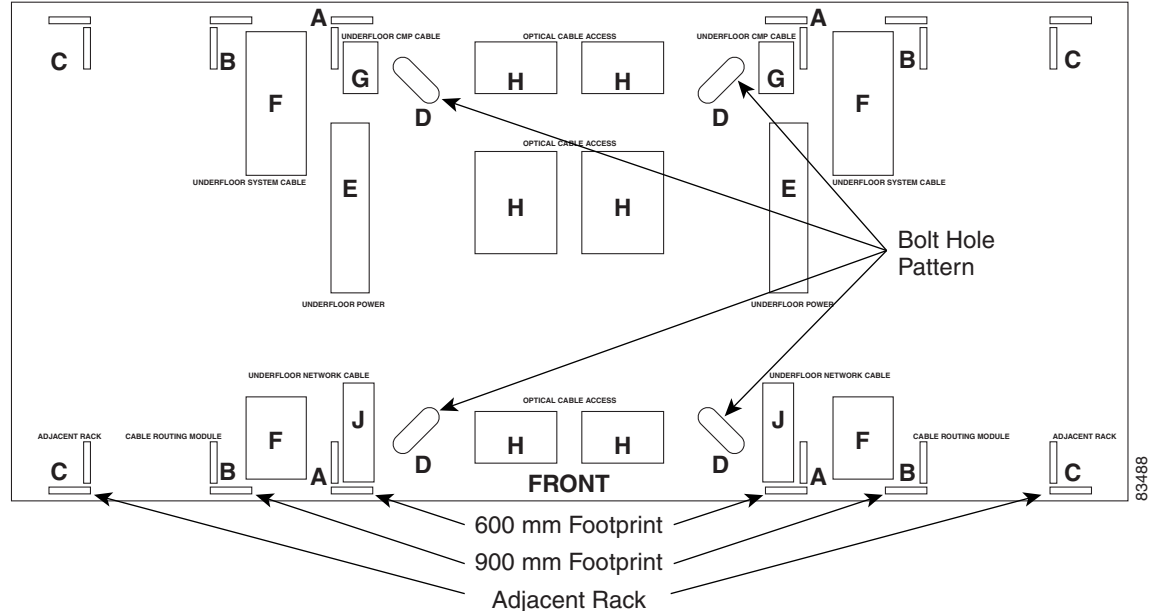



---

**Note** If space allows, Cisco recommends you reserve an additional 1/4 inch of space on each side of the bay assembly you are installing.

---

Figure 1-2 Floor Template



- Step 2** Use the corner indicators “C” to determine the closest recommended position of an adjacent 35.4-inches (900-mm) bay assembly.
- Step 3** Use a marking pen to mark the floor with the corner indicators appropriate to your installation.
- Step 4** At the four locations marked “D,” drill floor bolt holes according to the bolt manufacturer’s recommendation for bolt hole size.
- Step 5** If you will use underfloor power, use the drill and saw to cut out the rectangular floor areas marked “E.”
- Step 6** If you will route optical cables in a 35.4-inches (900-mm) bay from under the floor, use the drill and saw to cut out the rectangular floor areas marked “F.”
- Step 7** If you will route optical cables in a 23.62-inches (600-mm) bay from under the floor, use the drill and saw to cut out the rectangular floor areas marked “J.”
- Step 8** If you will route any timing, alarm, or LAN cables through the floor to the CAP, use the drill to cut out the floor areas marked “G.”
- Step 9** (Optional) If you want to create other access holes for under-floor access (for AC power, for example), use the reciprocating saw to cut sufficient holes within any of the locations marked “H.”
- Step 10** Return to your originating procedure (NTP).

## DLP-F4 Install the Dollies onto the Bay Assembly

<b>Purpose</b>	This task explains how to install the dollies on the bay assembly to assist with unloading the bay assembly at your site.
<b>Tools/Equipment</b>	Dollies (2) Ratchet 6-inch (or greater) ratchet extension (optional) 1 1/8-inch socket 3/4-inch socket 15/16-inch socket
<b>Prerequisite Procedures</b>	<a href="#">NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly, page 1-4</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None


**Note**

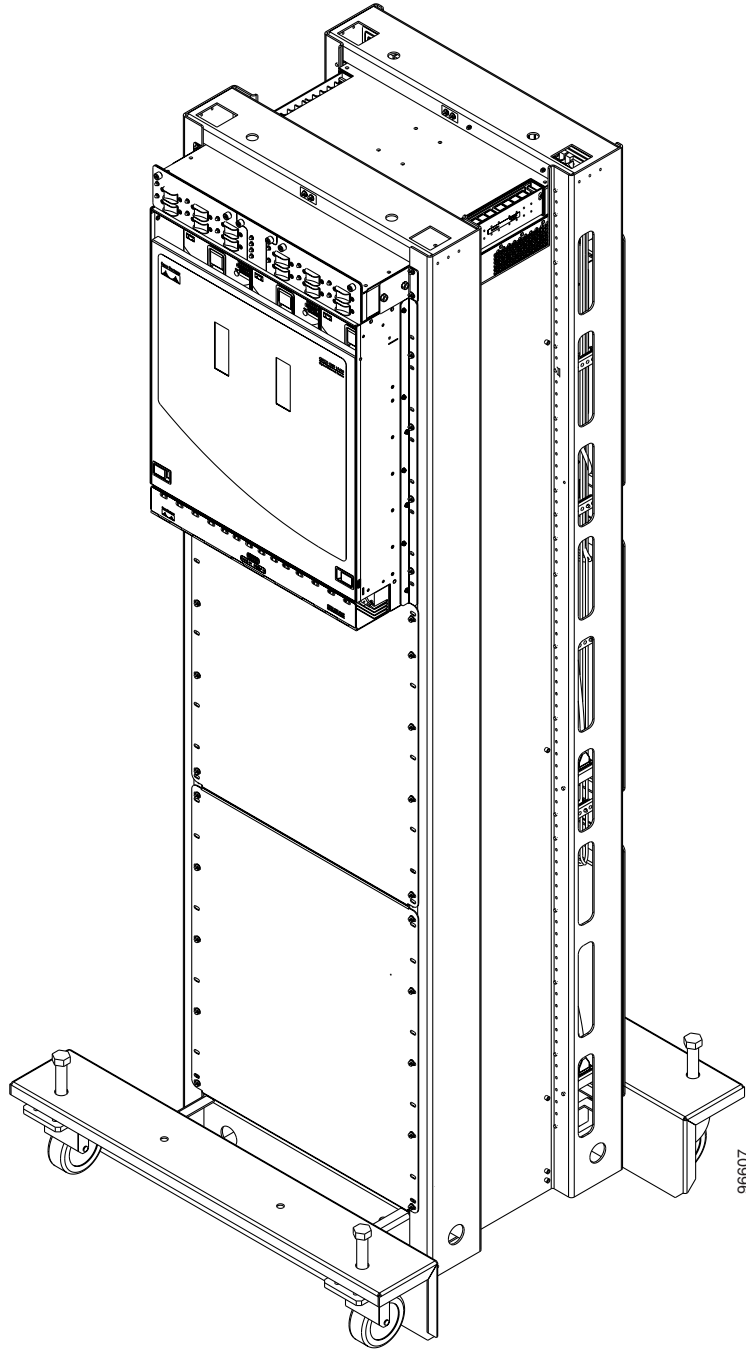
For information about obtaining installation dollies, contact your Cisco sales engineer.

- Step 1** Inspect the dollies to make sure the caster wheels turn freely. If the wheels come in contact with the metal frame of the dolly, turn the screws at the top of the dolly until the wheels move freely.
- Step 2** Use a ratchet to unscrew and remove the bolts attached to the top of one of the dollies.
- Step 3** Line up the holes on one dolly with the holes at the front base of the bay.
- Step 4** Use a ratchet to install the screws that secure the dolly to the bay.


**Note**

A 6-inch (or greater) ratchet extension might be helpful when you install the dolly screws.

- Step 5** Repeat Steps 2 through 4 to attach the other dolly to the rear base of the bay.
- Step 6** Use a socket wrench to turn one of the screws attached to a caster five turns to the right (clockwise). Repeat this at each screw and repeat in sequence so that the bay gradually rises to maximum height (1 3/4 inch) off the pallet.
- Step 7** Lay the wooden ramps down so that they line up with the dolly wheels.
- Step 8** Remove the wooden blocks from the pallet to allow the bay to roll down the wooden ramps.
- Step 9** With one person on each side of the bay assembly, carefully roll the bay down the ramps and onto the floor ([Figure 1-3](#)).

**Figure 1-3** ONS 15600 SDH with Dollies Installed

**Step 10** Return to your originating procedure (NTP).

---

## DLP-F5 Install the Bay Assembly

<b>Purpose</b>	This task explains how to install the bay assembly at the installation site.
<b>Tools/Equipment</b>	Ratchet 6-inch (or greater) ratchet extension (optional) Socket wrench Torque wrench Phillips screwdriver, 6 inches long 23.62-inches (600-mm) kick plate kit (53-2177-XX), or 35.4-inches (900-mm) kick plate kit (53-2178-XX) Rectangular seismic washers (4) (53-2141-XX) 5/8-inch floor anchor bolts (4)
<b>Prerequisite Procedures</b>	<a href="#">NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly, page 1-4</a> <a href="#">DLP-F3 Drill Holes to Anchor and Provide Access to the Bay Assembly, page 1-8</a> <a href="#">DLP-F4 Install the Dollies onto the Bay Assembly, page 1-10</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



**Note** This procedure describes how to install an ONS 15600 SDH bay in an overhead power environment. Test and install according to local site practice.

- 
- Step 1** Place the bay directly over the bolt holes in the floor. (To install an ONS 15600 SDH in a raised-floor environment, place the bay directly over the studs that protrude from the floor.)
- Step 2** Position the four rectangular seismic washers and floor bolts into the bolt holes.
- Step 3** Use a socket wrench to turn one of the screws attached to a caster five turns to the left (counter-clockwise). Repeat this at each screw and repeat in sequence so that the bay gradually lowers and firmly rests on the floor.
- Step 4** Use a ratchet and socket to remove the two bolts that attach the dolly to the bay.



**Note** A 6-inch (or greater) ratchet extension might be helpful when you remove the dolly bolts.

- Step 5** Repeat Steps 3 and 4 for the other dolly.
- Step 6** Use the torque wrench to torque the 5/8-inch floor bolts according to the bolt manufacturer's torque specification.



- Step 7** Install both kick plates at the front and rear base of the bay:
- Line up the kick plates with the holes on the bay's frame.
  - Use a Phillips screwdriver to tighten the five screws that fasten each kick plate to the bay.
- Step 8** Return to your originating procedure (NTP).
- 

## NTP-F3 Open and Remove the Front Door

<b>Purpose</b>	This procedure explains how to open and remove the front door to access the ONS 15600 SDH shelf, including the card cage area and fan trays.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F2 Install the Bay Assembly, page 1-7</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

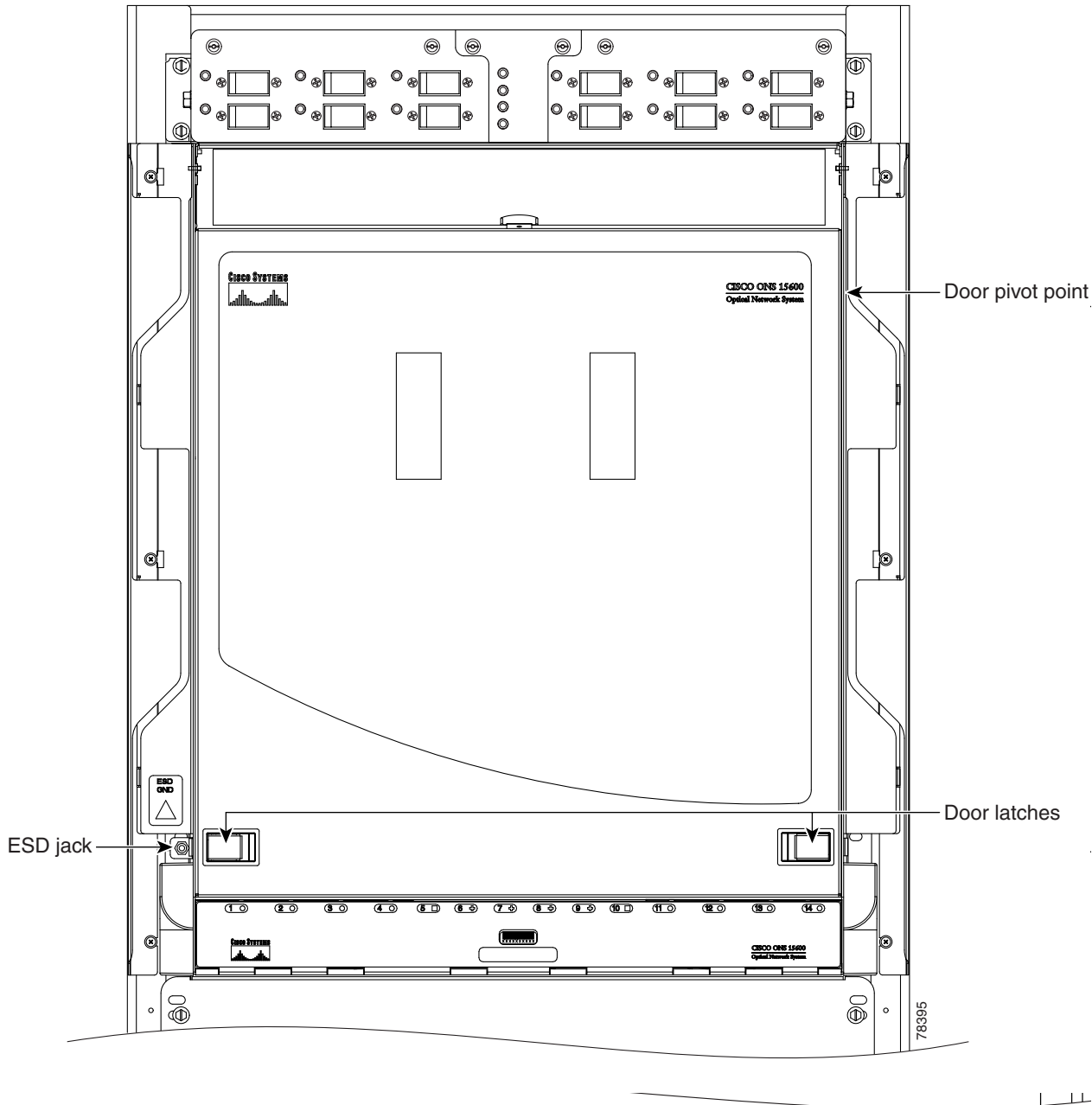
**Note**

The ONS 15600 SDH has an ESD plug input and is shipped with an ESD wrist strap. One ESD plug input is located on the outside edge of the shelf on the left-hand side, and the other is located at the bottom rear of the shelf. It is labeled "ESD." Always wear an ESD wrist strap and connect the strap to the ESD plug when working on the ONS 15600 SDH.

---

- Step 1** Locate the latches on the bottom left and right sides of the door ([Figure 1-4](#)).

Figure 1-4 ONS 15600 SDH Front Door



- Step 2** Pull the latches outward to release them.
- Step 3** Swing the door up to open it.
- Step 4** Lift the door off its hinge pins and remove it. Set the door aside so you can reinstall it after you complete [Chapter 2, "Install Cards and Fiber-Optic Cable."](#)

**Step 5** If you want to install CRMs, continue with the [“NTP-F4 Install Cable Routing Modules and Kick Plates” procedure on page 1-15](#). If CRMs are already installed, continue with the [“NTP-F5 Install the Bay Power and Ground” procedure on page 1-22](#).

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

## NTP-F4 Install Cable Routing Modules and Kick Plates

<b>Purpose</b>	This procedure explains how to install narrow cable routing modules (NCRMs) or, if necessary, remove any previously installed narrow CRMs and install the wide CRMs.
<b>Tools/Equipment</b>	<p>Screwdriver</p> <p>Retaining screws</p> <p>35.4-inches (900-mm) kick plates (53-2178-01)</p> <p>Wide cable routing module (CRM) kit (53-2181-XX) (optional)</p> <ul style="list-style-type: none"> <li>• Latch catches (2 left and 2 right)</li> <li>• Velcro tie-wrap (26)</li> <li>• Wide CRMs (2 left and 2 right)</li> <li>• 6-32 pan-head screws (8; for latch catches)</li> <li>• 8-32 pan-head screws (10; for wide CRMs)</li> </ul> <p>Narrow CRM kit (53-2193-01) (optional)</p> <ul style="list-style-type: none"> <li>• Fiber radiuses (2; left and right)</li> <li>• Narrow CRMs (2; left and right)</li> <li>• 6-32 pan-head screws (4; for fiber radiuses)</li> <li>• 8-32 pan-head screws (6; for narrow CRMs)</li> </ul>
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



**Note** To accommodate the CRMs, the bay must have 5.90 inches (150 millimeters) of open space on either side (35.433 inches (900-mm) footprint); for NCRMs, the bay does not require additional space (23.622 inches (600-mm) footprint).



**Note** Two people are required to perform this procedure.

**Step 1** If you want to install narrow CRMs, complete the [“DLP-F6 Install the Narrow CRMs” task on page 1-16](#).

**Step 2** If you need to remove narrow CRMs (vertical fiber routers) so you can install wide CRMs, complete the [“DLP-F7 Remove the Narrow CRMs” task on page 1-18](#).

- Step 3** If you want to install wide CRMs and have 23.62-inches (600-mm) kick plates installed, complete the “[DLP-F8 Replace the Existing 23.622 inches \(600-mm\) Kick Plates with 35.43 inches \(900-mm\) Kick Plates](#)” task on page 1-18.
- Step 4** If you want to install the wide CRMs, complete the “[DLP-F9 Install the Wide CRMs](#)” task on page 1-19.
- Step 5** Continue with the “[NTP-F5 Install the Bay Power and Ground](#)” procedure on page 1-22.
- Stop. You have completed this procedure.**
- 

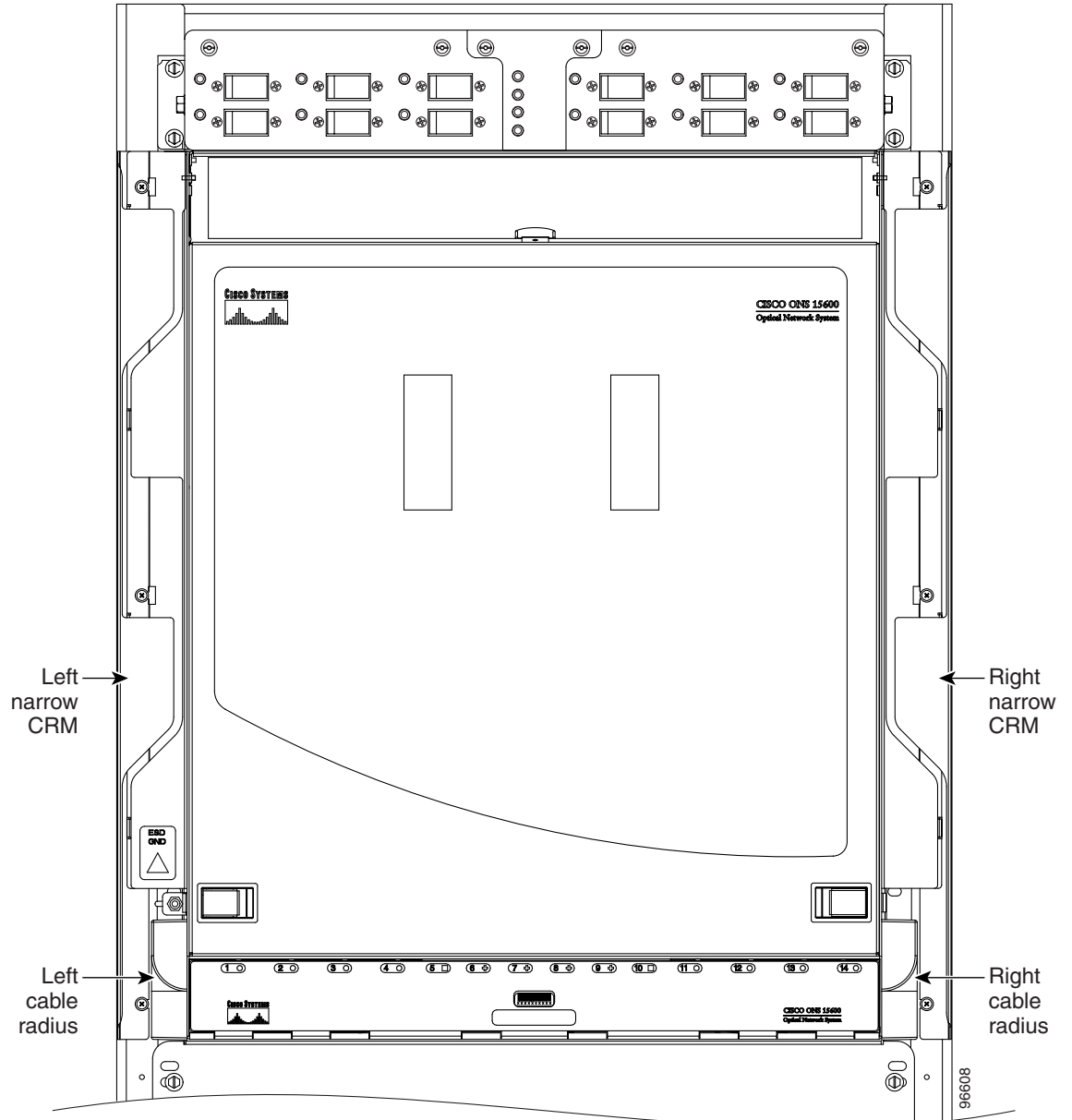
## DLP-F6 Install the Narrow CRMs

<b>Purpose</b>	This task installs narrow CRMs on the ONS 15600 SDH bay.
<b>Tools/Equipment</b>	Narrow CRM kit (53-2193-01) (optional) <ul style="list-style-type: none"> <li>• Fiber radiuses (2; left and right)</li> <li>• Narrow CRMs (2; left and right)</li> <li>• 6-32 pan-head screws (4; for fiber radiuses)</li> <li>• 8-32 pan-head screws (6; for narrow CRMs)</li> </ul> Phillips screwdriver, 6 inches long Retaining screws
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

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- Step 1** On the bottom left and bottom right, install the cable radius (2 screws).
- Step 2** Lift the right-side narrow CRM and align it with the three screw holes you will use to mount the CRM.
- Step 3** Use a Phillips screwdriver to tighten the three screws, starting with the bottom screw and moving up.
- Step 4** Repeat this procedure for the router on the other side ([Figure 1-5](#)).

Figure 1-5 Narrow CRMs



**Step 5** Return to your originating procedure (NTP).

## DLP-F7 Remove the Narrow CRMs

<b>Purpose</b>	This task removes existing narrow CRMs on the ONS 15600 SDH bay so that you can install the wide CRMs.
<b>Tools/Equipment</b>	Phillips screwdriver, 6 inches long Retaining screws
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** Use a Phillips screwdriver to loosen the three screws (approximately five revolutions each) on the existing cable routers (Figure 1-5).
- Step 2** Lift the cable router slightly and pull it away from the bay.
- Step 3** Repeat this procedure for the router on the other side.
- Step 4** Unscrew and remove the cable radius pieces at the lower right and left sides of the shelf.
- Step 5** Return to your originating procedure (NTP).
- 

## DLP-F8 Replace the Existing 23.622 inches (600-mm) Kick Plates with 35.43 inches (900-mm) Kick Plates

<b>Purpose</b>	This task removes the existing 23.622 inches (600-mm) kick plates so you can install the 35.4-inches (900-mm) kick plates. You should install 35.4-inches (900-mm) kick plates if you plan to install the wide CRMs.
<b>Tools/Equipment</b>	35.4-inches (900-mm) kick plate kit (53-2178-XX) Screwdriver Retaining screws
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** Using the screwdriver, remove the five screws located on the 23.622 inches (600-mm) kick plate on the front of the bay.
- Step 2** Repeat Step 1 for the kick plate at the rear of the bay.
- Step 3** Place a 35.4-inches (900-mm) kick plate (700-16756-XX) at the front of the bay and use a screwdriver to install the five screws.
- Step 4** On the right side of the bay, install the side kick plate (700-16758-XX) using the two appropriate screws.



**Note** Make sure the side kick plate's larger flange is on the floor.

- Step 5** Repeat [Step 4](#) for the left and rear kick plates.
- Step 6** Return to your originating procedure (NTP).

## DLP-F9 Install the Wide CRMs

<b>Purpose</b>	This task installs the wide CRMs.
<b>Tools/Equipment</b>	Wide CRM kit (53-2181-XX) (optional) <ul style="list-style-type: none"> <li>• Latch catches (2 left and 2 right)</li> <li>• Velcro tie-wrap (26)</li> <li>• Wide CRMs (1 left and 1 right)</li> <li>• 6-32 pan-head screws (8; for latch catches)</li> <li>• 8-32 pan-head screws (10; for wide CRMs)</li> </ul> Screwdriver Retaining screws
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



**Note** If you are installing CRMs on more than one shelf, it is easiest to install the lowest CRMs first.



**Note** If your site uses underfloor cabling, mount the CRMs on the sides of the bay directly next to the shelf below the node for which you want to route cables. (For instance, if you are routing cables that originate in the top shelf, mount the CRMs that will route those cables on the sides of the bay at the middle shelf level.)

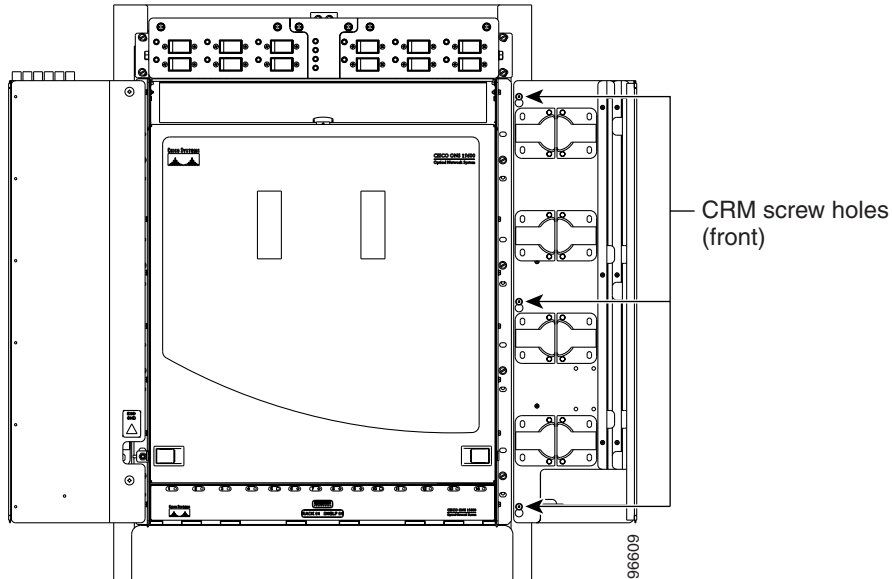
- Step 1** To install the lower latch bracket for the right-side CRM, line up the holes with the holes on the shelf where you removed the plastic cable radius.
- Step 2** Screw the two screws through the brackets into the shelf.
- Step 3** Repeat for the right-side CRM's top latch bracket.
- Step 4** Repeat Steps [1](#) through [3](#) for the left-side latch brackets.
- Step 5** On the front right edge of the bay, locate the three screw holes that will be used to secure the right-side CRM to the bay. Insert a #8 screw in the top hole and turn five revolutions. Do not tighten the screw completely but make sure it is started enough so that it is secure in the bay ([Figure 1-6](#)).



**Note** Only the left-side CRM front door has the cutout and label for the ESD jack.

**Step 6** Repeat for the two remaining screws on that side of the bay.

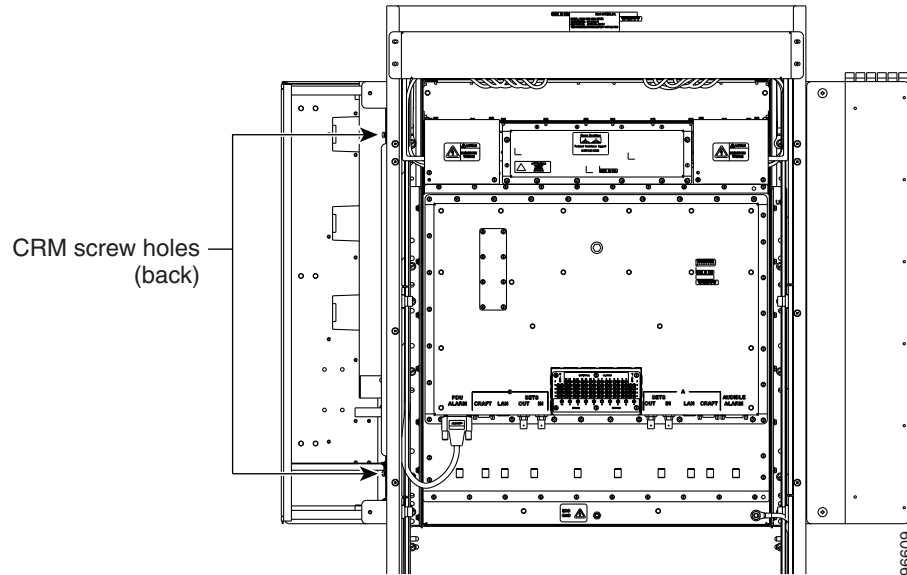
**Figure 1-6 CRM Screw Holes (Front)**



**Step 7** Align the front of the CRM keyholes with the screws and carefully slide the CRM down so it rests on the screws. Tighten the screws, starting with the bottom screw and proceeding up to the middle and top screws.

**Step 8** Locate the two screw holes on the side of the shelf toward the rear of the bay and make sure they are aligned with the holes on the CRM. Install and tighten the bottom screw and then the top screw ([Figure 1-7](#)).



**Figure 1-7 CRM Screw Holes (Rear)**

- Step 9** Repeat Steps 5 through 8 for the left-side CRM.
- Step 10** Return to your originating procedure (NTP).
-

# NTP-F5 Install the Bay Power and Ground

<b>Purpose</b>	This procedure explains how to install power feeds and ground the ONS 15600 SDH.
<b>Tools/Equipment</b>	<p>7/16-inch nut driver or socket</p> <p>9/64-inch Allen wrench</p> <p>Power cable, rated for at least 125-A capacity</p> <p>Ground cable, rated for at least 125-A capacity</p> <p>Listed pressure terminal connectors such as ring and fork types; connectors must be suitable for the chosen cable</p> <p>Wire cutters</p> <p>Wire strippers</p> <p>Crimp tool</p> <p>Screwdriver</p> <p>Nuts (4)</p> <p>Two-hole power lugs, 0.625-inch hole spacing; 0.25-inch bolt holes (Panduit LCCF2-14AZFW-E) (for underfloor-routed power cables) (16)</p> <p>Under-floor power kit (800-23062-XX) (optional)</p> <ul style="list-style-type: none"> <li>• Screws (#8 x 0.75 inch) and washers (12)</li> <li>• Screws (#8 x 0.375 inch) and washers (8)</li> <li>• Power conduits (2)</li> <li>• Cable strain-relief brackets (2)</li> </ul>
<b>Prerequisite Procedures</b>	<p><a href="#">NTP-F2 Install the Bay Assembly, page 1-7</a></p> <p><a href="#">NTP-F3 Open and Remove the Front Door, page 1-13</a></p>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



**Warning**

**This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.**



**Warning**

**Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.**



**Warning**

**Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.**

**Caution**

Always use the supplied ESD wristband when working with a powered ONS 15600 SDH. Plug the wristband cable into either the ESD jack located on the lower-left outside edge of the bay assembly, or the other ESD jack located at the bottom rear of the shelf.

**Warning**

**A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.**

**Warning**

**Use copper conductors only.**

- Step 1** Complete the “[DLP-F10 Connect the Office Ground to the ONS 15600 SDH](#)” task on page 1-24.
- Step 2** Complete the “[DLP-F11 Connect the PDU Ground Cables to the PDU](#)” task on page 1-26.
- Step 3** If isolated logic ground is required at this site, complete the “[DLP-F12 Install Isolated Logic Ground](#)” task on page 1-27.
- Step 4** Complete the “[DLP-F13 Connect Office Power to the ONS 15600 SDH Bay](#)” task on page 1-28.
- Step 5** If the site is in a raised-floor environment with underfloor power, complete the optional “[DLP-F14 Route and Terminate Raised-Floor Power Cables](#)” task on page 1-30.
- Step 6** Complete the “[DLP-F15 Verify Office Power](#)” task on page 1-32.
- Step 7** Complete the “[DLP-F16 Verify Fan Operation](#)” task on page 1-33.
- Step 8** Continue with the “[NTP-F7 Install Wires to Alarm, Timing, LAN, and Craft Pin Connections](#)” procedure on page 1-34.

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

## DLP-F10 Connect the Office Ground to the ONS 15600 SDH

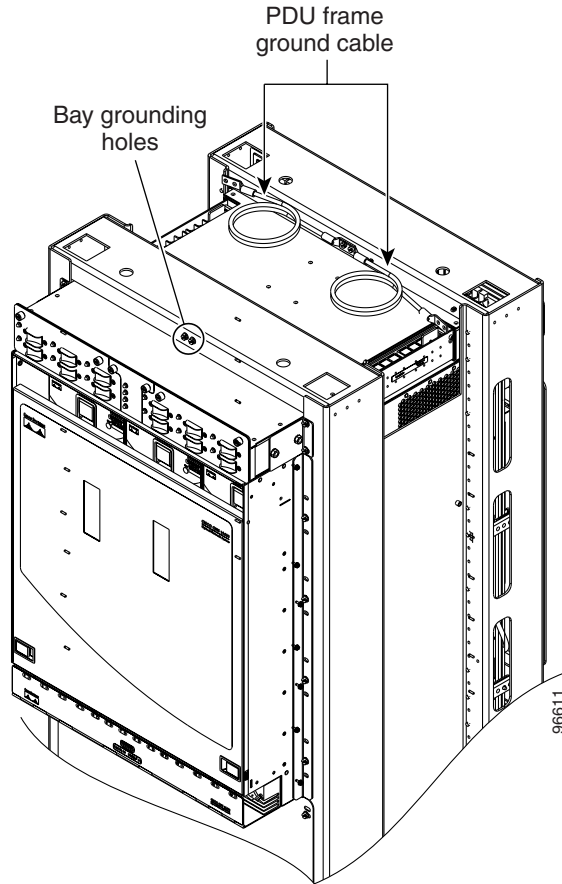
<b>Purpose</b>	This task connects the office ground to the ONS 15600 SDH bay assembly.
<b>Tools/Equipment</b>	<p>7/16-inch socket</p> <p>Socket driver</p> <p>Ground cable, rated for at least 125-A delivery</p> <p>Crimp tool</p> <p>Wire strippers</p> <p>Wire cutters</p> <p>Listed pressure terminal connectors (two hole lug, 0.63-inch spaced, 1/4-inch bolt size); connectors must be suitable for at least 125-A delivery copper conductors</p> <p>Antioxidant compound</p>
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



### Warning

**Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.**

- Step 1** Remove any paint from the two-hole lug position on the bay front ground holes ([Figure 1-8](#)).

**Figure 1-8 PDU Ground Cables and Grounding Holes**

- Step 2** Apply the antioxidant compound to the two-hole lug position.
  - Step 3** Connect the office ground cable to the bay front two-hole lug position.
  - Step 4** Return to your originating procedure (NTP).
-

## DLP-F11 Connect the PDU Ground Cables to the PDU

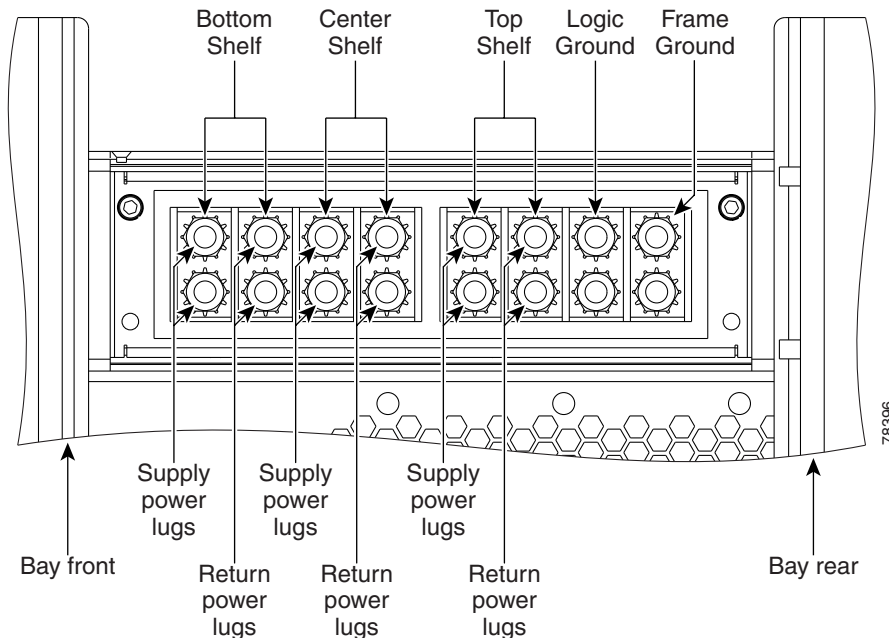
<b>Purpose</b>	This task connects the preinstalled PDU ground cables to the PDU.
<b>Tools/Equipment</b>	Screwdriver 7/16-inch socket Torque wrench calibrated to inch-pounds 9/64-inch Allen wrench
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- Step 1** Locate the PDU ground cables (Figure 1-8 on page 1-25). Remove the PDU safety cover on the right side and install the free end of the green terminal closest to the rear of the rack. This terminal is labeled “Frame Ground” in Figure 1-9.



**Note** A shunt is preinstalled between logic and frame ground to bond the two grounds. If you are providing a separate logic ground, remove this shunt on both sides before installing the PDU frame ground.

**Figure 1-9 Power Terminal Block (Right Side Shown)**



- Step 2** Tighten the nuts to 36 in-lb.
- Step 3** Repeat Steps 1 and 2 for the left side of the PDU.
- Step 4** Replace the PDU safety covers.

**Step 5** Return to your origination procedure (NTP).

---

## DLP-F12 Install Isolated Logic Ground

<b>Purpose</b>	This optional task isolates logic ground from frame ground if required by site specifications. The ONS 15600 SDH ships with the frame ground strapped to the logic ground with metal shunts at the PDU input terminals.
<b>Tools/Equipment</b>	Screwdriver Ground wire Two-hole power lugs, 0.625-inch hole spacing, 0.25-inch bolt holes (2) (Panduit LCCF2-14AZFW-E)
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

---

**Step 1** Remove the PDU safety cover on the right side.

**Step 2** Remove the metal shunt connecting the frame ground to the logic ground terminals. Terminal designations are marked on the top of the PDU.

**Step 3** Replace the green ground wire on the frame ground terminals and secure the wire with two Kepnuts torqued to 36 in-lb.

**Step 4** Repeat Steps 1 through 3 for the left side of the bay.

**Step 5** Build a 36-inch-long logic ground strap with two-hole lugs on each side. Use AWG #2 cable with green insulation and crimp lugs on the terminals at each end.



**Note** Lugs must be no wider than 0.60 inches to fit on the PDU terminals.

---

**Step 6** Put one end of the strap on the left-side PDU logic ground terminals and secure the strap with two Kepnuts torqued to 36 in-lb.

**Step 7** Put the other end of the ground strap on the right-side PDU logic ground terminals.

**Step 8** Put the two-hole lug from the office logic ground cable on the right-side PDU logic ground terminals and secure it with two Kepnuts torqued to 36 in-lb.

**Step 9** Secure the other end of the office logic ground cable to the office logic ground bar.

**Step 10** Return to your originating procedure (NTP).

---

## DLP-F13 Connect Office Power to the ONS 15600 SDH Bay

<b>Purpose</b>	This task connects power to the ONS 15600 SDH bay assembly.
<b>Tools/Equipment</b>	<p>9/64-inch Allen wrench</p> <p>Wire-wrap tool (suitable for #22 to #28 AWG alarm wires)</p> <p>Wire cutters</p> <p>Wire strippers</p> <p>Crimp tool</p> <p>Power cables, rated for at least 125-A delivery</p> <p>Listed pressure terminal connectors (two hole lug, 0.63-inch spaced, 1/4-inch bolt size); connectors must be suitable for at least 125-A delivery copper conductors</p>
<b>Prerequisite Procedures</b>	<a href="#">DLP-F10 Connect the Office Ground to the ONS 15600 SDH, page 1-24</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



### Warning

**This warning applies only to units equipped with DC input power supplies. Wire the DC power supply using the appropriate lugs at the wiring end. The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Note that the ground wire should always be connected first and disconnected last.**



### Caution

Cisco supports only dual office-power feeds.



### Note

If you encounter problems with the power supply, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

### Step 1

Measure and cut the cables as needed to reach the ONS 15600 SDH PDU from the office power distribution panel. [Figure 1-9 on page 1-26](#) shows the ONS 15600 SDH power terminal block on the right side (B side) of the bay.

### Step 2

If either PDU terminal cover is still installed, use the 9/64-inch Allen wrench to loosen the two screws that hold the plastic PDU. Pull the cover away from the shelf and set the cover aside.



### Note

Use only pressure terminal connectors, such as two-hole lug types, when terminating the battery, battery return, and frame ground conductors.



**Caution**

Before you make any crimp connections, coat all bare conductors (battery, battery return, and frame ground) with an appropriate antioxidant compound. Bring all unplated connectors, braided strap, and bus bars to a bright finish, then coat with an antioxidant before you connect them. You do not need to prepare tinned, solder-plated, or silver-plated connectors and other plated connection surfaces, but always keep them clean and free of contaminants.

**Caution**

When terminating power, return, and frame ground, do not use soldering lug, screwless (push-in) connectors, quick-connect, or other friction-fit connectors.

**Step 3** Strip 1/2 inch of insulation from all power cables that you will use.

**Step 4** If the bay is being installed in a raised-floor environment, complete the [“DLP-F14 Route and Terminate Raised-Floor Power Cables”](#) task on page 1-30.

**Step 5** Crimp the lugs onto the ends of all power leads.

**Note**

When terminating battery and battery return connections as shown in [Figure 1-9 on page 1-26](#), follow a torque specification of 36 in-lb. When terminating a frame ground, use the Kepnut provided with the ONS 15600 SDH and tighten it to a torque specification of 36 in-lb.

**Step 6** Put the 48/60 VDC power return wire on the third pair of screw posts (counting from the rear of the PDU).

**Note**

All screw posts are labeled at the top of the PDU.

**Step 7** Put the 48/60 VDC power supply wire on the fourth pair of screw posts.

**Step 8** Hold the plastic safety cover in place over the power leads. Use the 9/64-inch Allen wrench to tighten the two screws that hold the plastic safety cover in place.

**Step 9** Repeat Steps 6 through 8 for the left (A) side of the bay.

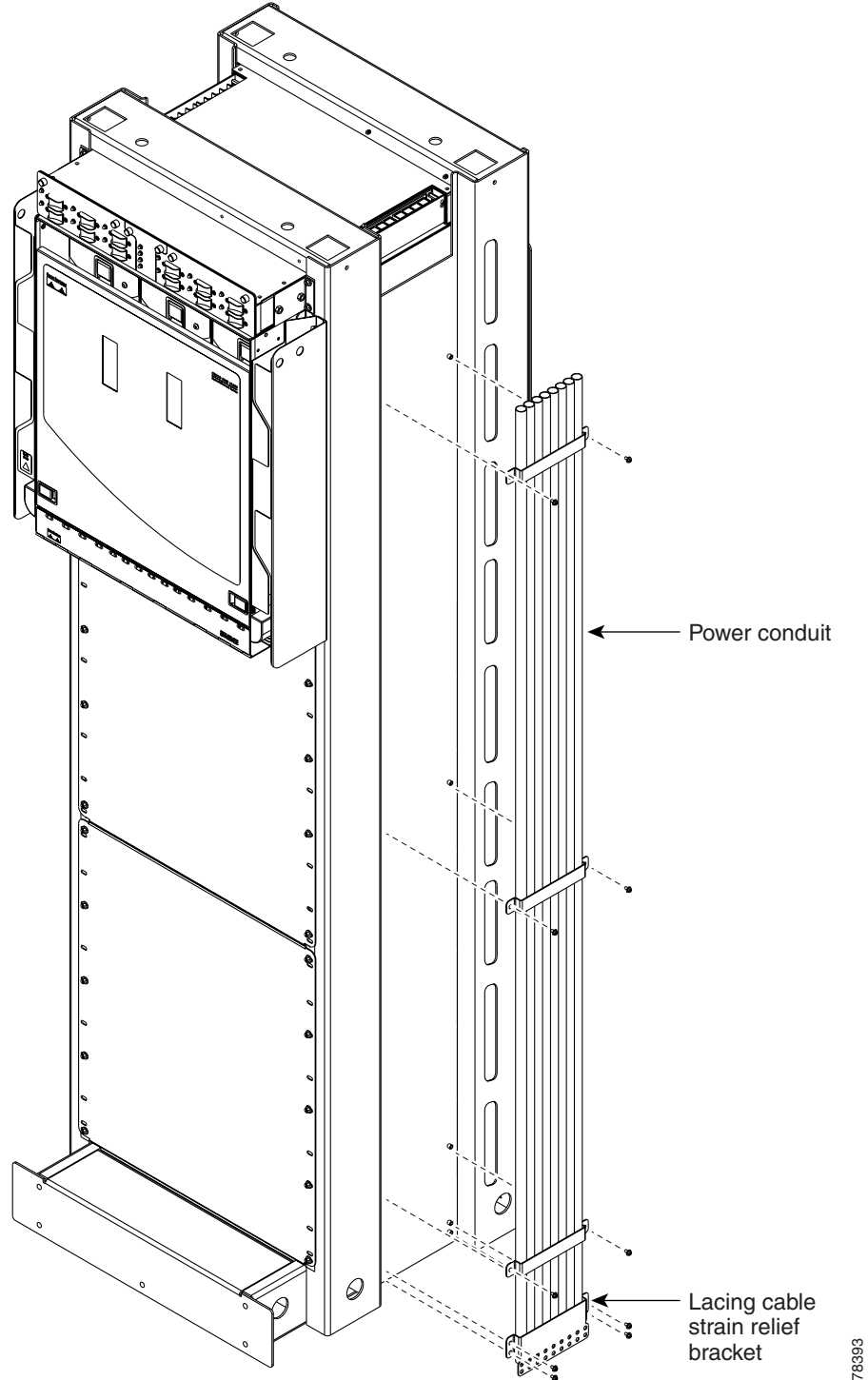
**Step 10** Apply power to the node.

**Step 11** Return to your originating procedure (NTP).

## DLP-F14 Route and Terminate Raised-Floor Power Cables

<b>Purpose</b>	This task installs the power conduit included in the raised-floor power kit and routes and terminates the power cables.
<b>Tools/Equipment</b>	<p>Screwdriver</p> <p>Ground cables, rated for at least 125-A capacity</p> <p>Two-hole power lugs, 0.625-inch hole spacing; 0.25-inch bolt holes (Panduit LCCF2-14AZFW-E) (for underfloor-routed power cables) (16)</p> <p><b>Note</b> You must use the specified lug type in order to terminate raised floor cables.</p> <p>Raised-floor power kit (800-23062-XX), which includes:</p> <ul style="list-style-type: none"> <li>• Screws and washers, #8 x 0.75 inch (12)</li> <li>• Screws and washers, #8 x 0.375 inch (8)</li> <li>• Power conduits (2)</li> <li>• Strain-relief cable brackets (2)</li> <li>• Panduit heat shrink #HSTT50-C</li> </ul>
<b>Prerequisite Procedures</b>	<p><a href="#">DLP-F10 Connect the Office Ground to the ONS 15600 SDH, page 1-24</a></p> <p><a href="#">DLP-F13 Connect Office Power to the ONS 15600 SDH Bay, page 1-28</a></p>
<b>Required/As Needed</b>	As needed for bays installed in a raised-floor environment where the power cables originate from the floor.
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** On either side of the bay, locate the holes provided to mount the power conduit ([Figure 1-10](#)).
- Step 2** On one side of the bay, line up the conduit's braces with the mounting holes.
- Step 3** Use a screwdriver to install 6 screws (0.75 inch) into the mounting holes with one washer under the head of each screw.

**Figure 1-10** Installing the Power Conduit in a Raised-Floor Power Environment

- Step 4** Line up the strain-relief cable bracket at the base of the conduit. Install four of the 0.375-inch screws.
- Step 5** Carefully push the power cables up through the conduit.
- Step 6** Place the heat shrink tube on the cable.

- Step 7** Crimp a lug onto one of the power cables.
  - Step 8** Put the heat shrink over the barrel of the power terminals to provide insulation.
  - Step 9** Secure the lug with the 2 nuts provided onto the PDU terminal. Torque to 36 in-lb.
  - Step 10** Lace or tie-wrap the cable to the cable strain relief bracket according to local site practice.
  - Step 11** Repeat Steps 7 through 10 for every power and ground cable on that side of the bay.
  - Step 12** Repeat this task for the other side of the bay.
  - Step 13** Return to your originating procedure (NTP).
- 

## DLP-F15 Verify Office Power

<b>Purpose</b>	This task measures the power to verify correct power and returns.
<b>Tools/Equipment</b>	Voltmeter
<b>Prerequisite Procedures</b>	<a href="#">DLP-F10 Connect the Office Ground to the ONS 15600 SDH, page 1-24</a> <a href="#">DLP-F13 Connect Office Power to the ONS 15600 SDH Bay, page 1-28</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

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- Step 1** Turn office power on at the A side of the PDU and turn office power off at the B side of the PDU.
- Step 2** Observe that the A side, Shelf 1 green LED is lit on the front face of the PDU. The green LED indicates the voltage is within the appropriate range and the polarity is correct. Reversed voltage results in unlit LEDs. Red LEDs indicate the circuit breakers are off or voltage is too low. Diagnose any errors and correct before continuing with this procedure. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* for more information.
- Step 3** To verify power using a voltmeter, connect the black test lead of the voltmeter to the PDU A-side frame ground input terminal. Connect the red test lead to the PDU A-side supply input terminal. Verify that the voltage reading is between –40 VDC and –60 VDC.




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**Note** All PDU terminals are labeled on the top of the PDU.

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- Step 4** To verify ground, place the black test lead of the voltmeter to the PDU A-side frame ground input terminal. Place the red test lead to the PDU A-side logic ground terminal and verify that no voltage is present.
- Step 5** Turn office power on to the B side of the PDU and turn office power off to the A side of the PDU.
- Step 6** Observe that the B side, Shelf 1 green LED is lit on the front face of the PDU. Diagnose any errors and correct them before continuing with this task.
- Step 7** To verify power using a voltmeter, put the black test lead of the voltmeter to the PDU B-side frame ground input terminal. Put the red test lead to the PDU B-side supply input terminal. Verify that the voltage reading is between –40 VDC and –60 VDC.
- Step 8** To verify ground, put the black test lead of the voltmeter to the PDU B-side frame ground input terminal. Put the red test lead to the PDU B-side logic ground terminal and verify that no voltage is present.

- Step 9** Turn office power back on to the A side of the PDU.
- Step 10** Return to your originating procedure (NTP).

## DLP-F16 Verify Fan Operation

<b>Purpose</b>	This task verifies that all fans are working before you insert the cards. Insufficient cooling by the fans can damage the equipment.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

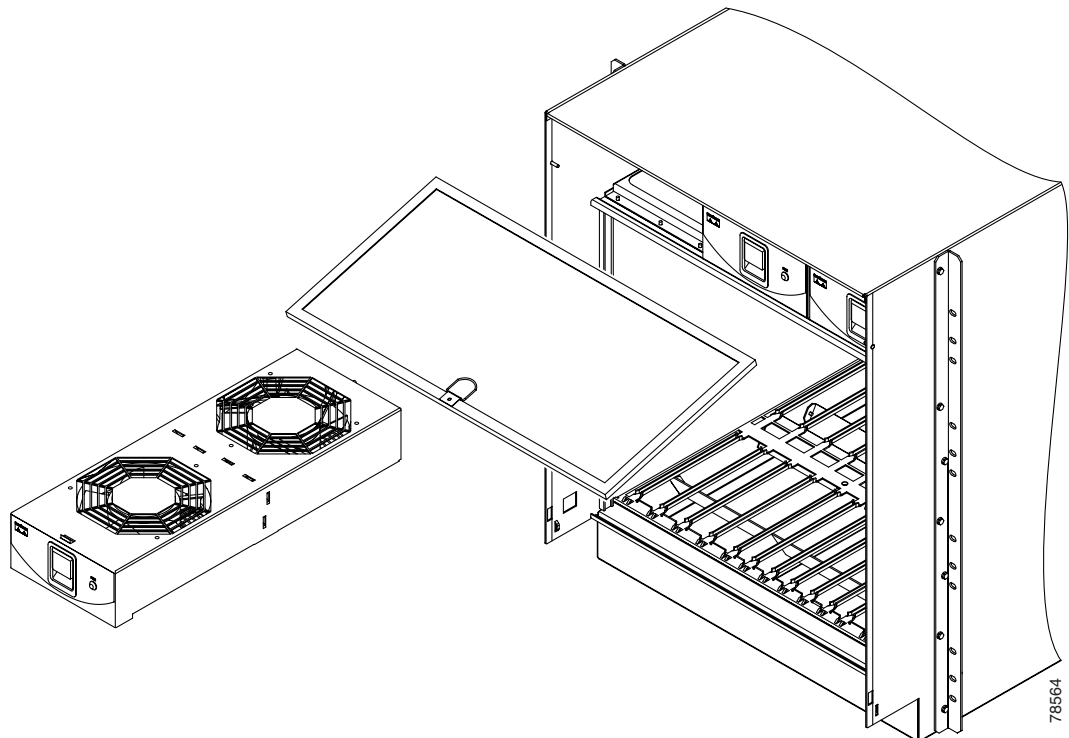


**Warning**

**Voltage is present on the backplane when the system is operating. To reduce risk of an electric shock, keep hands and fingers out of the power supply bays and backplane areas.**

- Step 1** Locate the three fan trays at the front of the bay. [Figure 1-11](#) shows an unpopulated ONS 15600 SDH with one of the three fan trays and the fan-tray air filter removed.

**Figure 1-11 ONS 15600 SDH Shelf with One Fan Tray and Air Filter Removed**



- Step 2** To ensure that the three front fans are operating, carefully place your hand in the card cage two to three inches from the top of the cage, palm up, to feel for airflow from each fan. If you do not feel airflow from one or more fans, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*. Make sure that all fans work before you install any cards.
- Step 3** To ensure that the three rear fans are operating, at the back of the bay, carefully place your hand in the fan outlet area above the CAP and place your palm face down on the grate to feel for airflow from each fan. If you do not feel airflow from one or more fans, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*. Make sure that all fans work before you install any cards.
- Step 4** Return to your originating procedure (NTP).

## NTP-F7 Install Wires to Alarm, Timing, LAN, and Craft Pin Connections

<b>Purpose</b>	This procedure explains how to install alarm, timing, LAN, and craft wires.
<b>Tools/Equipment</b>	Connectors according to function  Twisted 0.51 mm <sup>2</sup> or 0.64 mm <sup>2</sup> (#22 or #24 AWG) shielded wires for LAN or craft  75-ohm coaxial cable with 1.0/2.3 miniature coax connector  0.51 mm <sup>2</sup> or 0.64 mm <sup>2</sup> (#22 or #24 AWG) alarm wires
<b>Prerequisite Procedures</b>	<a href="#">NTP-F5 Install the Bay Power and Ground, page 1-22</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- Step 1** Complete [“DLP-F159 Remove the Rear Cover” procedure on page 1-35](#).
- Step 2** Complete the [“DLP-F17 Install Alarm Wires on the CAP” task on page 1-35](#) as necessary. Alarm wires are necessary to create external alarms and controls.
- Step 3** Complete the [“DLP-F18 Install E1 \(100 Ohm\) Timing Connections on the CAP” task on page 1-38](#) if you are using a 100-ohm E1 building integrated timing supply (BITS) timing source.
- Step 4** Complete the [“DLP-F19 Install LAN Cables on the CAP” task on page 1-39](#) as needed. LAN cables (or the LAN port on the Timing and Shelf Control [TSC]) are necessary to create an external LAN connection.
- Step 5** Complete the [“DLP-F20 Install the TL1 Craft Interface Cable” task on page 1-40](#) as needed. Craft cable to the DB-9 connector on the CAP is required to access TL1.



**Caution** Always use the supplied ESD wristband when working with a powered ONS 15600 SDH. Plug the wristband cable into either the ESD jack located on the lower-left outside edge of the bay assembly, or the other ESD jack located at the bottom rear of the shelf.

- Step 6** Complete the [“DLP-F160 Replace the Rear Cover” procedure on page 1-41](#).
- Step 7** Continue with the [“NTP-F8 Perform the Bay Installation Acceptance Test” procedure on page 1-41](#).

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

---

## DLP-F159 Remove the Rear Cover

<b>Purpose</b>	This procedure removes the rear cover to provide access to the CAP.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F2 Install the Bay Assembly, page 1-7</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

---

- Step 1** Partially unscrew the retaining screws that hold the plastic cover in place.
- Step 2** Grasp the cover on each side and slide it to the left so it is free of the key holes.
- Step 3** Pull the cover away from the bay.
- Step 4** Continue with the “[NTP-F7 Install Wires to Alarm, Timing, LAN, and Craft Pin Connections](#)” procedure on page 1-34.

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

---

## DLP-F17 Install Alarm Wires on the CAP

<b>Purpose</b>	This task installs the alarm wires on the CAP.
<b>Tools/Equipment</b>	Wire-wrap tool (suitable for #22 to #28 AWG alarm wires) #22 to #28 AWG wires Audible alarm cable with DB-15 connector
<b>Prerequisite Procedures</b>	<a href="#">NTP-F5 Install the Bay Power and Ground, page 1-22</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

---

- Step 1** Wrap the alarm wires on the appropriate wire-wrap pins according to local site practice. [Figure 1-12](#) shows the backplane of the ONS 15600 SDH shelf and the location of the alarm pin field on the CAP.

Figure 1-12 Rear of the ONS 15600, Including the CAP

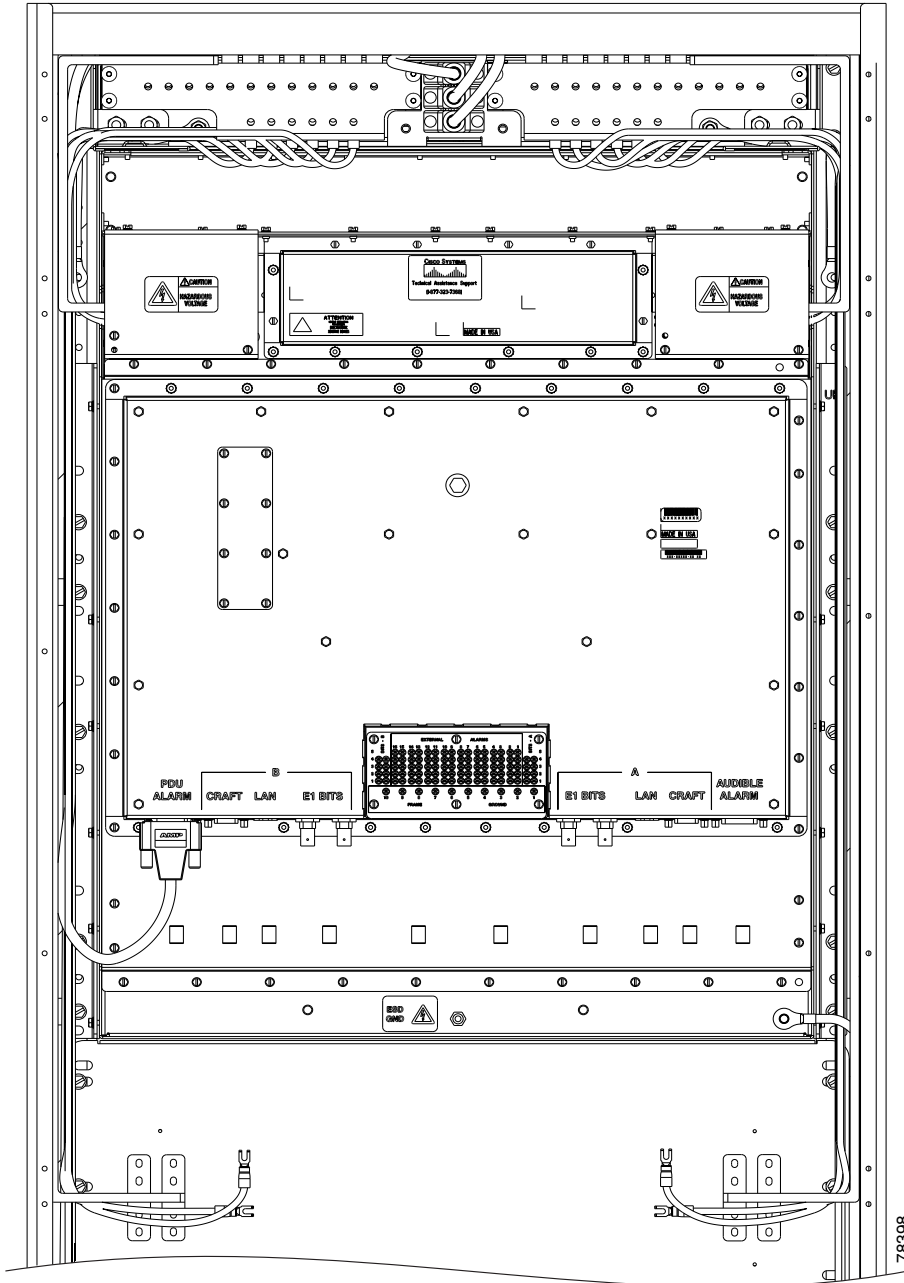
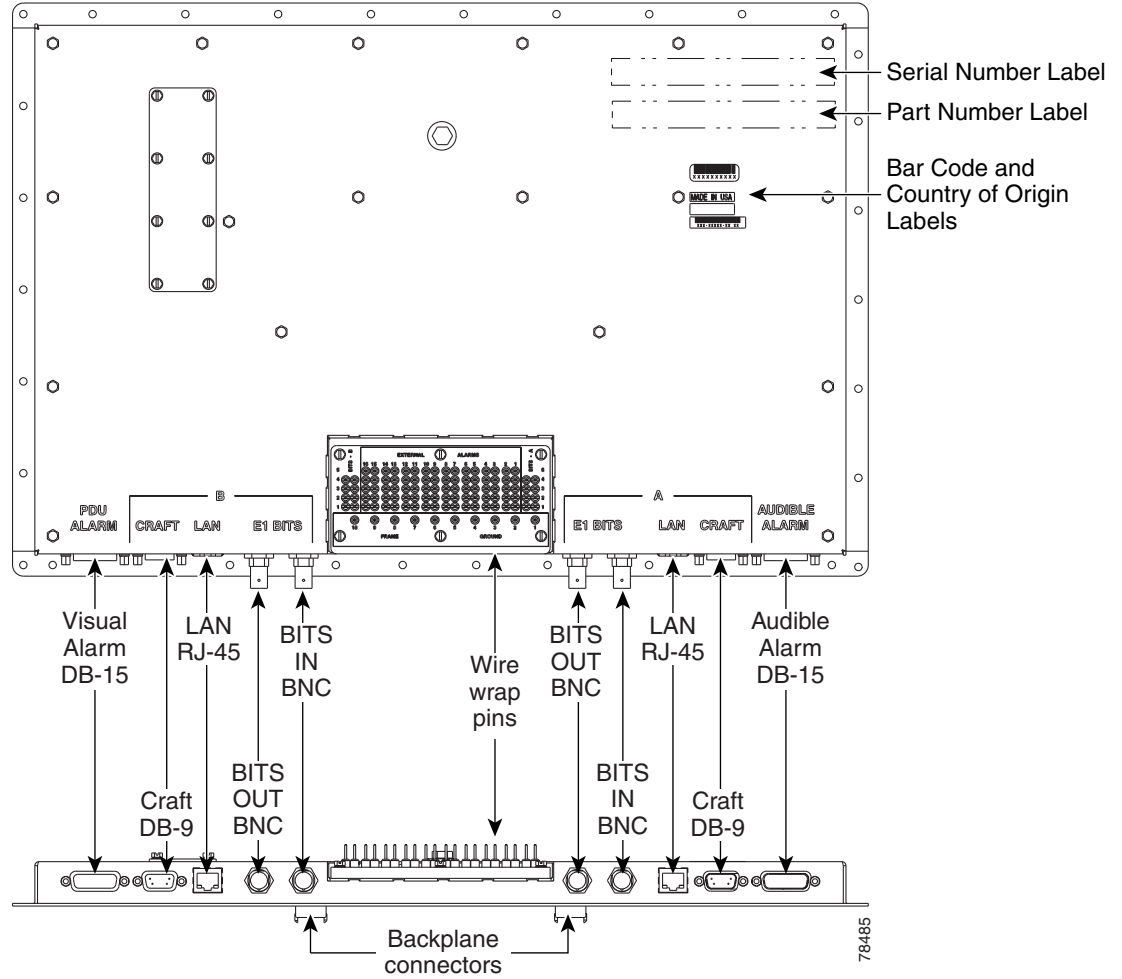


Figure 1-13 shows the CAP faceplate in detail.



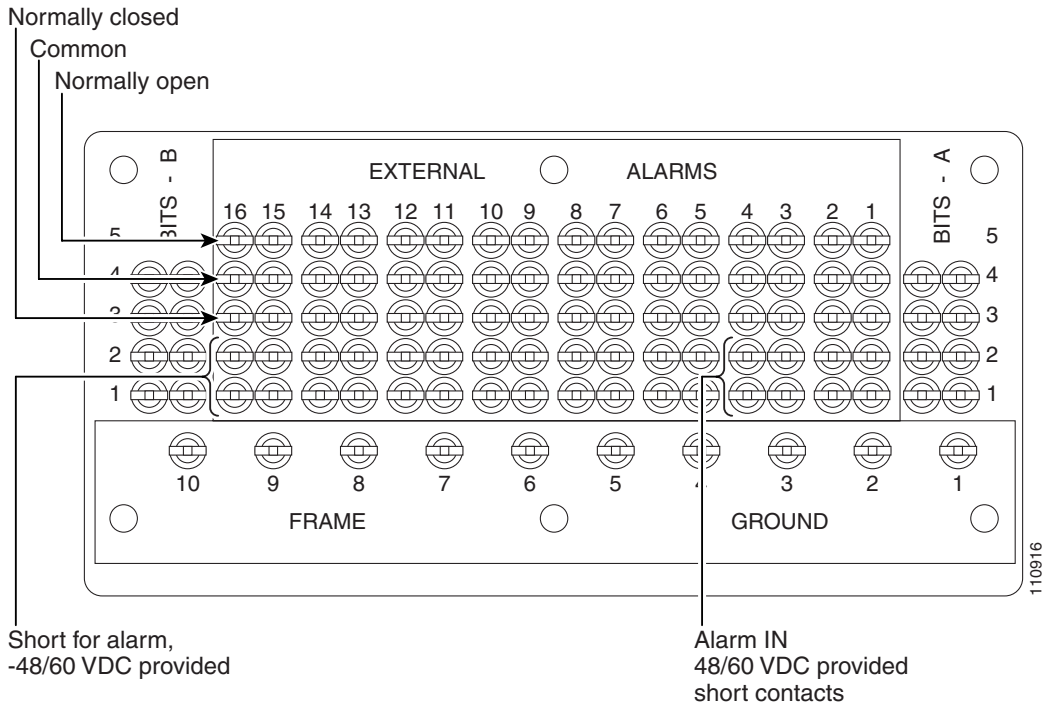
Figure 1-13 CAP Faceplate and Connections



**Note** BITS OUT and visual alarm DB-15 are not available in Software Release 1.4.

Figure 1-14 shows alarm pin assignments.

Figure 1-14 Alarm Pin Assignments on the CAP



See [Chapter 7, “Manage Alarms”](#) for instructions on assigning alarms to these pins.

Lace or tie wrap cables to the tie wrap features that are located below the connector pattern, according to local site practice.

- Step 2** To install the audible alarm cable, connect a DB-15 connector to the Audible Alarm plug at the lower right of the CAP. Connect the other end of the cable to the appropriate audible inputs of the connecting central office alarm circuit.
- Step 3** Return to your originating procedure (NTP).

## DLP-F18 Install E1 (100 Ohm) Timing Connections on the CAP

<b>Purpose</b>	This task installs timing connections from a 100-ohm E1 source to the CAP; it is required if the node is using a E1 timing source for external BITS timing.
<b>Tools/Equipment</b>	Wire-wrap tool (suitable for #22 to #28 AWG alarm wires) #22 or #24 AWG wire shielded twisted pair
<b>Prerequisite Procedures</b>	<a href="#">NTP-F5 Install the Bay Power and Ground, page 1-22</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

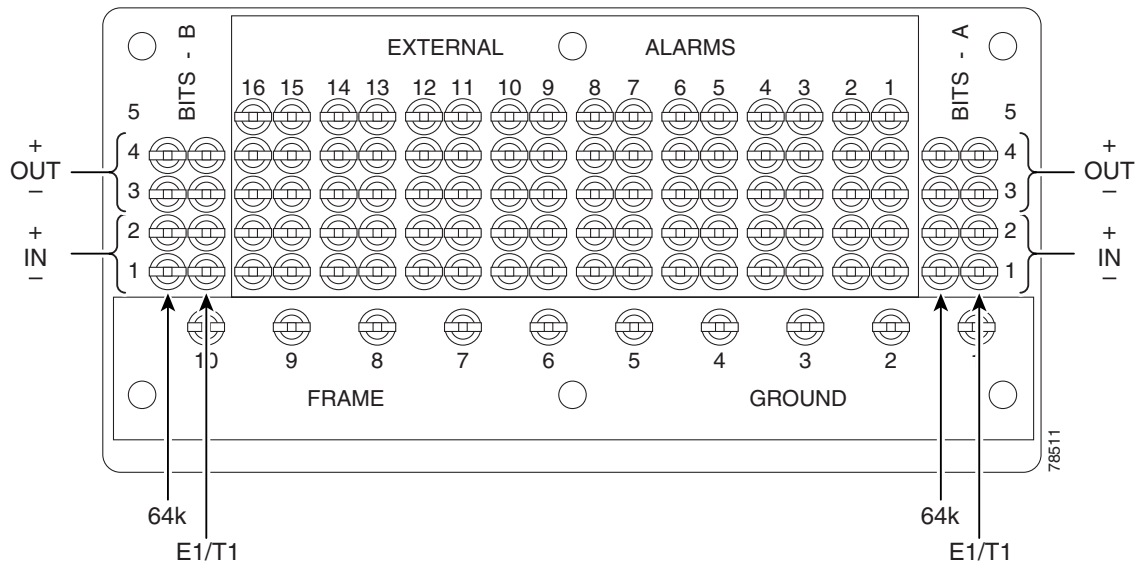
**Step 1** Wrap the clock wires on the appropriate wire-wrap pins according to local site practice.

Figure 1-15 shows the location of the timing connections on the pin field.



**Note** Only 120-ohm E1 and 100-ohm T1 BITS are supported in Release 1.4.

**Figure 1-15 BITS Timing Connections on the CAP**



**Step 2** Wrap the ground shield of the alarm cable to one of the frame ground pins beneath the timing pin field.



**Note** For more detailed information about timing, refer to the *Cisco ONS 15600 SDH Reference Manual*. To set up system timing, see the “[NTP-F26 Set Up Timing](#)” procedure on page 4-16.

**Step 3** Lace or tie wrap cables to the tie-wrap features that are located below the connector pattern, according to local site practice.

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

## DLP-F19 Install LAN Cables on the CAP

<b>Purpose</b>	This task installs the LAN wires on the CAP; it is required to create external LAN connections.
<b>Tools/Equipment</b>	Straight-through (CAT5) LAN cables
<b>Prerequisite Procedures</b>	<a href="#">NTP-F5 Install the Bay Power and Ground</a> , page 1-22
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Note**

Only the active TSC card's connector is active. If you connect to the standby or switch TSCs, you will lose connectivity. Cisco recommends that you use the RJ-45 connector on the CAP card so that connection to the ONS 15600 SDH is not lost during a TSC switch.

- Step 1** Plug the straight-through (CAT5) LAN cable into one of the ports labelled "LAN" on the CAP ([Figure 1-13 on page 1-37](#)).

**Note**

You can cable both LAN ports but only one will be active at a time.

- Step 2** Lace or tie wrap the cable to one of the tie-wrap features located below the connector pattern, according to local site practice.
- Step 3** Return to your originating procedure (NTP).

## DLP-F20 Install the TL1 Craft Interface Cable

<b>Purpose</b>	This task installs the TL1 craft interface cable on the CAP.
<b>Tools/Equipment</b>	EIA/TIA-232 cable (9 pin D-sub)
<b>Prerequisite Procedures</b>	<a href="#">NTP-F5 Install the Bay Power and Ground, page 1-22</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Note**

Rather than using the craft pins, you can use a straight-through cable connected to the TSC EIA/TIA-232 port to access a TL1 craft interface.

- Step 1** Plug the EIA/TIA-232 cable into the port labelled "CRAFT" on the CAP. [Figure 1-12 on page 1-36](#) shows the back of the ONS 15600 SDH, including the CAP and the location of the CRAFT ports.

**Note**

Use a null-modem adapter if you will be connecting a UNIX-based computer to the ONS 15600 SDH. Refer to the *Cisco ONS 15600 SDH TL1 Command Guide* for further information.

- Step 2** Return to your originating procedure (NTP).

## DLP-F160 Replace the Rear Cover

<b>Purpose</b>	This procedure replaces the rear cover.
<b>Tools/Equipment</b>	Screwdriver Retaining screws
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** Grasp the clear plastic cover on each side.
- Step 2** Align the cover with the holes provided for the screws.
- Step 3** Screw the retaining screws that hold the clear plastic cover in place.
- Stop. You have completed this procedure.**
- 

## NTP-F8 Perform the Bay Installation Acceptance Test

<b>Purpose</b>	This procedure performs a bay installation acceptance test.
<b>Tools/Equipment</b>	Voltmeter Oval and/or block ferrites
<b>Prerequisite Procedures</b>	<a href="#">NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly, page 1-4</a> <a href="#">NTP-F2 Install the Bay Assembly, page 1-7</a> <a href="#">NTP-F3 Open and Remove the Front Door, page 1-13</a> <a href="#">NTP-F5 Install the Bay Power and Ground, page 1-22</a> <a href="#">DLP-F159 Remove the Rear Cover, page 1-35</a> <a href="#">NTP-F7 Install Wires to Alarm, Timing, LAN, and Craft Pin Connections, page 1-34</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** In [Table 1-1](#) verify that each procedure was completed.

**Table 1-1 ONS 15600 SDH Bay Installation Task Summary**

Description	Completed
<a href="#">NTP-F1 Unpack and Inspect the Cisco ONS 15600 SDH Bay Assembly, page 1-4</a>	
<a href="#">NTP-F2 Install the Bay Assembly, page 1-7</a>	

**Table 1-1 ONS 15600 SDH Bay Installation Task Summary (continued)**

Description	Completed
<a href="#">NTP-F3 Open and Remove the Front Door, page 1-13</a>	
<a href="#">NTP-F4 Install Cable Routing Modules and Kick Plates, page 1-15</a>	
<a href="#">NTP-F5 Install the Bay Power and Ground, page 1-22</a>	
<a href="#">NTP-F7 Install Wires to Alarm, Timing, LAN, and Craft Pin Connections, page 1-34</a>	

**Step 2** Complete the “[DLP-F21 Inspect the Bay Installation and Connections](#)” task on page 1-42.

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

---

## DLP-F21 Inspect the Bay Installation and Connections

<b>Purpose</b>	This task inspects the bay installation and connections to verify that everything is installed and connected properly.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">Table 1-1 on page 1-41</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

---

**Step 1** Check each wire and cable connection to make sure all cables are locked securely. If a wire or cable is loose, return to the appropriate procedure in this chapter to correct it.

**Step 2** To check that the CAP is seated correctly, verify that the screws are secure and the pin field is firmly attached.

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

---



## Install Cards and Fiber-Optic Cable

---

This chapter explains how to install the Cisco ONS 15600 SDH cards and fiber-optic cable (fiber).

### Before You Begin

Before beginning this chapter, complete [Chapter 1, “Install the Bay and Backplane Connections.”](#)

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

1. [NTP-F10 Install the Common Control Cards, page 2-2](#)—Complete this procedure before continuing with the “[NTP-F11 Install the STM-N Cards](#)” procedure on [page 2-4](#).
2. [NTP-F11 Install the STM-N Cards, page 2-4](#)—Complete this procedure before continuing with the “[NTP-F16 Install the Fiber-Optic Cables](#)” procedure on [page 2-8](#).
3. [NTP-F13 Install the Filler Cards, page 2-5](#)—Complete as needed to fill any unused optical card slots with filler cards.
4. [NTP-F14 Preprovision a Slot, page 2-6](#)—Complete as needed to provision an empty card slot.
5. [NTP-F15 Remove and Replace a Card, page 2-7](#)—Complete as needed.
6. [NTP-F16 Install the Fiber-Optic Cables, page 2-8](#)—Complete this procedure to install and route the fiber-optic cables.
7. [NTP-F17 Replace the Front Door, page 2-17](#)—Complete as needed.



**Warning**

---

**Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

---



**Warning**

---

**Blank faceplates (filler panels) serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, power modules, and faceplates are in place.**

---

# NTP-F10 Install the Common Control Cards

<b>Purpose</b>	This procedure installs the Timing and Shelf Control (TSC) cards and then the Core Cross Connect (CXC) cards, which are required to operate the ONS 15600 SDH.
<b>Tools/Equipment</b>	Redundant TSC cards and CXC cards
<b>Prerequisite Procedures</b>	<a href="#">NTP-F8 Perform the Bay Installation Acceptance Test, page 1-41</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



## Warning

**During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**



## Caution

Always use the supplied ESD wristband when working with a powered ONS 15600 SDH. Plug the wristband cable into the ESD jack located on the lower-left outside edge of the shelf.



## Note

For information about the TSC and CXC cards (such as LED information), refer to the *Cisco ONS 15600 SDH Reference Manual*.

- Step 1** Remove the card from the box and antistatic sleeve.
- Step 2** Install cards in the following sequence:
- a. Slot 5, TSC card
  - b. Slot 10, TSC card
  - c. Slot 6, CXC card
  - d. Slot 8, CXC card
- Step 3** Open the card ejectors.
- Step 4** Slide the card along the top and bottom guide rails into the correct slot. The CXC faceplate occupies two slots. Insert the card until it contacts the backplane.



## Note

CXC cards will not appear in Cisco Transport Controller (CTC) until at least one TSC card is installed.

- Step 5** Close the ejectors.
- Step 6** Verify the LED activity as described in [Table 2-1](#).



**Table 2-1 LED Activity During TSC and CXC Card Installation**

Card Type	LED Activity
TSC	<ol style="list-style-type: none"> <li>1. All LEDs turn on for 20 to 60 seconds.</li> <li>2. The STAT LED blinks and all other LEDs turn off for 30 to 50 seconds.</li> <li>3. All LEDs blink once and then turn off for 10 seconds.</li> <li>4. The SRV LED goes green and the applicable timing indicator goes green (line, external, freerun, holdover).</li> </ol>
CXC	<ol style="list-style-type: none"> <li>1. The STAT and SRV LEDs turn on for 20 seconds.</li> <li>2. The STAT LED blinks and the SRV LED turns off for 30 seconds.</li> <li>3. All LEDs blink once and the SRV LED comes on.</li> </ol>

**Step 7** On the TSC card, verify that the ACT/STBY LED is on if the card is active (green) and off if the card is standby. If it is not, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

**Step 8** Repeat Steps 1 through 7 for each TSC and CXC card you need to install.

**Caution**

Do not operate the ONS 15600 SDH with a single TSC card or a single CXC card installed. Always operate the shelf with two TSC cards and two CXC cards.

**Step 9** After you have logged into CTC, verify that the card appears in the correct slot on the CTC node view. See [Chapter 3, “Connect the Computer and Log into the GUI”](#) for CTC information and setup instructions.

**Tip**

When an active TSC card has a newer version of the ONS 15600 SDH software installed than the newly installed TSC, the active TSC card automatically copies the software version on the new TSC. You do not need to do anything in this situation. The loading TSC card boots up in the normal manner. After loading the new software for several minutes, the newly installed TSC card becomes the standby card.

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

# NTP-F11 Install the STM-N Cards

<b>Purpose</b>	This procedure explains how to install the optical (STM-N) cards (STM-16 and STM-64).
<b>Tools/Equipment</b>	STM-16 and STM-64 cards (as applicable)
<b>Prerequisite Procedures</b>	<a href="#">NTP-F8 Perform the Bay Installation Acceptance Test, page 1-41</a> <a href="#">NTP-F10 Install the Common Control Cards, page 2-2</a>
<b>Required/As Needed</b>	At least one optical card is required to carry traffic. Install according to site plan, if available.
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None


**Warning**

**During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**


**Caution**

Always use the supplied ESD wristband when working with a powered ONS 15600 SDH. Plug the wristband cable into the ESD jack located on the lower-left outside edge of the shelf.


**Warning**

**Class 1 laser product.**


**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. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.**


**Note**

For information about the optical cards, refer to the *Cisco ONS 15600 SDH Reference Manual*.

**Step 1** Remove the card from the box and antistatic sleeve.


**Caution**

Setting an STM-N card on its connectors can cause damage to the connectors.

**Step 2** Open the card ejectors.

**Step 3** Slide the card along the top and bottom guide rails into the correct slot: Slots 1 to 4 and 11 to 14 are available for optical cards. Insert the card until it contacts the backplane.

**Step 4** Close the ejectors.

**Step 5** Verify the LED activity on the card faceplate:

1. The STAT, SRV, SD, SF, and LASER ON LEDs turn on for 20 seconds.
2. The STAT LED blinks and all other LEDs turn on for 30 to 50 seconds.

3. All LEDs blink once and the SRV and LASER ON LEDs illuminate.



**Note** If the LEDs do not turn on, check that the power breakers on the power distribution unit (PDU) are on. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.



**Note** If you install an optical card in a slot provisioned for another optical rate, the same LED sequence occurs but the SRV LED does not turn on and only the LASER ON LED turns on. You will see a mismatched equipment (MEA) alarm for that slot when you open CTC.

- Step 6** After you have logged into CTC, verify that the card appears in the correct slot on the CTC node view. See [Chapter 3, “Connect the Computer and Log into the GUI”](#) for CTC information and setup instructions.
- Step 7** Complete the “[DLP-F24 Install Fiber-Optic Cables in a 1+1 Configuration](#)” task on page 2-10.
- Stop. You have completed this procedure.**

## NTP-F13 Install the Filler Cards

<b>Purpose</b>	This procedure explains how to install the filler cards (blank faceplates) in any unused optical card slots.
<b>Tools/Equipment</b>	Filler card(s) (Cisco P/N 15600-IO-FILLER)
<b>Prerequisite Procedures</b>	<a href="#">NTP-F10 Install the Common Control Cards, page 2-2</a> <a href="#">NTP-F11 Install the STM-N Cards, page 2-4</a>
<b>Required/As Needed</b>	As needed for any unused card slots
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



### Warning

**Blank faceplates (filler panels) serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, power modules, and faceplates are in place.**

- Step 1** Open the card ejectors.
- Step 2** Slide the card along the top and bottom guide rails into the correct optical card slot.
- Step 3** Close the ejectors.
- Step 4** Repeat for any remaining unused card slots.



**Note** CTC automatically detects filler cards and includes them in the graphical shelf display.

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

---

## NTP-F14 Preprovision a Slot

<b>Purpose</b>	This procedure explains how to preprovision a slot before card installation.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a> <a href="#">NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH, page 3-7</a> or <a href="#">NTP-F20 Set Up a CTC Computer for a Corporate LAN Connection to the ONS 15600 SDH, page 3-12</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on [page 3-15](#) at the node where you want to preprovision the slot.
- Step 2** Right-click the empty slot where you will later install a card.
- Step 3** From the Add Card drop-down menu, choose the card type that will be installed. The valid preprovision types for slots 1-4 and 11-14 STM16\_16 and STM64\_4. The valid preprovision type for slots 5, 10 is TSC and for slots 6, 8 is CXC.




---

**Note** An Improper Removal Alarm (IMPROPRMVL) occurs in CTC after the card is preprovisioned.

---




---

**Note** A preprovisioned slot appears yellow in CTC rather than white for an installed card.

---

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

---

# NTP-F15 Remove and Replace a Card

<b>Purpose</b>	This procedure explains how to remove a card from an ONS 15600 SDH shelf.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F10 Install the Common Control Cards, page 2-2</a> or <a href="#">NTP-F11 Install the STM-N Cards, page 2-4</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** If you are not logged into CTC and you need to remove a card, remove the card as described in [Step 4](#). When you log into CTC, troubleshoot the Improper Removal Alarm (IMPROPRMVL) with the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 2** If you are logged into CTC, complete the “[DLP-F22 Delete a Card from CTC](#)” task on page 2-8.
- Step 3** If you are removing an optical card with cables connected to the front:
- Rotate the plastic cable latch over the cable routing channel that corresponds to the optical card so that the latch is open (not blocking the routing channel).
  - Squeeze the latches on both sides of the connector and pull the connector out of the adapter on the front of the card.
- Step 4** Physically remove the card:
- Open the card latches/ejectors.
  - Use the latches/ejectors to gently pull the card forward and away from the shelf.


**Caution**

Do not allow the connectors on the card to touch anything as you remove the card.

- 
- Step 5** Insert the new card using one of the following procedures as applicable:
- [NTP-F10 Install the Common Control Cards, page 2-2](#)
  - [NTP-F11 Install the STM-N Cards, page 2-4](#)

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

---

## DLP-F22 Delete a Card from CTC

<b>Purpose</b>	This task deletes a card from CTC.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Step 1** In node view, right-click the card you want to delete on the shelf graphic. A drop-down menu appears.

**Step 2** Choose **Delete Card** from the menu and click **Yes** in the confirmation dialog box.

You cannot delete a card if any of the following conditions apply:

- The card is part of a protection group; see the “[DLP-F117 Delete a 1+1 Protection Group](#)” task on [page 10-14](#).
- The card has any circuits; see the “[DLP-E97 Delete Circuits](#)” task on [page 9-11](#).
- The card is being used for timing; see the “[DLP-F118 Change the Node Timing Source](#)” task on [page 10-17](#).
- The card has a SDH data communications channel (DCC) termination; see the “[NTP-F70 Delete an RS-DCC Termination](#)” procedure on [page 10-15](#).



**Note** If the card that you deleted is still installed, it will reboot and reappear in CTC.

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

## NTP-F16 Install the Fiber-Optic Cables

<b>Purpose</b>	This procedure explains how to install fiber-optic cables on the optical cards.
<b>Tools/Equipment</b>	Optical Gateway Interface(OGI) fiber-optic cables: <ul style="list-style-type: none"> <li>• STM-16: 72-3699-01-XXX (where XXX is the cable length in meters; for instance, 002 is 2 meters)</li> <li>• STM-64: 72-3708-01-XXX (where XXX is the cable length in meters)</li> </ul> Attenuators suitable for STM-16 and STM-64 attenuation (3 dB for short haul and 15 to 20 dB for long haul) Optical power meter
<b>Prerequisite Procedures</b>	<a href="#">NTP-F11 Install the STM-N Cards, page 2-4</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Warning****Class 1 laser product.****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. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.****Warning****Because invisible laser radiation may be emitted from the aperture of the port when no cable is connected, avoid exposure to laser radiation and do not stare into open apertures.****Caution**

Always use the supplied ESD wristband when working with a powered ONS 15600 SDH. Plug the wristband cable into the ESD jack located on the left-hand outside edge of the shelf.

**Note**

The STM-16 cable can terminate both STM-16 and STM-64 signals but when used with STM-64 cards the cable has six unused optical connections. STM-64 cables are recommended for termination of STM-64 signals. When STM-16 cable is being used for STM-64 only connectors 3 and 4 are used.

**Step 1**Test the optical receive levels for the cards installed and attenuate accordingly. See [Table 2-2](#) for the minimum and maximum levels.**Table 2-2 Optical Transmit and Receive Levels**

Card	Transmit		Receive	
	Minimum	Maximum	Minimum	Maximum
STM16 LR16 1550	-2 dBm	+3 dBm	-28 dBm	-9 dBm
STM64 LR4 1550	+4 dBm	+7 dBm	-22 dBm	-9 dBm
STM16 SR16 1310	-10 dBm	-3 dBm	-18 dBm	-3 dBm
STM64 SR4 1310	-6 dBm	-1 dBm	-11 dBm	-1 dBm

**Caution**

Never create physical (hard) fiber loopbacks on the STM-N LH ports unless you use the proper attenuator. Using fiber loopbacks without the proper attenuator causes damage to STM-N LH cards' receivers.

**Step 2**As necessary, complete the “[DLP-F24 Install Fiber-Optic Cables in a 1+1 Configuration](#)” task on [page 2-10](#).**Step 3**As necessary, complete the “[DLP-F25 Install Fiber-Optic Cables for SNCP Configurations](#)” task on [page 2-13](#).**Step 4**As necessary, complete the “[DLP-F26 Install Fiber-Optic Cables for MS-SPRing Configurations](#)” task on [page 2-14](#).

**Step 5** Complete the “DLP-F27 Route Fiber-Optic Cables” task on page 2-15.

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

## DLP-F24 Install Fiber-Optic Cables in a 1+1 Configuration

<b>Purpose</b>	This task installs fiber-optic cables on optical (STM-N) cards in a 1+1 linear configuration.
<b>Tools/Equipment</b>	Fiber-optic cables
<b>Prerequisite Procedures</b>	<a href="#">NTP-F11 Install the STM-N Cards, page 2-4</a> <a href="#">NTP-F94 Clean Fiber Connectors and Adapters, page 14-18</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



### Note

With all fiber types, network planners/engineers should review the relative fiber type and optics specifications to determine attenuation, dispersion, and other characteristics to ensure appropriate deployment.

**Step 1** Align the white stripe of the cable connector with the white stripe on the receiving OGI connector of the faceplate connection point. Each card has four connectors on the faceplate.

[Table 2-3](#) shows the OGI connector pinouts on the STM-16 card faceplate.

**Table 2-3 OC48/STM16 Cards OGI Connector Pinout**

Connector	OGI Pin and Card Port							
1	1	2	3	4	5	6	7	8
	Receive 4	Transmit 4	Receive 3	Transmit 3	Receive 2	Transmit 2	Receive 1	Transmit 1
2	1	2	3	4	5	6	7	8
	Receive 8	Transmit 8	Receive 7	Transmit 7	Receive 6	Transmit 6	Receive 5	Transmit 5
3	1	2	3	4	5	6	7	8
	Receive 12	Transmit 12	Receive 11	Transmit 11	Receive 10	Transmit 10	Receive 9	Transmit 9
4	1	2	3	4	5	6	7	8
	Receive 16	Transmit 16	Receive 15	Transmit 15	Receive 14	Transmit 14	Receive 13	Transmit 13

[Table 2-4](#) shows the OGI connector pinouts on the front of the STM-64 card faceplate.

**Table 2-4 OC192/STM64 Cards OGI Connector Pinout**

Connector	OGI Pin and Card Port							
1	1	2	3	4	5	6	7	8
	—	—	Receive 1	Transmit 1	—	—	—	—

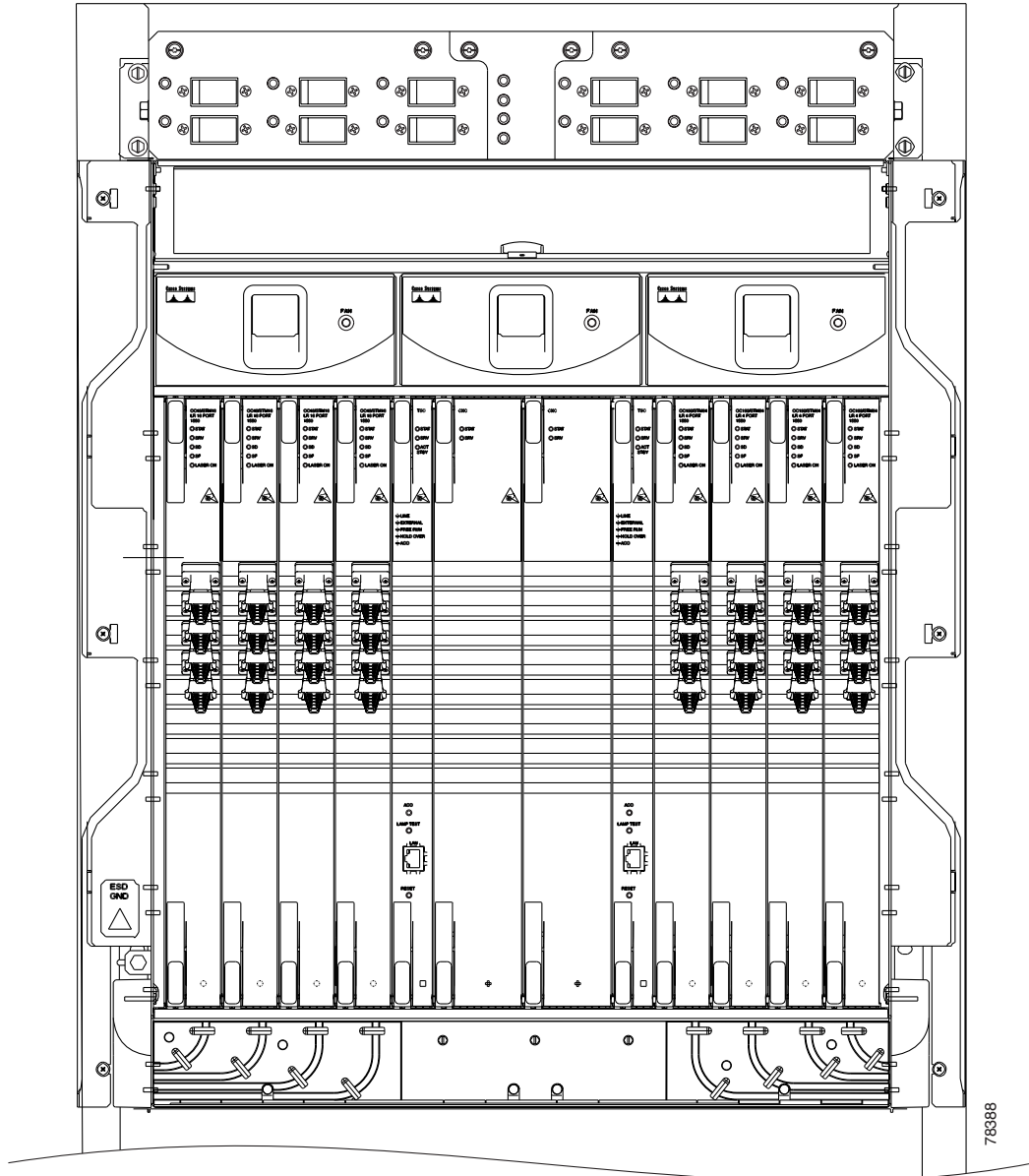


**Table 2-4** OC192/STM64 Cards OGI Connector Pinout (continued)

Connector	OGI Pin and Card Port							
	1	2	3	4	5	6	7	8
2	—	—	Receive 2	Transmit 2	—	—	—	—
	1	2	3	4	5	6	7	8
3	—	—	Receive 3	Transmit 3	—	—	—	—
	1	2	3	4	5	6	7	8
4	—	—	Receive 4	Transmit 4	—	—	—	—
	1	2	3	4	5	6	7	8

Figure 2-1 shows all of the cards installed in the shelf and the optical connectors.

Figure 2-1 ONS 15600 SDH with Optical Cards Installed



- Step 2** Remove the dust cap from the OGI connector adapter on the front of the card.
- Step 3** Plug the fiber into the transmit (Tx) connector of an STM-N port at one node by squeezing the latches on either side of the connector and gently pushing it into the faceplate connection point until the connector snaps into place.
- Step 4** Plug the other end of the fiber into the receive (Rx) connector of the same port number on an STM-N card at an adjacent node.



**Note** To create a 1+1 configuration, you must plug each end of the fiber-optic cable into the port of the same number on both cards; for instance, if you plug the Tx end of the cable into Port 1 you must plug the Rx end into Port 1 on another card installed in an adjacent node.

- Step 5** Repeat Steps 2 through 4 for each fiber-optic cable you require.
- Step 6** Return to your originating procedure (NTP).

## DLP-F25 Install Fiber-Optic Cables for SNCP Configurations

<b>Purpose</b>	This task installs the fiber-optic cables to the subnetwork connection protection (SNCP) ports at each node. See <a href="#">Chapter 5, “Turn Up Network”</a> to provision and test SNCP configurations.
<b>Tools/Equipment</b>	Fiber-optic cables
<b>Prerequisite Procedures</b>	<a href="#">NTP-F11 Install the STM-N Cards, page 2-4</a> <a href="#">NTP-F94 Clean Fiber Connectors and Adapters, page 14-18</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None



### Caution

To avoid loss of traffic, do not create an SNCP using two ports on the same card. You can create an SNCP on different ports on the same side of the shelf, but Cisco recommends using one port on one side of the shelf and another port on the opposite side.



### Note

See [Table 2-3 on page 2-10](#) and [Table 2-4 on page 2-10](#) for OGI connector pinouts of STM-N cards.

- Step 1** Plug the fiber into the Tx connector of an STM-N card at one node and plug the other end of the fiber into the Rx connector of an STM-N card at the adjacent node. The card will display a signal fail (SF) LED if the transmit and receive fibers are mismatched (one fiber connects a receive port on one card to a receive port on another card, or the same situation with transmit ports).
- Step 2** Repeat [Step 1](#) until you have configured the ring.
- Step 3** Return to your originating procedure (NTP).

## DLP-F26 Install Fiber-Optic Cables for MS-SPRing Configurations

<b>Purpose</b>	This task installs the fiber-optics to the east and west multiplex section-shared protection ring (MS-SPRing) ports at each node. See <a href="#">Chapter 5, “Turn Up Network”</a> to provision and test MS-SPRing configurations.
<b>Tools/Equipment</b>	Fiber-optic cables
<b>Prerequisite Procedures</b>	<a href="#">NTP-F11 Install the STM-N Cards, page 2-4</a> <a href="#">NTP-F94 Clean Fiber Connectors and Adapters, page 14-18</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None


**Caution**

Do not provision the MS-SPRing east and west ports on the same STM-N card.

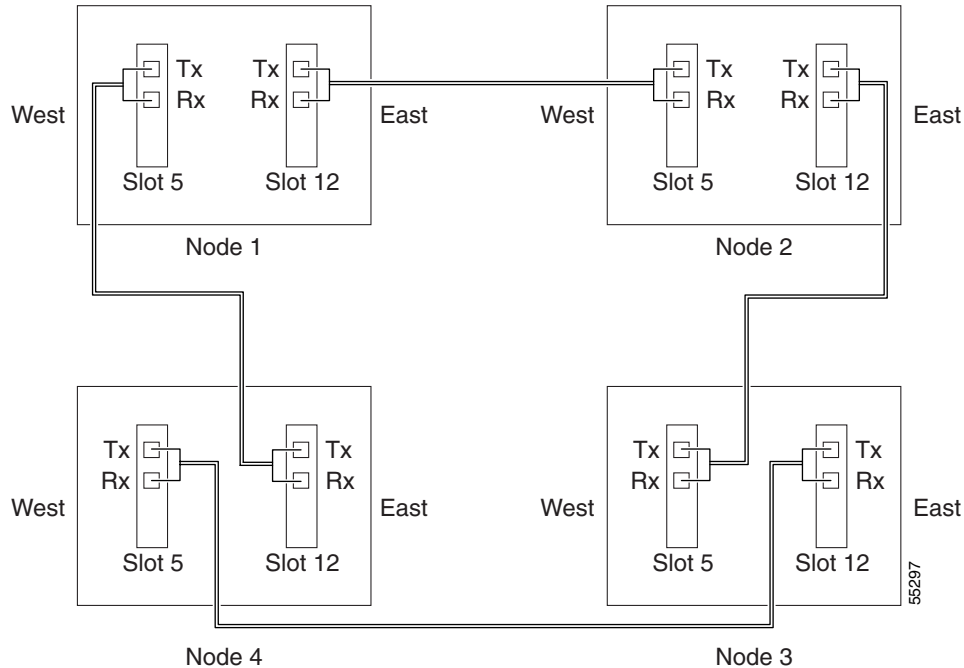

**Note**

To avoid error, connect fiber-optic cable so that the farthest slot to the right represents the east port, and the farthest slot to the left represents the west port. Fiber connected to an east port at one node must plug into the west port on an adjacent node.


**Note**

See [Table 2-3 on page 2-10](#) and [Table 2-4 on page 2-10](#) for OGI connector pinouts of STM-N cards.

- Step 1** Plan your fiber connections. Use the same plan for all MS-SPRing nodes. MS-SPRing configuration is achieved by correctly cabling the transmit and receive fibers of each node to the others.
- Step 2** Plug the fiber into the Tx connector of an STM-N card at one node and plug the other end into the Rx connector of an STM-N card at the adjacent node. The card displays a SF LED if the transmit and receive fibers are mismatched.
- Step 3** Repeat [Step 2](#) until you have configured the ring.
- [Figure 2-2](#) shows fiber connections for a two-fiber MS-SPRing with trunk cards in Slot 5 (west) and Slot 12 (east).

**Figure 2-2 Connecting Fiber to a Four-Node, Two-Fiber MS-SPRing**

**Note** To provision a MS-SPRing, see [Chapter 5, “Turn Up Network.”](#)

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

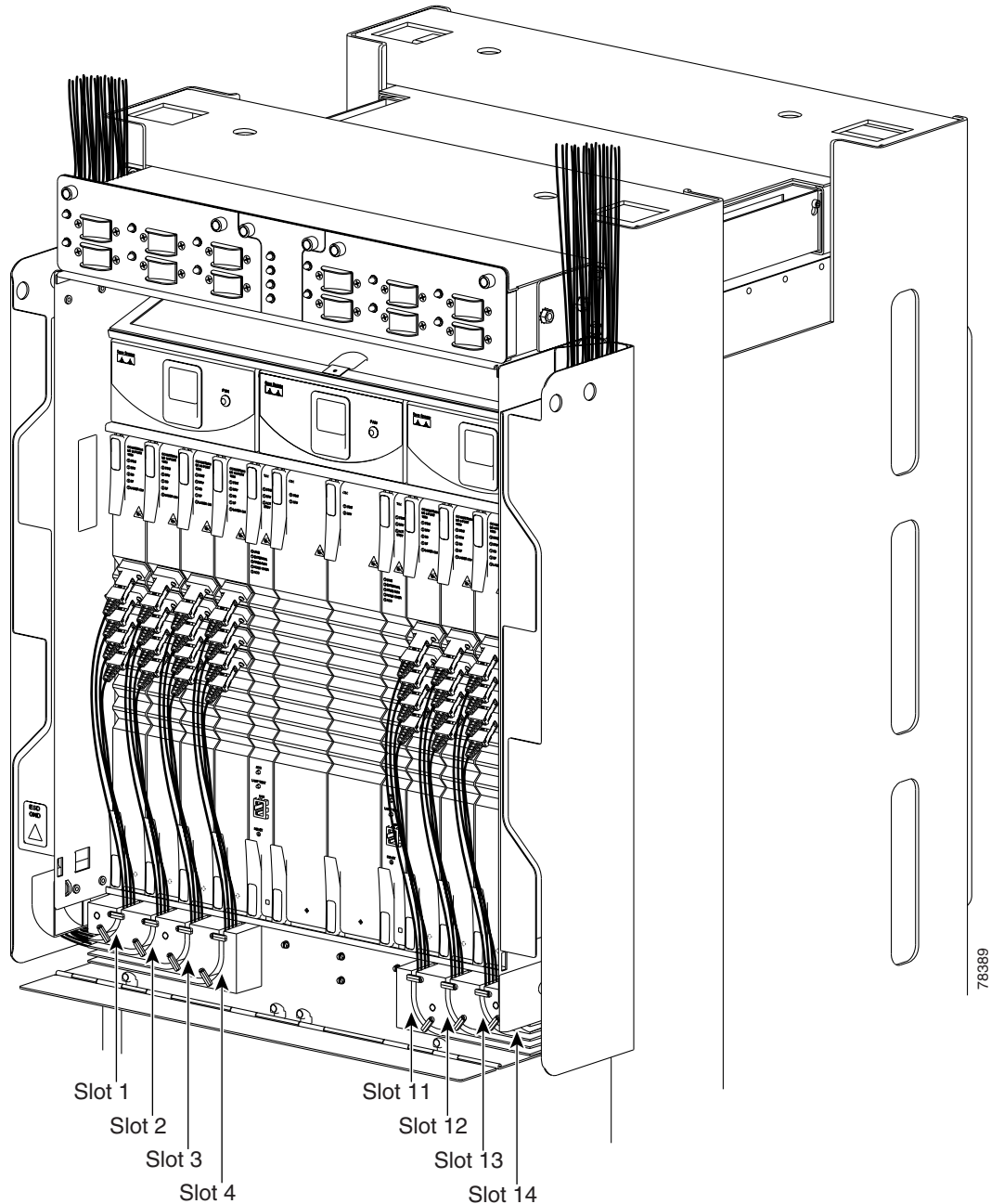
## DLP-F27 Route Fiber-Optic Cables

<b>Purpose</b>	This task explains how to route fiber-optic cables away from the card faceplates and onto the side of the shelf.
<b>Tools/Equipment</b>	Tie-wrap (Suggested: Panduit TAK-TAPE TTS-20R0 Nelcro tie-wraps)
<b>Prerequisite Procedures</b>	<a href="#">NTP-F16 Install the Fiber-Optic Cables, page 2-8</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Step 1** Open the fold-down front door on the cable-management tray.

**Step 2** For each optical card you plan to install, find the corresponding cable routing channel directly below that card ([Figure 2-3.](#))


Figure 2-3 ONS 15600 SDH with All Optical Cards Cabled and Routed



- Step 3** Rotate the plastic cable latches for each optical card you will install to the open position so that they do not block the cable routing channels in the cable-management tray.
- Step 4** Route the fiber cable from the connector on the card through the corresponding cable routing channel in the cable-management tray. Start from the innermost card on one side of the shelf (Slot 4 on the left side, for instance).



**Note** If a slot is empty, leave the corresponding cable routing channel empty for later use.

- Step 5** If narrow cable routing modules (NCRMs) are installed:
- Route the fiber cables through the cable-management tray toward the edge of the bay and then up through the NCRM attached to the side of the bay, inserting the fiber into the open tracks in the NCRM (Figure 2-3 on page 2-16). Make sure the cables line up directly in front of the corresponding card so the cables are not disturbed if later a card is removed.
  - Rotate the corresponding cable latch to the closed position so it secures the fiber cables within the corresponding cable routing channel.
  - Repeat Steps a and b for the fiber cables from each installed STM-N card, working from the innermost cards outward.
- Step 6** If wide CRMs are installed:
- Gently pull the spool flanges toward you until they click open.
  - Route the fiber cables through the cable-management tray toward the edge of the bay and then up through the wide CRM attached to that side of the bay. Gently loop the cable around the spools. Store no more than one meter of slack (on average) for each cable that you route through the wide CRM.
-  **Note** If your site uses underfloor cabling, route the cables down to the CRM on the shelf directly below the node for which you are routing cables.
- Rotate the corresponding cable latch to the closed position so it secures the fiber cables within the corresponding cable routing channel.
  - Repeat Steps a through c for the fiber cables from each installed STM-N card, working from the innermost cards outward. Distribute the cables as evenly as possible on the three storage spools of the CRM.
  - Push any extended spool flanges away from you so that they click closed.
  - Use tie wrap to secure the cable and minimize slack. Start with the cables closest to the outside edge of the CRM.
- Step 7** Make sure all the plastic cable latches are in the closed position.
- Step 8** Close the fold-down tray door when all fiber cables are properly routed.
- Step 9** Return to your originating procedure (NTP).

## NTP-F17 Replace the Front Door

<b>Purpose</b>	This procedure explains how to reattach the front door of the ONS 15600 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F3 Open and Remove the Front Door, page 1-13</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** Insert the front door in the hinges on the shelf assembly.
- Step 2** Lower the door onto the face of the ONS 15600 SDH.
- Step 3** Pull the metal latches on the door outward and gently push the door toward the shelf, making sure no optical cables are caught or pinched in the door.
- Step 4** Click the latches in place and release.

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

---





## Connect the Computer and Log into the GUI

This chapter explains how to connect PCs and workstations to the Cisco ONS 15600 SDH and how to log into Cisco Transport Controller (CTC) software, the Cisco ONS 15600 SDH Operation, Administration, Maintenance, and Provisioning (OAM&P) user interface.

### Before You Begin

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

1. [NTP-F18 Set Up Computer for CTC, page 3-1](#)—Complete this procedure if your PC or workstation has never been connected to an ONS 15600 SDH.
2. [NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH, page 3-7](#)—After your PC or workstation is set up for CTC, complete this procedure to set up your computer to connect to the ONS 15600 SDH.
3. [NTP-F20 Set Up a CTC Computer for a Corporate LAN Connection to the ONS 15600 SDH, page 3-12](#)—Complete this procedure to set up your computer to connect to the ONS 15600 SDH using a corporate LAN.
4. [NTP-F21 Log into the ONS 15600 SDH GUI, page 3-14](#)—Complete this procedure to log into CTC.



#### Note

If your network includes ONS 15454 SDH node, you must launch CTC from an ONS 15600 SDH node before provisioning a node or performing maintenance functions.

### NTP-F18 Set Up Computer for CTC

<b>Purpose</b>	This procedure explains how to configure your PC or UNIX workstation to run CTC.
<b>Tools/Equipment</b>	Cisco ONS 15600 SDH Release 1.4 software or documentation CD
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

- 
- Step 1** If your computer is a Windows PC, complete the “[DLP-F28 Run the CTC Installation Wizard for Windows](#)” task on page 3-2, then go to [Step 4](#).
- Step 2** If your computer is a UNIX workstation, complete the “[DLP-F29 Run the CTC Installation Wizard for UNIX](#)” task on page 3-4.
- Step 3** If your computer is a UNIX workstation and you installed the Java Runtime Environment (JRE) in [Step 2](#), complete the “[DLP-F30 Set Up the Java Runtime Environment for UNIX](#)” task on page 3-5.
- Step 4** When your PC or workstation is set up, complete the “[NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH](#)” procedure on page 3-7.



**Note** Cisco recommends that you configure your browser to disable the caching of user IDs/passwords on computers used to access Cisco optical equipment.

In Internet Explorer, choose **Tools > Internet Options > Content**. Click **Auto Complete** and uncheck the **User names and passwords on forms** option.

In Netscape 6.0 and later, choose **Edit > Preferences > Privacy & Security > Forms** and uncheck the option to save form data. For passwords, choose **Edit > Preferences > Privacy & Security > Passwords** and uncheck the option to remember passwords. Note that passwords can be stored in an encrypted format. Netscape versions earlier than 6.0 do not cache user IDs and passwords.

---

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

---

## DLP-F28 Run the CTC Installation Wizard for Windows

<b>Purpose</b>	This task installs programs required to run CTC on Windows PCs: Netscape Communicator 4.73, JRE 1.3.1_02, and CTC online help. It also modifies the JRE policy file so CTC files can be downloaded to your computer when you connect to an ONS 15600 SDH.
<b>Tools/Equipment</b>	Cisco ONS 15600 SDH Release 1.4 software or documentation CD
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	This task is required if any one of the following is true: <ul style="list-style-type: none"> <li>• Netscape Communicator Release 4.73 or later or Internet Explorer Release 5.0 (Service Pack 2) or later is not installed</li> <li>• JRE 1.3.1_02 is not installed</li> <li>• CTC online help is not installed</li> <li>• The JRE java.policy file has not been modified for CTC</li> </ul>
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

- 
- Step 1** Verify that your computer has the following:

- Processor—Pentium II 300 Mhz or faster (500 Mhz is recommended for medium and large networks)
- RAM—256 MB for small networks, 512 MB or more for medium and large networks
- Hard drive—2 GB for small networks, 10 GB or more for medium and large networks; 50 MB of space must be available
- Operating System—Windows NT 4.0, Windows 2000, or Windows XP

If your operating system is Windows NT 4.0, verify that Service Pack 5 or later is installed. From the Start menu, choose **Programs > Administrative Tools > Windows NT Diagnostics** and check the service pack on the Version tab of the Windows NT Diagnostics dialog box. If Service Pack 5 or later is not installed, do not continue. Install Service Pack 5 following the computer upgrade procedures for your site.




---

**Note** Processor and RAM requirements are guidelines. CTC performance is faster if your computer has a faster processor and more RAM. Refer to the *Cisco ONS 15600 SDH Reference Manual* to find computer requirements needed for small, medium, and large ONS 15600 SDH networks.

---

- Step 2** Insert the Cisco ONS 15600 SDH Release 1.4 software or documentation CD into your computer CD drive. The installation program begins running automatically. If it does not start, navigate to your computer's CD directory and double-click **setup.exe**.
- Step 3** The Cisco Transport Controller Installation Wizard displays the components that will be installed on your computer.
- Step 4** Click **Next**.
- Step 5** Choose **Typical** to install all the components, or choose **Custom** if you only want to install some of the components.
- Step 6** Click **Next**.
- Step 7** If you selected Custom in [Step 5](#), select the CTC components you want to install and click **Next**. If you selected **Typical**, skip this step.
- The directory where the installation wizard will install CTC online help appears. The default is C:\Program Files\Cisco\CTC\Documentation.
- Step 8** If you want to change the CTC online help directory, type the new directory path in the Directory Name field, or click **Browse** to navigate to the directory. If you do not want to change the directory, skip this step.
- Step 9** Click **Next**.
- Step 10** Review the components that will be installed. If you want to change them, click **Back**. If you have an active CTC session (for example, you are running the setup program to install additional components), close CTC before going to the next step.
- Step 11** Click **Next**. An Installation Issues dialog box appears.
- Step 12** Review the issues, then click **OK**.
- Step 13** In the CTC Installation Wizard dialog box, click **Next**. The Java 2 runtime environment installation begins.
- Step 14** Complete the JRE installation:
- a. In the Software License Agreement dialog box, click **Yes**.
  - b. In the Choose Destination Location dialog box, click **Next**.

- c. In the Select Browser dialog box, check the **Microsoft Internet Explorer** and **Netscape 6** check boxes, then click **Next**.

When JRE installation is complete, the Cisco Transport Controller Installation Wizard dialog box appears.

**Step 15** Click **Next**. The CTC online help is installed.

**Step 16** Click **Finish**.

**Step 17** To connect to the ONS 15600 SDH, restart your computer and complete the [“NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH” procedure on page 3-7](#).

## DLP-F29 Run the CTC Installation Wizard for UNIX

<b>Purpose</b>	This task installs programs required to run CTC on Solaris workstations: Netscape 4.76, JRE 1.3.1_02, and CTC online help. It also modifies the JRE policy file to allow CTC files to be downloaded to your computer after you connect to an ONS 15600 SDH.
<b>Tools/Equipment</b>	Cisco ONS 15600 SDH Release 1.4 software or documentation CD
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required if any of the following are true: <ul style="list-style-type: none"> <li>• Netscape Communicator Release 4.76 is not installed</li> <li>• JRE 1.3.1_02 is not installed</li> <li>• CTC online help is not installed</li> <li>• The JRE java.policy file has not been modified for CTC</li> </ul>
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

**Step 1** Verify that your computer has the following:

- RAM—256 MB for small networks, 512 MB or more for medium and large networks
- Hard drive—2 GB for small networks, 10 GB or more for medium and large networks; 50 MB of space must be available
- Operating System—Solaris 2.5.x or 2.6.x



**Note** Processor and RAM requirements are guidelines. CTC performance is faster if your computer has a faster processor and more RAM. Refer to the *Cisco ONS 15600 SDH Reference Manual* to find computer requirements needed for small, medium, and large ONS 15600 SDH networks.

**Step 2** When the CD is installed, the File Manager automatically opens. If it does not open, type:

```
cd /cdrom/cdrom0/
```

**Step 3** In File Manager, double-click the setup.bat icon, or from the CD directory type:

```
./setup.bat
```

The Cisco Transport Controller Installation Wizard displays the components that will be installed on your computer:

- Java Runtime Environment 1.3.1\_02
- CTC Online Help
- Modify Policy File—the JRE java.policy file is modified to enable CTC to download files needed to run the Cisco Transport Controller when you connect to an ONS 15600 SDH.

**Step 4** Click **Next**.

**Step 5** Choose **Typical** to install all components, or choose **Custom** if you do not want to install all the components.

**Step 6** Click **Next**.

**Step 7** If you selected **Custom** in [Step 5](#), select the CTC components you want to install by checking or unchecking the boxes, then click **Next**. If you selected **Typical**, proceed to [Step 8](#).

**Step 8** The directories where the installation wizard will install the CTC components appear. If you want to change a directory, type the new directory path in the Directory Name field, or click **Browse** to navigate to the directory.




---

**Note** Record the names of the directories you choose for JRE, and the online help.

---

**Step 9** Click **Next**.

**Step 10** Review the components that will be installed. If you want to change them, click **Back**. If CTC is running (for example, you are reinstalling components) close CTC before going to the next step.

**Step 11** Click **Next**. The Java 2 runtime environment installation completes.

**Step 12** Click **Next**. The CTC online help is installed.

**Step 13** Click **Finish**.

**Step 14** Return to your originating procedure (NTP).

---

## DLP-F30 Set Up the Java Runtime Environment for UNIX

<b>Purpose</b>	This task sets up the JRE for UNIX workstations.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F29 Run the CTC Installation Wizard for UNIX, page 3-4</a>
<b>Required/As Needed</b>	Required if you installed the JRE during the CTC installation
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None




---

**Note** The JRE might require certain patches to run properly. The patch tar file can be found in the JRE/Solaris directory on the CD. Please read the JRE/Solaris/Solaris.txt file for more information. In addition to installing any needed patches, set up the JRE for use with Cisco Transport Controller on your UNIX system.

---

**Note**

In this task, *your-JRE-path* represents the destination directory you chose for the Java Runtime Environment during JRE installation. For example, if your JRE destination directory is `/usr/bin/jre`, substitute `/usr/bin/jre`, wherever *your-JRE-path* occurs. Also, in the following task, *Netscape-path* refers to the destination directory you chose for Netscape and must be substituted with your actual Netscape destination directory path.

**Note**

CTC requires that the location of `xterm` is also in your path. If you have moved `xterm` from its default location, `/usr/openwin/bin`, you must change all occurrences of `/usr/openwin/bin` in the following task to reflect the actual path where `xterm` exists on your system.

**Step 1** Set up the environment variable:

- a. If you are using the `csh` shell, edit the `.cshrc` file in your home directory by appending the file with the lines:

```
setenv JRE your-JRE-path
setenv NETSCAPE Netscape-path
setenv NPX_PLUGIN_PATH $JRE/j2re1_3_1_02/plugin/sparc/ns4
set path = (/usr/openwin/bin $NETSCAPE $path)
```

- b. If you are using the `ksh` or `bash` shell, edit the `.profile` file in your home directory by appending the file with the lines:

```
JRE=your-JRE-path
NETSCAPE=Netscape-path
NPX_PLUGIN_PATH=$JRE/j2re1_3_1_02/plugin/sparc/ns4
PATH=/usr/openwin/bin:$NETSCAPE:$PATH
export JRE NPX_PLUGIN_PATH PATH
```

**Step 2** Set the JRE reference:

- a. Run the Control Panel by typing:

```
your-JRE-path/j2re1_3_0_02/bin/ControlPanel
```

- b. Click the **Advanced** tab.

- c. From the combo box, select *your-JRE-path/j2re1\_3\_1\_02*. If the JRE is not found, select **other** and enter the following in the Path text box:

```
your-JRE-path/j2re1_3_1_02
```

- d. Click **Apply**.

**Note**

If you are running multiple shells, before your new environment variable will be set you might need to invoke the same shell for which you changed the initialization file. For example, if you added the environment variable to the `.cshrc` file, you must run your browser under the `csh` shell.

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

# NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH

<b>Purpose</b>	This procedure tells you how to set up a PC running Windows or a Solaris workstation for a local onsite connection to the ONS 15600 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

**Note**

Only the active Timing and Shelf Control (TSC) connector carries traffic. If you connect to the standby TSC or switch TSCs, you will lose connectivity. Cisco recommends that you use the RJ-45 connector on the customer access panel (CAP) so that connection to the ONS 15600 SDH will not be lost during a TSC switch.

**Note**

For initial shelf turn up, you must use a local craft connection to the ONS 15600 SDH.

- Step 1** Complete the “[DLP-F31 Set Up a Windows PC for Craft Connection to an ONS 15600 SDH on the Same Subnet Using Static IP Addresses](#)” task on page 3-8 if:
- You are connecting from a Windows PC.
  - You will connect to one ONS 15600 SDH; if you will connect to multiple ONS 15600 SDH nodes, you might need to configure your computer’s IP settings each time you connect to an ONS 15600 SDH.
  - You need to access non-ONS 15600 SDH applications such as ping and trace route.
- Step 2** Complete the “[DLP-F32 Set Up a Solaris Workstation for a Craft Connection to an ONS 15600 SDH](#)” task on page 3-10 if:
- You are connecting from a Solaris Workstation.
  - You will connect to one ONS 15600 SDH; if you will connect to multiple ONS 15600 SDH nodes, you might need to configure your computer’s IP settings each time you connect to an ONS 15600 SDH.
  - You need to access non-ONS 15600 SDH applications such as ping and trace route.

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

## DLP-F31 Set Up a Windows PC for Craft Connection to an ONS 15600 SDH on the Same Subnet Using Static IP Addresses

<b>Purpose</b>	This task sets up your computer for a local craft connection to the ONS 15600 SDH when: <ul style="list-style-type: none"> <li>You will connect to one ONS 15600 SDH; if you will connect to multiple ONS 15600 SDH nodes, you might need to reconfigure your computer's IP settings each time you connect to an ONS 15600 SDH.</li> <li>You need to use non-ONS 15600 SDH applications such as ping and trace route.</li> </ul>
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- 
- Step 1** Verify the operating system that is installed on your computer:
- From the Windows Start menu, choose **Settings > Control Panel**.
  - In the Control Panel window, double-click the **System** icon.
  - On the General tab of the System Settings window, verify that the Windows operating system is one of the following: Windows 2000, Windows NT 4.0, or Windows XP.
- Step 2** If you have Windows NT 4.0 installed on your PC, complete the following steps to change its TCP/IP configuration:
- From the Windows Start menu, choose **Settings > Control Panel**.
  - In the Control Panel dialog box, click the **Network** icon.
  - In the Network dialog box, click the **Protocols** tab, choose **TCP/IP Protocol**, then click **Properties**.
  - Click the **IP Address** tab.
  - In the IP Address window, click **Specify an IP address**.
  - In the IP Address field, enter the IP address. The last three digits must be between 1 and 254.
  - In the Subnet Mask field, type **255.255.255.0**.
  - Click the **Advanced** button.
  - Under the Gateways List, click **Add**. The TCP/IP Gateway Address dialog box appears.
  - Type the ONS 15600 SDH IP address in the Gateway Address field.
  - Click **Add**.
  - Click **OK**.
  - Click **Apply**.
  - In some cases, Windows NT 4.0 prompts you to reboot your PC. If you receive this prompt, click **Yes**.



- Step 3** If you have Windows 2000 installed on your PC, complete the following steps to change its TCP/IP configuration:
- From the Windows Start menu, choose **Settings > Network and Dial-up Connections > Local Area Connection**.
  - In the Local Area Connection Status dialog box, click **Properties**.
  - On the General tab, choose **Internet Protocol (TCP/IP)**, then click **Properties**.
  - Click **Use the following IP address**.
  - In the IP Address field, enter the IP address. The last three digits must be between 1 and 254.
  - In the Subnet Mask field, type **255.255.255.0**.
  - In the Default Gateway field, type the ONS 15600 SDH IP address.
  - Click **OK**.
  - In the Local Area Connection Properties dialog box, click **OK**.
  - In the Local Area Connection Status dialog box, click **Close**.

- Step 4** If you have Windows XP installed on your PC, complete the following steps to change its TCP/IP configuration:

- From the Windows Start menu, choose **Control Panel > Network Connections**.



---

**Note** If the Network Connections menu is not available, click **Switch to Classic View**.

---

- From the Network Connections dialog box, click the **Local Area Connection** icon.
- From the Local Area Connection Properties dialog box, choose **Internet Protocol (TCP/IP)**, then click **Properties**.
- In the IP Address field, enter the IP address. The last three digits must be between 1 and 254.
- In the Subnet Mask field, type **255.255.255.0**.
- In the Default Gateway field, type the ONS 15600 SDH IP address.
- Click **OK**.
- In the Local Area Connection Properties dialog box, click **OK**.
- In the Local Area Connection Status dialog box, click **Close**.

- Step 5** Return to your originating procedure (NTP).
-

## DLP-F32 Set Up a Solaris Workstation for a Craft Connection to an ONS 15600 SDH

<b>Purpose</b>	This task sets up a Solaris workstation for a craft connection to the ONS 15600 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Step 1** Log into the workstation as the root user.

**Step 2** Check to see if the interface is plumbed by typing:

```
# ifconfig device
```

For example:

```
# ifconfig hme1
```

a. If the interface is plumbed, a message similar to the following appears:

```
hme1: flags=1000842<BROADCAST,RUNNING,MULTICAST,IPv4>mtu 1500 index 2 inet 0.0.0.0
netmask 0
```

Go to [Step 3](#).

b. If the interface is not plumbed, a message similar to the following appears:

```
if config: status: SIOCLIFFLAGS: hme1: no such interface.
```

Plumb the interface by typing:

```
# ifconfig device plumb
```

For example:

```
if config hme1 plumb
```

**Step 3** Configure the IP address on the interface by typing:

```
#ifconfig interface ip-address netmask netmask up
```

For example:

```
#if config hme0 10.20.30.40 netmask 255.255.255.0 up
```



**Note** Enter an IP address that is identical to the ONS 15600 SDH IP address except for the last three digits. The last three digits must be between 1 and 254.

**Step 4** In the Subnet Mask field, type **255.255.255.0**. Skip this step if you checked **Craft Access Only** at **Provisioning > Network > General > Gateway Settings**.

**Step 5** Test the connection:

a. Start Netscape Navigator or Internet Explorer.

- b. Enter the Cisco ONS 15600 SDH IP address in the web address (URL) field. If the connection is established, a Java Console window, CTC caching messages, and the Cisco Transport Controller Login dialog box appear. If this occurs, go to Step 2 of the “DLP-F36 Log into CTC” task on page 3-15 to complete the login. If the Login dialog box does not appear, complete Steps c and d.
- c. At the prompt, type:

```
ping ONS-15600-SDH-IP-address
```

For example, to connect to an ONS 15600 SDH with the default IP address 192.168.1.2, type:

```
ping 192.168.1.2
```

If your workstation is connected to the ONS 15600 SDH, the following message appears:

```
IP-address is alive
```



---

**Note** Skip this step if you checked the **Craft Access Only** check box at **Provisioning > Network > General > Gateway Settings**.

---

- d. If CTC is not responding, a “Request timed out” message appears. Verify IP and submask information. Check that the cables connecting the workstation to the ONS 15600 SDH are securely attached. Check the link status by typing:

```
# ndd -set /dev/device instance 0
# ndd -get /dev/device link_status
```

For example:

```
# ndd -set /dev/hme instance 0
# ndd -get /dev/hme link_status
```

The result of 1 means the link is up. The result of 0 means the link is down.

Check the man page for ndd.

For example:

```
# man ndd
```

**Step 6** Return to your originating procedure (NTP).

---

# NTP-F20 Set Up a CTC Computer for a Corporate LAN Connection to the ONS 15600 SDH

<b>Purpose</b>	This procedure sets up your computer to access the ONS 15600 SDH through a corporate LAN. To complete this procedure: <ul style="list-style-type: none"> <li>• The ONS 15600 SDH must be provisioned for LAN connectivity, including IP address, subnet mask, and default gateway.</li> <li>• The ONS 15600 SDH must be physically connected to the corporate LAN.</li> <li>• The CTC computer must be connected to the corporate LAN that has connectivity to the ONS 15600 SDH.</li> </ul>
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

- 
- Step 1** If your computer is connected to the corporate LAN, go to [Step 2](#). If you changed your computer's network settings for craft access to the ONS 15600 SDH, change the settings back to the corporate LAN access settings. This generally means:
- Set the IP Address on the TCP/IP dialog box back to "Obtain an IP address from a DHCP server" (Windows NT 4.0, 2000, or XP).
  - If your LAN requires that DNS (Domain Name System) or WINS (Windows Internet Name Service) be enabled, change the setting on the DNS Configuration or WINS Configuration tab of the TCP/IP dialog box.
- Step 2** If your computer is connected to a proxy server, disable proxy service or add the ONS 15600 SDH nodes as exceptions. To disable proxy service, complete one of the following tasks, depending on the web browser that you use:
- [DLP-F33 Disable Proxy Service Using Internet Explorer \(Windows\), page 3-13](#)
  - [DLP-F34 Disable Proxy Service Using Netscape \(Windows and UNIX\), page 3-13](#)

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

---

## DLP-F33 Disable Proxy Service Using Internet Explorer (Windows)

<b>Purpose</b>	This task disables proxy service for PCs running Internet Explorer.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required if your computer is connected to a network computer proxy server and your browser is Internet Explorer.
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

---

**Step 1** From the Start menu, select **Settings > Control Panel**.



**Note** If your computer is running Windows XP, you can select Control Panel directly from the Start menu. Make sure that you are in Classic View before continuing with this procedure.

---

**Step 2** In the Control Panel window, choose **Internet Options**.

**Step 3** From the Internet Properties dialog box, click **Connections > LAN Settings**.

**Step 4** In the LAN Settings dialog box, complete one of the following tasks:

- Deselect **Use a proxy server** to disable the service.
- Leave **Use a proxy server** selected and click **Advanced**. In the Proxy Setting dialog box under Exceptions, enter the IP addresses of ONS 15600 SDH nodes that you will access. Separate each address with a semicolon. You can insert an asterisk for the host number to include all the ONS 15600 SDH nodes on your network. Click **OK** to close each open dialog box.

**Step 5** Return to your originating procedure (NTP).

---

## DLP-F34 Disable Proxy Service Using Netscape (Windows and UNIX)

<b>Purpose</b>	This task disables proxy service for PCs and UNIX workstations running Netscape.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required if your computer is connected to a network computer proxy server and your browser is Netscape.
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

---

**Step 1** Open Netscape.

**Step 2** From the Edit menu, choose **Preferences**.

**Step 3** In the Preferences dialog box under Category, choose **Advanced > Proxies**.

- Step 4** In the right side of the Preferences dialog box under Proxies, perform one of the following options:
- Choose **Direct connection to the Internet** to bypass the proxy server.
  - Choose **Manual proxy configuration** to add exceptions to the proxy server, then click **View**. In the Manual Proxy Configuration dialog box under Exceptions, enter the IP addresses of the ONS 15600 SDH nodes that you will access. Separate each address with a comma. Click **OK** to close each open dialog box.
- Step 5** Return to your originating procedure (NTP).
- 

## NTP-F21 Log into the ONS 15600 SDH GUI

<b>Purpose</b>	This procedure logs into CTC to manage a ONS 15600 SDH node. This procedure includes optional node login tasks.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a> <a href="#">NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH, page 3-7</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher

---

**Step 1** If the computer is not connected to the ONS 15600 SDH, complete the [“DLP-F35 Connect a Computer to the ONS 15600 SDH”](#) task on page 3-15.

**Step 2** Complete the [“DLP-F36 Log into CTC”](#) task on page 3-15.



**Note** For information about navigating in CTC, see [Appendix A, “CTC Information and Shortcuts.”](#)

---



**Note** If you launch CTC from a node that uses an older release of the CTC software, nodes that use a more recent release of the CTC software will appear gray in network view. You will be unable to provision the gray nodes. If gray nodes appear in network view, log out and log back into a node that uses CTC, such as an ONS 15600 SDH R1.4.

---

**Step 3** As needed, complete the [“DLP-F38 Create Login Node Groups”](#) task on page 3-19. Login node groups display nodes that are not connected to the login node via DCC.

**Step 4** As needed, complete the [“DLP-F39 Add a Node to the Current Session or Login Group”](#) task on page 3-20.

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

---

## DLP-F35 Connect a Computer to the ONS 15600 SDH

<b>Purpose</b>	This task connects a CTC computer to the ONS 15600 SDH.
<b>Tools/Equipment</b>	Straight-through or crossover CAT-5 (LAN) cable
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a> <a href="#">NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH, page 3-7</a>
<b>Required/As Needed</b>	Required to access the Cisco Transport Controller
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	None

- Step 1** If your computer is set up for a local craft connection, connect a CAT-5 (LAN) cable from the PC or Solaris workstation NIC card to one of the following:
- The RJ-45 port on the active TSC
  - The A or B RJ-45 port on the backplane
  - The RJ-45 port on a hub or switch to which the ONS 15600 SDH is physically connected



**Note** For instructions on crimping your own CAT-5 (LAN) cables, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

- Step 2** If your computer is set up for a corporate LAN connection, connect a CAT-5 (LAN) cable from the PC or Solaris workstation NIC card to one of the LAN ports on the backplane.
- Step 3** Return to your originating procedure (NTP).

## DLP-F36 Log into CTC

<b>Purpose</b>	This task logs into CTC.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a> <a href="#">NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH, page 3-7</a> <a href="#">NTP-F20 Set Up a CTC Computer for a Corporate LAN Connection to the ONS 15600 SDH, page 3-12</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher



**Note** For information about CTC views and navigation, see [Appendix A, “CTC Information and Shortcuts.”](#)

- Step 1** From the computer connected to the ONS 15600 SDH, start Netscape or Internet Explorer.
- Step 2** In the Netscape or Internet Explorer Web address (URL) field, enter the ONS 15600 SDH IP address. For initial setup, the default address is 192.168.1.2. Press **Enter**.

If a Java Plug-in Security Warning dialog box appears, complete the “[DLP-F37 Install Public-Key Security Certificate](#)” task on page 3-17 to install the public-key security certificate required by Software Release 1.4 and later.

After you complete the security certificate dialog box (or if the certificate is already installed), a Java Console window displays the CTC file download status. The web browser displays information about your Java and system environments. If this is the first login, CTC caching messages appear while CTC files are downloaded to your computer. The first time you connect to an ONS 15600 SDH, this process can take several minutes. After the download, the CTC Login dialog box appears ([Figure 3-1](#)).

**Figure 3-1 Logging into CTC**

- Step 3** In the Login dialog box, type a user name and password (both are case sensitive). For initial setup, type the user name **CISCO15** and password **otbu+1**.



**Note** You cannot delete the CISCO15 user, which is provided with every ONS 15600 SDH. CISCO15 has Superuser privileges, so you can create other users. To set up ONS 15600 SDH users and assign security, go to the “[NTP-F23 Create Users and Assign Security](#)” procedure on page 4-4. For additional information, refer to the *Cisco ONS 15600 SDH Reference Manual*.

- Step 4** Each time you log into an ONS 15600 SDH, you can make selections on the following login options:
- **Node Name**—Displays the IP address entered in the web browser and a drop-down menu of previously entered ONS 15600 SDH IP addresses. You can select any ONS 15600 SDH on the list, or you can enter the IP address (or node name) of any new node that you want to log into.
  - **Additional Nodes**—Displays a list of login node groups. To create a login node group or add additional groups, see the “[DLP-F38 Create Login Node Groups](#)” task on page 3-19.



- **Disable Network Discovery**—Check this box to view only the ONS 15600 SDH (and login node group members, if any) entered in the Node Name field. Nodes linked to the Node Name ONS 15600 SDH through the DCC are not displayed. Using this option can decrease the CTC startup time in networks with many DCC-connected nodes.
- **Disable Circuit Management**—Check this box to disable discovery of existing circuits. Using this option can decrease the CTC initialization time in networks with many existing circuits. This option does not prevent the creation and management of new circuits.

**Step 5** Click **Login**.

If login is successful, the CTC window appears. From here, you can navigate to other CTC views to provision and manage the ONS 15600 SDH. If you need to turn up a shelf for the first time, go to [Chapter 4, “Turn Up Node.”](#) If login problems occur, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

**Step 6** Return to your originating procedure (NTP).

## DLP-F37 Install Public-Key Security Certificate

<b>Purpose</b>	This task installs the ITU Recommendation X.509 public-key security certificate. The public-key certificate is required to run Software Release 1.4 or later.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	This task is performed during the “ <a href="#">DLP-F36 Log into CTC</a> ” task on <a href="#">page 3-15</a> . You cannot perform it outside of this task.
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Step 1** If the Java Plug-in Security Warning dialog box appears ([Figure 3-2](#)), 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 15600 SDH.
- **Deny**—Denies permission to install the certificate. If you choose this option, you cannot log into the ONS 15600 SDH.
- **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.

Figure 3-2 Java Plug-in Security Warning Dialog Box



- Step 2** If the Login dialog box appears, continue with [Step 3](#). If the Change Java Policy File dialog box appears, complete this step. The Change Java Policy File dialog box appears if CTC finds a modified Java policy file (.java.policy) on your PC. In previous Cisco ONS 15xxx releases, the Java policy file was modified to allow CTC software files to be downloaded to your PC. The modified Java policy file is not needed in Software R1.4, so you can remove it unless you will log into nodes running releases Software R1.0. Choose one of the following options:
- Yes—Removes the modified Java policy file from your PC. Choose this option only if you will log into ONS 15600 SDH nodes running Software R1.4 or later.
  - No—Does not remove the modified Java policy file from your PC. Choose this option if you will log into nodes running ONS 15xxx releases earlier than Software Release 1.4. If you choose No, this dialog box will appear every time you log into the ONS 15600 SDH. If you do not want it to appear, check the **Do not show the message again** check box.
- Step 3** Return to your originating procedure (NTP).
-

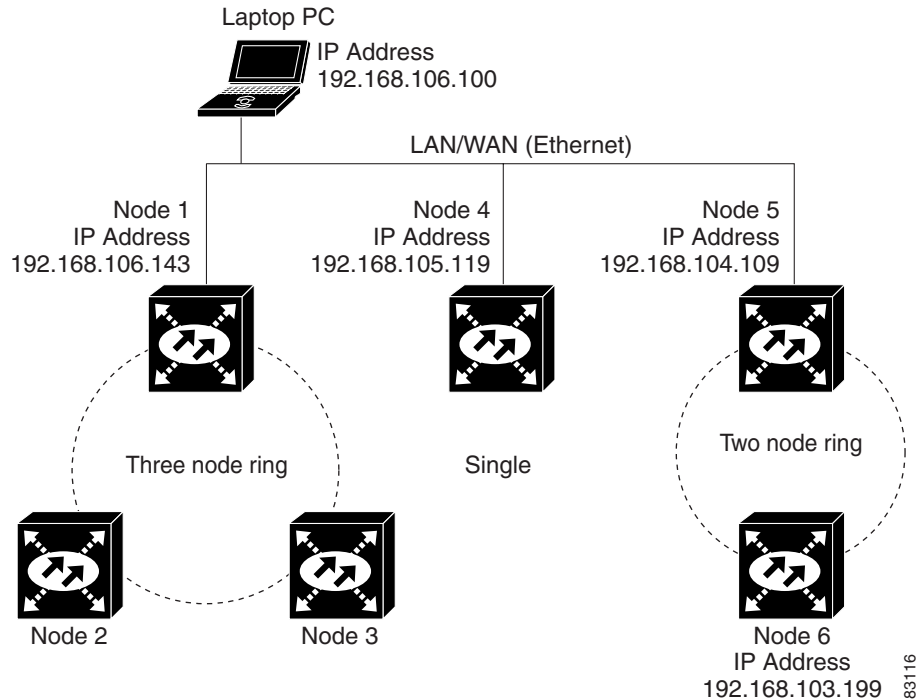
## DLP-F38 Create Login Node Groups

<b>Purpose</b>	This task creates a login node group to display ONS 15600 SDH nodes that have an IP connection but not a DCC connection to the login node.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F18 Set Up Computer for CTC, page 3-1</a> <a href="#">NTP-F19 Set Up CTC Computer for Local Craft Connection to the ONS 15600 SDH, page 3-7</a> <a href="#">NTP-F21 Log into the ONS 15600 SDH GUI, page 3-14</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** From the Edit menu, choose **Preferences**.
- Step 2** Click the **Login Node Groups** tab.
- Step 3** Click **Create Group**.
- Step 4** Type a name for the group in the Create Login Group Name dialog box. Click **OK**.
- Step 5** In the Members field, type the IP address (or node name if DNS is in use) of a node you want to add to the group. Click **Add**. Repeat this step for each node you want to add to the group.
- Step 6** Click **OK**.

The next time you log into an ONS 15600 SDH, the login node group will be available in the Additional Nodes list of the Login dialog box. For example, in [Figure 3-3](#), a login node group, “Test Group,” contains the IP addresses for Nodes 1, 4, and 5. During login, if you selected Test Group from the Additional Nodes list, Nodes 1, 4, and 5 would appear on the CTC network view. You can create as many login groups as you need. The groups are stored in the CTC preferences file and are not visible to other users.

Figure 3-3 Login Node Group



**Step 7** Return to your originating procedure (NTP).

## DLP-F39 Add a Node to the Current Session or Login Group

<b>Purpose</b>	This task adds a node to the current CTC session or login node group.
<b>Tools</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- Step 1** From the CTC File menu, choose **Add Node**.
- Step 2** In the Add Node dialog box, enter the node name (or IP address).
- Step 3** To add the node to the current login group, check **Add Node to Current Login Group**. Otherwise, leave it unchecked.



**Note** The Add Node to Current Login Group check box is active only if you selected a login group when you logged into CTC.

- Step 4** Click **OK**.

After a few seconds, the new node will appear on the network view map.

**Step 5** Return to your originating procedure (NTP).

---





## Turn Up Node

---

This chapter explains how to provision a single Cisco ONS 15600 SDH node and turn it up for service, including node name, date and time, SDH timing references, network attributes such as IP address and default router, users and user security, and card protection groups.

### Before You Begin

Complete the procedures applicable to your site plan from the following chapters:

- [Chapter 1, “Install the Bay and Backplane Connections”](#)
- [Chapter 2, “Install Cards and Fiber-Optic Cable”](#)
- [Chapter 3, “Connect the Computer and Log into the GUI”](#)

This section lists the chapter procedures (NTPs). Turn to a procedure for a list of its tasks (DLPs).

1. [NTP-F22 Verify Card Installation, page 4-2](#)—Complete this procedure first.
2. [NTP-F23 Create Users and Assign Security, page 4-4](#)—Continue with this procedure to create CTC users and assign their security levels.
3. [NTP-F24 Set Up Date, Time, and Contact Information, page 4-6](#)—Continue with this procedure to set the node name, date, time, location, and contact information.
4. [NTP-F25 Set Up CTC Network Access, page 4-8](#)—Continue with this procedure to set up network information for the node including IP address, default router, subnet mask, and network configuration settings.
5. [NTP-F98 Set Up the ONS 15600 SDH for Firewall Access, page 4-13](#) —Continue with this procedure to set up ONS 15600 SDH for firewall access.
6. [NTP-F26 Set Up Timing, page 4-16](#)—Continue with this procedure to set up the node SDH timing references.
7. [NTP-F27 Create a 1+1 \(LMSP\) Protection Group, page 4-19](#)—Complete as needed to set up 1+1 (LMSP) protection groups for ONS 15600 SDH optical cards.
8. [NTP-F28 Set Up SNMP, page 4-21](#)—Continue with this procedure, as needed.
9. [NTP-F29 Set the User Code for Card Inventory, page 4-22](#)—Continue with this procedure, as needed.
10. [NTP-F30 Configure a Node Using an Existing Database, page 4-22](#)—Continue with this procedure, as needed.

11. [NTP-F31 Set External Alarms and Controls, page 4-24](#)—As needed, complete these tasks to set external alarm reporting, assign external alarms to virtual wires, and view external alarms for ONS 15600 SDH nodes and ONS 15454 SDH nodes.

## NTP-F22 Verify Card Installation

<b>Purpose</b>	This procedure verifies that the ONS 15600 SDH node is ready for turn up.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">Chapter 1, “Install the Bay and Backplane Connections”</a> <a href="#">Chapter 2, “Install Cards and Fiber-Optic Cable”</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Retrieve or higher

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**Step 1** Verify that the Timing and Shelf Control (TSC) cards are installed in Slots 5 and 10.

**Step 2** Verify that the green ACT/STBY LED is illuminated on the active TSC. The ACT/STBY LED is not illuminated for the standby TSC.




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**Note** If the TSCs are not installed or their LEDs are not illuminated as described, do not proceed. See [Chapter 2, “Install Cards and Fiber-Optic Cable,”](#) or refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* to resolve installation problems before proceeding.

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**Step 3** Verify that the Core Cross Connect (CXC) cards are installed in Slots 6 and 8. The CXC card faceplate extends to cover Slots 7 and 9, respectively.

**Step 4** Verify that the SRV LED is illuminated on both CXC cards.




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**Note** If the CXC cards are not installed, or their LEDs are not illuminated as described, do not proceed. See [Chapter 2, “Install Cards and Fiber-Optic Cable,”](#) or refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* to resolve installation problems before proceeding.

---

**Step 5** Verify that the STM-N cards are installed in the slots designated by your site plan. Slots 1 to 4 and 11 to 14 are used for all optical cards.

**Step 6** Verify that fiber-optic cables are installed and connected to the locations indicated in the site plan.

**Step 7** Verify that fiber is routed correctly in the shelf assembly.

**Step 8** Verify that the CXC cards are working:

- a. Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at the node that you will turn up.
- b. Click the **Maintenance > Diagnostic** tabs.
- c. Click **Run Diagnostics Test**.
  - If errors exist, the Cross Connect Diagnostics Error box opens to list the errors. Click **Close**.
  - If no errors exist, click **OK** to close the confirmation dialog box.





**Note** You must run the diagnostics test after provisioning the optical cards but before provisioning the circuits.

- Step 9** Set the optical power received threshold for each optical card. See the “[DLP-F40 Set the Optical Power Received Nominal Value](#)” task on page 4-3.
- Step 10** If all cards and fiber are installed in the ONS 15600 SDH shelf as described in Steps 1 through 8, continue with the “[NTP-F23 Create Users and Assign Security](#)” procedure on page 4-4.



**Note** If cards are not installed, or the LEDs are not displayed as described, do not continue. Go to [Chapter 2, “Install Cards and Fiber-Optic Cable”](#) or the *Cisco ONS 15600 SDH Troubleshooting Guide* to resolve the installation problems before continuing with shelf turn up.

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

## DLP-F40 Set the Optical Power Received Nominal Value

<b>Purpose</b>	This task sets the optical power received (OPR) threshold for each optical card. The ONS 15600 SDH node uses the value set as a performance monitoring parameter to determine if the power level has degraded.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC</a> , page 3-15
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- Step 1** In the shelf graphic, double-click the STM-N card that you want to provision. The card view appears.
- Step 2** Click the **Provisioning > Qos Thresholds** tabs.
- Step 3** From the Types list, choose **Physical** and click the **Refresh** button.
- Step 4** For Port 1, click the **Set** button in the Set OPR column. At the confirmation dialog box, click **OK**.
- Step 5** Repeat [Step 4](#) for each port on the card.
- Step 6** Repeat this task for each optical card.
- Step 7** Return to your originating procedure (NTP).

## NTP-F23 Create Users and Assign Security

<b>Purpose</b>	This procedure creates ONS 15600 SDH users and assigns security levels.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser only

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node where you need to create users. If you are already logged in, continue with [Step 2](#).



**Note** You must log in as a Superuser to create additional users. The CISCO15 user provided with each ONS 15600 SDH can be used to set up other ONS 15600 SDH users. You can add up to 500 users to one ONS 15600 SDH.

- Step 2** Complete the “[DLP-F41 Create a New User—Single Node](#)” task on page 4-4 or the “[DLP-F42 Create a New User—Multiple Nodes](#)” task on page 4-5 as needed.



**Note** You must add the same user name and password to each node the user will access.

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

## DLP-F41 Create a New User—Single Node

<b>Purpose</b>	This task creates a new user for one ONS 15600 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser only

- Step 1** In node view, click the **Provisioning > Security > Users** tabs.
- Step 2** In the Security window, click **Create**.
- Step 3** In the Create User dialog box, enter the following:
- Name—Type the user name. The name must be a minimum of six and a maximum of 20 alphanumeric (a to z, A to Z, 0 to 9) characters. For TL1 compatibility, the user name must be 6 to 10 characters, and the first character must be an alpha character.

- **Password**—Type the user password. The password must be a minimum of six and a maximum of 20 alphanumeric (a to z, A to Z, 0 to 9) and special characters (+, #, %), where at least two characters are nonalphanumeric and at least one character is a special character. For TL1 compatibility, the password must be 6 to 10 characters, and the first character must be an alpha character. The password must not contain the user name.
- **Confirm Password**—Type the password again to confirm it.
- **Security Level**—Choose a security level for the user: RETRIEVE, MAINTENANCE, PROVISIONING, or SUPERUSER. Refer to the *Cisco ONS 15600 SDH Reference Manual* for information about the capabilities provided with each level.



**Note** The idle time is the length of time that CTC can remain idle before it locks up and the password must be reentered. Each security level has a different idle time: Retrieve is unlimited, Maintenance is 60 minutes, Provisioning is 30 minutes, and Superuser is 15 minutes. To change the idle times, refer to the [“NTP-F73 Modify Users and Change Security” procedure on page 10-18](#).

- Step 4** Click **OK**.
- Step 5** Return to your originating procedure (NTP).

## DLP-F42 Create a New User—Multiple Nodes

<b>Purpose</b>	This task adds a new user to multiple ONS 15600 SDH nodes.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser only



**Note** All nodes where you want to add users must be accessible in network view.

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Provisioning > Security > Users** tabs.
- Step 3** In the Security window, click **Create**.
- Step 4** In the Create User dialog box, enter the following:
- **Name**—Type the user name. The name must be a minimum of six and a maximum of 20 alphanumeric (a to z, A to Z, 0 to 9) characters. For TL1 compatibility, the user name must have no more than 10 characters, and the first character must be an alpha character.
  - **Password**—Type the user password. The password must be a minimum of six and a maximum of 20 alphanumeric (a to z, A to Z, 0 to 9) and special characters (+, #, %), where at least two characters are nonalphanumeric and at least one character is a special character. For TL1 compatibility, the password must be 6 to 10 characters, and the first character must be an alpha character. The password must not contain the user name.

- Confirm Password—Type the password again to confirm it.
- Security Level—Choose a security level for the user: RETRIEVE, MAINTENANCE, PROVISIONING, or SUPERUSER. Refer to the *Cisco ONS 15600 SDH Reference Manual* for information about the capabilities provided with each level.



**Note** The idle time is the length of time that CTC can remain idle before it locks up and the password must be reentered. Each security level has a different idle time: Retrieve is unlimited, Maintenance is 60 minutes, Provisioning is 30 minutes, and Superuser is 15 minutes. To change the idle times, refer to the “[NTP-F73 Modify Users and Change Security](#)” procedure on page 10-18.

- Step 5** In the Select applicable nodes area, uncheck any nodes where you do not want to add the user (all network nodes are selected by default).
- Step 6** Click **OK**.
- Step 7** In the User Creation Results dialog box, click **OK**.
- Step 8** Return to your originating procedure (NTP).

## NTP-F24 Set Up Date, Time, and Contact Information

<b>Purpose</b>	This procedure provisions identification information for the node, including the node name, a contact name and phone number, the location of the node, and the date, time, and time zone.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 for the node you will turn up. If you are already logged in, continue with [Step 2](#).
- Step 2** Click the **Provisioning > General** tabs.
- Step 3** Enter the following information in the fields listed:
- Node Name—Type a name for the node. For TL1 compliance, names must begin with an alpha character and have no more than 20 alphanumeric characters.
  - Contact—Type the name of the node contact person and the phone number, up to 255 characters (optional).
  - Location—Type the node location, for example, city name or specific office location (optional).
  - Latitude—Enter the node latitude: N (North) or S (South), degrees, and minutes (optional).
  - Longitude—Enter the node longitude: E (East) or W (West), degrees, and minutes (optional).

**Tip**

You can also position nodes manually in network view. Press Ctrl while you drag and drop the node icon. To create the same network map visible for all ONS 15600 SDH users, complete the [“NTP-F33 Create a Logical Network Map” procedure on page 5-4](#).

CTC uses the latitude and longitude to position ONS 15600 SDH icons on the network view map. To convert a coordinate in degrees to degrees and minutes, multiply the number after the decimal by 60. For example, the latitude 38.250739 converts to 38 degrees, 15 minutes ( $.250739 \times 60 = 15.0443$ , rounded to the nearest whole number).

- **Description**—Type a description of the node. The description can be a maximum of 255 characters.
- **Use NTP/SNTP Server**—When checked, CTC uses a Network Time Protocol (NTP) or Simple Network Time Protocol (SNTP) server to set the date and time of the node.

If you do not use an SNTP or NTP server, complete the Date and Time fields. The ONS 15600 SDH will use these fields for alarm dates and times. (CTC displays all alarms in the login node’s time zone for cross network consistency.)

**Note**

Using an NTP or SNTP server ensures that all ONS 15600 SDH network nodes use the same date and time reference. The server synchronizes the node date and time after power outages or software upgrades.

If you check the Use NTP/SNTP Server box, type the IP address of an NTP/SNTP server or the IP address of another ONS 15600 SDH with NTP/SNTP Server enabled.

If you check Enable Firewall for the ONS 15600 SDH proxy server (see the [“DLP-F43 Provision IP Settings” task on page 4-8](#)), external ONS 15600 SDH network elements (NEs) must reference the gateway ONS 15600 SDH NE for NTP/SNTP timing. For more information about the ONS 15600 SDH gateway settings, refer to the *Cisco ONS 15600 SDH Reference Manual*.

**Caution**

If you reference another ONS 15600 SDH for the NTP/SNTP server, make sure the second ONS 15600 SDH references an NTP/SNTP server and not the first ONS 15600 SDH (that is, do not create an NTP/SNTP timing loop by having two ONS 15600 SDHs reference each other).

- **Date**—If Use NTP/SNTP Server is not selected, type the current date in the format mm/dd/yyyy, for example, September 24, 2002 is 09/24/2002.
- **Time**—If Use NTP/SNTP Server is not selected, type the current time in the format hh:mm:ss, for example, 11:24:58. The ONS 15600 SDH uses a 24-hour clock, so 10:00 PM is entered as 22:00:00.
- **Time Zone**—Click the field and choose a city within your time zone from the drop-down menu. The menu displays the 80 World Time Zones from –11 through 0 (GMT) to +14. Continental United States time zones are GMT-05:00 (Eastern), GMT-06:00 (Central), GMT-07:00 (Mountain), and GMT-08:00 (Pacific).

**Step 4** Click **Apply**.

**Step 5** In the confirmation dialog box, click **Yes**.

**Step 6** Review the node information. If you need to make corrections, repeat Steps 3 through 5 to enter the corrections. If the information is correct, continue with the [“NTP-F25 Set Up CTC Network Access” procedure on page 4-8](#).

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

---

## NTP-F25 Set Up CTC Network Access

<b>Purpose</b>	This procedure provisions network access for a node, including its subnet mask, default router, Dynamic Host Configuration Protocol (DHCP) server, Internet Inter-ORB Protocol (IOP) listener port, proxy server settings, static routes, and Open Shortest Path First (OSPF) protocol.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

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- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** Complete the “[DLP-F43 Provision IP Settings](#)” task on page 4-8 to provision the ONS 15600 SDH IP address, subnet mask, default router, DHCP server, IOP listener port, and proxy server settings.
- Step 3** If static routes are needed, complete the “[DLP-F44 Create a Static Route](#)” task on page 4-10. Refer to the *Cisco ONS 15600 SDH Reference Manual* for more information about static routes.
- Step 4** If the ONS 15600 SDH is connected to a LAN or WAN that uses OSPF, complete the “[DLP-F45 Set Up or Change Open Shortest Path First Protocol](#)” task on page 4-11.

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

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## DLP-F43 Provision IP Settings

<b>Purpose</b>	This task provisions IP settings, which include the IP address, default router, DHCP access, firewall access, and proxy server settings for an ONS 15600 SDH node.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher



### Caution

All network changes should be approved by your network or LAN administrator.

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- Step 1** From the View menu, choose **Go To Home View**.

**Step 2** Click the **Provisioning > Network > General** tabs.

**Step 3** Complete the following information in the fields listed:

- IP Address—Type the IP address assigned to the ONS 15600 SDH node.
- Default Router—If the ONS 15600 SDH must communicate with a device on a network to which the ONS 15600 SDH is not connected, the ONS 15600 SDH forwards the packets to the default router. Type the IP address of the router in this field.




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**Note** This field is ignored if the node is not connected to a LAN, or if you enable any of the Gateway Settings to implement the ONS 15600 SDH proxy server feature.

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- Forward DHCP Request To—Check this check box to enable DHCP. Also, enter the DHCP server IP address in the Request To field. This box is unchecked by default. If you will enable any of the gateway settings to implement the ONS 15600 SDH proxy server features, leave this field blank.




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**Note** If you enable DHCP, computers connected to an ONS 15600 SDH node can obtain temporary IP addresses from an external DHCP server. The ONS 15600 SDH only forwards DHCP requests; it does not act as a DHCP server.

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- MAC Address—(Read only) Displays the ONS 15600 SDH IEEE 802 MAC address.
- Net/Subnet Mask Length—If the ONS 15600 SDH is part of a subnet, type the subnet mask length (decimal number representing the subnet mask length in bits) or click the arrows to adjust the subnet mask length. The subnet mask length is the same for all ONS 15600 SDH nodes in the same subnet.
- TSC CORBA (IIOP) Listener Port—Provisions the ONS 15600 SDH IIOP listener port. This listener port enables communication with the ONS 15600 SDH through firewalls. See the [“NTP-F98 Set Up the ONS 15600 SDH for Firewall Access” procedure on page 4-13](#) for more information.
- Gateway Settings—Provides three check boxes that enable the ONS 15600 SDH proxy server features. Do not enable any of the check boxes until you review the proxy server scenario in the *Cisco ONS 15600 SDH Reference Manual*. In proxy server networks, the ONS 15600 SDH is either a gateway network element (GNE) or external network element (ENE). Provisioning must be consistent for each NE type.
  - Enable Proxy—If checked, the ONS 15600 SDH responds to CTC requests with a list of DCC-connected nodes for which the node serves as a proxy. Gateway and external NEs within a proxy server network should have this box checked.
  - Enable Firewall—If checked, the node prevents IP traffic from being routed between the DCC and the LAN port. Gateway and external NEs within a proxy server network should have this box checked. If Enable Firewall is checked, Enable Proxy must be selected in order for the directly connected PC to have visibility to DCC-connected nodes.

**Step 4** Click **Apply**.

**Step 5** In the confirmation dialog box, click **Yes**.

Both ONS 15600 SDH TSC cards will reboot, one at a time. Next, a “Lost node connection, switching to network view” message appears. The reset causes the standby TSC to become the active TSC.

**Step 6** If the cable was connected to the RJ-45 port on the active Timing and Shelf Control (TSC) (now the standby TSC), disconnect the cable and connect it to the RJ-45 port on the other TSC (now the active TSC).

- Step 7** Click **OK**. The network view appears with the node icon in gray, during which time you cannot access the node.
- Step 8** When the node icon changes to green, double-click it.
- Step 9** Return to your originating procedure (NTP).
- 

## DLP-F44 Create a Static Route

<b>Purpose</b>	This task creates a static route. A static route establishes CTC connectivity to a computer on another network.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	Required if either of the following is true: <ul style="list-style-type: none"> <li>You need to connect ONS 15600 SDH nodes to CTC sessions on one subnet connected by a router to ONS 15600 SDH nodes residing on another subnet when OSPF is not enabled, and the Enable Proxy box is not checked.</li> <li>You need to enable multiple CTC sessions among ONS 15600 SDH nodes residing on the same subnet, and the Craft Access server feature is not enabled.</li> </ul>
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

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- Step 1** In node view, click the **Provisioning > Network > Static Routing** tabs.
- Step 2** Click **Create**.
- Step 3** In the Create Static Route dialog box enter the following:
- Destination**—Enter the IP address of the computer running CTC. To limit access to one computer, enter the full IP address and a subnet mask of 255.255.255.255. To allow access to all computers on the 192.168.1.0 subnet, enter 192.168.1.0 and a subnet mask of 255.255.255.0. You can enter a destination of 0.0.0.0 to allow access to all CTC computers that connect to the router.
  - Mask**—Enter a subnet mask. If Destination is a host route (that is, one CTC computer), enter a 32-bit subnet mask (255.255.255.255). If Destination is a subnet, adjust the subnet mask accordingly, for example, 255.255.255.0. If Destination is 0.0.0.0, CTC automatically enters a subnet mask of 0.0.0.0 to provide access to all CTC computers. You cannot change this value.
  - Next Hop**—Enter the IP address of the router port or the node IP address if the CTC computer is connected to the node directly.
  - Cost**—Enter the number of hops between the ONS 15600 SDH and the computer.



**Step 4** Click **OK**. Verify that the static route appears in the Static Route window.



**Note** Static route networking scenarios are provided in the IP networking section of the *Cisco ONS 15600 SDH Reference Manual*.

**Step 5** Return to your originating procedure (NTP).

## DLP-F45 Set Up or Change Open Shortest Path First Protocol

<b>Purpose</b>	This task enables the OSPF routing protocol to include the ONS 15600 SDH in OSPF-enabled networks.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	You will need to know the OSPF Area ID, Hello and Dead intervals, and authentication key (if OSPF authentication is enabled) provisioned on the router to which the ONS 15600 SDH is connected.
<b>Onsite/Remote</b>	Required when connecting the ONS 15600 SDH to OSPF networks
<b>Security Level</b>	Onsite or remote
	Provisioning or higher



**Note** If the ONS 15600 SDH has DCC or LAN interfaces in multiple OSPF areas, at least one ONS 15600 SDH DCC or LAN interface must be in the backbone area 0.0.0.0.



**Note** CTC will not allow both a DCC interface and a LAN interface in the same nonzero OSPF area.



**Note** To create OSPF virtual links, OSPF must be enabled on the LAN.

**Step 1** In node view, click the **Provisioning > Network > OSPF** tabs.

**Step 2** In the top left side of the OSPF pane, complete the following:

- **DCC/GCC OSPF Area ID Table**—In dotted decimal format, enter the number that identifies the ONS 15600 SDH nodes as a unique OSPF area ID. The area ID can be any number between 000.000.000.000 and 255.255.255.255, but must be unique to the LAN OSPF area.
- **DCC Metric**—This value is normally unchanged. It sets a “cost” for sending packets across the DCC, which is used by OSPF routers to calculate the shortest path. This value should always be higher than the LAN metric. The default DCC metric is 10. The metric changes to 100 if you check the OSPF Active on LAN box in [Step 3](#).

**Step 3** In the OSPF on LAN area, complete the following:

- **OSPF active on LAN**—When checked, enables ONS 15600 SDH OSPF topology to be advertised to OSPF routers on the LAN. Enable this field on ONS 15600 SDH nodes that directly connect to OSPF routers. When checked, the DCC Metric value changes from the default of 10 to 100.

- LAN Port Area ID—Enter the OSPF area ID (dotted decimal format) for the router port where the ONS 15600 SDH is connected. (This number is different from the DCC/GCC OSPF Area ID.)

**Step 4** By default, OSPF is set to No Authentication. If the OSPF router requires authentication, complete the following steps. If not, continue with [Step 5](#).

- Click the **No Authentication** button.
- In the Edit Authentication Key dialog box, complete the following:
  - Type—Choose **Simple Password**.
  - Enter Authentication Key—Enter the password.
  - Confirm Authentication Key—Enter the same password to confirm it.
- Click **OK**.

The authentication button label changes to Simple Password.

**Step 5** Provision the OSPF priority and interval settings. The OSPF priority and intervals default to values most commonly used by OSPF routers. In the Priority and Intervals area, verify that these values match those used by the OSPF router where the ONS 15600 SDH is connected:

- Router Priority—Selects the designated router for a subnet.
- Hello Interval (sec)—Sets the number of seconds between OSPF “hello” packet advertisements sent by OSPF routers. Ten seconds is the default.
- Dead Interval—Sets the number of seconds that will pass while an OSPF router’s packets are not visible before its neighbors declare the router down. Forty seconds is the default.
- Transit Delay (sec)—Indicates the service speed. One second is the default.
- Retransmit Interval (sec)—Sets the time that will elapse before a packet is resent. Five seconds is the default.
- LAN Metric—Sets a “cost” for sending packets across the LAN. This value should always be lower than the DCC metric. Ten is the default.

**Step 6** Under OSPF Area Range Table, create an area range table if one is needed.



**Note** Area range tables consolidate the information that is propagated outside an OSPF area border. One ONS 15600 SDH in the ONS 15600 SDH OSPF area is connected to the OSPF router. An area range table on this node points the router to the other nodes that reside within the ONS 15600 SDH OSPF area.

- Under OSPF Area Range Table, click **Create**.
- In the Create Area Range dialog box, enter the following:
  - Range Address—Enter the area IP address for the ONS 15600 SDH nodes that reside within the OSPF area. For example, if the ONS 15600 SDH OSPF area includes nodes with IP addresses 10.10.20.100, 10.10.30.150, 10.10.40.200, and 10.10.50.250, the range address would be 10.10.0.0.
  - Range Area ID—Enter the OSPF area ID for the ONS 15600 SDH nodes. This is either the ID in the DCC OSPF Area ID field or the ID in the Area ID for LAN Port field.
  - Mask Length—Enter the subnet mask length. In the Range Address example, this is 16.
  - Advertise—Check this box if you want to advertise the OSPF range table.
- Click **OK**.

- Step 7** All OSPF areas must be connected to Area 0. If the ONS 15600 SDH OSPF area is not physically connected to Area 0, use the following steps to create a virtual link table that will provide the disconnected area with a logical path to Area 0:
- a. Under OSPF Virtual Link Table, click **Create**.
  - b. In the Create Virtual Link dialog box, complete the following fields (OSPF settings must match OSPF settings for the ONS 15600 SDH OSPF area):
    - Neighbor—The router ID of the Area 0 router.
    - Transit Delay (sec)—The service speed. One second is the default.
    - Hello Int (sec)—The number of seconds between OSPF hello packet advertisements sent by OSPF routers. Ten seconds is the default.
    - Auth Type—If the router where the ONS 15600 SDH is connected uses authentication, choose **Simple Password**. Otherwise, choose **No Authentication**.
    - Retransmit Int (sec)—Sets the time that will elapse before a packet is resent. Five seconds is the default.
    - Dead Int (sec)—Sets the number of seconds that will pass while an OSPF router's packets are not visible before its neighbors declare the router down. Forty seconds is the default.
  - c. Click **OK**.
- Step 8** After entering ONS 15600 SDH OSPF area data, click **Apply**.  
If you changed the Area ID, the TSC cards will reset, one at a time. The reset will take approximately 10 to 15 minutes.
- Step 9** Return to your originating procedure (NTP).
- 

## NTP-F98 Set Up the ONS 15600 SDH for Firewall Access

<b>Purpose</b>	This procedure provisions ONS 15600 SDH nodes and CTC computers for access through firewalls.
<b>Tools/Equipment</b>	IIOP listener port number provided by your LAN or firewall administrator
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

---

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#). If you are already logged in, continue with [Step 2](#).
- Step 2** If the ONS 15600 SDH resides behind a firewall, complete the [“DLP-F46 Provision the IIOP Listener Port on the ONS 15600 SDH” task on page 4-14](#).
- Step 3** If the CTC computer resides behind a firewall, complete the [“DLP-F47 Provision the IIOP Listener Port on the CTC Computer” task on page 4-15](#).
- Stop. You have completed this procedure.**
-

## DLP-F46 Provision the IIOP Listener Port on the ONS 15600 SDH

<b>Purpose</b>	This task provisions the IIOP listener port on the ONS 15600 SDH, which enables you to access ONS 15600 SDH nodes that reside behind a firewall.
<b>Tools/Equipment</b>	IIOP listener port number provided by your LAN or firewall administrator
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Step 1** Click the **Provisioning > Network > General** subtabs.

**Step 2** In the TSC CORBA (IIOP) Listener Port area, choose a listener port option:

- **Default - TSC Fixed**—Uses Port 57790 to connect to ONS 15600 SDH nodes on the same side of the firewall or if no firewall is used (default). This option can be used for access through a firewall if Port 57790 is open.
- **Standard Constant**—Uses Port 683, the Common Object Request Broker Architecture (CORBA) default port number.
- **Other Constant**—If Port 683 is not used, type the IIOP port specified by your firewall administrator. The port cannot use any of the ports shown in [Table 4-1](#).

**Table 4-1 Ports Used by the TSC Cards**

Port	Function
0	Never used
21	FTP control
23	Telnet
80	HTTP
111	rpc (not used; but port is in use)
513	rlogin (not used; but port is in use)
<1023	Default CTC listener ports
1080	Proxy server
2001-2017	I/O <sup>1</sup> card Telnet
2018	DCC processor on active TSC
2361	TL1
3082	TL1
3083	TL1
5001	MS-SPRing <sup>2</sup> server port
5002	MS-SPRing client port
7200, 7209, 7210	SNMP <sup>3</sup> input port
9100	EQM port
9101	EQM port 2

**Table 4-1 Ports Used by the TSC Cards (continued)**

Port	Function
9401	TSC boot port
9999	Flash manager
57790	Default TSC listener port

1. I/O = input/output
2. MS-SPRing = multiplex section-shared protection ring
3. SNMP = simple network management protocol

**Step 3** Click **Apply**.

**Step 4** When the Change Network Configuration message appears, click **Yes**.

Both TSCs will reboot, one at a time. The reboot takes approximately 15 minutes.

**Step 5** Return to your originating procedure (NTP).

## DLP-F47 Provision the IIOP Listener Port on the CTC Computer

<b>Purpose</b>	This task selects the IIOP listener port on CTC.
<b>Tools/Equipment</b>	IIOP listener port number from LAN or firewall administrator
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a> <a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	Required only if the computer running CTC resides behind a firewall
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Step 1** From the Edit menu, choose **Preferences**.

**Step 2** In the Preferences dialog box, click the **Firewall** tab.

**Step 3** In the CTC CORBA (IIOP) Listener Port area, choose a listener port option:

- **Default - Variable**—Used to connect to ONS 15600 SDH nodes from within a firewall or if no firewall is used (default)
- **Standard Constant**—Uses Port 683, the CORBA default port number
- **Other Constant**—If Port 683 is not used, enter the IIOP port defined by your administrator

**Step 4** Click **Apply**. A message notifies you that the port change will apply during the next CTC login.

**Step 5** Click **OK**.

**Step 6** In the Preferences dialog box, click **OK**.

**Step 7** To access the ONS 15600 SDH using the IIOP port, log out of CTC (from the File menu, choose **Exit**) and log back in.

**Step 8** Return to your originating procedure (NTP).

## NTP-F26 Set Up Timing

<b>Purpose</b>	This procedure provisions the ONS 15600 SDH timing.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node where you want to set up timing. If you are already logged in, continue with [Step 2](#).
- Step 2** Complete the “[DLP-F48 Set Up External or Line Timing](#)” task on page 4-16 if an external building integrated timing supply (BITS) source is available. This is the common SDH timing setup procedure.
- Step 3** Complete the “[DLP-F49 Set Up Internal Timing](#)” task on page 4-18 if you cannot complete [Step 2](#) (that is, if an external BITS source is not available). This task can only provide G.813 traceable timing.




---

**Note** For information about SDH timing, refer to the *Cisco ONS 15600 SDH Reference Manual* or to ITU G.811, G.812, and G.813.

---

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

---

## DLP-F48 Set Up External or Line Timing

<b>Purpose</b>	This task defines the SDH timing source for the ONS 15600 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a> <a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher




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**Note** If you do not perform this procedure, the ONS 15600 SDH defaults to its internal ITU G.811 and G.812 clock.

---

- 
- Step 1** In node view, click the **Provisioning > Timing** tabs.
- Step 2** In the General Timing area, complete the following information:
- **Timing Mode**—Choose **External** if the ONS 15600 SDH derives its timing from a BITS source wired to the backplane pins; choose **Line** if timing is derived from an STM-N card that is optically connected to the timing node.
  - **SSM Message Set**—Enabled only if T1 signal type is selected.

- Quality of RES—Not enabled for ONS 15600 SDH.
- Revertive—Check this box if you want the ONS 15600 SDH to revert to a primary reference source after the conditions that caused it to switch to a secondary timing reference are corrected. Five minutes is the default.
- Reversion Time—If Revertive is checked, choose the amount of time the ONS 15600 SDH will wait before reverting back to its primary timing source.
- HoldOFF Time—If a value other than zero is provided, then this is the amount of time the ONS 15600 SDH will wait before including a previously failed timing source as available and valid. None is the default.

**Step 3** In the BITS Facilities area, complete the following information:



**Note** The BITS Facilities section sets the parameters for your BITS1 and BITS2 timing references. Many of these settings are determined by the timing source manufacturer.

- E1, T1, 2.048MHz, 64KHz—Choose E1, T1, 2.048MHz, or 64KHz depending on the signal supported in your market. For example, 64KHz is used in Japan. E1, T1, 2.048MHz, and 64KHz are physical signal modes used to transmit the external clock (from a GPS, for example) to BITS.
- State—For nodes using external timing, set State to IS (In Service).
- Coding—Choose the coding used by your BITS reference, either HDB3 or AMI. If you selected 2.048 MHz or 64 KHz, the coding option is disabled.
- Framing—Set to the framing used by your BITS reference, either Unframed, FAS, FAS+CAS, FAS+CRC, or FAS+CAS+CRC. If you selected 2.048 MHz or 64 KHz, the coding option is disabled.
- Sync Messaging—Check this box to enable synchronization status messaging (SSM). The SSM Sync Messaging feature is automatically disabled if the 2.048 MHz or 64 KHz and E1 with FAS, FAS+CAS framing is provisioned.
- Cable Type (ohm)—Choose 75 ohm or 120 ohm.
- Sa bit—Choose one of 5 Sa bits (4, 5, 6, 7, or 8). The Sa bit transmits the SSM Message. If you selected 2.048MHz or 64KHz, the Sa bit option is disabled.

**Step 4** In the Reference Lists area, complete the NE Reference, which allows you to define three timing references (Ref 1, Ref 2, and Ref3). The node uses Reference 1 unless a failure occurs to that reference, in which case, the node uses Reference 2. If that fails, the node uses Reference 3, which is typically set to Internal Clock. This is the G.813 traceable clock provided on the TSC. The options displayed depend on the Timing Mode setting.

- If the Timing Mode is External, your options are BITS1, BITS2, and Internal Clock.
- If the Timing Mode is Line, your options are the node's STM-N ports (except for ports that have been specified as protection ports in 1+1 [LMSP] (Linear Multiplex Section Protection) protection groups) and Internal Clock. Choose the cards/ports that are directly or indirectly connected to the node wired to the BITS source, that is, the node's trunk cards. Set Reference 1 to the trunk card that is closest to the BITS source. For example, if Slot 3/Port 16 is connected to the node wired to the BITS source, choose Slot 3 as Reference 1.

**Step 5** Click **Apply**.



**Note** Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* for timing-related alarms.

**Step 6** Return to your originating procedure (NTP).

---

## DLP-F49 Set Up Internal Timing

<b>Purpose</b>	This task sets up internal timing (G.813 traceable) for an ONS 15600 SDH or sets up other nodes in the network to be line timed using the node's internal clock.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	Not recommended; use only if no BITS source or line timing sources are available
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher



**Caution** Internal timing is G.811 and not intended for permanent use. All ONS 15600 SDH nodes should be timed to a G.8.812 or better primary reference source.

---

- Step 1** In node view, click the **Provisioning > Timing** tabs.
- Step 2** In the General Timing area, enter the following:
- Timing Mode—Set to **External**.
  - SSM Message Set—Not enabled for ONS 15600 SDH.
  - Quality of RES—Not enabled for ONS 15600 SDH.
  - Revertive—Not relevant for internal timing.
  - Reversion Time—Not relevant for internal timing.
- Step 3** In the BITS Facilities area, change State to OOS (Out of Service). Disregard the other BITS Facilities settings; they are not relevant to internal timing.
- Step 4** In the Reference Lists area, enter the following information:
- Ref1—Set to **Internal Clock**.
  - Ref2—Set to **Internal Clock**.
  - Ref3—Set to **Internal Clock**.
- Step 5** Click **Apply**.
- Step 6** Log into a node that will be timed from the node set up in Steps 1 through 5 (the internally timed node).
- Step 7** Click the **Provisioning > Timing** tabs.
- Step 8** In the General Timing section, enter the same information as entered in [Step 2](#), except set Timing Mode to Line.
- Step 9** In the Reference Lists section, enter the same information as entered in [Step 4](#), except set NE Reference as follows:
- Ref1—Set to the STM-N trunk card with the closest connection to the internally timed node.
  - Ref2—Set to the STM-N trunk card with the next closest connection to the internally timed node.



- Ref3—Set to **Internal Clock**.

**Step 10** Click **Apply**.

**Step 11** Repeat Steps 7 through 10 at each node that will be timed by the internally timed node.

**Step 12** Return to your originating procedure (NTP).

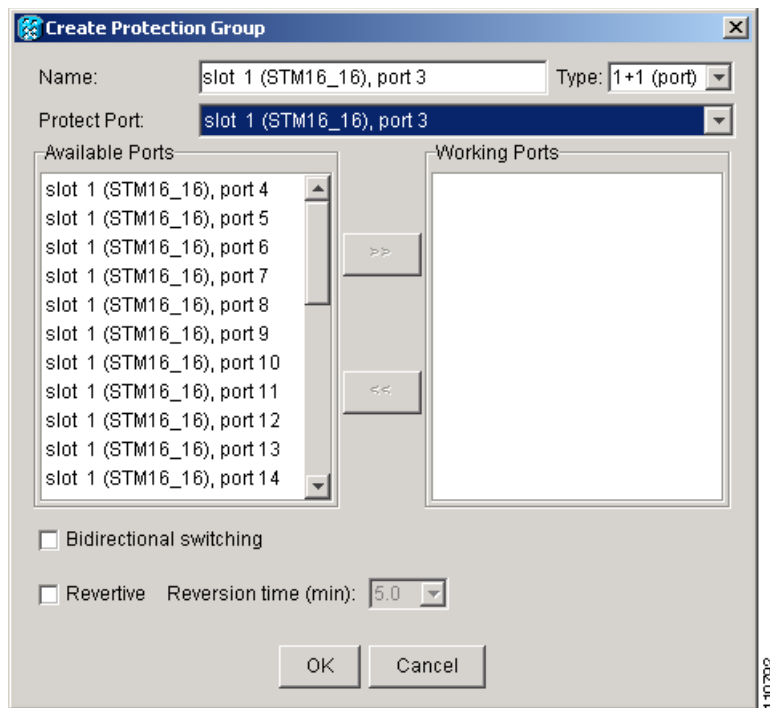
## NTP-F27 Create a 1+1 (LMSP) Protection Group

<b>Purpose</b>	This procedure creates a 1+1 (LMSP) protection group. A 1+1 protection group pairs a working STM-N port with a protect STM-N port. The ports on cards can be either working or protect. You can mix working and protect ports on the same card—any STM-64 port can protect another STM-64 port, and any STM-16 port can protect another STM-16 port. You cannot mix STM-64 and STM-16 ports in protection schemes.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node where you want to create the protection. If you are already logged in, continue with [Step 2](#).
- Step 2** Verify that the STM-N cards are installed/preprovisioned.
- Step 3** Click the **Provisioning > Protection** tabs.
- Step 4** In the Protection Group area, click **Create**.
- Step 5** In the Create Protection Group dialog box, enter the following:
- Name—Type a name for the protection group. The name can have up to 32 alphanumeric characters.
  - Type—Choose **1+1 (port)** from the drop-down menu.
  - Protect (Entity) Port—Choose the protect port from the drop-down menu. When you choose 1+1 (port) from the Type drop-down menu, this field changes from Protect Entity to Protect Port. The menu displays the available STM-N ports ([Figure 4-1](#)). If STM-N cards are not installed, no ports appear in the drop-down menu.

After you choose the protect port, a list of working ports available for protection appears in the Available Ports list. If no cards are available, no ports appear. If this occurs, you cannot complete this task until you install the physical cards or preprovision the ONS 15600 SDH slots using the “[NTP-F14 Preprovision a Slot](#)” procedure on page 2-6.

Figure 4-1 Creating a 1+1 Protection Group



**Step 6** From the Available Ports list, choose the working port that will be protected by the port chosen in the Protect Ports menu. Click the top arrow button to move each port to the Working Ports list.

**Step 7** Complete the remaining fields:

- **Bidirectional switching**—If checked, both the near-end and far-end nodes switch to the designated protection ports. For example, if the near-end node has a loss of signal (LOS), it switches to the protection port and transmits a switch request to the far-end node to switch to the protection port also. This ensures that both nodes process traffic from the same span.

If the Bidirectional switching check box is not selected, the near-end and far-end nodes switch independently of each other. For example, if the near-end node has an LOS on its working port it switches to the protection port. If the far-end node does not have a LOS, traffic remains on the working port.

- **Revertive**—Check this box if you want traffic to revert to the working port after failure conditions stay corrected for the amount of time entered in the Reversion time field.
- **Reversion time**—If Revertive is checked, click the Reversion time field and choose a reversion time from the drop-down menu. The range is 0.5 to 12.0 minutes. The default is 5.0 minutes. Reversion time is the interval between the point when the fault is cleared and the point when the traffic switches to the working port.

**Step 8** Click **OK** and then click **Yes** in the confirmation dialog box.

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

# NTP-F28 Set Up SNMP

<b>Purpose</b>	This procedure sets up SNMP parameters so that you can use SNMP management software with the ONS 15600 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a>
<b>Required/As Needed</b>	Required if SNMP is used at your installation
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node where you want to set up SNMP. If you are already logged in, continue with [Step 2](#).

**Step 2** Click the **Provisioning > SNMP** tabs.

**Step 3** Click **Create**.

**Step 4** In the Create SNMP Traps Destination dialog box, complete the following:

- **IP Address**—Type the IP address of your network management system (NMS). If the node you are logged into is an ENE, set the destination address to the GNE.
- **Community Name**—Type the SNMP community name.



**Note** The community name is a form of authentication and access control. The community name assigned to the ONS 15600 SDH is case-sensitive and must match the community name of the NMS. For a description of SNMP community names, refer to the SNMP information in the *Cisco ONS 15600 SDH Reference Manual*.

- **UDP Port**—The default UDP port for SNMP is 162. If the node is an ENE in a proxy server network, set the UDP port to the GNE’s SNMP relay port (391).
- **Trap Version**—Choose either SNMPv1 or SNMPv2. Refer to your NMS documentation to determine whether to use SNMP v1 or v2.
- **Max Traps per Second**—Type the maximum traps per second. The default is 0.



**Note** The Max Traps per Second is the maximum number of traps per second that will be sent to the SNMP manager. If the field is set to 0, there is no maximum and all traps are sent.

**Step 5** Click **OK**.

**Step 6** Click the node IP address in the Trap Destinations list. Verify the SNMP information that appears under Selected Destination.

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

## NTP-F29 Set the User Code for Card Inventory

<b>Purpose</b>	This procedure creates a user code to help identify the Core Cross Connect (CXC), TSC, and optical (traffic) cards. The user code is stored in nonvolatile memory on the card so it is not lost when a card is moved or stored as a spare.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F22 Verify Card Installation, page 4-2</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning and higher

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** Click the **Inventory** tab.
- Step 3** In the User Code field, type the code you want to use to identify the card. The user code is a 20-character ASCII string.
- Step 4** Click **Apply**.
- Stop. You have completed this procedure.**
- 

## NTP-F30 Configure a Node Using an Existing Database

<b>Purpose</b>	This procedure downloads the provisioning database file from one node to a designated node and assigns a new IP address to the designated node. You can use this procedure to turn up a node or to reconfigure a node.
<b>Tools/Equipment</b>	Database backup file
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser



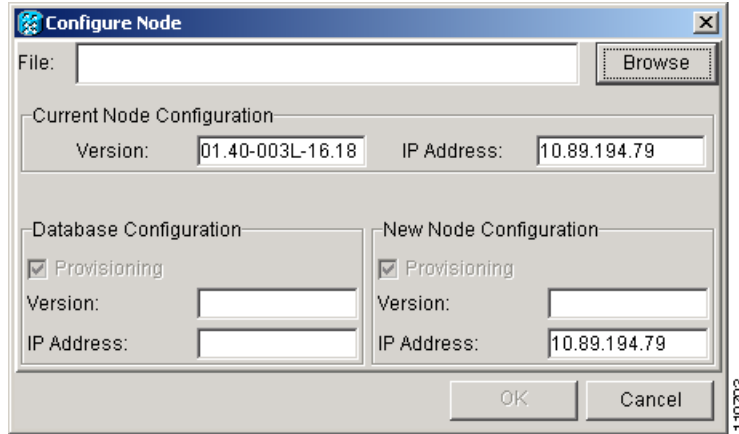
**Note** Only the provisioning database is downloaded from the specified database backup even if the alarm, performance, or audit logs are included in the database backup.

---

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node that you want to configure. If you are already logged in, continue with [Step 2](#).
- Step 2** As needed, complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3 to back up the logged in node before reconfiguration.
- Step 3** Click the **Maintenance > Database** tabs.

- Step 4** Click **Configure**. The Configure Node dialog box appears (Figure 4-2). In the Current Node Configuration area, Version displays the current software version.

**Figure 4-2** Configuring a Node with Another Node's Database Backup



- Step 5** Click **Browse** and navigate to the database backup file you will use to configure the node.
- Step 6** In the Database Configuration area, verify the following:
- Provisioning—(Read only) Automatically checked to download the provisioning data from the selected database file.
  - Version—(Read only) Displays the software version of the selected database file.
  - IP address—(Read only) Displays the IP address assigned to the node of the selected database file.
- Step 7** In the New Node Configuration area, verify the following:
- Provisioning—(Read only) Downloads the provisioning data from the selected database file.
  - Version—(Read only) Displays the current software version.
  - IP address—Displays the current IP address. To assign a new IP address, type a new IP address in the field.
- Step 8** Click **OK**. When the Node Configuration warning message appears, click **Yes** to continue. The database restoration window appears. The CTC session closes when the TSC reboots.
- Step 9** After the TSC completes its reboot, log in to the node using the IP address assigned in Step 7. For login procedures, see the “[DLP-F36 Log into CTC](#)” task on page 3-15.
- Stop. You have completed this procedure.**

## NTP-F31 Set External Alarms and Controls

<b>Purpose</b>	This procedure provisions the reporting parameters and/or virtual wires for external alarms and controls (environmental alarms) that are wired to the customer access panel (CAP) alarm contacts.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** Complete the “[DLP-F50 Provision External Alarms and Virtual Wires](#)” task on page 4-24 to set external alarm inputs.
- Step 3** Complete the “[DLP-F51 Provision External Controls for External Alarms and Virtual Wires](#)” task on page 4-25 to set external control outputs.
- Stop. You have completed this procedure.**
- 

## DLP-F50 Provision External Alarms and Virtual Wires

<b>Purpose</b>	This task creates, enables, and sets severities for up to 16 alarms caused by external events (such as a low battery, fire detector failure, or low temperature).
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC</a> , page 3-15 <a href="#">DLP-F17 Install Alarm Wires on the CAP</a> , page 1-35
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** In node view, click the **Provisioning > Alarm Extenders > External Alarms** tabs.
- Step 2** Complete the following fields for each external device wired to the ONS 15600 SDH backplane.
- **Enabled**—Check the check box for the alarm input number that you want to configure.
  - **Alarm Type**—Choose an alarm type, such as “Low temp” or “Misc,” from the drop-down menu.
  - **Severity**—Choose an alarm severity (CR, MJ, MN, NA, or NR) from the drop-down menu. The severity determines how the alarm appears in the CTC Alarms and History windows and whether the LEDs are activated in the software.



**Note** When virtual wires are assigned in mixed ONS 15454 SDH and ONS 15600 SDH networks, only the last four virtual wires (13 through 16) are visible from the ONS 15454 SDH nodes.

- **Virtual Wire**—From the drop-down menu, choose a virtual wire (1 through 16) for the alarm. If you choose None, the alarm is not activated in CTC.
- **Raised When**—From the drop-down menu, choose the contact condition (open or closed) that will trigger the alarm in CTC.
- **Description**—Default descriptions are provided for each alarm. To change the description, which is how the alarm is identified in CTC, double-click the field and edit as necessary.

**Step 3** To provision additional devices, complete [Step 2](#) for each additional device.

**Step 4** Click **Apply**.

**Step 5** Return to your originating procedure (NTP).

## DLP-F51 Provision External Controls for External Alarms and Virtual Wires

<b>Purpose</b>	This task configures the external control outputs. An external control governs an external alarm.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a> <a href="#">DLP-F17 Install Alarm Wires on the CAP, page 1-35</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Step 1** In node view, click the **Provisioning > Alarm Extenders > External Controls** tabs.

**Step 2** Complete the following fields for each external control wired to the ONS 15600 SDH backplane:

- **Enabled**—Check this box for the alarm control output number that you want to configure.
- **Control Type**—In the drop-down menu, choose the type of control, such as Engine or Heat. For example, if you set up a virtual wire in the [“DLP-F50 Provision External Alarms and Virtual Wires” task on page 4-24](#) as alarm type Low Temp, you would choose a control type in the External Controls tab such as “Heat.”
- **Trigger Type**—Choose a means for triggering the alarm from the drop-down menu, such as a local or remote alarm of a particular severity or association with a particular virtual wire.
- **Description**—Enter a description to be shown in the Alarms window.

**Step 3** To provision additional controls, complete [Step 2](#) for each additional device.

**Step 4** Click **Apply**.

**Step 5** Return to your originating procedure (NTP).







## Turn Up Network

---

This chapter explains how to turn up and test Cisco ONS 15600 SDH nodes in point-to-point networks, subnetwork connection protection rings (SNCPs), and multiplex section-shared protection rings (MS-SPRings).

### Before You Begin

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

1. [NTP-F32 Verify Node Turn Up, page 5-2](#)—Complete this procedure before beginning network turn up.
2. [NTP-F33 Create a Logical Network Map, page 5-4](#)—Complete as needed.
3. [NTP-F34 Provision a Point-to-Point Connection, page 5-5](#)—Complete this procedure as needed to connect two ONS 15600 SDH nodes in a point-to-point network.
4. [NTP-F35 Point-to-Point Network Acceptance Test, page 5-7](#)—Complete this procedure after you provision the point-to-point network.
5. [NTP-F36 Provision MS-SPRing Nodes, page 5-10](#)—Complete this procedure to provision ONS 15600 SDH nodes in a two-fiber MS-SPRing.
6. [NTP-F37 Create an MS-SPRing, page 5-12](#)—Complete this procedure after provisioning the MS-SPRing nodes.
7. [NTP-F38 Two-Fiber MS-SPRing Acceptance Test, page 5-14](#)—Complete this procedure after you provision a two-fiber MS-SPRing.
8. [NTP-F39 Provision SNCP Nodes, page 5-20](#)—Complete this procedure as needed to create an SNCP.
9. [NTP-F40 SNCP Acceptance Test, page 5-21](#)—Complete this procedure after you provision the SNCP.

# NTP-F32 Verify Node Turn Up

<b>Purpose</b>	This procedure verifies that each ONS 15600 SDH is ready for network turn up.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">Chapter 4, “Turn Up Node”</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#). If you are already logged in, continue with Step 2.
- Step 2** Complete the [“DLP-F52 Common Control Card Switch Test” task on page 5-3](#).
- Step 3** From the View menu, choose **Go To Network View**.
- Step 4** Click the **Alarms** tab.
- Verify that the alarm filter is not on. See the [“DLP-F74 Disable Alarm Filtering” task on page 7-14](#) for instructions.
  - Verify that no critical or major alarms appear on the network. If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* for procedures.
- Step 5** From the View menu, choose **Go To Previous View** to return to node view.
- Step 6** Verify that the SW Version and Defaults that appear in the node view status area match the software version and NE defaults shown in your site plan. If the software is not the correct version, install the correct version from the ONS 15600 SDH software CD. Upgrade procedures are located on the CD. Follow the upgrade procedures appropriate to the software currently installed on the node.
- Step 7** Click the **Provisioning > General** tabs. Verify that all general node information settings match the settings of your site plan. If not, see the [“NTP-F24 Set Up Date, Time, and Contact Information” procedure on page 4-6](#).
- Step 8** Click the **Provisioning > Timing** tabs. Verify that timing settings match the settings of your site plan. If not, see the [“NTP-F66 Change Node Management Information” procedure on page 10-2](#).
- Step 9** Click the **Provisioning > Network** tabs. Ensure that the IP settings and other CTC network access information is correct. If not, see the [“NTP-F67 Change CTC Network Access” procedure on page 10-4](#).
- Step 10** Click the **Provisioning > Protection** tabs. Verify that all protection groups have been created according to your site plan. If not, see the [“NTP-F27 Create a 1+1 \(LMSP\) Protection Group” procedure on page 4-19](#) or the [“NTP-F69 Modify or Delete Optical 1+1 Port Protection Settings” procedure on page 10-13](#).
- Step 11** Click the **Provisioning > Security** tabs. Verify that all users have been created and their security levels match the settings indicated by your site plan. If not, see the [“NTP-F73 Modify Users and Change Security” procedure on page 10-18](#).
- Step 12** If SNMP is provisioned on the shelf, click the **Provisioning > SNMP** tabs. Verify that all SNMP settings match the settings of your site plan. If not, see the [“NTP-F74 Change SNMP Settings” procedure on page 10-25](#).
- Step 13** Provision the network using the applicable procedure shown in the [“Before You Begin” section on page 5-1](#).

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

---

## DLP-F52 Common Control Card Switch Test

<b>Purpose</b>	This task tests the Core Cross Connect (CXC) card diagnostics and switching functionality of the Timing and Shelf Control (TSC) and CXC cards.
<b>Tools/Equipment</b>	The test set specified by the acceptance test procedure, connected and configured as specified in the acceptance test procedure.
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Provisioning or higher

---

- Step 1** Test the CXC card switch functionality:
- Connect the test set to a slot/port on the node.
  - Create a one-way VC4-16c or VC4-64c circuit (based on the STM-N card connected in Step a) to monitor with the test set. See [Chapter 6, “Create Circuits.”](#)
  - Verify that the test set is alarm and error free.
  - In node view, click the **Maintenance > Preferred Copy** tabs.
  - From the Set Preferred drop-down menu, choose **Copy B**. Click **Apply**.
  - Remove the CXC card from Slot 8. (The CXC card faceplate extends to cover Slot 9.)
  - Verify that the traffic switches to Copy A. You will experience a traffic interruption of less than 50 ms, and after that the test set should remain error free. If not, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
  - Replace the CXC card and allow it to recover.
  - Remove the CXC card from Slot 6. (The CXC card faceplate extends to cover Slot 7.)
  - Verify that the traffic switches to Copy B. You will experience an interruption of less than 50 ms, and after that the test set should remain error free. If not, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
  - Replace the CXC card and allow it to recover.
  - From the Set Preferred drop-down menu, choose **Copy A**. Click **Apply**.
- Step 2** Test the TSC card switch functionality:
- Make a note of which TSC card is active and which is standby by examining the LEDs on the CTC shelf graphic. TSC cards are installed in Slot 5 and Slot 10. The active TSC card has a green ACT/STBY LED.
  - On the shelf graphic, right-click the active TSC card and choose **Soft-reset Card** from the shortcut menu.
  - In the Resetting Card confirmation dialog box, click **Yes**. After 20 to 40 seconds, a “lost node connection, changing to network view” message appears.

- d. Click **OK**. On the network view map, the node with the reset TSC card will be gray.
- e. After the node icon turns yellow (from 1 to 2 minutes), double-click it. The node will remain yellow because of the UNPROT-SYNCCL alarm for about 12 minutes. On the shelf graphic, observe the following:
  - The previous standby TSC card has a green ACT/STBY LED.
  - The ACT/STBY LED of the previously active TSC card will not be illuminated.
- f. Verify that the traffic on the test set connected to the node is still running. If a traffic interruption occurs, do not continue. Refer to your next level of support.
- g. Repeat Steps **b** through **f** to return the active/standby TSC cards to their configuration at the start of the procedure.
- h. Verify that the TSC cards appear as they did in Step **a**.

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

---

## NTP-F33 Create a Logical Network Map

<b>Purpose</b>	This procedure positions nodes in the network view. This procedure allows a Superuser to create a consistent network view for all nodes on the network.
<b>Tools</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-F32 Verify Node Turn Up, page 5-2</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser

---

**Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).

**Step 2** From the View menu, choose **Go To Network View**.

**Step 3** Change the position of the nodes in the network view according to your site plan.

- a. Press the **Ctrl** key while you drag and drop a node icon to a new location.
- b. Deselect the previously selected node.
- c. Repeat Step **a** for each node you need to position.

**Step 4** On the network view map, right-click and choose **Save Node Position**.

**Step 5** Click **Yes** on the **Save Node Position** dialog box.

CTC displays a progress bar and saves the new node positions.



**Note** Nodes on the network map can be moved by users with Retrieve, Provisioning, and Maintenance security levels, but new network views can only be saved by a Superuser. To restore the view to a previously saved version of the network map, right-click on the network view map and choose **Reset Node Position**.

---

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

---

## NTP-F34 Provision a Point-to-Point Connection

<b>Purpose</b>	This procedure provisions 1+1 (LMSP) protected spans between two ONS 15600 SDH nodes, or between an ONS 15600 SDH and an ONS 15454 SDH node.
<b>Tools/Equipment</b>	PC or UNIX workstation set up for ONS 15600 SDH access
<b>Prerequisite Procedures</b>	<a href="#">NTP-F32 Verify Node Turn Up, page 5-2</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** Attach fiber from working port to working port and from protect port to protect port on the two nodes that you will provision for a point-to-point configuration.
- Step 2** Complete the “[DLP-F36 Log into CTC](#)” task on [page 3-15](#) at either node. The node view appears. If you are already logged in, continue with [Step 3](#).
- Step 3** Click the **Provisioning > Protection** tabs. Verify that 1+1 protection is created for the STM-N ports. Complete the “[NTP-F27 Create a 1+1 \(LMSP\) Protection Group](#)” procedure on [page 4-19](#) if protection has not been created.
- Step 4** Repeat [Steps 2](#) and [3](#) for the second node.
- Step 5** Verify that the working and protect ports in the 1+1 protection groups correspond to the physical fiber connections between the nodes, that is, verify that the working port in one node connects to the working port in the other node and that the protect port in one node connects to the protect port in the other node.
- Step 6** Complete the “[DLP-F53 Provision SDH DCC Terminations](#)” task on [page 5-6](#) for the working STM-N port on both point-to-point nodes.




---

**Note** DCC terminations are not provisioned on the protect port.

---




---

**Note** If point-to-point nodes are not connected to a LAN, you will need to create the DCC terminations using a direct (craft) connection to the node. Remote provisioning is possible only after all nodes in the network have DCC terminations provisioned to in-service STM-N ports.

---

- Step 7** Verify that timing is set up at both point-to-point nodes. If not, complete the “[NTP-F26 Set Up Timing](#)” procedure on [page 4-16](#). If a node uses line timing, set the working STM-N as the timing source.
- Step 8** Complete the “[DLP-F54 Change the Service State for a Port](#)” task on [page 5-6](#) to put the protect STM-N ports in service at both nodes.
- Step 9** Continue with the “[NTP-F35 Point-to-Point Network Acceptance Test](#)” procedure on [page 5-7](#).

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

---

## DLP-F53 Provision SDH DCC Terminations

<b>Purpose</b>	This task creates SDH DCC terminations, required for alarms, administration data, signal control information, and messages.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

---

- Step 1** In node view, click the **Provisioning > DCC/GCC** tabs.
- Step 2** In the RS-DCC Terminations area, click **Create**.
- Step 3** In the Create RS-DCC Terminations dialog box, click the ports where you want to create the DCC termination. To select more than one port, press the **Shift** key or the **Ctrl** key.



**Note** RS-DCC refers to the Regenerator Section DCC, which is used for ONS 15600 SDH DCC terminations. You can provision the SDH multiplex DCCs and the RS-DCC (when not used as a DCC termination by the ONS 15600 SDH) as DCC tunnels. See the “[NTP-F48 Create a DCC Tunnel](#)” procedure on page 6-23.

---

- Step 4** In the Port State area, click the **Set to IS** radio button.
- Step 5** Click **OK**.
- Step 6** Return to your originating procedure (NTP).
- 

## DLP-F54 Change the Service State for a Port

<b>Purpose</b>	This task puts a port in service or removes a port from service.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

---

- Step 1** In node view, double-click the card with the port(s) you want to put in or out of service. The card view appears.
- Step 2** Click the **Provisioning > MS** tabs.

- Step 3** In the State area, choose one of the following:
- IS—The port is in-service.
  - OOS\_MT—The port is in a maintenance state. The maintenance state does not interrupt traffic flow (traffic is carried and loopbacks are allowed) but alarm reporting is suppressed. Raised fault conditions, whether their alarms are reported or not, can be retrieved on the CTC Conditions tab or by using the TL1 RTRV-COND command. Use OOS\_MT for testing or to suppress alarms temporarily.
- Step 4** Click **Apply**.
- Step 5** As needed, repeat this task for each port.
- Step 6** Return to your originating procedure (NTP).
- 

## NTP-F35 Point-to-Point Network Acceptance Test

<b>Purpose</b>	This procedure tests a point-to-point ONS 15600 SDH network.
<b>Tools/Equipment</b>	Optical power meter and fiber jumpers STM-N SDH/SDH test set Fiber cables An additional STM-16 or STM-64 port depending on the span bandwidth at each node. These ports are required for test set connectivity. These are the ports you use as the circuit source and destination.
<b>Prerequisite Procedures</b>	<a href="#">NTP-F34 Provision a Point-to-Point Connection, page 5-5</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Provisioning or higher

---

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at one of the point-to-point nodes. The node view appears. If you are already logged in, continue with [Step 2](#).
- Step 2** From the View menu, choose **Go To Network View**.
- Step 3** Click the **Alarms** tab.
- a. Verify that the alarm filter is not on. See the “[DLP-F74 Disable Alarm Filtering](#)” task on page 7-14 for instructions.
  - b. Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 4** Complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3 to export alarm information.
- Step 5** Click the **Conditions** tab. Verify that no unexplained conditions appear on the network. If unexplained conditions appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 6** Complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3 to export condition data.
- Step 7** On the network map, double-click the node that you logged into in [Step 1](#).
- Step 8** Create a test circuit from the login node to the other point-to-point node.

- For an STM-16 span, create a VC4-16c test circuit.
- For an STM-64 span, create a VC4-64c test circuit. If an STM-64 test set is not available, create an STM-16 test circuit across an STM-64 span. See the [“NTP-F42 Create an Automatically Routed Optical Circuit” procedure on page 6-4](#).

- Step 9** Configure the test set for the test circuit type you created. For information about configuring your test set, consult your test set user guide.
- Step 10** Verify the integrity of all patch cables that will be used in this test by connecting one end to the test set transmit (Tx) connector the other to the test set receive (Rx) connector. Use appropriate attenuation on the test set receive connector; for more information, refer to the test set manual. If the test set does not run error-free, check the cable for damage and check the test set to make sure it is set up correctly before going to [Step 11](#).
- Step 11** Create a physical loopback at the circuit destination port. To do so, attach one end of a patch cable to the destination port’s Tx connector; attach the other end to the port’s Rx connector.




---

**Note** Use an appropriately sized attenuator when connecting transmit ports to receive ports. On the long-reach optical cards (STM-16 LH 16 Port 1550 and the STM-64 LH 4 Port 1550), use a 15-dB attenuator; on the short-reach optical cards (STM-16 SH 16 Port 1310 and STM-64 SH 4 Port 1310), use a 3-dB attenuator.

---

- Step 12** At the circuit source port:
- Connect the Tx connector of the test set to the Rx connector on the circuit source port.
  - Connect the test set Rx connector to the circuit Tx connector on the circuit source port.




---

**Note** Use appropriate attenuation on the test set receive connector; for more information, refer to the test set manual.

---

- Step 13** Verify that the test set displays a clean signal. If a clean signal is not present, repeat [Steps 9 through 12](#) to make sure the test set and cabling are configured correctly. If the problem persists, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 14** Inject bit errors from the test set. Verify that the errors display at the test sets, indicating a complete end-to-end circuit.
- Step 15** Complete the [“DLP-F55 Optical 1+1 \(LMSP\) Manual Protection Switch Test” task on page 5-9](#).
- Step 16** Set up and complete a long-term bit error rate (BER) test on the working and the protect spans. Use the existing configuration and follow your site requirements for the specified length of time. Record the test results and configuration.
- Step 17** Remove any loopbacks, switches, or test sets from the nodes after all testing is complete.
- Step 18** From the View menu, choose **Go To Network View**.
- Step 19** Click the **Alarms** tab. Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 20** Complete the [“DLP-F66 Export CTC Data” task on page 7-3](#) to export alarm data.
- Step 21** If a node fails any test, repeat the test to verify correct setup and configuration. If the test fails again, refer to the next level of support.
- Step 22** Delete the test circuit. See the [“DLP-E97 Delete Circuits” task on page 9-11](#) for instructions.



After all tests are successfully completed and no alarms exist in the network, the network is ready for service application.

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

## DLP-F55 Optical 1+1 (LMSP) Manual Protection Switch Test

<b>Purpose</b>	This task verifies that a 1+1 (LMSP) protection group will switch properly.
<b>Tools/Equipment</b>	Optical test set and cables; a test circuit as part of the topology acceptance test
<b>Prerequisite Procedures</b>	<a href="#">DLP-F36 Log into CTC, page 3-15</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Provisioning or higher

- 
- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Alarms** tab.
- Verify that the alarm filter is not on. See the “[DLP-F74 Disable Alarm Filtering](#)” task on page 7-14 for instructions.
  - Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 3** Click the **Conditions** tab. Verify that no unexplained conditions appear on the network. If unexplained conditions appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 4** Double-click the node containing the 1+1 protection group you are testing. The node view appears.
- Step 5** Click the **Maintenance > Protection** tabs.
- Step 6** In the Protection Groups area, click the 1+1 protection group.
- Step 7** Click the working port. Next to Switch Commands, click **Force**.
- Step 8** In the Confirm Manual Operation dialog box, click **Yes**.
- Step 9** In the Selected Group area, verify that the following text appears:
- ```
Protect port - Protect/Active [FORCE_SWITCH_TO_PROTECT], [PORT STATE]
Working port - Working/Standby [FORCE_SWITCH_TO_PROTECT], [PORT STATE]
```
- Step 10** Verify that the traffic on the test set connected to the node is still running. Some bit errors are normal. The traffic flow can be interrupted for less than 50 ms. If a traffic interruption of more than 50 ms occurs, complete [Step 11](#) to clear the switch, then repeat Steps 6 through 9, monitoring traffic on your test set. If the problem remains, contact your next level of support.
- Step 11** Next to Switch Commands, click **Clear**.
- Step 12** In the Confirm Clear Operation confirmation dialog box, click **Yes**.
- Step 13** In the Selected Group area, click the protect port. Next to Switch Commands, click **Force**.
- Step 14** In the Confirm Force Operation dialog box, click **Yes**.

**Step 15** In the Selected Group area, verify that the following text appears:

```
Protect port - Protect/Standby [FORCE_SWITCH_TO_WORKING], [PORT STATE]
Working port - Working/Active [FORCE_SWITCH_TO_WORKING], [PORT STATE]
```

**Step 16** Verify that traffic on the test set connected to the node is still running. The traffic flow can be interrupted for less than 50 ms. If a traffic interruption of more than 50 ms occurs, complete [Step 11](#) to clear the switch, then repeat Steps [13](#) through [15](#), monitoring traffic on your test set. If the problem remains, contact your next level of support.

**Step 17** Return to your originating procedure (NTP).

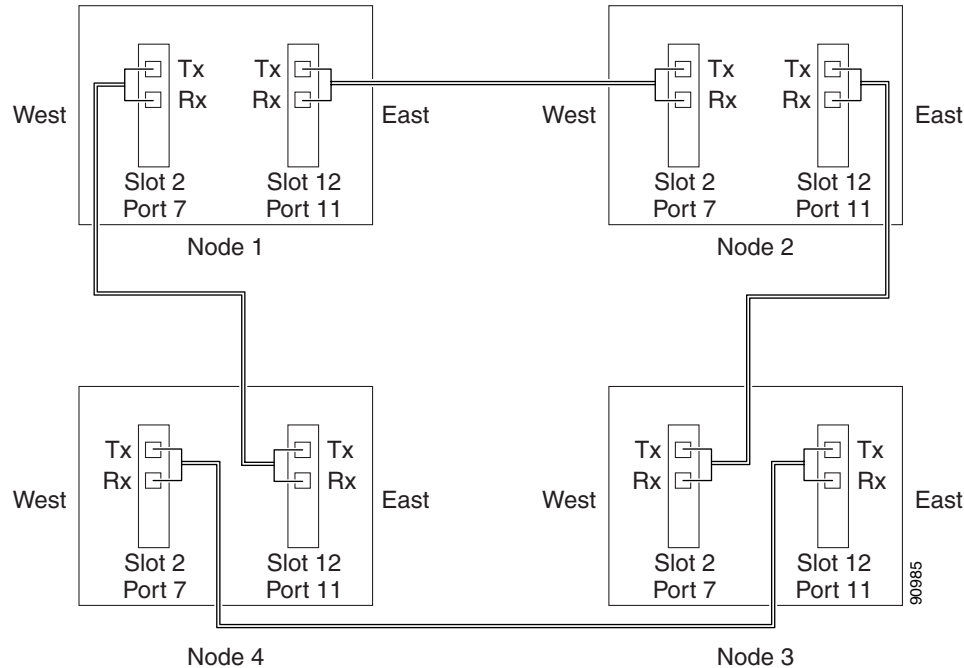
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## NTP-F36 Provision MS-SPRing Nodes

|                                |                                                                |
|--------------------------------|----------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure provisions ONS 15600 SDH nodes for a MS-SPRing. |
| <b>Tools/Equipment</b>         | None                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F32 Verify Node Turn Up, page 5-2</a>          |
| <b>Required/As Needed</b>      | As needed                                                      |
| <b>Onsite/Remote</b>           | Onsite                                                         |
| <b>Security Level</b>          | Provisioning or higher                                         |

---

**Step 1** Complete the “[DLP-F26 Install Fiber-Optic Cables for MS-SPRing Configurations](#)” task on page 2-14. Verify that the east port at one node is connected to the west port on an adjacent node and this east to west port connection is used at all MS-SPRing nodes, similar to [Figure 5-1](#). In the figure, the STM-N drop card on the left side of the shelf is the west port, and the drop card on the right side of the shelf is considered the east port.

**Figure 5-1 Four-Node, Two-Fiber MS-SPRing Fiber Connection Example**

- Step 2** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node that you want to configure in the MS-SPRing. If you are already logged in, continue with Step 3.
- Step 3** Complete the “[DLP-F53 Provision SDH DCC Terminations](#)” task on page 5-6. Provision the two ports/cards that will serve as the MS-SPRing ports at the node.



**Note** If an ONS 15600 SDH is not connected to a corporate LAN, DCC provisioning must be performed through a direct (craft) connection to the node. Remote provisioning is possible only after all nodes in the network have DCC provisioned to in-service STM-N ports.

- Step 4** If an MS-SPRing span passes through third-party equipment that cannot transparently transport the K3 byte, complete the “[DLP-F56 Remap the K3 Byte](#)” task on page 5-12. This task is not necessary for most users.
- Step 5** Repeat Steps 2 through 4 at each node that will be in the MS-SPRing.
- Step 6** Complete the “[NTP-F37 Create an MS-SPRing](#)” procedure on page 5-12.

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

## DLP-F56 Remap the K3 Byte

|                                |                                                                                                                                                                                                         |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task provisions the K3 byte. Do not remap the K3 byte unless it is specifically required to run an ONS 15600 SDH MS-SPRing through third-party equipment. This task is unnecessary for most users. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                                         |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                               |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                                                  |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                  |



### Caution

If you remap the K3 byte, remap to the same extended byte (Z2, E2, or F1) on either side of the span.

- Step 1** In node view, double-click the card that connects to the third-party equipment.
- Step 2** Click the **Provisioning > MS** tabs.
- Step 3** Click **MS-SPRing Ext Byte** and choose the alternate byte: Z2, E2, or F1.
- Step 4** Click **Apply**.
- Step 5** Repeat Steps 1 through 4 at the node and card on the other end of the MS-SPRing span.



### Note

The extension byte set in Step 3 should match at both ends of the span.

- Step 6** Return to your originating procedure (NTP).

## NTP-F37 Create an MS-SPRing

|                                |                                                                         |
|--------------------------------|-------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates an MS-SPRing at each MS-SPRing-provisioned node. |
| <b>Tools/Equipment</b>         | None                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F36 Provision MS-SPRing Nodes, page 5-10</a>            |
| <b>Required/As Needed</b>      | Required                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                        |
| <b>Security Level</b>          | Provisioning or higher                                                  |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at a node that will be in the MS-SPRing. If you are already logged in, continue with [Step 2](#).
- Step 2** From the View menu, choose **Go To Network View**.
- Step 3** Click the **Provisioning > MS-SPRing** tabs.
- Step 4** Click **Create MS-SPRing**.

- Step 5** In the MS-SPRing Creation dialog box, set the MS-SPRing properties:
- Type—Choose **2-Fiber**.
  - Speed—Choose the MS-SPRing ring speed: STM-16 or STM-64. The speed must match the STM-N speed of the MS-SPRing trunk cards.
  - Ring ID—Assign a ring ID (a number between 0 and 9999).
  - Reversion time—Set the amount of time that will pass before the traffic reverts to the original working path following a ring switch. The default is 5 minutes. Ring reversions can be set to Never.
- Step 6** Click **Next**. If CTC displays a network graphic, go Step 7. If CTC determines that an MS-SPRing cannot be created, for example, not enough optical cards are installed or it finds circuits with SNCP selectors, a “Cannot Create MS-SPRing” message appears. If this occurs, complete the following steps:
- a. Click **OK**.
  - b. In the Create MS-SPRing window, click **Excluded Nodes**. Review the information explaining why the MS-SPRing could not be created, then click **OK**.
  - c. Depending on the problem, click **Back** to start over or click **Cancel** to cancel the operation.
  - d. Complete the “[NTP-F36 Provision MS-SPRing Nodes](#)” procedure on page 5-10, making sure all steps are completed accurately, then start this procedure again.
- Step 7** In the network graphic, double-click an MS-SPRing span line. If the span line is DCC connected to other MS-SPRing cards comprising a complete ring, the lines turn blue and the Finish button appears. If the lines do not form a complete ring, double-click the span lines until a complete ring is formed. When the ring is DCC connected, continue with Step 8.
- Step 8** Click **Finish**. If CTC displays the MS-SPRing window with the MS-SPRing you created, continue with Step 9. If CTC displays a “Cannot Create MS-SPRing” or “Error While Creating MS-SPRing” message, complete the following steps:
- a. Click **OK**.
  - b. In the Create MS-SPRing window, click **Excluded Nodes**. Review the information explaining why the MS-SPRing could not be created, then click **OK**.
  - c. Depending on the problem, click **Back** to start over or click **Cancel** to cancel the operation.
  - d. Complete the “[NTP-F36 Provision MS-SPRing Nodes](#)” procedure on page 5-10, making sure all steps are completed accurately, then start this procedure again.




---

**Note** Some or all of the following alarms might briefly display during MS-SPRing setup: E-W-MISMATCH, RING MISMATCH, APSC-IMP, APSDFLTK, or MS-SPRingOSYNC.

---

- Step 9** Verify the following:
- On the network view graphic, a green span line appears between all MS-SPRing nodes.
  - All E-W-MISMATCH, RING MISMATCH, APSC-IMP, APSDFLTK, and MS-SPRingOSYNC alarms are cleared. See the *Cisco ONS 15600 SDH Troubleshooting Guide* for alarm troubleshooting.
- Step 10** Complete the “[NTP-F38 Two-Fiber MS-SPRing Acceptance Test](#)” procedure on page 5-14.
- Step. You have completed this procedure.**
-

# NTP-F38 Two-Fiber MS-SPRing Acceptance Test

|                                |                                                                                                                        |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure tests a two-fiber MS-SPRing.                                                                            |
| <b>Tools/Equipment</b>         | Test set and cables appropriate for the test circuit                                                                   |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F36 Provision MS-SPRing Nodes, page 5-10</a><br><a href="#">NTP-F37 Create an MS-SPRing, page 5-12</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                              |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                 |
| <b>Security Level</b>          | Provisioning or higher                                                                                                 |



## Note

This procedure requires that you create test circuits and perform span switches around the ring. For clarity, “Node 1” refers to the login node where you begin the procedure. “Node 2” refers to the node connected to the East STM-N trunk (span) card of Node 1, “Node 3” refers to the node connected to the East STM-N trunk card of Node 2, etc.

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at one of the nodes on the MS-SPRing that you are testing. (This node will be called Node 1.) If you are already logged in, continue with [Step 2](#).
- Step 2** From the View menu, choose **Go To Network View**.
- Step 3** Click the **Alarms** tab.
- Verify that the alarm filter is not on. See the [“DLP-F74 Disable Alarm Filtering” task on page 7-14](#) for instructions.
  - Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 4** Complete the [“DLP-F66 Export CTC Data” task on page 7-3](#) to export alarm data.
- Step 5** Click the **Conditions** tab. Verify that no unexplained conditions appear on the network. If unexplained conditions appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 6** Complete the [“DLP-F66 Export CTC Data” task on page 7-3](#) to export condition data.
- Step 7** In the network view, double-click Node 1.
- Step 8** Complete the [“DLP-F57 MS-SPRing Exercise Ring Test” task on page 5-16](#).
- Step 9** Create a test circuit from Node 1 to the node connected to the East STM-N trunk card of Node 1. (This node will be called Node 2.)
- Step 10** Configure the test set for the test circuit type you created.
- Step 11** Verify the integrity of all patch cables that will be used in this test by connecting the test set Tx connector to the test set Rx connector. Use appropriate attenuation; for more information, refer to the test set manual. If the test set does not run error-free, check the cable for damage and check the test set to make sure it is set up correctly before going to the next step.
- Step 12** Create a physical loopback at the circuit destination card: attach one end of a patch cable to the destination port’s Tx connector; attach the other end to the port’s Rx connector.



---

**Note** Use an appropriately sized attenuator when connecting transmit ports to receive ports. On the long-reach optical cards (STM-16 LH 16 Port 1550 and the STM-64 LH 4 Port 1550), use a 15-dB attenuator; on the short-reach optical cards (STM-16 SH 16 Port 1310 and STM-64 SH 4 Port 1310), use a 3-dB attenuator.

---

- Step 13** At the circuit source card:
- a. Connect the test set Tx connector, using appropriate attenuation, to the circuit Rx connector.
  - b. Connect the test set Rx connector, using appropriate attenuation, to the circuit Tx connector.



---

**Note** For information about the appropriate level of attenuation, refer to the test set manual.

---

- Step 14** Verify that the test set displays a clean signal. If a clean signal is not present, repeat Steps 9 through 14 to make sure the test set and cabling are configured correctly.
- Step 15** Inject bit errors from the test set. Verify that the errors display at the test set, verifying a complete end-to-end circuit.
- Step 16** Complete the [“DLP-F58 MS-SPRing Switch Test” task on page 5-17](#) at Node 1.
- Step 17** Set up and complete a BER test on the test circuit. Use the existing configuration and follow your site requirements for length of time. Record the test results and configuration.
- Step 18** Complete the [“DLP-E97 Delete Circuits” task on page 9-11](#) for the test circuit.
- Step 19** Repeat Steps 7 through 18 for Nodes 2 and higher, working your way around the MS-SPRing, testing each node and span in the ring. Work your way around the MS-SPRing creating test circuits between every two consecutive nodes.
- Step 20** After you test the entire ring, remove any loopbacks and test sets from the nodes.
- Step 21** If a node fails any test, repeat the test while verifying correct setup and configuration. If the test fails again, refer to the next level of support.

After all tests are successfully completed and no alarms exist in the network, the network is ready for service application. Continue with [Chapter 6, “Create Circuits.”](#)

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

---

## DLP-F57 MS-SPRing Exercise Ring Test

|                                |                                                                                                                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task tests the MS-SPRing ring functionality without switching traffic. Ring exercise conditions (including the K-byte pass-through) are reported and cleared within 10 to 15 seconds. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                       |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                            |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                                     |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                     |

---

**Step 1** From the View menu, choose **Go To Network View**.

**Step 2** Click the **Provisioning > MS-SPRing** tabs.

**Step 3** Click the row of the MS-SPRing you will exercise, then click **Edit**.

**Step 4** Right-click the west port of any MS-SPRing node and choose **Set West Protection Operation**.




---

**Note** For two-fiber MS-SPRings, the squares on the node icons represent the MS-SPRing working and protect channels. You can right-click either channel.

---

**Step 5** In the Set West Protection Operation dialog box, choose **EXERCISE RING** from the drop-down menu. Click **OK**.

**Step 6** In the Confirm MS-SPRing Operation dialog box, click **Yes**.

On the network view graphic, an E appears on the working MS-SPRing channel where you invoked the protection switch. The E will display for 10 to 15 seconds, then disappear.

**Step 7** In the CTC window, click the **History** tab. Verify that an EXERCISE-RING (Exercising Ring Successfully) condition appears for the node where you exercised the ring. Other conditions appear include EXERCISE-RING-REQ, KB-PASSTHR, and FE-EXERCISING-RING.

If you do not see any MS-SPRing exercise conditions, verify that the Filter button is not selected. Also, check that alarms and conditions are not suppressed for a node or MS-SPRing drop cards. See the [“NTP-F57 Suppress and Restore Alarm Reporting” procedure on page 7-24](#) for more information.

**Step 8** Click the **Alarms** tab.

- a. Verify that the alarm filter is not on. See the [“DLP-F74 Disable Alarm Filtering” task on page 7-14](#) for instructions.
- b. Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

**Step 9** From the File menu choose **Close** to close the MS-SPRing window.

**Step 10** Return to your originating procedure (NTP).

---



## DLP-F58 MS-SPRing Switch Test

|                                |                                                                                    |
|--------------------------------|------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task verifies that protection switching is working correctly in an MS-SPRing. |
| <b>Tools/Equipment</b>         | None                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                    |
| <b>Required/As Needed</b>      | Required                                                                           |
| <b>Onsite/Remote</b>           | Onsite                                                                             |
| <b>Security Level</b>          | Provisioning or higher                                                             |

**Step 1** In network view, click the **Provisioning > MS-SPRing** tabs.

**Step 2** Click the row of the MS-SPRing you will switch, then click **Edit**.

**Step 3** Right-click any MS-SPRing node west port and choose **Set West Protection Operation**.



**Note** For two-fiber MS-SPRings, the squares on the node icons represent the MS-SPRing working and protect channels. You can right-click either channel.

**Step 4** In the Set West Protection Operation dialog box, choose **FORCE RING** from the drop-down menu. Click **OK**.

**Step 5** Click **Yes** on the two Confirm MS-SPRing Operation dialog boxes that appear.

On the network view graphic, an F appears on the MS-SPRing channel where you invoked the Force Ring switch. The MS-SPRing span lines turn purple where the switch was invoked, and all span lines between other MS-SPRing nodes turn green.

**Step 6** Click the **Conditions** tab, then click **Retrieve**.

**Step 7** Verify that the following conditions are reported on the node where you invoked the Force Ring switch on the West port:

- **FORCE-REQ-RING**—A Force Switch Request On Ring condition is reported against the span's working slot on the west side of the node.
- **RING-SW-EAST**—A Ring Switch Active on the east side condition is reported against the working span on the east side of the node.



**Note** Make sure the Filter button in the lower right corner of the window is off. Click the Node column to sort conditions by node.

**Step 8** Verify that the following conditions are reported on the node that is connected to the west line of the node where you performed the switch:

- **FE-FRCDWKSWPR-RING**—A Far-End Working Facility Forced to Switch to Protection condition is reported against the working span on the east side of the node.
- **RING-SW-WEST**—A Ring Switch Active on the west side condition is reported against the working span on the west side of the node.

**Step 9** (Optional) If you remapped the K3 byte to run an ONS 15600 SDH MS-SPRing through third-party equipment, verify a **KBYTE-PASSTHRU** condition reported on other nodes that are not connected to the west side of the node where you invoked the Force Ring switch.

- Step 10** Verify the MS-SPRing line status on each node:
- a. In node view, click **Maintenance > MS-SPRing**.
  - b. Verify the following:
    - The line states are shown as Stby/Stby on the west side of the node and Act/Act on the east side of the node where you invoked the Force Ring switch.
    - The line states are shown as Stby/Stby on the east side of the node and Act/Act on the west side of the node that is connected to the west line of the node where you invoked the Force Ring switch.
    - The line states are shown as Act/Act on both East and west sides of the remaining nodes in the ring.
- Step 11** From the View menu, choose **Go to Network View**.
- Step 12** Click the **Alarms** tab.
- a. Verify that the alarm filter is not on. See the “[DLP-F74 Disable Alarm Filtering](#)” task on page 7-14 for instructions.
  - b. Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 13** Display the MS-SPRing window where you invoked the Force Ring switch (the window might be hidden by the CTC window).
- Step 14** Right-click the west port of the MS-SPRing node where you invoked the Force Ring switch and choose **Set West Protection Operation**.
- Step 15** In the Set West Protection Operation dialog box, choose **CLEAR** from the drop-down menu. Click **OK**.
- Step 16** Click **Yes** in the Confirm MS-SPRing Operation dialog box.
- On the network view graphic, the Force Ring switch is removed, the F indicating the switch is removed, and the span lines between MS-SPRing nodes will be purple and green. The span lines might take a few moments to change color.
- Step 17** In network view, click the **Conditions** tab. Verify that all conditions raised in this procedure are cleared from the network. If unexplained conditions appear, resolve them before continuing.
- Step 18** Verify the MS-SPRing line status on each node:
- a. From node view, click **Maintenance > MS-SPRing**.
  - b. Verify that the line states are shown as Act/Stby on both the east and west sides of each node in the ring.
- Step 19** Right-click the east port of MS-SPRing node and choose **Set East Protection Operation**.
- Step 20** In the Set East Protection Operation dialog box, choose **FORCE RING** from the drop-down menu. Click **OK**.
- Step 21** Click **Yes** in the two Confirm MS-SPRing Operation dialog boxes that appear.
- On the network view graphic, an F appears on the working MS-SPRing channel where you invoked the Force Ring switch. The MS-SPRing span lines are purple where the Force Ring switch was invoked, and all span lines between other MS-SPRing nodes are green. The span lines might take a few moments to change color.
- Step 22** Click the **Conditions** tab, then click **Retrieve**.

- Step 23** Verify that the following conditions are reported on the node where you invoked the Force Ring switch on the east port:
- **FORCE-REQ-RING**—A Force Switch Request On Ring condition is reported against the span's working slot on the east side of the node.
  - **RING-SW-WEST**—A Ring Switch Active on the west side condition is reported against the working span on the east side of the node.




---

**Note** Make sure the Filter button in the lower right corner of the window is off. Click the Node column to sort conditions by node.

---

- Step 24** Verify that the following conditions are reported on the node that is connected to the east line of the node where you performed the switch:
- **FE-FRCDWKSWPR-RING**—A Far-End Working Facility Forced to Switch to Protection condition is reported against the working span on the west side of the node.
  - **RING-SW-EAST**—A Ring Switch Active on the east side condition is reported against the working span on the west side of the node.
- Step 25** (Optional) If you remapped the K3 byte to run an ONS 15600 SDH MS-SPRing through third-party equipment, verify a KBYTE-PASSTHRU condition reported on other nodes that are not connected to the west side of the node where you invoked the Force Ring switch.
- Step 26** Verify the MS-SPRing line status on each node:
- In node view, click **Maintenance > MS-SPRing**.
  - Verify the following:
    - The line states are shown as Stby/Stby on the east side of the node and Act/Act on the west side of the node where you invoked the Force Ring switch.
    - The line states are shown as Stby/Stby on the west side of the node and Act/Act on the east side of the node that is connected to the east line of the node where you invoked the Force Ring switch.
    - The line states are shown as Act/Act on both east and west sides of the remaining nodes in the ring.
- Step 27** From the View menu, choose **Go To Network View**.
- Step 28** Click the **Alarms** tab. Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 29** Display the MS-SPRing window where you invoked the Force Ring switch (the window might be hidden by the CTC window).
- Step 30** Right-click the west port of the MS-SPRing node where you invoked the Force Ring switch and choose **Set East Protection Operation**.
- Step 31** In the Set East Protection Operation dialog box, choose **CLEAR** from the drop-down menu. Click **OK**.
- Step 32** Click **Yes** in the Confirm MS-SPRing Operation dialog box.
- On the network view graphic, the Force Ring switch is removed, the F indicating the switch is removed, and the span lines between MS-SPRing nodes will be purple and green. The span lines might take a few moments to change color.
- Step 33** In network view, click the **Conditions** tab. Verify that all conditions raised in this procedure are cleared from the network. If unexplained conditions appear, resolve them before continuing.

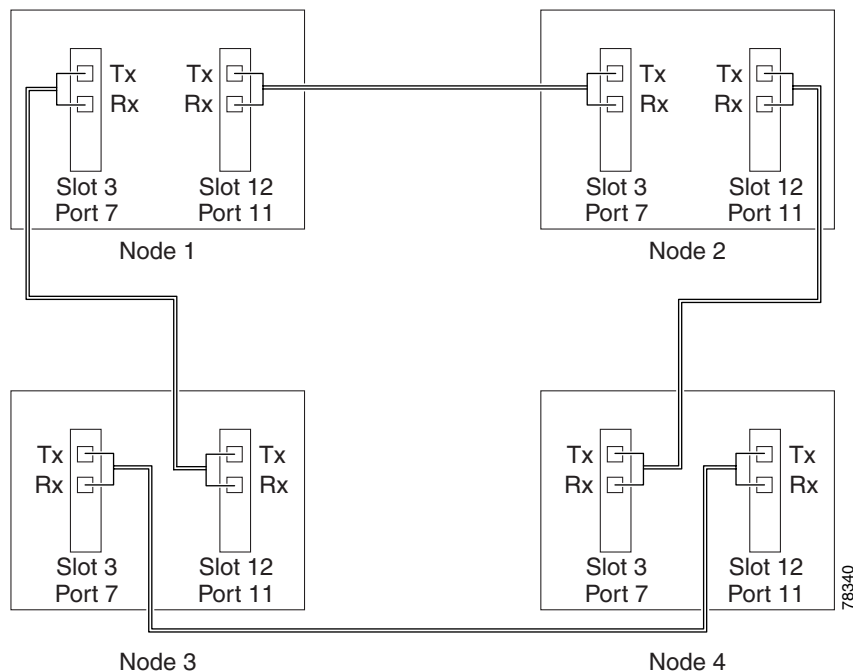
- Step 34** Verify the MS-SPRing line status on each node:
- From node view, click **Maintenance > MS-SPRing**.
  - Verify that the line states are shown as Act/Stby on both the east and west sides of each node in the ring.
- Step 35** From the File menu choose **Close** to close the MS-SPRing window.
- Step 36** Return to your originating procedure (NTP).

## NTP-F39 Provision SNCP Nodes

|                                |                                                                             |
|--------------------------------|-----------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure provisions ONS 15600 SDH nodes for inclusion in a SNCP ring. |
| <b>Tools/Equipment</b>         | None                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F32 Verify Node Turn Up, page 5-2</a>                       |
| <b>Required/As Needed</b>      | As needed                                                                   |
| <b>Onsite/Remote</b>           | Onsite                                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                      |

- Step 1** Verify that the fiber is correctly connected to the ports on the SNCP trunk (span) STM-N card. Fiber connected to an east port at one node should be connected to the west port on an adjacent node using an appropriately sized attenuator, similar to [Figure 5-2](#).

**Figure 5-2 SNCP Fiber Connection Example**



- Step 2** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at a node on the SNCP that you are turning up. If you are already logged in, continue with [Step 3](#).
- Step 3** Complete the “[DLP-F53 Provision SDH DCC Terminations](#)” task on page 5-6 for the cards/ports that will host the SNCP on the node, for example, Slot 3 (STM-16)/Port 1 and Slot 12 (STM-16)/ Port 1.




---

**Note** If an ONS 15600 SDH is not connected to a corporate LAN, you must perform RS-DCC provisioning through a local craft connection. Remote provisioning is possible only after all nodes in the network have DCC terminations provisioned to in-service STM-N ports.

---

- Step 4** Repeat Steps 2 and 3 for each node in the SNCP.
- Step 5** If necessary, complete the “[DLP-F54 Change the Service State for a Port](#)” task on page 5-6 for all ports that you configured as DCC terminations. (CTC usually puts ports in service by default when you complete the DCC terminations.) Repeat this step at each node that will be in the SNCP.
- Step 6** Complete the “[NTP-F40 SNCP Acceptance Test](#)” procedure on page 5-21.

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

---

## NTP-F40 SNCP Acceptance Test

|                                |                                                                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates drop ports at two of the nodes in the SNCP to support test set connections (source and destination ports). |
| <b>Tools/Equipment</b>         | Test set and cables appropriate to the test circuit you will create.                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F32 Verify Node Turn Up, page 5-2</a><br><a href="#">NTP-F39 Provision SNCP Nodes, page 5-20</a>                  |
| <b>Required/As Needed</b>      | Required if you provisioned an SNCP                                                                                               |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                                                                            |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at one of the nodes on the SNCP that you are testing. If you are already logged in, continue with [Step 2](#).
- Step 2** From the View menu, choose **Go To Network View**.
- Step 3** Click the **Alarms** tab.
- Verify that the alarm filter is not on. See the “[DLP-F74 Disable Alarm Filtering](#)” task on page 7-14 for instructions.
  - Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 4** Complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3 to export alarm data.
- Step 5** Click the **Conditions** tab. Verify that no unexplained conditions appear on the network. If unexplained conditions appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 6** Complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3 to export condition data.

- Step 7** On the network map, double-click the node that you logged into in [Step 1](#).
- Step 8** Create a fully protected VC4-16c or VC4-64c circuit as appropriate for the SNCP spans. If an STM-64 test set is not available, create an STM-16 test circuit across an STM-64 span. See the “[NTP-F42 Create an Automatically Routed Optical Circuit](#)” procedure on page 6-4.
- Step 9** Configure the test set for the test circuit type you created. For information about configuring your test set, consult your test set user guide.
- Step 10** Verify the integrity of all patch cables that will be used in this test by connecting one end to the test set Tx connector the other to the test set Rx connector. Use appropriate attenuation on the test set receive connector; for more information, refer to the test set manual. If the test set does not run error-free, check the cable for damage and check the test set to make sure it is set up correctly before going to [Step 11](#).
- Step 11** Create a physical loopback at the circuit destination port:
- Attach one end of a patch cable to the destination port’s Tx connector.
  - Attach the other end to the port’s Rx connector.




---

**Note** Use an appropriately sized attenuator when connecting transmit ports to receive ports. On the long-reach optical cards (STM-16 LH 16 Port 1550 and the STM-64 LH 4 Port 1550), use a 15-dB attenuator; on the short-reach optical cards (STM-16 SH 16 Port 1310 and STM-64 SH 4 Port 1310), use a 3-dB attenuator.

---

- Step 12** At the circuit source port:
- Connect the Tx connector of the test set to the circuit Rx connector.
  - Connect the test set Rx connector to the circuit Tx connector.




---

**Note** Use appropriate attenuation on the test set receive connector; for more information, refer to the test set manual.

---

- Step 13** Verify that the test set displays a clean signal. If a clean signal is not present, repeat [Steps 8](#) through [Step 12](#) to verify that the test set and cabling are configured correctly.
- Step 14** Inject bit errors from the test set. Verify that the errors display at the test set, indicating a complete end-to-end circuit.
- Step 15** From the View menu, choose **Go To Network View**.
- Step 16** Click one of the two spans coming from the circuit source node.
- Step 17** Complete the “[DLP-F59 SNCP Protection Switching Test](#)” task on page 5-23.  
Although a service interruption under 50 ms might occur, the test circuit should continue to work before, during, and after the switches. If the circuit stops working, do not continue. Contact your next level of support.
- Step 18** In network view, click the other circuit source span.
- Step 19** Repeat [Step 17](#).
- Step 20** Set up and complete a long-term BER test. Use the existing configuration and follow your site requirements for length of time. Record the test results and configuration.
- Step 21** Remove any loopbacks, switches, or test sets from the nodes after all testing is complete.
- Step 22** From the View menu, choose **Go To Network View**.

- Step 23** Click the **Alarms** tab. Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 24** Complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3 to export alarm data.
- Step 25** Click the **Conditions** tab. Verify that no unexplained conditions appear on the network. If unexplained conditions appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 26** Complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3 to export condition data.
- Step 27** If a node fails any test, repeat the test verifying correct setup and configuration. If the test fails again, refer to the next level of support.

After all tests are successfully completed and no alarms exist in the network, the network is ready for service application.

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

---

## DLP-F59 SNCP Protection Switching Test

|                                |                                                  |
|--------------------------------|--------------------------------------------------|
| <b>Purpose</b>                 | This task verifies SNCP protection switching.    |
| <b>Tools/Equipment</b>         | None                                             |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15 |
| <b>Required/As Needed</b>      | Required                                         |
| <b>Onsite/Remote</b>           | Onsite                                           |
| <b>Security Level</b>          | Provisioning or higher                           |

---

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Right-click the span where you want to switch SNCP traffic and choose **Circuits**.  
The Circuits on Span dialog box displays the SNCP circuits, including circuit names, location, and a color code showing which circuits are active on the span.
- Step 3** Click the **Perform SNCP span switching** field and choose **FORCE** from the drop-down menu. Click **Apply**. In the Circuits on Span dialog box, the Switch State listed for all circuits is FORCE.



**Caution** The FORCE command overrides normal protective switching mechanisms. Applying this command incorrectly can cause traffic outages.

---

- Step 4** In the confirmation dialog box, click **Yes**.



**Note** Unprotected circuits will not switch.

---

- Step 5** Click the **Perform SNCP span switching** field and choose **CLEAR** from the drop-down menu. Click **Apply**.
- Step 6** In the confirmation dialog box, click **Yes**. A confirmation message verifies that the FORCE was cleared. In the Circuits on Span dialog box, the Switch State listed for all circuits is CLEAR.



---

**Note** The colors of the circuits may not change.

---

**Step 7** Return to your originating procedure (NTP).

---





## Create Circuits

---

This chapter explains how to create Cisco ONS 15600 SDH circuits. For additional information, refer to the Circuits chapter in the *Cisco ONS 15600 SDH Reference Manual*.



**Note**

---

The Software Release 1.4 does not support a full state model. As a result, the circuit state cannot be changed; it is always In Service (IS).

---

## Before You Begin

Before performing any of the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* as necessary.

This section lists the chapter procedures (NTPs). Turn to a procedure for a list of its tasks (DLPs).

1. [NTP-F41 Verify Network Turn Up, page 6-2](#)—Complete this procedure before you create any circuits.
2. [NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4](#)—Complete as needed.
3. [NTP-F43 Create a Manually Routed Optical Circuit, page 6-11](#)—Complete as needed.
4. [NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops, page 6-13](#)—Complete this procedure as needed.
5. [NTP-F45 Test Optical Circuits, page 6-16](#)—Complete this procedure after you create circuits.
6. [NTP-F46 Create a Half Circuit on an MS-SPRing or 1+1 \(LMSP\) Node, page 6-18](#)—Complete this procedure as needed to create a half circuit using an STM-N as a destination in a multiplex section-shared protection ring (MS-SPRing) or 1+1 (LMSP) topology.
7. [NTP-F47 Create a Half Circuit on an SNCP Node, page 6-20](#)—Complete as needed to create a half circuit using an STM-N as a destination in a subnetwork connection protection (SNCP) node.
8. [NTP-F48 Create a DCC Tunnel, page 6-23](#)—Complete as needed.



**Note**

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To provision ONS 15600 SDH circuits from an ONS 15454 SDH node, the Cisco Transport Controller (CTC) version launched must be compatible with or higher than the ONS 15600 SDH CTC version.

---

**Note**

In this chapter, “cross-connect” and “circuit” have the following meanings: cross-connect refers to the connections that occur within a single node to allow a circuit to enter and exit the node. Circuit refers to the series of connections from a traffic source (where traffic enters the network) to the drop or destination (where traffic exits the network).

**Note**

You cannot set up low-order circuits to terminate on an ONS 15600 SDH node. However, you can create both high-order and low-order circuits that have an ONS 15454 SDH source and destination with an ONS 15600 SDH as a pass-through node. When creating a low-order path circuits between ONS 15454 SDH nodes, a VC4 tunnel is necessary. The VC4 tunnel can be created automatically by using the Circuit Creation wizard to create the low-order circuit, or manually by using the Circuit Creation wizard to create the VC4 tunnel before creating the low-order circuit. When you create VC4 tunnels over ONS 15600 pass-through nodes manually, you have control over how the tunnel is created. For information about low-order circuit creation and tunneling, refer to the circuit chapters in the *Cisco ONS 15454 SDH Procedure Guide*.

**Note**

During circuit provisioning in a network that includes ONS 15600s and ONS 15454s, the ONS 15600 SDH raises a temporary UNEQ-P alarm. The alarm clears when the circuit is complete.

[Table 6-1](#) defines key ONS 15600 SDH circuit creation terms and options.

**Table 6-1 Key ONS 15600 SDH Circuit Options**

| Circuit Option            | Description                                                                                                                                                                                                                                                                                         |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                    | The point where the circuit enters the ONS 15600 SDH network. The first facility specified when creating a connection is also considered the source.                                                                                                                                                |
| Destination               | The point where the circuit exits an ONS 15600 SDH network. The last facility specified when creating a connection is also considered the destination.                                                                                                                                              |
| Automatic circuit routing | CTC routes the circuit automatically on the shortest available path based on the routing parameters that you define and on bandwidth availability.                                                                                                                                                  |
| Manual circuit routing    | Allows you to choose a specific path, not just the shortest path chosen by automatic routing. You can choose a specific virtual channel (VC) for each circuit segment, and you can create circuits from work orders prepared by an operations support system (OSS) like the Telcordia TIRKS system. |

## NTP-F41 Verify Network Turn Up

|                                |                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure verifies that the ONS 15600 SDH network is ready for circuit provisioning. |
| <b>Tools/Equipment</b>         | None                                                                                      |
| <b>Prerequisite Procedures</b> | <a href="#">Chapter 5, “Turn Up Network”</a>                                              |
| <b>Required/As Needed</b>      | Required                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                          |
| <b>Security Level</b>          | Provisioning or higher                                                                    |

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at a node on the network where you will create circuits. If you are already logged in, continue with [Step 2](#).
- Step 2** From the View menu, choose **Go To Network View**. Wait for all the nodes that are part of the network to appear on the network map. (Large networks might take several minutes to display all the nodes.)



**Note** If this is the first time your computer has connected to this ONS 15600 SDH network, the node icons will be stacked on the left side of the graphic area, possibly out of view. Use the scroll bar below the network map to display the icons. To separate the icons, press **Ctrl** and drag and drop the icon to the new location. Repeat until all the nodes are visible on the graphic area.

- Step 3** Verify node accessibility. All node icons must be either green, yellow, orange, or red. If all network nodes do not appear after a few minutes, or if a node icon is gray with an IP address beneath it, do not continue. Look at the NET box in the lower right corner of the window. If it is gray, log in again, making sure not to check the Disable Network Discovery check box on the CTC Login dialog box. If problems persist, see [Chapter 5, “Turn Up Network”](#) to review the network turn-up procedure appropriate for your network topology, or refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* for troubleshooting procedures.
- Step 4** Verify data communications channel (DCC) connectivity. All nodes must be connected by green lines. If lines are missing or gray, do not continue. See [Chapter 5, “Turn Up Network”](#) and follow the network turn-up procedure appropriate for your network topology. Verify that all nodes have DCC connectivity before continuing.
- Step 5** Click the **Alarms** tab to view alarm descriptions. Investigate and resolve, if necessary, all critical (red node icon) or major (orange node icon) alarms. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* to resolve alarms before continuing.
- Step 6** From the View menu, choose **Go To Home View**. Verify that the node is provisioned according to your site or engineering plan:
- View the cards displayed in the shelf map. Verify that the ONS 15600 SDH cards appear in the specified slots.
  - Click the **Provisioning > General** tabs. Verify that the node name, contacts, date, time, and Simple Network Time Protocol (SNTP) server IP address (if used) are correctly provisioned. If needed, make corrections using the [“NTP-F24 Set Up Date, Time, and Contact Information” procedure on page 4-6](#).
  - Click the **Network** tab. Verify that the IP address, Subnet Mask, Default Router, and Gateway Settings are correctly provisioned. If not, make corrections using the [“NTP-F25 Set Up CTC Network Access” procedure on page 4-8](#).
  - Click the **Protection** tab. Verify that protection groups are created as specified in your site plan. If the protection groups are not created, complete the [“NTP-F27 Create a 1+1 \(LMSP\) Protection Group” procedure on page 4-19](#).
  - If the node is in an MS-SPRing, click the **MS-SPRing** tab. (If the node is not in an MS-SPRing, continue with [Step f](#).) Verify that the following items are provisioned as specified in your site plan:
    - MS-SPRing type (2-Fiber)
    - MS-SPRing ring ID and node IDs
    - Ring reversion time
    - East and west card assignments

If you need to make corrections, see the “[NTP-F36 Provision MS-SPRing Nodes](#)” procedure on [page 5-10](#) for instructions.

- f. Click the **Security** tab. Verify that the users and access levels are provisioned as specified. If not, see the “[NTP-F23 Create Users and Assign Security](#)” procedure on [page 4-4](#) to correct the information.
- g. If SNMP is used, click the **SNMP** tab and verify the trap and destination information. If the information is not correct, see the “[NTP-F28 Set Up SNMP](#)” procedure on [page 4-21](#) to correct the information.
- h. Click the **DCC/GCC** tab. Verify that DCCs were created to the applicable STM-N cards and ports. If DCCs were not created for the appropriate STM-N cards and ports, go to the “[DLP-F53 Provision SDH DCC Terminations](#)” task on [page 5-6](#).
- i. Click the **Timing** tab. Verify that timing is provisioned as specified. If not, go to the “[NTP-F72 Change Node Timing](#)” procedure on [page 10-16](#) to make the changes.
- j. Click the **Alarm Behavior** tab. If you provisioned optional alarm profiles, verify that the alarms are provisioned as specified. If not, see the “[NTP-F56 Create, Assign, and Delete Alarm Severity Profiles](#)” procedure on [page 7-18](#) to change the information.

**Step 7** Repeat [Step 6](#) for each node in the network.

**Step 8** As appropriate, complete circuit creation procedures listed below:

- [NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4](#)
- [NTP-F43 Create a Manually Routed Optical Circuit, page 6-11](#)
- [NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops, page 6-13](#)
- [NTP-F46 Create a Half Circuit on an MS-SPRing or 1+1 \(LMSP\) Node, page 6-18](#)
- [NTP-F47 Create a Half Circuit on an SNCP Node, page 6-20](#)

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

---

## NTP-F42 Create an Automatically Routed Optical Circuit

|                                |                                                                                                                                                                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates an automatically routed optical circuit, including VC4 and concatenated VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, or VC4-64c speeds. CTC automatically routes the circuit based on entries you make at circuit creation and the system load. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F41 Verify Network Turn Up, page 6-2</a>                                                                                                                                                                                                           |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                   |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                             |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on [page 3-15](#) at a node on the network where you will create the high-order circuit. The default (node) view appears. If you are already logged in, continue with [Step 2](#).

- Step 2** If you want to assign a name to the tunnel source and destination ports before you create the circuit, complete the “[DLP-F60 Assign a Name to a Port](#)” task on page 6-8. If not, continue with [Step 3](#).
- Step 3** From the View menu, choose **Go To Network View**.
- Step 4** Click the **Circuits** tab, then click **Create**.
- Step 5** In the Circuit Creation dialog box ([Figure 6-1](#)), complete the following fields:
- **Name**—Assign a name to the circuit. The name can be alphanumeric and up to 48 characters (including spaces). Circuit names should be 44 characters or less if you want the ability to create monitor circuits. If you leave the field blank, CTC assigns a default name to the circuit.
  - **Type**—Choose **VC\_HO\_PATH\_CIRCUIT**.
  - **Size**—Choose the circuit size: VC4, VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, or VC4-64c.
  - **Bidirectional**—When checked (default), creates a two-way circuit. Leave checked for this circuit.
  - **Number of circuits**—Type the number of circuits you want to create. The default is 1. If you are creating multiple circuits with the same source and destination, you can use autoranging to create the circuits automatically.
  - **Auto-ranged**—This box is automatically checked when you enter more than 1 in the Number of circuits field. Leave this box checked if you are creating multiple optical circuits with the same source and destination and you want CTC to create the circuits automatically. Uncheck the box if you do not want CTC to create the circuits automatically.
  - **State**—Choose **IS** (CTC displays only in-service circuits).
  - **Apply to drop ports**—Check this box if you want to apply the state chosen in the State field to the circuit source and destination ports. CTC will apply the circuit state to the ports only if the circuit bandwidth is the same as the port bandwidth or, if the port bandwidth is larger than the circuit, the circuit must be the first circuit to use the drop port. If not, a Warning dialog box displays the ports where the circuit state could not be applied. If the box is unchecked, CTC will not change the state of the source and destination ports.



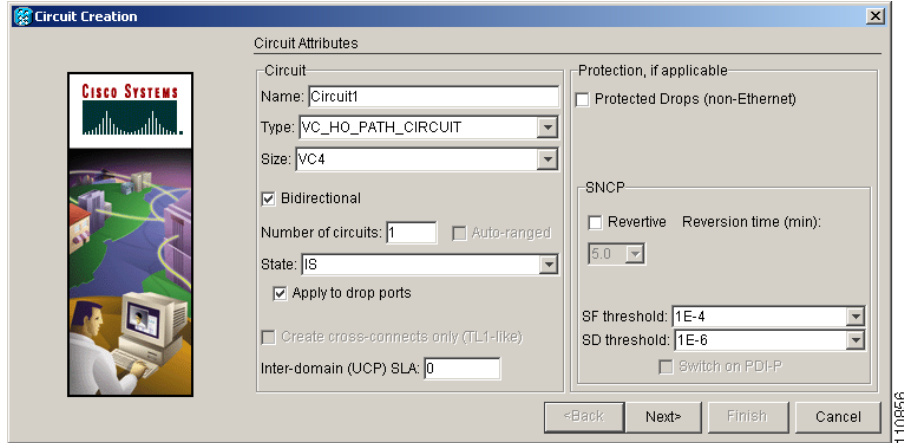
---

**Note** Loss of Signal (LOS) alarms appear if in service (IS) ports are not receiving signals.

---

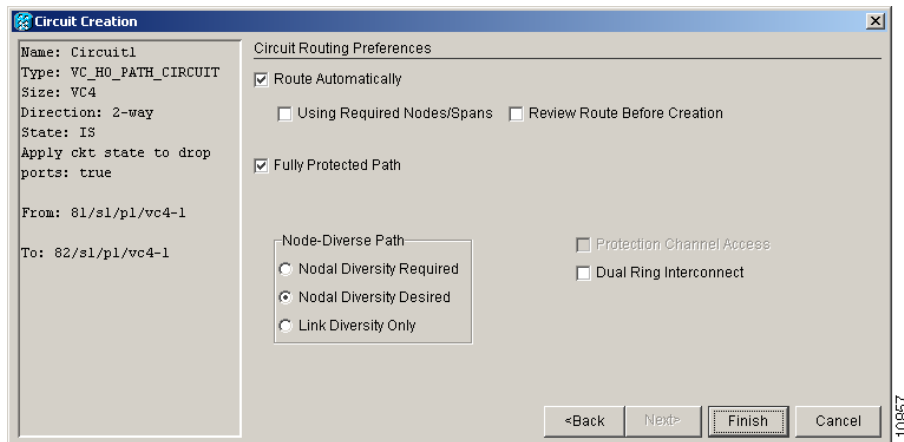
- **Inter-domain (UCP) SLA**—Future use.
- **Protected Drops**—Check this box if you want CTC to display only protected cards and ports (1+1 protection) as choices for the circuit source and destination.

Figure 6-1 Creating a Circuit



- Step 6** If the circuit will be routed on an SNCP, complete the “[DLP-F61 Provision SNCP Selectors During Circuit Creation](#)” task on page 6-9.
- Step 7** Click **Next**.
- Step 8** Complete the “[DLP-F62 Provision an Optical Circuit Source and Destination](#)” task on page 6-9 for the optical circuit that you are creating.
- Step 9** In the Circuit Routing Preferences area ([Figure 6-2](#)), check **Route Automatically**. Two options are available; choose either, both, or none based on your preferences.
- Using Required Nodes/Spans—Check this box to specify nodes and spans to include or exclude in the CTC-generated circuit route.
  - Review Route Before Creation—Check this box to review and edit the circuit route before the circuit is created.

Figure 6-2 Setting Circuit Routing Preferences



- Step 10** Set the circuit path protection:
- To route the circuit on a protected path, leave **Fully Protected Path** checked and continue with [Step 11](#). CTC creates a fully protected circuit route based on the path diversity option you choose. Fully protected paths might or might not have SNCP path segments (with primary and alternate paths), and the path diversity options apply only to SNCP path segments, if any exist.

- To create an unprotected circuit, uncheck **Fully Protected Path** and continue with [Step 12](#).
- To route the circuit on an MS-SPRing protection channel, if available, uncheck **Fully Protected Path**, check **Protection Channel Access**, click **Yes** in the Warning dialog box, and then continue with [Step 12](#).

**Caution**

Circuits routed on MS-SPRing protection channels are not protected. They are preempted during MS-SPRing switches.

- Step 11** If you selected Fully Protected Path, choose one of the following:
- **Nodal Diversity Required**—Ensures that the primary and alternate paths within SNCP portions of the complete circuit path are nodally diverse.
  - **Nodal Diversity Desired**—Specifies that node diversity is preferred, but if node diversity is not possible, CTC creates fiber-diverse paths for the SNCP portion of the complete circuit path.
  - **Link Diversity Only**—Specifies that only fiber-diverse primary and alternate paths for SNCP portions of the complete circuit path are needed. The paths might be node-diverse, but CTC does not check for node diversity.
- Step 12** If you selected Using Required Nodes/Spans in [Step 9](#), complete the following substeps; otherwise, proceed to [Step 13](#):
- a. Click **Next**.
  - b. In the Circuit Route Constraints area, click a node or span on the circuit map.
  - c. Click **Include** to include the node or span in the circuit, or click **Exclude** to exclude the node or span from the circuit. The order in which you select included nodes and spans sets the circuit sequence. Click spans twice to change the circuit direction.
  - d. Repeat [Step c](#) for each node or span you wish to include or exclude.
  - e. Review the circuit route. To change the circuit routing order, select a node beneath the Required Nodes/Lines or Excluded Nodes Links lists, then click the **Up** or **Down** buttons to change the circuit routing order. Click **Remove** to remove a node or span.
- Step 13** If you selected Review Route Before Creation in [Step 9](#), complete the following substeps; otherwise, proceed to [Step 14](#):
- a. Click **Next**.
  - b. Review the circuit route. To add or delete a circuit span, select a node on the circuit route. Blue arrows show the circuit route. Green arrows indicate spans that you can add. Click a span arrowhead, then click **Include** to include the span or **Remove** to remove the span.
  - c. If the provisioned circuit does not reflect the routing and configuration you want, click **Back** to verify and change circuit information. If the circuit needs to be routed to a different path, see the “[NTP-F43 Create a Manually Routed Optical Circuit](#)” procedure on page 6-11 to assign the circuit route yourself.
- Step 14** Click **Finish**. One of the following occurs, based on the circuit properties you provisioned in the Circuit Creation dialog box:
- If you entered more than 1 in Number of Circuits and checked Auto-ranged, CTC automatically creates the number of circuits entered in Number of Circuits. If autoranging cannot complete all the circuits (for example, not enough bandwidth is available on the source or destination), a dialog box appears. Set the new source or destination for the remaining circuits, then click **Finish** to continue autoranging.

- If you entered more than 1 in Number of Circuits and did not check Auto-ranged, the Circuit Creation dialog box appears so you can create the remaining circuits. Repeat Steps 5 through 13 for each additional circuit.
- After completing the circuit(s), the Circuits window appears.

**Step 15** In the Circuits window, verify that the circuit(s) just created appear in the circuits list.

**Step 16** Complete the “[NTP-F45 Test Optical Circuits](#)” procedure on page 6-16. Skip this step if you built a test circuit.

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

---

## DLP-F60 Assign a Name to a Port

|                                |                                                                                                               |
|--------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task assigns a name to a port on any ONS 15600 SDH card.                                                 |
| <b>Tools/Equipment</b>         | None                                                                                                          |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">NTP-F22 Verify Card Installation, page 4-2</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                     |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                              |
| <b>Security Level</b>          | Provisioning or higher                                                                                        |

---

**Step 1** Double-click the card that has the port you want to provision.

**Step 2** Click the **Provisioning** tab.

**Step 3** Click the **Port Name** column for the port number you are assigning a name to and enter the desired port name.

The port name can be up to 32 alphanumeric/special characters and is blank by default.

**Step 4** Click **Apply**.

**Step 5** Return to your originating procedure (NTP).

---



## DLP-F61 Provision SNCP Selectors During Circuit Creation

|                                |                                                                                                                           |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task provisions SNCP selectors during circuit creation. Use this task only if the circuit will be routed on an SNCP. |
| <b>Tools/Equipment</b>         | None                                                                                                                      |
| <b>Prerequisite Procedures</b> | You must have the Circuit Creation wizard displayed.                                                                      |
| <b>Required/As Needed</b>      | As needed                                                                                                                 |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                          |
| <b>Security Level</b>          | Provisioning or higher                                                                                                    |

- 
- Step 1** In the Circuit Attributes area of the Circuit Creation wizard, set the SNCP path selectors:
- **Revertive**—Check this box if you want traffic to revert to the working path when the conditions that diverted it to the protect path are repaired. If you do not choose Revertive, traffic remains on the protect path after the switch.
  - **Reversion time**—If Revertive is checked, click the Reversion time field and choose a reversion time from the drop-down menu. The range is 0.5 to 12.0 minutes. The default is 5.0 minutes. This is the amount of time that will elapse before the traffic reverts to the working path. Traffic can revert when conditions causing the switch are cleared.
  - **SF threshold**—For high-order VC circuits, set the SNCP path-level signal failure bit error rate (BER) thresholds.
  - **SD threshold**—For high-order VC circuits, set the SNCP path-level signal degrade BER thresholds.
  - **Switch on PDI-P**—Not enabled for ONS 15600 SDH.
- Step 2** Return to your originating procedure (NTP).
- 

## DLP-F62 Provision an Optical Circuit Source and Destination

|                                |                                                                                                                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task provisions the source and destination cards for an optical circuit.                                                                                                                                                                                                                                                  |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                                                                           |
| <b>Prerequisite Procedures</b> | Perform this task during one of the following procedures:<br><a href="#">NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4</a><br><a href="#">NTP-F43 Create a Manually Routed Optical Circuit, page 6-11</a><br><a href="#">NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops, page 6-13</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                                                               |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                                                         |

- 
- Step 1** From the Node drop-down menu, choose the node where the circuit will originate.
- Step 2** From the Slot drop-down menu, choose the slot containing the optical card where the circuit originates. (If a card's capacity is fully utilized, it does not appear in the menu.)

- Step 3** Choose the source port from the Port drop-down menu.
- Step 4** Choose the VC from the VC drop-down menu. VCs do not appear if they are already in use by other circuits.




---

**Note** The VCs that appear depend on the card, circuit size, and protection scheme.

---

- Step 5** If you need to create a secondary source, for example, an SNCP bridge/selector circuit entry point in a multivendor SNCP, click **Use Secondary Source** and repeat Steps 1 through 3 to define the secondary source.
- Step 6** Click **Next**.
- Step 7** From the Node drop-down menu, choose the destination node.
- Step 8** From the Slot drop-down menu, choose the slot containing the optical card where the circuit will terminate (destination card). (If a card's capacity is fully utilized, the card does not appear in the menu.)
- Step 9** Choose the destination port from the Port drop-down menu.
- Step 10** Choose the VC from the VC drop-down menu. VCs do not appear if they are already in use by other circuits.




---

**Note** The VCs that appear depend on the card, circuit size, and protection scheme.

---

- Step 11** If you need to create a secondary destination, for example, an SNCP bridge/selector circuit entry point in a multivendor SNCP, click **Use Secondary Destination** and repeat Steps 7 through 10 to define the secondary destination.
- Step 12** Click **Next**.
- Step 13** Return to your originating procedure (NTP).
- 

## DLP-F63 Provision an Optical Circuit Route

|                                |                                                                                                                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task provisions an optical circuit route for manually routed circuits.                                                                                                                                                                                                                                                    |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                                                                           |
| <b>Prerequisite Procedures</b> | Perform this task during one of the following procedures:<br><a href="#">NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4</a><br><a href="#">NTP-F43 Create a Manually Routed Optical Circuit, page 6-11</a><br><a href="#">NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops, page 6-13</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                                                               |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                                                         |

---

- Step 1** In the Route Review and Edit area of the Circuit Creation wizard, click the source node icon if it is not already selected.

- Step 2** Click the arrowhead of the span you want the circuit to travel. The arrow turns white. In the Selected Span area, the From and To fields display span information. The source VC4 appears in the Source VC4 field.
- Step 3** If you want to change the source VC4, adjust it in the Source VC4 field, otherwise go to [Step 4](#).
- Step 4** Click **Add Span**. The span is added to the Included Spans list and the span arrow turns blue.
- Step 5** Repeat Steps 2 through 4 until the circuit is provisioned from the source to the destination node through all intermediary nodes. If Fully Protect Path is checked on the Circuit Routing Preferences panel, you must:
- Add two spans for all SNCP or unprotected portions of the circuit route from the source to the destination
  - Add one span for all MS-SPRing or 1+1 portions of route from the source to the destination
- Step 6** Return to your originating procedure (NTP).
- 

## NTP-F43 Create a Manually Routed Optical Circuit

|                                |                                                                                                                                                                                       |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates a manually routed, bidirectional or unidirectional optical circuit, including VC4 and concatenated VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, or VC4-64c speeds. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F41 Verify Network Turn Up</a> , page 6-2                                                                                                                             |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                |

---

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at a node on the network where you want to create an optical circuit. If you are already logged in, continue with [Step 2](#).
- Step 2** If you want to assign a name to the tunnel source and destination ports before you create the circuit, complete the “[DLP-F60 Assign a Name to a Port](#)” task on page 6-8. If not, continue with [Step 3](#).
- Step 3** From the View menu, choose **Go To Network View**.
- Step 4** Click the **Circuits** tab, then click **Create**.
- Step 5** In the Circuit Creation dialog box ([Figure 6-2](#)), complete the following fields:
- Name—Assign a name to the circuit. The name can be alphanumeric and up to 48 characters (including spaces). Circuit names should be 44 characters or less if you want the ability to create monitor circuits. If you leave the field blank, CTC assigns a default name to the circuit.
  - Type—Choose **VC\_HO\_PATH\_CIRCUIT**.
  - Size—Choose the circuit size: VC4, VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, or VC4-64c.
  - Bidirectional—Leave checked (default) for this circuit. When checked, CTC creates a two-way circuit.
  - Number of circuits—Type the number of circuits that you want to create. The default is 1.

- Auto-ranged—Applies to automatically routed circuits only. If you entered more than 1 in the Number of Circuits field, uncheck this box. (The box is unavailable if only one circuit is entered in Number of Circuits.)
- State—Choose **IS** (CTC displays only in-service circuits).
- Apply to drop ports—Check this box if you want to apply the state chosen in the State field to the circuit source and destination ports. CTC will apply the circuit state to the ports only if the circuit bandwidth is the same as the port bandwidth or, if the port bandwidth is larger than the circuit, the circuit must be the first circuit to use the drop port. If not, a Warning dialog box displays the ports where the circuit state could not be applied. If the box is unchecked, CTC will not change the state of the source and destination ports.



**Note** Loss LOS alarms appear if IS ports are not receiving signals.

- Inter-domain (UCP) SLA—Future use.
- Protected Drops—If selected, CTC displays only protected cards and ports (1+1 protection) as choices for the circuit source and destination.

**Figure 6-3** Creating a Circuit

- Step 6** If the circuit will be routed on an SNCP, complete the “[DLP-F61 Provision SNCP Selectors During Circuit Creation](#)” task on page 6-9.
- Step 7** Click **Next**.
- Step 8** Complete the “[DLP-F62 Provision an Optical Circuit Source and Destination](#)” task on page 6-9 for the optical circuit you are creating.
- Step 9** In the Circuit Routing Preferences area ([Figure 6-2 on page 6-6](#)), uncheck **Route Automatically**.
- Step 10** Set the circuit path protection:
- To route the circuit on a protected path, leave **Fully Protected Path** checked and continue with [Step 11](#).
  - To create an unprotected circuit, uncheck **Fully Protected Path** and continue with [Step 12](#).
  - To route the circuit on an MS-SPRing protection channel, if available, uncheck **Fully Protected Path**, check **Protection Channel Access**, click **Yes** in the Warning dialog box, then continue with [Step 12](#).


**Caution**

Circuits routed on MS-SPRing protection channels are not protected and are preempted during MS-SPRing switches.

- Step 11** If you selected Fully Protected Path, choose one of the following:
- Nodal Diversity Required—Ensures that the primary and alternate paths within the SNCP portions of the complete circuit path are nodally diverse.
  - Nodal Diversity Desired—Specifies that node diversity is preferred, but if node diversity is not possible, CTC creates fiber-diverse paths for the SNCP portion of the complete circuit path.
  - Link Diversity Only—Specifies that only fiber-diverse primary and alternate paths for SNCP portions of the complete circuit path are needed. The paths might be node-diverse, but CTC does not check for node diversity.
- Step 12** Click **Next**. In the Route Review and Edit area, node icons appear for you to route the circuit manually. The green arrows pointing from the source node to other network nodes indicate spans that are available for routing the circuit.
- Step 13** Complete the “[DLP-F63 Provision an Optical Circuit Route](#)” task on page 6-10.
- Step 14** Click **Finish**. If the path does not meet the specified path diversity requirement, an error message appears and allows you to change the circuit path. If you entered more than 1 in the Number of circuits field, the Circuit Creation dialog box appears after the circuit is created so you can create the remaining circuits.
- Step 15** Repeat Steps 5 through 14 for each additional circuit.
- When provisioning a protected circuit, you only need to select one path of 1+1 spans from the source to the drop. If you select unprotected spans as part of the path, select two different paths for the unprotected segment of the path.
- Step 16** When all the circuits are created, the main Circuits window appears. Verify that the circuit(s) you created appear in the window.
- Step 17** Complete the “[NTP-F45 Test Optical Circuits](#)” procedure on page 6-16.
- Stop. You have completed this procedure.**

## NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops

|                                |                                                                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates a unidirectional STM-N circuit with multiple traffic drops (circuit destinations). The ONS 15600 SDH supports up to 2048 1:2 nonblocking broadcast connections or up to 682 1:N (where N is less than or equal to 8) nonblocking broadcast connections. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F41 Verify Network Turn Up</a> , page 6-2                                                                                                                                                                                                                      |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                               |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                         |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at a node on the network where you will create the optical circuit. If you are already logged in, continue with [Step 2](#).
- Step 2** If you want to assign a name to the tunnel source and destination ports before you create the circuit, complete the “[DLP-F60 Assign a Name to a Port](#)” task on page 6-8. If not, continue with [Step 3](#).
- Step 3** From the View menu, choose **Go To Network View**.
- Step 4** Click the **Circuits** tab, then click **Create**.
- Step 5** In the Circuit Creation dialog box, complete the following fields:
- Name—Assign a name to the circuit. The name can be alphanumeric and up to 48 characters (including spaces). Circuit names should be 44 characters or less if you want the ability to create monitor circuits. If you leave the field blank, CTC assigns a default name to the circuit.
  - Type—Choose **VC\_HO\_PATH\_CIRCUIT**.
  - Size—Choose the circuit size: VC4, VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, or VC4-64c.
  - Bidirectional—Uncheck this box for this circuit.
  - Number of circuits—Leave the default unchanged (1).
  - Auto-ranged—Unavailable when the Number of Circuits field is 1.
  - State—Choose **IS** (CTC displays only in-service circuits).
  - Apply to drop ports—Check this box if you want to apply the state chosen in the State field to the circuit source and destination ports. CTC will apply the circuit state to the ports only if the circuit bandwidth is the same as the port bandwidth or, if the port bandwidth is larger than the circuit, the circuit must be the first circuit to use the drop port. If not, a Warning dialog box displays the ports where the circuit state could not be applied. If the box is unchecked, CTC will not change the state of the source and destination ports.
-  **Note** LOS alarms appear if IS ports are not receiving signals.
- Inter-domain (UCP) SLA—Future use.
  - Protected Drops—Check this box if you want the circuit routed to only protect drops. If you check this box, CTC displays only protected cards as source and destination choices.
- Step 6** If the circuit will be routed on an SNCP, complete the “[DLP-F61 Provision SNCP Selectors During Circuit Creation](#)” task on page 6-9.
- Step 7** Click **Next**.
- Step 8** Complete the “[DLP-F62 Provision an Optical Circuit Source and Destination](#)” task on page 6-9 for the circuit you are creating.
- Step 9** In the Circuit Routing Preferences area, uncheck **Route Automatically**. When unchecked, Using Required Nodes/Spans and Review Route Before Circuit Creation check boxes are not available.
- Step 10** Set the circuit path protection:
- To route the circuit on a protected path, leave **Fully Protected Path** checked and continue with [Step 11](#). Fully protected paths might or might not have SNCP path segments (with primary and alternate paths), and the path diversity options apply only to SNCP path segments, if any exist.
  - To create an unprotected circuit, uncheck **Fully Protected Path** and continue with [Step 12](#).

- To route the circuit on an MS-SPRing protection channel, if available, uncheck **Fully Protected Path**, check **Protection Channel Access**, click **Yes** in the Warning dialog box, then continue with [Step 12](#).

**Caution**

Circuits routed on MS-SPRing protection channels are not protected and are preempted during MS-SPRing switches.

- Step 11** If you selected Fully Protected Path, choose one of the following:
- **Nodal Diversity Required**—Ensures that the primary and alternate paths within the SNCP portions of the complete circuit path are nodally diverse.
  - **Nodal Diversity Desired**—Specifies that node diversity is preferred, but if node diversity is not possible, CTC creates fiber-diverse paths for the SNCP portion of the complete circuit path.
  - **Link Diversity Only**—Specifies that only fiber-diverse primary and alternate paths for SNCP portions of the complete circuit path are needed. The paths might be node-diverse, but CTC does not check for node diversity.

**Note**

For manually routed circuits, CTC checks your manually provisioned path against the path diversity option you choose. If the path does not meet the path diversity requirement that is specified, CTC displays an error message.

- Step 12** Click **Next**. In the Route Review and Edit area, node icons appear so you can route the circuit manually. The green arrows pointing from the selected node to other network nodes indicate spans that are available for routing the circuit.
- Step 13** Complete the “[DLP-F63 Provision an Optical Circuit Route](#)” task on page 6-10.

**Note**

When provisioning a protected circuit, you only need to select one 1+1 span paths from the source to the drop. If you select unprotected spans as part of the path, you must provision both the working and protect paths.

- Step 14** Click **Finish**. After completing the circuit, the Circuits window appears.
- Step 15** In the Circuits window, click the circuit that you want to route to multiple drops. The Delete, Edit, and Search radio buttons become active.
- Step 16** Click **Edit**. The Edit Circuit window appears with the General tab selected. All nodes in the DCC network appear on the network. Circuit source and destination information appears under the source and destination nodes. To display a detailed view of the circuit, click **Show Detailed Map**. To move a node icon, press **Ctrl** while you drag and drop the icon to the new location.
- Step 17** In the Edit Circuit dialog box, click the **Drops** tab. A list of existing drops appears.
- Step 18** Click **Create**.
- Step 19** In the Define New Drop dialog box, define the new drop:
- a. **Node**—Choose the target node for the circuit drop.
  - b. **Slot**—Choose the target card and slot.
  - c. **Port, VC4**—Choose the port and/or VC4 from the Port and VC4 drop-down menus. The choice in these menus depends on the card selected in Step b.

- d. The routing preferences for the new drop will match those of the original circuit. However, if the original circuit was routed on a protected path, you can change the nodal diversity options: Required, Desired, Don't Care; Link Diverse only. See [Step 11](#) for options descriptions.
  - e. Click **OK**. The new drop appears in the Drops list.
- Step 20** If you need to create additional drops on the circuit, repeat Steps [17](#) through [19](#).
- Step 21** Click **Close**. The Circuits window appears.
- Step 22** Verify that the new drops appear under the Destination column for the circuit you edited. If they do not appear, repeat Steps [18](#) through [21](#) while verifying that all options are provisioned correctly.
- Step 23** Complete the “[NTP-F45 Test Optical Circuits](#)” procedure on page 6-16.
- Stop. You have completed this procedure.**
- 

## NTP-F45 Test Optical Circuits

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure tests the first optical circuit created on the source or destination port.                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Tools/Equipment</b>         | Test set capable of optical speeds, appropriate fibers, and attenuators                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Prerequisite Procedures</b> | This procedure assumes you completed facility loopback tests to test the fibers and cables from the source and destination ONS 15600 SDHs to the fiber distribution panel or the DSX. If this has not been done, do so now. In addition, you must complete one of the following procedures:<br><a href="#">NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4</a> or<br><a href="#">NTP-F43 Create a Manually Routed Optical Circuit, page 6-11</a> |
| <b>Required/As Needed</b>      | Required                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                                                                                                                                                                                            |



### Caution

You cannot disconnect fibers and connect test sets if the circuit is carrying traffic.

---

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the source node. If you are already logged in, continue with Step 2.
- Step 2** Set the circuit source port to Out of Service-Maintenance (OOS\_MT):
- a. Double-click the card with the port used in the circuit.
  - b. Click the **Provisioning > MS** tabs.
  - c. In the State column of the appropriate port, choose **OOS\_MT** from the drop-down menu.
  - d. Click **Apply**.
- Step 3** Set the circuit destination port to OOS\_MT:
- a. From the View menu, choose **Go To Network View**.
  - b. Double-click the destination node.
  - c. Double-click the card with the port used in the circuit.



- d. Click the **Provisioning > MS** tabs.
- e. In the State column of the appropriate port, choose **OOS\_MT** from the drop-down menu.
- f. Click **Apply**.
- g. Leave card view open.

**Step 4** Set up the loopback cable at the destination node:

- a. Test the loopback cable by connecting one end to the test set transmit (Tx) port and the other end to the test receive (Rx) port. Use appropriate attenuation; for information about attenuation, refer to the test set manual. If the test set does not run error-free, check the cable for damage and check the test set to make sure it is set up correctly.
- b. Install the loopback cable on the port you are testing. Connect the transmit (Tx) connector to the receive (Rx) connector of the port being tested.



---

**Note** Use an appropriately sized attenuator when connecting transmit ports to receive ports. On the long-reach optical cards (STM-16 LH 16 Port 1550 and the STM-64 LH 4 Port 1550), use a 15-dB attenuator; on the short-reach optical cards (STM-16 SH 16 Port 1310 and STM-64 SH 4 Port 1310), use a 3-dB attenuator.

---

**Step 5** Set up the loopback cable at the source node:

- a. Test the loopback cable by connecting one end to the test set Tx port and the other end to the test Rx port. Use appropriate attenuation; for more information, refer to the test set manual. If the test set does not run error-free, check the cable for damage and check the test set to make sure it is set up correctly.
- b. At the source node attach the loopback cable to the port you are testing. Connect the test set to the circuit source port: Tx port of the test set to the circuit Rx port; test set Rx port to the circuit Tx port.



---

**Note** Use an appropriately sized attenuator when connecting transmit ports to receive ports. On the long-reach optical cards (STM-16 LH 16 Port 1550 and the STM-64 LH 4 Port 1550), use a 15-dB attenuator; on the short-reach optical cards (STM-16 SH 16 Port 1310 and STM-64 SH 4 Port 1310), use a 3-dB attenuator.

---

**Step 6** Configure the test set for the source STM-16 or STM-64 ONS 15600 SDH card. For information about configuring your test set, consult your test set user guide.

**Step 7** Verify that the test set displays a clean signal. If a clean signal is not present, repeat Steps 1 through 6 to make sure you have configured the test set and cabling.

**Step 8** Inject errors from the test set. Verify that the errors appear at the source and destination nodes.

**Step 9** Clear the performance monitoring (PM) counts for the ports that you tested. See the [“DLP-F88 Clear Selected PM Counts” task on page 8-9](#) for instructions.

**Step 10** Perform protection switch testing appropriate to the SDH topology:

- For MS-SPRings see the [“DLP-F58 MS-SPRing Switch Test” task on page 5-17](#).
- For SNCPs, see the [“DLP-F59 SNCP Protection Switching Test” task on page 5-23](#).

**Step 11** Perform a bit error rate test (BERT) for 12 hours or according to site specification. For information about configuring your test set for BERT, see your test set user guide.

**Step 12** After the BERT is complete, print the results or save them to a disk for future reference. For information about printing or saving test results, see your test set user guide.

- Step 13** Set the circuit destination port to IS:
- In card view for the destination node, click the **Provisioning > MS** tabs.
  - In the State column of the appropriate port, choose **IS** from the drop-down menu.
  - Click **Apply**.
- Step 14** Set the circuit source port to IS:
- From the View menu, choose **Go To Network View**.
  - Double-click the source node.
  - Double-click the card with the port used in the circuit.
  - Click the **Provisioning > MS** tabs.
  - In the State column of the appropriate port, choose **IS** from the drop-down menu.
  - Click **Apply**.
- Stop. You have completed this procedure.**
- 

## NTP-F46 Create a Half Circuit on an MS-SPRing or 1+1 (LMSP) Node

|                                |                                                                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates an STM-N circuit from a drop card to an STM-N trunk card on the same node in an MS-SPRing or 1+1 (LMSP) topology. |
| <b>Tools/Equipment</b>         | None                                                                                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F41 Verify Network Turn Up, page 6-2</a>                                                                                 |
| <b>Required/As Needed</b>      | As needed                                                                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                   |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at a node on the network where you will create the half circuit. If you are already logged in, continue with [Step 2](#).
- Step 2** If you want to assign a name to the circuit source and destination ports before you create the circuit, complete the “[DLP-F60 Assign a Name to a Port](#)” task on page 6-8. If not, continue with [Step 3](#).
- Step 3** From the View menu, choose **Go To Network View**.
- Step 4** Click the **Circuits** tab, then click **Create**.
- Step 5** In the Circuit Creation dialog box, complete the following fields:
- Name—Assign a name to the circuit. The name can be alphanumeric and up to 48 characters (including spaces). Circuit names should be 44 characters or less if you want the ability to create monitor circuits. If you leave the field blank, CTC assigns a default name to the circuit.
  - Type—Choose **VC\_HO\_PATH\_CIRCUIT**.
  - Size—Choose **VC4**.
  - Bidirectional—Leave checked for this circuit (default).
  - Number of circuits—Type the number of circuits you want to create. The default is 1.

- Auto-ranged—This box is automatically checked if you enter more than 1 in the Number of circuits field. Uncheck the box.
- State—Choose **IS** (CTC displays only in-service circuits).
- Apply to drop ports—Check this box if you want to apply the state chosen in the State field to the circuit source and destination ports. CTC will apply the circuit state to the ports only if the circuit bandwidth is the same as the port bandwidth or, if the port bandwidth is larger than the circuit, the circuit must be the first circuit to use the drop port. If not, a Warning dialog box displays the ports where the circuit state could not be applied. If the box is unchecked, CTC will not change the state of the source and destination ports.



---

**Note** LOS alarms appear if IS ports are not receiving signals.

---

- Inter-domain (UCP) SLA—Future use.
- Protected Drops—Uncheck this box.

**Step 6** Click **Next**.

**Step 7** Complete the “[DLP-F64 Provision a Half Circuit Source and Destination—MS-SPRing and 1+1 \(LMSP\)](#)” task on page 6-20.

**Step 8** Click **Finish**. One of the following results occurs, depending on the circuit properties you chose in the Circuit Creation dialog box:

- If you entered more than 1 in the Number of circuits field and checked Auto-ranged, CTC automatically creates the number of circuits entered in Number of circuits. If autoranging cannot complete all the circuits, for example, because sequential ports are unavailable at the source or destination, a dialog box appears. Set the new source or destination for the remaining circuits, then click **Finish** to continue autoranging.
- If you entered more than 1 in the Number of circuits field and did not check Auto-ranged, the Circuit Creation dialog box appears so you can create the remaining circuits. Repeat this procedure for each additional circuit.
- After completing the circuit(s), the Circuits window appears.

**Step 9** In the Circuits window, verify that the new circuits appear in the circuits list.

**Step 10** Complete the “[NTP-F45 Test Optical Circuits](#)” procedure on page 6-16. Skip this step if you built a test circuit.

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

---

## DLP-F64 Provision a Half Circuit Source and Destination—MS-SPRing and 1+1 (LMSP)

|                                |                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task provisions a half circuit source and destination.                                 |
| <b>Tools/Equipment</b>         | None                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F46 Create a Half Circuit on an MS-SPRing or 1+1 (LMSP) Node, page 6-18</a> |
| <b>Required/As Needed</b>      | As needed                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                                      |



**Note** After you have selected the circuit properties in the Circuit Source dialog box according to the specific circuit creation procedure, you are ready to provision the circuit source.

- 
- Step 1** From the Node drop-down menu, choose the node that will contain the half circuit.
  - Step 2** From the Slot drop-down menu, choose the slot containing the card where the circuit will originate.
  - Step 3** From the Port drop-down menu, choose the port where the circuit will originate.
  - Step 4** Click **Next**.
  - Step 5** From the Node drop-down menu, choose the node chosen in [Step 1](#)
  - Step 6** From the Slot drop-down menu, choose the STM-N card to map the STM-N VC4 circuit to a VC4.
  - Step 7** Choose the destination VC4 from the submenus that appear.
  - Step 8** Return to your originating procedure (NTP).
- 

## NTP-F47 Create a Half Circuit on an SNCP Node

|                                |                                                                                                       |
|--------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates an STM-N circuit from a drop card to an STM-N line card on the same SNCP node. |
| <b>Tools/Equipment</b>         | None                                                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F41 Verify Network Turn Up, page 6-2</a>                                              |
| <b>Required/As Needed</b>      | As needed                                                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                                                |

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at a node on the network where you will create the circuit. If you are already logged in, continue with [Step 2](#).
  - Step 2** If you want to assign a name to the circuit source and destination ports before you create the circuit, complete the [“DLP-F60 Assign a Name to a Port” task on page 6-8](#). If not, continue with [Step 3](#).
  - Step 3** From the View menu, choose **Go To Network View**.

**Step 4** Click the **Circuits** tab, then click **Create**.

**Step 5** In the Circuit Creation dialog box, complete the following fields:

- Name—Assign a name to the circuit. The name can be alphanumeric and up to 48 characters (including spaces). Circuit names should be 44 characters or less if you want the ability to create monitor circuits. If you leave the field blank, CTC assigns a default name to the circuit.
- Type—Choose **VC\_HO\_PATH\_CIRCUIT**.
- Size—Choose VC4, VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, VC4-64c.
- Bidirectional—Leave checked for this circuit (default).
- Number of circuits—Type the number of circuits you want to create. The default is 1.
- Auto-ranged—This box is automatically checked if you enter more than 1 in the Number of circuits field. Uncheck the box.
- State—Choose **IS** (CTC displays only in-service circuits).
- Apply to drop ports—Check this box if you want to apply the state chosen in the State field to the circuit source and destination ports. CTC will apply the circuit state to the ports only if the circuit bandwidth is the same as the port bandwidth or, if the port bandwidth is larger than the circuit, the circuit must be the first circuit to use the drop port. If not, a Warning dialog box displays the ports where the circuit state could not be applied. If the box is unchecked, CTC will not change the state of the source and destination ports.



---

**Note** LOS alarms appear if IS ports are not receiving signals.

---

- Inter-domain (UCP) SLA—Future use.
- Protected Drops—Leave this box unchecked.

**Step 6** Complete the [“DLP-F61 Provision SNCP Selectors During Circuit Creation”](#) task on page 6-9.

**Step 7** Click **Next**.

**Step 8** Complete the [“DLP-F65 Provision a Half Circuit Source and Destination—SNCP”](#) task on page 6-22.

**Step 9** Click **Finish**. One of the following results occurs, depending on the circuit properties you chose in the Circuit Creation dialog box:

- If you entered more than 1 in the Number of circuits field and checked Auto-ranged, CTC automatically creates the number of circuits entered in Number of circuits. If autoranging cannot complete all the circuits, for example, because sequential ports are unavailable at the source or destination, a dialog box appears. Set the new source or destination for the remaining circuits, then click **Finish** to continue autoranging.
- If you entered more than 1 in the Number of circuits field and did not check Auto-ranged, the Circuit Creation dialog box appears so you can create the remaining circuits. Repeat this procedure for each additional circuit.
- After completing the circuit(s), the Circuits window appears.

**Step 10** In the Circuits window, verify that the new circuits appear in the circuits list.

**Step 11** Complete the [“NTP-F45 Test Optical Circuits”](#) procedure on page 6-16. Skip this step if you built a test circuit.

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

---

## DLP-F65 Provision a Half Circuit Source and Destination—SNCP

|                                |                                                                          |
|--------------------------------|--------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task provisions a half circuit source and destination.              |
| <b>Tools/Equipment</b>         | None                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F47 Create a Half Circuit on an SNCP Node, page 6-20</a> |
| <b>Required/As Needed</b>      | As needed                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                   |




---

**Note**

After you have selected the circuit properties in the Circuit Source dialog box according to the specific circuit creation procedure, you are ready to provision the circuit source.

---

- 
- Step 1** From the Node drop-down menu, choose the node that will contain the half circuit.
  - Step 2** From the Slot drop-down menu, choose the slot containing the card where the circuit will originate.
  - Step 3** From the Port drop-down menu, choose the port where the circuit will originate.
  - Step 4** Click **Next**.
  - Step 5** From the Node drop-down menu, choose the node chosen in [Step 1](#).
  - Step 6** From the Slot drop-down menu, choose the STM-N card to map the STM-N VC circuit to a VC.
  - Step 7** Choose the destination VC from the submenus that appear.
  - Step 8** Click **Use Secondary Destination** and repeat Steps [1](#) through [7](#).
  - Step 9** Return to your originating procedure (NTP).
-

# NTP-F48 Create a DCC Tunnel

|                                |                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure creates a DCC tunnel to transport traffic from third-party SDH equipment across ONS 15600 SDH networks. Tunnels can be created on the Regenerator Section DCC channel (D1-D3) (if not used by a node as a terminated DCC), or any Line DCC channel (D4-D6, D7-D9, or D10-D12). The ONS 15600 SDH can support up to 64 DCC tunnels. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                                                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F32 Verify Node Turn Up, page 5-2</a><br><a href="#">NTP-F70 Delete an RS-DCC Termination, page 10-15</a> , as needed                                                                                                                                                                                                             |
| <b>Note</b>                    | Terminated RS-DCCs cannot be used as a DCC tunnel endpoint, and an RS-DCC that is used as a DCC tunnel endpoint cannot be terminated. You must delete the terminated RS-DCCs in a path before creating a DCC tunnel.                                                                                                                              |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                                                                         |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                                                                                  |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                                                                            |



**Note** All DCC tunnel connections are bidirectional.

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at a node on the network where you will create the DCC tunnel. If you are already logged in, continue with [Step 2](#).
- Step 2** In network view, click the **Provisioning > Overhead Circuits** tabs.
- Step 3** Click **Create**.
- Step 4** In the Circuit Creation dialog box, provision the DCC tunnel:
- Name—Type the tunnel name.
  - Type—Choose one:
    - DCC Tunnel - D1-D3—Allows you to choose either the Section DCC (D1-D3) or a Line DCC (D4-D6, D7-D9, or D10-D12) as the source or destination endpoints.
    - DCC Tunnel - D4-D12—Provisions the full Line DCC as a tunnel.
- Step 5** In the Source area, complete the following:
- Node—Choose the source node.
  - Slot—Choose the source slot.
  - Port—Choose the source port.
  - Channel—Shown if you chose DCC Tunnel-D1-D3 as the tunnel type. Choose one of the following:
    - DCC1 (D1-D3)—Section DCC
    - DCC2 (D4-D6)—Line DCC 1
    - DCC3 (D7-D9)—Line DCC 2
    - DCC4 (D10-D12)—Line DCC 3
- DCC options do not appear if they are used by the ONS 15600 SDH (DCC1) or other tunnels.

**Step 6** In the Destination area, complete the following:

- Node—Choose the destination node.
- Slot—Choose the destination slot.
- Port—Choose the destination port.
- Channel—Shown if you chose DCC Tunnel-D1-D3 as the tunnel type. Choose one of the following:
  - DCC1 (D1-D3)—Section DCC
  - DCC2 (D4-D6)—Line DCC 1
  - DCC3 (D7-D9)—Line DCC 2
  - DCC4 (D10-D12)—Line DCC 3

DCC options do not appear if they are used by the ONS 15600 SDH (DCC1) or other tunnels.

**Step 7** Click **Finish**.

**Step 8** Put the ports that are hosting the DCC tunnel in service. See the [“DLP-F54 Change the Service State for a Port” task on page 5-6](#) for instructions.

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

---





## Manage Alarms

---

This chapter provides procedures required to view and manage ONS 15600 SDH alarms and conditions. Cisco Transport Controller (CTC) detects and reports SDH alarms generated by the Cisco ONS 15600 SDH and the larger SDH network. You can use CTC to monitor and manage alarms at a card, node, or network level. Default alarm severities conform to the ITU-T G.784 standard, but you can reset severities to customized alarm profiles or suppress CTC alarm reporting. For alarm troubleshooting information, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

### Before You Begin

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

1. [NTP-F49 Document Existing Provisioning, page 7-2](#)—Complete this procedure before performing any other procedures in this chapter.
2. [NTP-F50 View Alarms, Alarm History, Events, and Conditions, page 7-5](#)—Complete as needed.
3. [NTP-F51 Enable, Modify, or Disable Alarm Severity Filtering, page 7-11](#)—Complete as needed.
4. [NTP-F52 Synchronize Alarms, page 7-15](#)—Complete as needed.
5. [NTP-F54 Delete Cleared Alarms from the Display, page 7-15](#)—Complete as needed.
6. [NTP-F55 View Alarm-Affected Circuits, page 7-16](#)—Complete as needed.
7. [NTP-F56 Create, Assign, and Delete Alarm Severity Profiles, page 7-18](#)—As needed, complete these tasks to change the default severity for certain alarms, to assign the new severities to a port, card, or node, and to delete alarm profiles.
8. [NTP-F57 Suppress and Restore Alarm Reporting, page 7-24](#)—As needed, complete these tasks to suppress reported alarms at the port, card, or node level and to disable the suppress command to resume normal alarm reporting.

# NTP-F49 Document Existing Provisioning

|                                |                                                                      |
|--------------------------------|----------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure records, copies, prints, and exports CTC information. |
| <b>Tools/Equipment</b>         | A printer must be connected to the CTC computer                      |
| <b>Prerequisite Procedures</b> | <a href="#">Chapter 4, “Turn Up Node”</a>                            |
| <b>Required/As needed</b>      | As needed                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                     |
| <b>Security Level</b>          | Retrieve or higher                                                   |

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at the node with the information where you want to record, print, or export. If you are already logged in, continue with Step 2.
- Step 2** As needed, manually record CTC information (typically to document existing provisioning before upgrading or troubleshooting).
- Step 3** As needed, you can copy and paste CTC text into other applications using the Windows copy (Ctrl+C), cut (Ctrl+X), and paste (Ctrl+V) commands.
- Step 4** If you want to print information within a single tab, complete the [“DLP-F65 Print CTC Data” task on page 7-2](#).
- Step 5** If you want to save information to a word processing application such as a spreadsheet, complete the [“DLP-F66 Export CTC Data” task on page 7-3](#).

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

---

## DLP-F65 Print CTC Data

|                                |                                                                               |
|--------------------------------|-------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task prints CTC windows and CTC table data such as alarms and inventory. |
| <b>Equipment/Tools</b>         | A printer must be connected to the CTC computer                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                               |
| <b>Required/As Needed</b>      | As needed                                                                     |
| <b>Onsite/Remote</b>           | Onsite or remote                                                              |
| <b>Security Level</b>          | Retrieve or higher                                                            |

- 
- Step 1** From the CTC File menu, click **Print**.
- Step 2** In the Print dialog ([Figure 7-1](#)) choose an option:
- Entire Frame—Prints the entire CTC window including the graphical view of the card, node, or network.
  - Tabbed View—Prints the lower half of the CTC window.
  - Table Contents—Prints CTC data in table format; this option is only available for CTC table data (see the [“Table Display Options” section on page A-8](#)) so it does not apply to the following windows:
    - Provisioning > General, Protection, SNMP, and Timing tabs

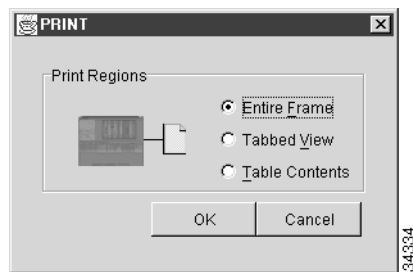
- Provisioning > Network > General tab
- Maintenance > Database, Protection, Diagnostic, and Timing tabs

The Table Contents option prints all the data contained in a table and the table column headings. For example, if you print the History window Table Contents view, you print all data included in the table whether or not items appear in the window.

**Tip**

When you print using the Tabbed View option, it can be difficult to distinguish whether the printout applies to the network, node, or card view. To determine the view, compare the tabs on the printout. The network, node, and card views are identical except that the network view does not contain an Inventory or Performance tab.

**Figure 7-1** Selecting CTC Data for Print



- Step 3** Click **OK**.
- Step 4** In the Windows Print dialog box, choose a printer and click **OK**.
- Step 5** Return to your originating procedure (NTP).

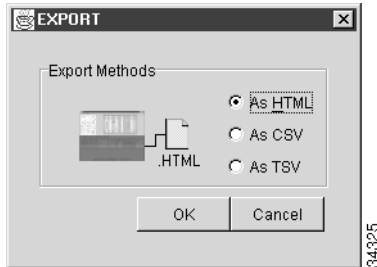
## DLP-F66 Export CTC Data

|                                |                                                                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task exports CTC table data for use by other applications such as spreadsheets, word processors, and database management applications. |
| <b>Equipment/Tools</b>         | None                                                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                             |
| <b>Required/As Needed</b>      | As needed                                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                            |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                          |

- Step 1** Click the CTC tab containing the information you want to export (for example, the Alarms or Circuits tab).
- Step 2** From the CTC File menu, click **Export**.
- Step 3** In the Export dialog choose a format for the data ([Figure 7-2](#)):
- As HTML—Saves the data as an HTML file. The file can be viewed with a web browser without running CTC.

- As CSV—Saves the CTC table values as text, separated by commas. You can import CSV data into spreadsheets and database management programs.
- As TSV—Saves the CTC table values as text, separated by tabs. You can import TSV data into spreadsheets and database management programs.

**Figure 7-2** Selecting CTC Data for Export



- Step 4** If you want to open a file in a text editor or word processor application, procedures vary; but typically you can use the File > Open command to display the CTC data in an open application, or you can double-click the file name outside of an application and choose an application such as Notepad when prompted.

Text editor and word processor applications display the data exactly as it is exported, including comma or tab separators. All applications that open the data files allow you to format the data.

- Step 5** If you want to open the file in spreadsheet and database management applications, procedures vary; typically you need to open the application and choose File > Import, then choose a delimited file to display the data in cells.

Spreadsheet and database management programs also allow you to manage the exported data.




---

**Note** An exported file cannot be opened in CTC.

---

The export operation applies to tabular data only, so it is not available for the following CTC tabs and subtabs:

- Provisioning > General, Protection, SNMP, and Timing
- Provisioning > Network > General
- Maintenance > Database, Protection, Diagnostic, and Timing

- Step 6** Click **OK**.
- Step 7** In the Save dialog, enter a file name in one of the following formats:
- *filename.htm* for HTML files
  - *filename.csv* for CSV files
  - *filename.tsv* for TSV files
- Step 8** Navigate to a directory where you want to store the file.
- Step 9** Click **OK**.
- Step 10** Return to your originating procedure (NTP).
-

# NTP-F50 View Alarms, Alarm History, Events, and Conditions

|                                |                                                                                                                                                                                                        |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to view ONS 15600 SDH alarms at the card, node, or network level; view the alarm history for cleared and uncleared alarms; and view conditions at the card, node, or network level. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                   |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                                   |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                              |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                       |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                                                     |

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#). If you are already logged in, continue with Step 2.
- Step 2** Complete the [“DLP-F67 View Alarms” task on page 7-5](#) to review alarms for the current session.
- Step 3** Troubleshoot the alarms using the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 4** Complete the [“DLP-F68 View Alarm History” task on page 7-6](#) or the [“DLP-F69 View Conditions” task on page 7-8](#) as needed.
- Step 5** Complete the [“DLP-F70 Changing the Maximum Number of Session Entries for Alarm History” procedure on page 7-10](#) as needed.
- Step 6** Complete the [“DLP-F71 Display Events Using Each Node’s Time Zone” task on page 7-11](#) as needed.
- Stop. You have completed this procedure.**
- 

## DLP-F67 View Alarms

|                                |                                                                              |
|--------------------------------|------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task displays ONS 15600 SDH alarms at the card, node, or network level. |
| <b>Tools/Equipment</b>         | None                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                              |
| <b>Required/As Needed</b>      | As needed                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                             |
| <b>Security Level</b>          | Provisioning or higher                                                       |

- 
- Step 1** In the card, node, or network view, click the **Alarms** tab to display the alarms for that card, node, or network. [Figure 7-3](#) shows the Alarms window.

Figure 7-3 Viewing Alarms in CTC Node View

| Num  | Ref  | New | Date              | Object | EqptType | Slot     | Part | Sev | ST | SA | Cond      | Description                 |
|------|------|-----|-------------------|--------|----------|----------|------|-----|----|----|-----------|-----------------------------|
| 1377 | 1377 |     | 12/09/03 08:30:31 | IST    | SLOT-3   | STM16_16 | 3    | MJ  | R  |    | CONTBUS-0 | Control Bus Failure - TSC 0 |
| 1356 | 1356 |     | 12/09/03 08:29:58 | IST    | FAC-3-4  | STM16_16 | 3    | 4   | MN | R  | HELLO     | OSPF hello fail             |
| 1355 | 1355 |     | 12/09/03 08:29:58 | IST    | FAC-3-4  | STM16_16 | 3    | 4   | MN | R  | EOC       | RS-DCC termination failure  |
| 714  | 714  |     | 12/09/03 03:46:36 | IST    | FAC-1-1  | STM16_16 | 1    | 1   | MN | R  | HELLO     | OSPF hello fail             |
| 713  | 713  |     | 12/09/03 03:46:33 | IST    | FAC-13-1 | STM64_4  | 13   | 1   | MN | R  | HELLO     | OSPF hello fail             |
| 711  | 711  |     | 12/09/03 03:45:41 | IST    | FAC-13-1 | STM64_4  | 13   | 1   | MN | R  | EOC       | RS-DCC termination failure  |
| 710  | 710  |     | 12/09/03 03:45:41 | IST    | FAC-1-1  | STM16_16 | 1    | 1   | MN | R  | EOC       | RS-DCC termination failure  |
| 703  | 703  |     | 12/09/03 03:45:28 | IST    | FAC-1-1  | STM16_16 | 1    | 1   | CR | R  | LOS       | Loss of Signal              |
| 701  | 701  |     | 12/09/03 03:45:28 | IST    | FAC-2-1  | STM16_16 | 2    | 1   | MN | R  | LOS       | Loss of Signal              |
| 698  | 698  |     | 12/09/03 03:45:26 | IST    | FAC-12-1 | STM64_4  | 12   | 1   | MN | R  | LOS       | Loss of Signal              |
| 695  | 695  |     | 12/09/03 03:45:25 | IST    | FAC-14-1 | STM64_4  | 14   | 1   | MN | R  | LOS       | Loss of Signal              |
| 692  | 692  |     | 12/09/03 03:45:23 | IST    | FAC-13-1 | STM64_4  | 13   | 1   | MN | R  | LOS       | Loss of Signal              |

**Step 2** Return to your originating procedure (NTP).

## DLP-F68 View Alarm History

|                                |                                                                                                         |
|--------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task displays past cleared and uncleared ONS 15600 SDH alarms at the card, node, or network level. |
| <b>Tools/Equipment</b>         | None                                                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                         |
| <b>Required/As Needed</b>      | As needed                                                                                               |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                        |
| <b>Security Level</b>          | Retrieve or higher                                                                                      |

**Step 1** To view history for the login node, go to [Step 2](#).

To view alarm history for the network, go to [a](#).

To view alarm history for the card, go to [Step 4](#).

**Step 2** To display the node-level alarm history:

- Click the **History** > **Session** tabs if you want to see only the alarms and events that have occurred since you logged into the current CTC session.
- Click the **History** > **Node** tabs if you want to retrieve all available alarms for the node.
- Go to [Step 5](#).



---

**Note** At the network-level view, CTC displays only network alarms and events that occur during your current login session.

---

**Step 3** To display network-level alarm history:

- a. From the View menu, choose **Go to Network View**.
- b. Click the **History** tab.

Alarms and events that have occurred on the network since you logged into CTC appear.

- c. Go to [Step 5](#).

**Step 4** To display card-level alarm history:

- a. From the node view, double-click a card on the shelf graphic to display the card view.
- b. Click the **History > Session** tabs if you want to see only the alarms and events that have occurred since you logged into CTC.
- c. Click the **History > Card** tabs if you want to retrieve all available alarms for the card.
- d. Go to [Step 5](#).



---

**Note** The ONS 15600 SDH can store up to 3,000 total alarms and events: 750 CR alarms, 750 MJ alarms, 750 MN alarms, and 750 NA and NR events. When the limit is reached for an alarm or event type, the ONS 15600 SDH overwrites the oldest alarms and events.

---

**Step 5** Verify that the Alarms check box is selected. Alarms are events with a severity of minor (MN), major (MJ), or critical (CR).

**Step 6** If you want to retrieve events, check the Events check box.

Events include both alarms and conditions. Conditions are events with a severity of not alarmed (NA) and not reported (NR).

**Step 7** Click **Retrieve**.



**Tip**

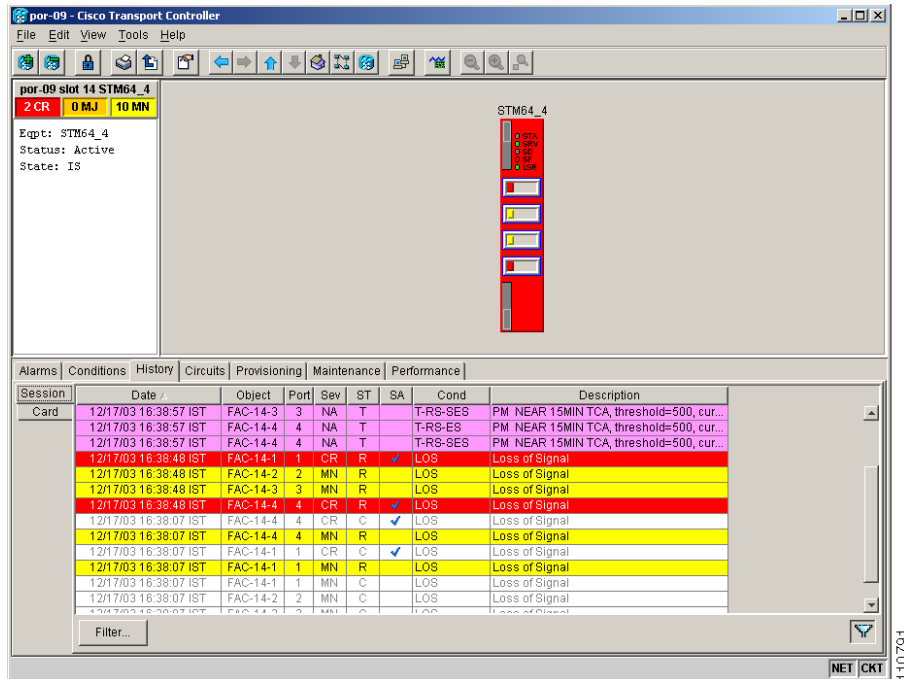
---

Double-click an alarm in the alarm table or an event in the history table to display the corresponding view for the alarm. For example, double-clicking a card alarm takes you to card view. In network view, double-clicking a node alarm takes you to node view.

---

Beginning with Software Release 1.4, alarms have specifically numbered VC4 object identifiers based upon the object TL1 access identifiers (AIDs). This is expressed in the format *VC4-Slot-Port-VC4*. For example, if the alarm pertains to Slot 6, Port 1, VC4 6, the identifier would be VC4-6-1-16.

Figure 7-4 Viewing All Alarms Reported for Current Session



**Step 8** Return to your originating procedure (NTP).

## DLP-F69 View Conditions

|                                |                                                                                                                                                                                                                |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task displays conditions (events with a not-reported [NR] and not alarmed severity) at the card, node, or network level. Conditions give you a record of changes or events that did not result in alarms. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                                                |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                               |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                                                             |

**Step 1** To view condition history for the login node, go to [Step 2](#).

To view condition history for the network, go to [Step 3](#).

To view condition history for the card, go to [Step 4](#).

**Step 2** To display the node-level conditions:

- Click the **Conditions** tab if you want to see only the conditions that apply to the node.
- Go to [Step 5](#).



- Step 3** To view network-level conditions:
- From the View menu, choose **Go to Network View**.
  - Click the **Conditions** tab if you want to see only the conditions that apply to the network.
  - Go to [Step 5](#).



**Note** If you are not in the node (default) CTC view, you can also click the Conditions tab in the card and network views to obtain the same results.

- Step 4** To view card-level conditions:
- Double-click a card on the shelf graphic to display the card view.
  - Click the **Conditions** tab if you want to see only the conditions that apply to the card.
- Step 5** Click **Retrieve**. (See [Figure 7-5](#).)

Events include both alarms and conditions. Alarms are events with a severity of MN, MJ, or CR. Conditions are events with a severity of NA or NR.

**Figure 7-5 Viewing Retrieved Fault Conditions in the Conditions Window**

The screenshot shows the Cisco Transport Controller (CTC) interface for a node named 'por-09'. The 'Conditions' tab is active, displaying a list of fault conditions. The conditions are sorted by date and severity, with the most recent and severe conditions at the top. The interface also shows a shelf graphic with 14 slots, each containing a card with various status indicators.

| Date              | Object   | Eqpt Type | Slot | Port | Sev | SA       | Cond   | Description                                 |
|-------------------|----------|-----------|------|------|-----|----------|--------|---------------------------------------------|
| 12/17/03 00:15:44 | SYNC-NE  |           |      |      | NA  | SWTOPPRI |        | Switch To Primary reference                 |
| 12/17/03 00:15:44 | SYNC-NE  |           |      |      | NA  | SSM-PRC  |        | Synchronization status message - Primary... |
| 12/17/03 00:15:44 | BITS-2   |           |      |      | NA  | SSM-PRC  |        | Synchronization status message - Primary... |
| 12/17/03 00:15:44 | BITS-1   |           |      |      | NA  | SSM-PRC  |        | Synchronization status message - Primary... |
| 12/17/03 09:55:17 | FAC-4-18 | STM16_16  | 4    | 16   | MN  |          | LOS    | Loss of Signal                              |
| 12/17/03 09:55:17 | FAC-4-18 | STM16_16  | 4    | 16   | NR  |          | MS-EXC | Signal Failure                              |
| 12/17/03 09:55:17 | FAC-4-18 | STM16_16  | 4    | 16   | NR  |          | MS-DEG | Signal Degrade                              |
| 12/17/03 09:55:17 | FAC-4-18 | STM16_16  | 4    | 16   | NR  |          | LOF    | Loss of Frame                               |
| 12/17/03 09:57:32 | FAC-4-15 | STM16_16  | 4    | 15   | CR  |          | LOS    | Loss of Signal                              |
| 12/17/03 09:57:32 | FAC-4-15 | STM16_16  | 4    | 15   | NR  |          | LOF    | Loss of Frame                               |
| 12/17/03 09:48:02 | FAC-4-14 | STM16_16  | 4    | 14   | CR  |          | LOS    | Loss of Signal                              |
| 12/17/03 09:48:02 | FAC-4-14 | STM16_16  | 4    | 14   | NR  |          | LOF    | Loss of Frame                               |
| 12/17/03 09:48:02 | FAC-4-13 | STM16_16  | 4    | 13   | CR  |          | LOS    | Loss of Signal                              |

Retrieved: December 17, 2003 12:50:36 PM IST

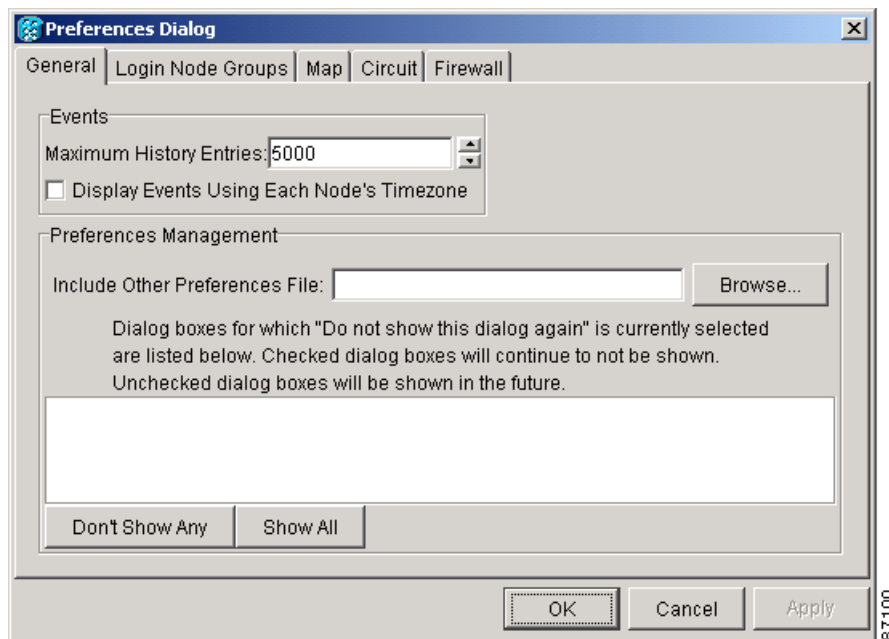
- Step 6** Return to your originating procedure (NTP).

## DLP-F70 Changing the Maximum Number of Session Entries for Alarm History

|                                |                                                                                                                                                                                                       |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the maximum number of session entries included in the alarm history. Use this task to extend the history list in order to save information for future reference or troubleshooting. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                                       |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                      |
| <b>Security Level</b>          | Provisioning                                                                                                                                                                                          |

- Step 1** From the Edit menu, choose **Preferences**.  
The CTC Preferences Dialog box appears ([Figure 7-6](#)).

**Figure 7-6** CTC Preferences Dialog Box



- Step 2** Click the up or down arrow buttons next to the Maximum History Entries field to change the entry.  
**Step 3** Click **Apply** and **OK**.



**Note** Setting the Maximum History Entries value to the high end of the range uses more CTC memory and could impair CTC performance.



**Note** This task changes the maximum history entries recorded for CTC sessions. It does not affect the maximum number of history entries viewable for a network, node, or card.

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

## DLP-F71 Display Events Using Each Node's Time Zone

|                                |                                                                                                                                                                                    |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the timestamp for events to the time zone of the ONS node reporting the alarm. By default, the events timestamp is set to the time zone for the CTC workstation. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                    |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                   |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                                 |

**Step 1** From the Edit menu, choose **Preferences**.

The CTC Preferences Dialog appears.

**Step 2** Click the **Display Events Using Each Node's Timezone** check box.

**Step 3** Click **Apply** and **OK**.

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

## NTP-F51 Enable, Modify, or Disable Alarm Severity Filtering

|                                |                                                                                                                                                          |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure starts, changes, or stops alarm filtering for one or more severities in the Alarms, Conditions, and History windows in all network nodes. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                     |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                     |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                         |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                       |

**Step 1** Complete the "[DLP-F36 Log into CTC](#)" task on page 3-15 at the node where you want to enable, modify, or disable alarm filtering. If you are already logged in, continue with [Step 2](#).

**Step 2** As necessary, complete the "[DLP-F72 Enable Alarm Filtering](#)" task on page 7-12. This task enables alarm filtering at the card, node, and network views for all nodes in the network. Alarm filtering can be enabled for alarms and conditions.

- Step 3** As necessary, complete the “[DLP-F73 Modify Alarm and Condition Filtering Parameters](#)” task on [page 7-13](#) to modify the alarm filtering for network nodes to show or hide particular alarms or conditions.
- Step 4** As necessary, complete the “[DLP-F74 Disable Alarm Filtering](#)” task on [page 7-14](#) to disable alarm profile filtering for all network nodes.

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

## DLP-F72 Enable Alarm Filtering

|                                |                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task filters the display of alarms, history, or conditions on the login workstation. |
| <b>Tools/Equipment</b>         | None                                                                                      |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                          |
| <b>Required/As Needed</b>      | As needed                                                                                 |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                          |
| <b>Security Level</b>          | Retrieve or higher                                                                        |

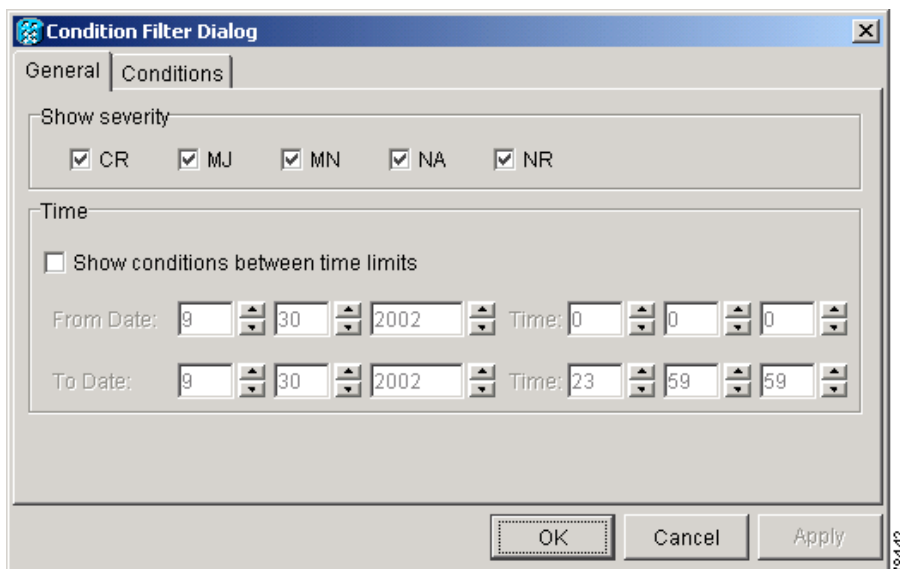


**Note**

The Filter button on the Alarms, History, and Conditions windows allows you to display data that meets a certain severity level, time frame, and/or condition. CTC retains user filter activation. The filter button remains active when the user logs out and logs back in.

- Step 1** In the node view Alarms, History, or Conditions window, click **Filter**.
- Step 2** In the Filter Dialog box, click the **General** tab. The Filter Dialog box appears ([Figure 7-7](#)).

**Figure 7-7** Conditions Filter Dialog Box



**Step 3** In the Show Severity area, alarm severities appear. All of the applicable severities are checked by default. If a severity is checked, it appears in the alarm list.



**Note** The Alarms window and History window have CR, MJ, MN, and NA severities available. The Conditions window also has the NR severity.

Uncheck a severity to prevent it from appearing in the alarm list.

- Step 4** In the Time area:
- a. Check the **Enable Time** check box to establish time as a parameter in the filter.
  - b. Click the From Date and To Date up and down arrows to set the date range for the filter.
  - c. Click the From Time and To Time up and down arrows to set the time range for the filter.
- Step 5** To set conditions, click the **Conditions** tab.
- In the Available list, double-click the desired conditions to move them to the Selected list.
- Step 6** Click **OK**.
- Step 7** Return to your originating procedure (NTP).

## DLP-F73 Modify Alarm and Condition Filtering Parameters

|                                |                                                                                                              |
|--------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task modifies alarm and condition reporting in all network nodes.                                       |
| <b>Tools/Equipment</b>         | None                                                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F72 Enable Alarm Filtering, page 7-12</a><br><a href="#">DLP-F36 Log into CTC, page 3-15</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                             |
| <b>Security Level</b>          | Retrieve                                                                                                     |

- Step 1** In the node, network, or card view, click the **Alarms** tab.
- Step 2** Click **Filter** at the lower-left of the bottom toolbar.
- The Alarm Filter Dialog box appears, showing the General tab.
- In the General tab Show Severity box, you can choose which alarm severities will show through the alarm filter and provision a time period during which filtered alarms show through the filter. To change the alarm severities shown in the filter, go to [Step 3](#). To change the time period filter for the alarms, go to [Step 4](#).
- Step 3** In the Show Severity area, click the check boxes for the severities (CR, MJ, MN, or NA) that you want to be reported at the network level. Leave severity check boxes unchecked to prevent them from appearing.
- When alarm filtering is disabled, all alarms show.
- Step 4** In the Time area, click the **Show alarms between time limits** check box to enable it; then click the up and down arrows in the From Date, To Date, and Time fields to modify the period of alarms shown.

To modify filter parameters for conditions, continue with [Step 5](#). If you do not need to modify them, continue with [Step 6](#).

**Step 5** Click the **Conditions** tab.

When alarm filtering is enabled, conditions in the Show list are visible and conditions in the Hide list are invisible.

- To move conditions individually from the Show list to the Hide list, click >.
- To move conditions individually from the Hide list to the Show list, click <.
- To move conditions collectively from the Show list to the Hide list, click >>.
- To move conditions collectively from the Hide list to the Show list, click <<.




---

**Note** Events include alarms and conditions.

---

**Step 6** Click **Apply** and **OK**.

Alarm and condition filtering parameters are enforced when alarm filtering is enabled (see the “[DLP-F72 Enable Alarm Filtering](#)” task on page 7-12), and are not enforced when alarm filtering is disabled (see the “[DLP-F74 Disable Alarm Filtering](#)” task on page 7-14).

**Step 7** Return to your originating procedure (NTP).

---

## DLP-F74 Disable Alarm Filtering

|                                |                                                                                                                  |
|--------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task turns off specialized alarm filtering in all network nodes so that all severities are reported in CTC. |
| <b>Tools/Equipment</b>         | None                                                                                                             |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F72 Enable Alarm Filtering, page 7-12</a><br><a href="#">DLP-F36 Log into CTC, page 3-15</a>     |
| <b>Required/As Needed</b>      | As needed                                                                                                        |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                 |
| <b>Security Level</b>          | Retrieve                                                                                                         |

---

**Step 1** In the node, network, or card view, click the **Alarms** tab.

**Step 2** Click the **Filter** tool at the lower-left side of the bottom toolbar.

Alarm filtering is enabled if the tool is selected and disabled if the tool is raised (not selected).

**Step 3** If you want alarm filtering disabled when you view conditions, click the **Conditions** tab and repeat [Step 2](#).

**Step 4** If you want alarm filtering disabled when you view alarm history, click the **History** tab and repeat [Step 2](#).

**Step 5** Return to your originating procedure (NTP).

---

## NTP-F52 Synchronize Alarms

|                                |                                                                                                                                                              |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure manually refreshes the CTC alarm display in the card, node, or network view so that it is aligned with the most current ONS 15600 SDH alarms. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                         |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                         |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                             |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                           |

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#). If you are already logged in, continue with Step 2.
- Step 2** Click the **Alarms** tab in the node view, card view, or network view.
- Step 3** Click **Synchronize**.



**Note** Alarms that have been raised during the session will have a check mark in the Alarms window New column. When you click Synchronize, the check mark disappears.

Although CTC displays alarms and events in real time, the Synchronize button allows you to verify the alarm display. This is particularly useful during provisioning or troubleshooting.

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

---

## NTP-F54 Delete Cleared Alarms from the Display

|                                |                                                                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure deletes Cleared (C) status ONS 15600 SDH alarms from the alarms window. This procedure can be used to delete transient messages from the CTC History window. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                        |
| <b>Prerequisite procedures</b> | None                                                                                                                                                                        |
| <b>Required/As needed</b>      | As needed                                                                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                            |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                          |

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#). If you are already logged in, continue with Step 2.
- Step 2** To delete the cleared alarms for a node, click the **Alarms** tab and then click **Delete Cleared Alarms**. This action will remove any cleared ONS 15600 SDH alarms from the Alarms display. The rows of cleared alarms appear white and their status is C.

- Step 3** To delete the cleared alarms for one card at one node:
- In node view, double-click the card graphic for the card you want to open.
  - Click the **Alarms** tab and then click **Delete Cleared Alarms**.
- Step 4** To delete the cleared alarms for all the nodes in a network:
- From the View menu choose **Go to Network View**.
  - Click the **Alarms** tab and then click **Delete Cleared Alarms**.
- Stop. You have completed this procedure.**
- 

## NTP-F55 View Alarm-Affected Circuits

|                                |                                                                                       |
|--------------------------------|---------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure displays ONS 15600 SDH circuits that are affected by a specific alarm. |
| <b>Tools/Equipment</b>         | None                                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">Chapter 6, “Create Circuits”</a>                                          |
| <b>Required/As Needed</b>      | As needed                                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                      |
| <b>Security Level</b>          | Retrieve or higher                                                                    |

---

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#).
- Step 2** Click the **Alarms** or **Conditions** tab and then right-click anywhere on the row of an active alarm or condition.



**Note** The node view is the default, but you can also navigate to the Alarms tab in the network view or the card view to perform Step 2.

---



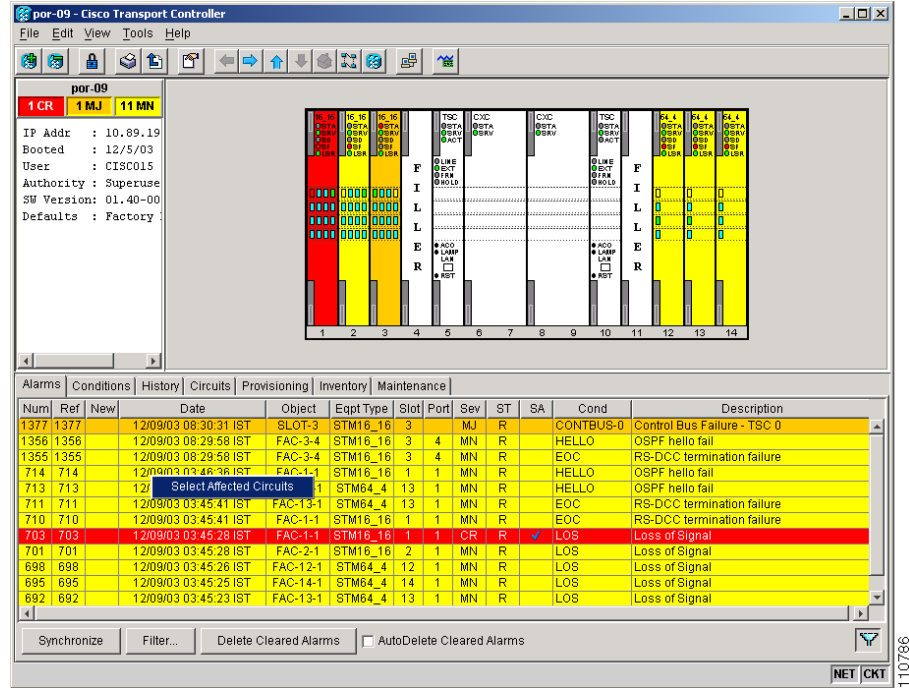
**Note** The card view is not available for the Timing and Shelf Control (TSC) or the Core Cross Connect (CXC) cards.

---

The Select Affected Circuit shortcut menu appears ([Figure 7-8](#)).



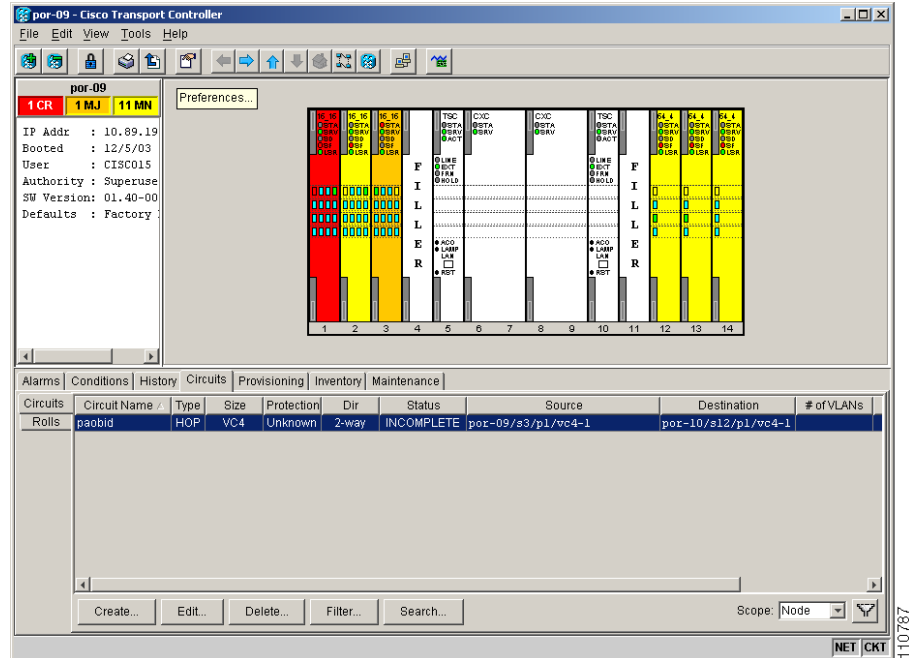
Figure 7-8 Selecting the Affected Circuits Shortcut Menu



Step 3 Click **Select Affected Circuits**.

The Circuits window appears with affected circuits highlighted (Figure 7-9).

Figure 7-9 Affected Circuit in Circuits Window



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

---

## NTP-F56 Create, Assign, and Delete Alarm Severity Profiles

|                                |                                                                                                                                                |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure changes the default severity for certain alarms. You can also use this procedure to create, assign, or delete an alarm profile. |
| <b>Tools/Equipment</b>         | None                                                                                                                                           |
| <b>Prerequisite Procedures</b> | None                                                                                                                                           |
| <b>Required/As Needed</b>      | As needed                                                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                               |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                         |

---

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with Step 2.
- Step 2** Complete the “[DLP-F75 Create Alarm Severity Profiles](#)” task on page 7-18 to clone a current alarm profile, rename it, and customize the new profile.
- Step 3** As necessary, complete the “[DLP-F76 Apply Alarm Profiles for Ports and Cards](#)” task on page 7-21 or the “[DLP-F77 Apply Alarm Profiles to Cards and Nodes](#)” task on page 7-23.



**Note** Both of these tasks can also be used to assign alarm profiles for particular cards.

---

- Step 4** As necessary, complete the “[DLP-F78 Delete Alarm Severity Profiles](#)” task on page 7-23.
- Stop. You have completed this procedure.**
- 

## DLP-F75 Create Alarm Severity Profiles

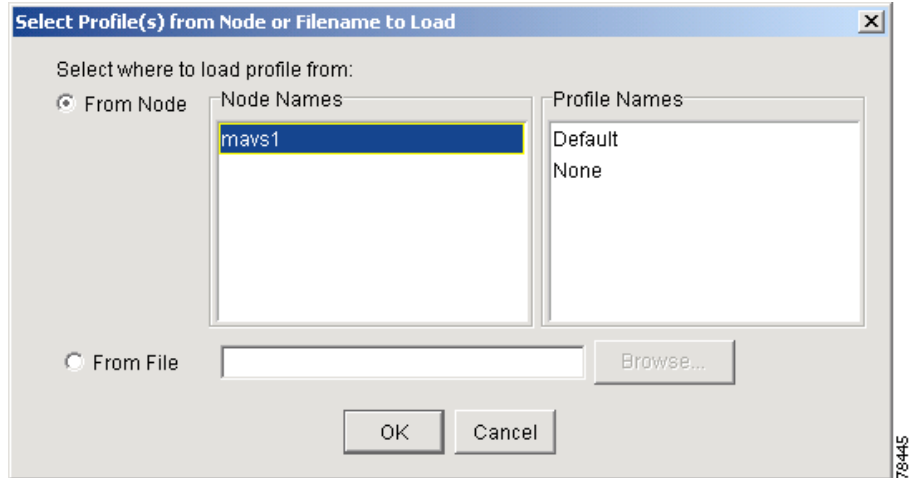
|                                |                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task creates severity profiles for alarms by modifying the default severity profile. |
| <b>Tools/Equipment</b>         | None                                                                                      |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                          |
| <b>Required/As Needed</b>      | As needed                                                                                 |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                          |
| <b>Security Level</b>          | Provisioning or higher                                                                    |

---

- Step 1** From the View menu choose **Go to Network View**.
- Step 2** Click the **Provisioning > Alarm Profiles** tabs.
- Step 3** In the Node/Profile Ops area, click **Load**.

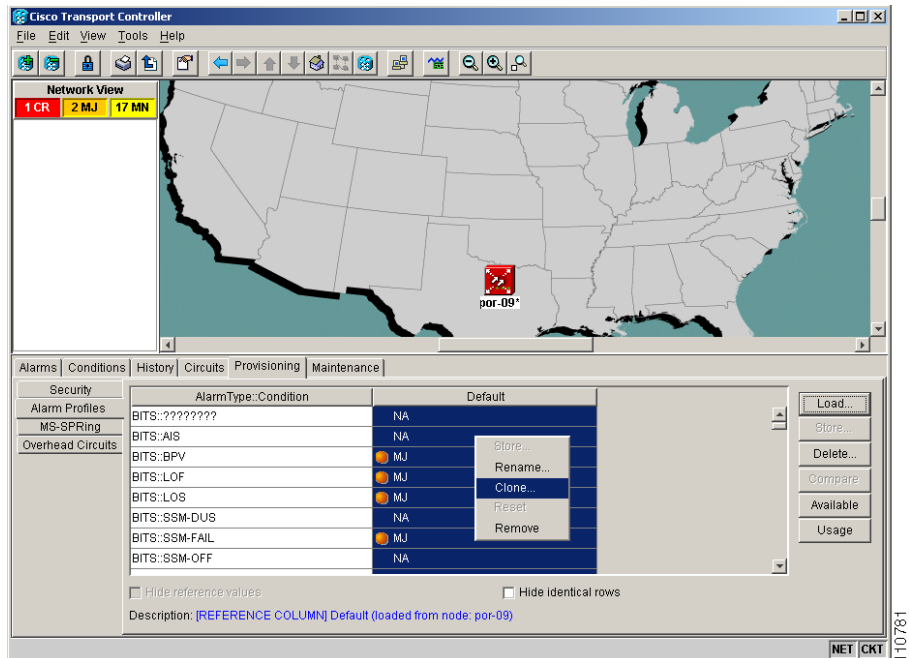
- Step 4** Highlight the node name you are logged into in the Node Names field and highlight **Default** in the Profile Names field (Figure 7-10).

**Figure 7-10** Select Profile(s) from Node or Filename to Load Window



- Step 5** Click **OK**.
- Step 6** Right-click in the Default column to display the profile editing shortcut menu.
- Step 7** Choose **Clone** in the shortcut menu (Figure 7-11).  
In the profile editing shortcut menu, any profile other than Inherited can be cloned.

**Figure 7-11** Alarm Profiles Window Showing the Default Profile of the Listed Alarms

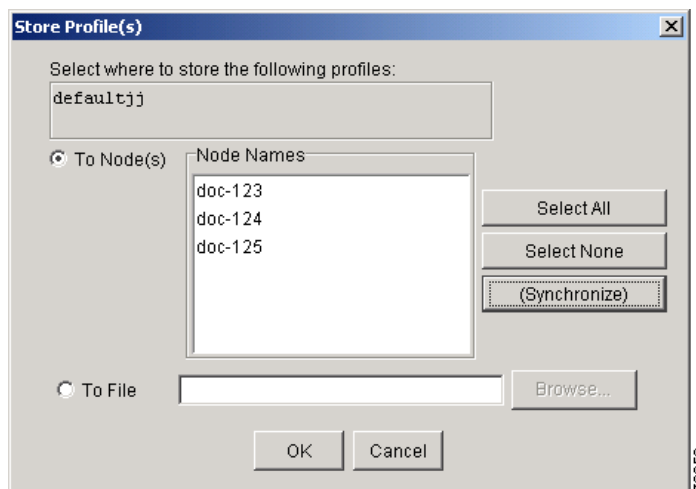


- Step 8** In the Clone Profile Default dialog box, type a name in the New Profile Name field.

Alarm profile names must be unique. If you try to import or name a profile that has the same name as another profile, CTC adds a suffix to create a new name.

- Step 9** Click **OK**. A new alarm profile (named in [Step 8](#)) is created. This profile duplicates the severities of the default profile and appears as a new column on the right side.
- Step 10** Modify the alarm profile:
- In the new alarm profile column, click the alarm severity you want to change in the alarm profile column to highlight it.
  - Select the desired severity from the drop-down menu.
  - Repeat Steps **a** and **b** for each alarm severity that needs to be changed.
  - After you have chosen severities for your new alarm profile, click anywhere in new alarm profile column to highlight it.
  - Click **Store** in the Node/Profile Ops area or select Store from the shortcut menu.
- Step 11** Click the **To Node(s)** radio button if you want to save the new profile to one or more nodes. If you want to save the new profile to a file, click the **To File** radio button and go to [Step 13 \(Figure 7-12\)](#).

**Figure 7-12 Store Profiles Dialog Box**



- Step 12** Choose the node(s) where you want to save the profile:
- If you want to save the profile to only one node, click the node in the Node Names list.
  - If you want to save the profile to all nodes, click **Select All**.
  - If you do not want to save the profile to any nodes, click **Select None**.
  - If you want to update alarm profile information, click **(Synchronize)**.
- Step 13** Click **Browse** and navigate to the profile save location.
- Enter a name in the **File name** field.
  - Click **Select** to choose this name and location.



**Note** Long file names are supported. CTC supplies a suffix of \*.pfl to stored files.

- Step 14** Click **OK** to store the profile.



**Note** Click the **Hide identical rows** check box to configure the Alarm Profiles window to display rows with dissimilar severities.



**Note** Click the **Hide reference values** check box to configure the Alarm Profiles window to display severities that do not match the Default profile.

**Step 15** As needed, complete the “[DLP-F76 Apply Alarm Profiles for Ports and Cards](#)” task on page 7-21.

**Step 16** As needed, complete the “[DLP-F77 Apply Alarm Profiles to Cards and Nodes](#)” task on page 7-23.

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

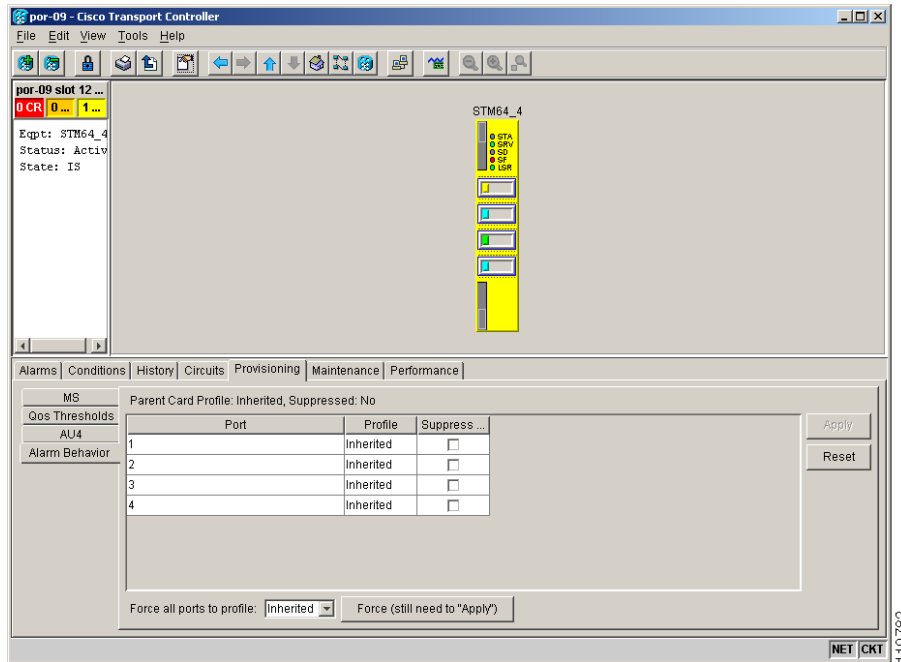
## DLP-F76 Apply Alarm Profiles for Ports and Cards

|                                |                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task applies alarm severity profiles to a port or a card.                                                       |
| <b>Tools/Equipment</b>         | None                                                                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F75 Create Alarm Severity Profiles, page 7-18</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                     |
| <b>Security Level</b>          | Provisioning or higher                                                                                               |

**Step 1** In node view, double-click the card graphic.

**Step 2** Click the **Provisioning > Alarm Behavior** tabs.

Figure 7-13 Alarm Profile on the STM64\_4 1550 Card



**Step 3** To apply alarm profiles on a port-by-port basis:

- a. Click the specific port row in the Profile column.
- b. Choose the profile from the drop-down menu.  
You can select multiple port profiles.
- c. Click **Apply**.

**Step 4** To apply a profile for all the ports on a card:

- a. Click the **Force all ports to profile** drop-down menu at the bottom of the window.
- b. Choose the profile.
- c. Click **Force (still need to "Apply")**.
- d. Click **Apply**.



**Tip**

If you choose the wrong profile, click **Reset** to return to the previous profile setting.

**Step 5** Return to your originating procedure (NTP).

## DLP-F77 Apply Alarm Profiles to Cards and Nodes

|                                |                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task applies a custom or default alarm profile to cards or nodes.                                               |
| <b>Tools/Equipment</b>         | None                                                                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F75 Create Alarm Severity Profiles, page 7-18</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                     |
| <b>Security Level</b>          | Provisioning or higher                                                                                               |

---

**Step 1** In node view, click the **Provisioning > Alarm Behavior** tabs.

**Step 2** To apply a profile to a card:

- Click the Profile column row for the card.
- Choose the profile from the drop-down menu.  
You can select multiple profiles for multiple cards.
- Click **Apply**.

**Step 3** To apply the profile to an entire node:

- Click the **Node Profile** drop-down menu.
- Choose the profile.
- Click **Apply**.




---

**Tip** If you choose the wrong profile, click **Reset** to return to the previous profile.

---

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

---

## DLP-F78 Delete Alarm Severity Profiles

|                                |                                                               |
|--------------------------------|---------------------------------------------------------------|
| <b>Purpose</b>                 | This task deletes a custom or default alarm severity profile. |
| <b>Tools/Equipment</b>         | None                                                          |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>               |
| <b>Required/As Needed</b>      | As needed                                                     |
| <b>Onsite/Remote</b>           | Onsite or remote                                              |
| <b>Security Level</b>          | Provisioning or higher                                        |

---

**Step 1** From the View menu, choose **Go to Network View**.

**Step 2** Click the **Provisioning > Alarm Profiles** tabs.

**Step 3** Click the column heading for the profile column you want to delete.  
The selected alarm profile name appears in the Description field.

**Step 4** Click **Delete**.

The Select Node/Profile Combination for Delete dialog box appears.

**Step 5** Click the node name(s) in the Node Names list to highlight the profile location.



**Tip**

If you hold the Shift key down, you can select consecutive node names. If you hold the Ctrl key down, you can select any combination of nodes.

**Step 6** Click the profile name(s) you want to delete in the Profile Names list.

**Step 7** Click **OK**.

The Delete Alarm Profile confirmation dialog box appears.

**Step 8** Click **Yes** for each Delete Alarm Profile confirmation dialog box.



**Note**

If you delete a profile from a node, it is still displayed in the network view Provisioning > Alarm Profiles window unless you remove it by choosing **Remove**.

**Step 9** To remove the alarm profile from the Provisioning > Alarm Profiles window, right-click the column of the profile you deleted and choose **Remove** from the shortcut menu.



**Note**

If a node and profile combination is selected but does not exist, a warning appears: “One or more of the profile(s) selected do not exist on one or more of the node(s) selected.” For example, if Node A has only Profile 1 and the user tries to delete both Profile 1 and Profile 2 from Node A, this warning appears. However, the operation still removes Profile 1 from Node A.



**Note**

The Default and Inherited special profiles cannot be deleted and do not appear in the Select Node/Profile Combination for Delete Window.

**Step 10** Return to your originating procedure (NTP).

## NTP-F57 Suppress and Restore Alarm Reporting

|                                |                                                                                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure prevents alarms from being reported on ONS 15600 SDH ports, cards, or nodes when an alarm or condition exists but you do not want it to appear. Also use this procedure to discontinue alarm suppression. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                     |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                                                     |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                   |



- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with Step 2.
- Step 2** Complete the “[DLP-F79 Suppress Alarm Reporting](#)” task on page 7-25 to provision the node to send out autonomous messages to clear any raised alarms.
- Step 3** Complete the “[DLP-F80 Restore Alarm Reporting](#)” task on page 7-26 to remove the suppress-alarms command and provision the node to send out autonomous messages to raise any actively suppressed alarms.

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

---

## DLP-F79 Suppress Alarm Reporting

|                                |                                                                                              |
|--------------------------------|----------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task suppresses the reporting of ONS 15600 SDH alarms at the port, card, or node level. |
| <b>Tools/Equipment</b>         | None                                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                             |
| <b>Required/As Needed</b>      | As needed                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                             |
| <b>Security Level</b>          | Provisioning or higher                                                                       |



### Caution

Use alarm suppression with caution. Suppressing alarms in one session suppresses the alarms in all other open CTC and TL1 sessions.

---

- Step 1** In node or card view, click the **Provisioning > Alarm Behavior** tabs.



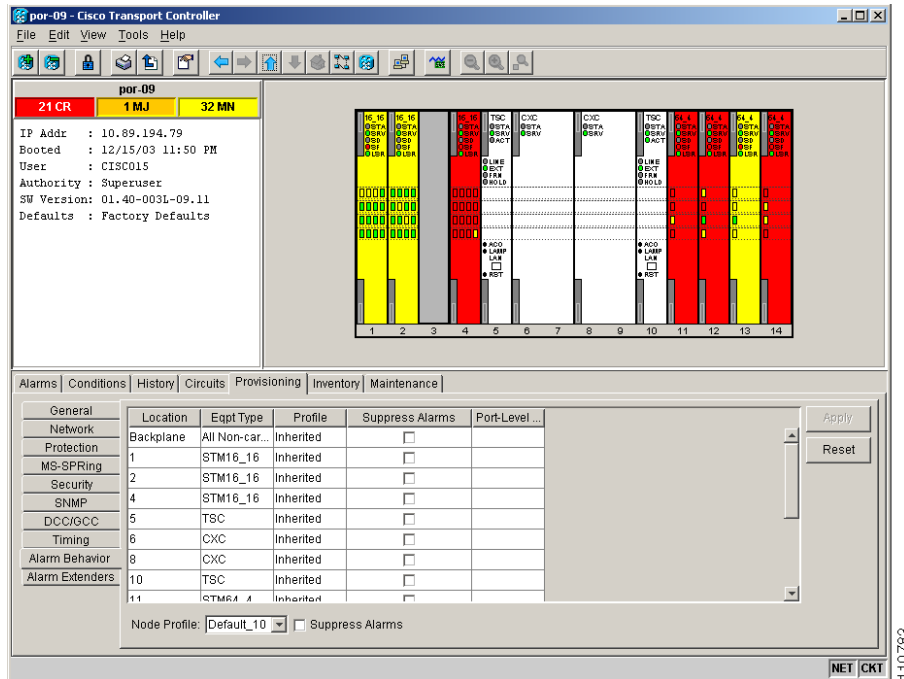
### Note

Suppressing alarms for a card or node causes the alarms to appear on the CTC Conditions window instead of the Alarms window. The suppressed alarms on the Conditions window appear there with their alarm severities, color codes, and service-affecting status. But as conditions, their severities are overridden as NR severity. Suppressed alarms do not appear on the History window or in the Alarms window of any other clients.

---

- Step 2** To suppress alarms, perform the following action, as needed:
- To suppress alarms for the entire node in the node view, check the **Suppress Alarms** check box next to the Node Profile drop-down menu ([Figure 7-14](#)).
  - To suppress alarms for a card in the node view, check the **Suppress Alarms** check box for the card you want to suppress.
  - To suppress alarms for a port in the card view, check the **Suppress Alarms** check box for ports you want to suppress.

Figure 7-14 Suppress Alarms Check Box



**Step 3** Click **Apply**.

The node sends out autonomous messages to clear any raised alarms.

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

## DLP-F80 Restore Alarm Reporting

|                                |                                                                                                                |
|--------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task removes the alarm suppression command on a port, card, or node.                                      |
| <b>Tools/Equipment</b>         | None                                                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F79 Suppress Alarm Reporting, page 7-25</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                               |
| <b>Security Level</b>          | Provisioning or higher                                                                                         |

**Step 1** In node view or card view, depending on where the alarms were suppressed, click the **Provisioning > Alarm Behavior** tab.



**Note** Suppressed alarm reporting must be restored in the same view where it was suppressed.

**Step 2** In node view, uncheck the **Suppress Alarms** check box next to the Node Profile drop-down menu, or uncheck the slot row for a card.

- Step 3** In card view, uncheck the **Suppress Alarms** check box for the ports you want to stop suppressing.
  - Step 4** Click **Apply**. The node sends out autonomous messages to raise any actively suppressed alarms.
  - Step 5** Return to your originating procedure (NTP).
-





## Monitor Performance

---

This chapter explains how to enable and view performance monitoring statistics for the Cisco ONS 15600 SDH. Performance monitoring (PM) parameters are used by service providers to gather, store, threshold, and report performance data for early detection of problems. For more PM information, details, and definitions, refer to the *Cisco ONS 15600 SDH Reference Manual*.

### Before You Begin

Before performing any of the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* as necessary.

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

1. [NTP-F58 Enable Intermediate-Path Performance Monitoring, page 8-2](#)—Complete as needed.
2. [NTP-F59 Monitor Optical Performance, page 8-3](#)—Complete as needed after enabling performance monitoring.



#### Note

---

For additional information regarding PM parameters, refer to the Digital transmission surveillance section in ITU G.826, G.827, G.829, M2101, and M2120, in Telcordia GR-1230-CORE, GR-820-CORE, and GR-253-CORE, and in the ANSI document entitled *Digital Hierarchy - Layer 1 In-Service Digital Transmission Performance Monitoring*.

---

# NTP-F58 Enable Intermediate-Path Performance Monitoring

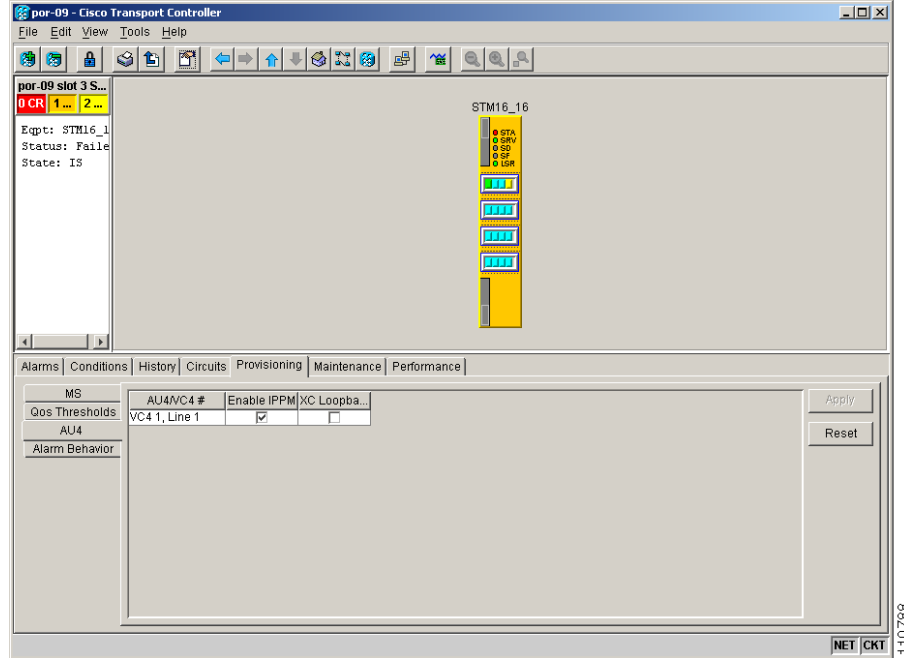
|                                |                                                                                                                                                                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure enables intermediate path performance monitoring (IPPM), which allows you to monitor VC4 traffic through intermediate nodes in a circuit path.                                                                                                     |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4</a> or <a href="#">NTP-F43 Create a Manually Routed Optical Circuit, page 6-11</a> or <a href="#">NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops, page 6-13</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                         |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                  |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                            |



**Note** Regenerator Section and Multiplex Section performance monitoring is enabled when the port(s) are in service (IS). To enable performance monitoring of VC4 traffic through the nodes, you must enable IPPM for the path(s) being monitored.

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on [page 3-15](#) at the node you want to monitor. If you are already logged in, continue with [Step 2](#).
- Step 2** In node view, double-click an optical (traffic) card. The card view appears.
- The Cisco ONS 15600 SDH has the following optical (traffic) cards:
- OC48/STM16 LR/LH 16 Port 1550
  - OC48/STM16 SR/SH 16 Port 1310
  - OC192/STM64 LR/LH 4 Port 1550
  - OC192/STM64 SR/SH 4 Port 1310
- Step 3** Click the **Provisioning > AU4** tabs. [Figure 8-1](#) shows the AU4 tab in the Provisioning window.

Figure 8-1 AU4 Tab for Enabling IPPM



- Step 4** Check the check box in the Enable IPPM column for the VC4 you want to monitor.
- Step 5** Click **Apply**.
- Step 6** Click the **Performance** tab to view the PM parameters. For IPPM parameter definitions, refer to the *Cisco ONS 15600 SDH Reference Manual*.
- Stop. You have completed this procedure.**

## NTP-F59 Monitor Optical Performance

|                                |                                                                                                                                                                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | The Performance tab window allows you to view node near-end or far-end performance on a selected card and port at specified time intervals to detect possible performance problems.                                                                               |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4</a> or <a href="#">NTP-F43 Create a Manually Routed Optical Circuit, page 6-11</a> or <a href="#">NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops, page 6-13</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                         |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                                                                                                            |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                                                                                                                |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on [page 3-15](#) at the node you want to monitor. If you are already logged in, continue with [Step 2](#).

- Step 2** Complete the “DLP-F81 View Optical STM-N PM Parameters” task on page 8-4.
- Step 3** As needed, use the following tasks to change the display of optical STM-N PM counts:
- [DLP-F82 Refresh PM Counts for a Selected Port and VC4](#), page 8-5.
  - [DLP-F83 Refresh PM Counts at Fifteen-Minute Intervals](#), page 8-6.
  - [DLP-F84 Refresh PM Counts at One-Day Intervals](#), page 8-7.
  - [DLP-F85 Monitor Near-End PM Counts](#), page 8-8.
  - [DLP-F86 Monitor Far-End PM Counts](#), page 8-8.
  - [DLP-F87 Reset Current PM Counts](#), page 8-9.
  - [DLP-F88 Clear Selected PM Counts](#), page 8-9.
  - [DLP-F89 Set Auto-Refresh Interval for Displayed PM Counts](#), page 8-10

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

---

## DLP-F81 View Optical STM-N PM Parameters

|                                |                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task enables you to view PM counts on a selected STM-N card and port to detect possible performance problems. |
| <b>Tools/Equipment</b>         | None                                                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                                                   |
| <b>Required/As Needed</b>      | As needed                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                   |
| <b>Security Level</b>          | Retrieve or higher                                                                                                 |

---

- Step 1** In node view, double-click an STM-N card. The card view appears.
- Step 2** Click the **Performance** tab ([Figure 8-2](#)).

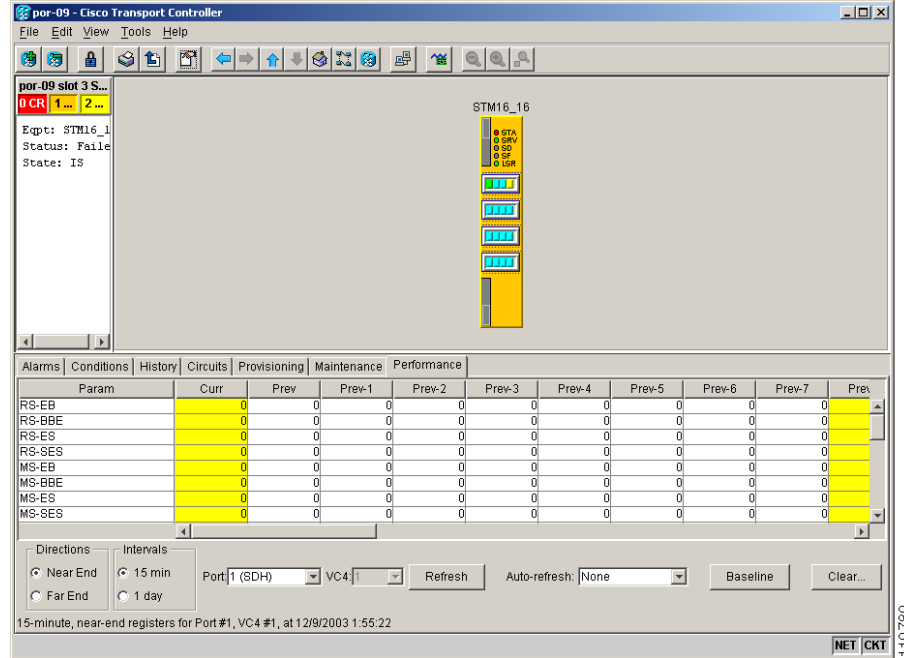


**Note** The performance window defaults to Port 1, VC4 1 PM counts. Depending on the STM-N card, there are 16 VC4 or 64 VC4 per port. You must select the specific port and VC4 for which you want to view PM counts. See the “[DLP-F82 Refresh PM Counts for a Selected Port and VC4](#)” task on page 8-5.

---



Figure 8-2 Viewing Optical STM-N Performance Monitoring Information



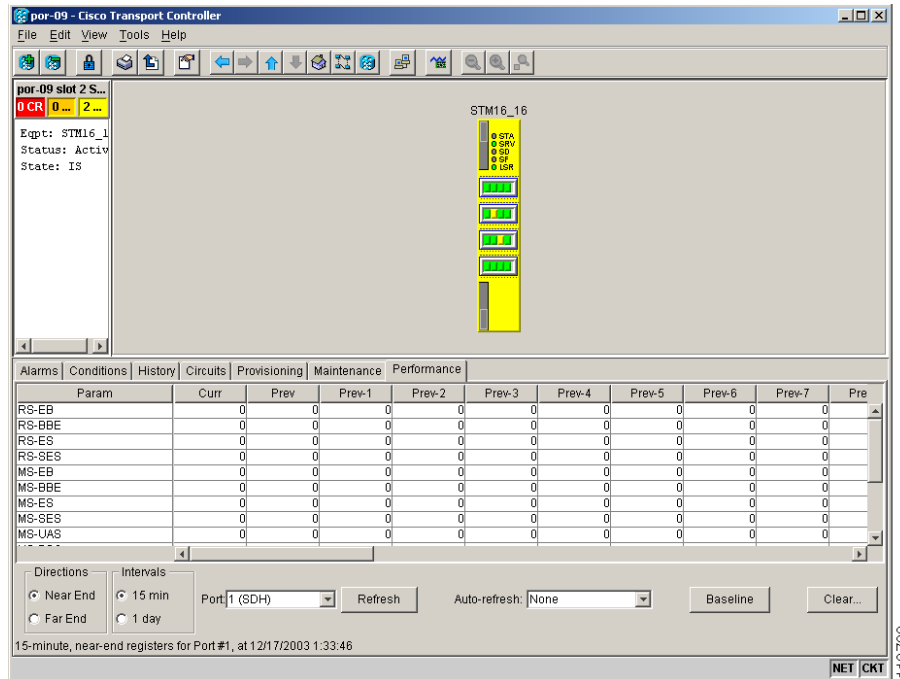
- Step 3** The PM parameter names appear on the left portion of the window in the Param column. The parameter values appear on the right portion of the window in the Curr (current) and Prev-*n* (previous) columns. For PM parameter definitions refer to the *Cisco ONS 15600 SDH Reference Manual*.
- Step 4** Return to your originating procedure (NTP).

## DLP-F82 Refresh PM Counts for a Selected Port and VC4

|                                |                                                                                                |
|--------------------------------|------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the window view to display PM counts for a selected STM-N card port and VC4. |
| <b>Tools/Equipment</b>         | None                                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                                               |
| <b>Required/As Needed</b>      | As needed                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                               |
| <b>Security Level</b>          | Retrieve or higher                                                                             |

- Step 1** From node view, double-click an STM-N card. The card view appears.
- Step 2** Click the **Performance** tab.
- Step 3** Click the Port drop-down menu and click the desired port ([Figure 8-3](#)).

Figure 8-3 Port Menu on the Card View Performance Tab



- Step 4** Click **Refresh**. All PM counts occurring for the selected port appear. For PM parameter definitions, refer to the *Cisco ONS 15600 SDH Reference Manual*.
- Step 5** Return to your originating procedure (NTP).

## DLP-F83 Refresh PM Counts at Fifteen-Minute Intervals

|                                |                                                                                |
|--------------------------------|--------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the window view to display PM counts in 15-minute intervals. |
| <b>Tools/Equipment</b>         | None                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                               |
| <b>Required/As Needed</b>      | As needed                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                               |
| <b>Security Level</b>          | Retrieve or higher                                                             |

- Step 1** In node view, double-click an STM-N card. The card view appears.
- Step 2** Click the **Performance** tab.
- Step 3** Click the **15 min** radio button.
- Step 4** Click **Refresh**. The PM parameters appear in 15-minute intervals that are synchronized with the time of day.
- Step 5** View the Current column to find PM counts for the current 15-minute interval.

Each monitored performance parameter has corresponding threshold values for the current time period. If the value of the counter exceeds the threshold value for a particular 15-minute interval, a threshold crossing alert (TCA) is raised. The number represents the counter value for each specific performance monitoring parameter.

**Step 6** View the Prev-*n* columns to find PM counts for the preceding 15-minute intervals.



**Note** If a complete 15-minute interval count is not possible, the value has a yellow background. An incomplete or incorrect count can be caused by changing node timing settings, changing time zone settings, changing the count by using the clear function, replacing a card, resetting a card, or changing port states.

**Step 7** Return to your originating procedure (NTP).

## DLP-F84 Refresh PM Counts at One-Day Intervals

|                                |                                                                              |
|--------------------------------|------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the window view to display PM counts in one-day intervals. |
| <b>Tools/Equipment</b>         | None                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                             |
| <b>Required/As Needed</b>      | As needed                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                             |
| <b>Security Level</b>          | Retrieve or higher                                                           |

**Step 1** In node view, double-click an STM-N card. The card view appears.

**Step 2** Click the **Performance** tab.

**Step 3** Click the **1 day** radio button.

**Step 4** Click **Refresh**. The PM parameters display in one-day (24-hour) intervals that are synchronized with the time of day. For PM parameter definitions refer to the *Cisco ONS 15600 SDH Reference Manual*.

**Step 5** View the Current column to find PM counts for the current one-day interval.

Each monitored performance parameter has corresponding threshold values for the current time period. If the value of the counter exceeds the threshold value for a particular one-day interval, a TCA is raised. The number represents the counter value for each specific performance monitoring parameter.

**Step 6** View the Prev-*n* columns to find PM counts for the preceding one-day intervals.



**Note** If a complete count over a one-day interval is not possible, the value has a yellow background. An incomplete or incorrect count can be caused by changing node timing settings, changing time zone settings, replacing a card, resetting a card, changing port states, or adjusting and clearing the counter.

**Step 7** Return to your originating procedure (NTP).

## DLP-F85 Monitor Near-End PM Counts

|                                |                                                                                                    |
|--------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the window view to show near-end PM counts for the selected card, port, and VC4. |
| <b>Tools/Equipment</b>         | None                                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                                                   |
| <b>Required/As Needed</b>      | As needed                                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                   |
| <b>Security Level</b>          | Retrieve or higher                                                                                 |

- 
- Step 1** In node view, double-click an STM-N card. The card view appears.
- Step 2** Click the **Performance** tab.
- Step 3** Click the **Near End** radio button.
- Step 4** Click **Refresh**. All PM counts recorded by the near-end node for the incoming signal on the selected card/port/VC4 appear. For PM parameter definitions, refer to the *Cisco ONS 15600 SDH Reference Manual*.
- Step 5** Return to your originating procedure (NTP).
- 

## DLP-F86 Monitor Far-End PM Counts

|                                |                                                                                                   |
|--------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the window view to show far-end PM counts for the selected card, port, and VC4. |
| <b>Tools/Equipment</b>         | None                                                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                                                  |
| <b>Required/As Needed</b>      | As needed                                                                                         |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                  |
| <b>Security Level</b>          | Retrieve or higher                                                                                |

- 
- Step 1** In node view, double-click an STM-N card. The card view appears.
- Step 2** Click the **Performance** tab.
- Step 3** Click the **Far End** radio button.
- Step 4** Click **Refresh**. All PM counts recorded by the far-end node for the outgoing signal on the selected card/port/VC4 appear. For PM parameter definitions, refer to the *Cisco ONS 15600 SDH Reference Manual*.
- Step 5** Return to your originating procedure (NTP).
-

## DLP-F87 Reset Current PM Counts

|                                |                                                                                                                                                                                                    |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task uses the Baseline button to clear the PM count shown in the current time interval, but it does not clear the cumulative PM count. This allows you to see how quickly the PM counts rise. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                                                                                                                                                   |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                   |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                                                 |

**Step 1** From node view, double-click an STM-N card. The card view appears.

**Step 2** Click the **Performance** tab.

**Step 3** Click **Baseline**.



**Note** The Baseline button clears the PM count shown in the Current column, but does not clear the PM counts on the card. When the current time interval expires or the window view changes, the total number of PM counts on the card and on the window appear in the appropriate column. The baseline values are discarded if you change views to a different window and then return to the Performance tab window.

**Step 4** View the Current column to observe changes to PM counts for the current time interval.

**Step 5** Return to your originating procedure (NTP).

## DLP-F88 Clear Selected PM Counts

|                                |                                                                                                |
|--------------------------------|------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task uses the Clear button to clear specified PM counts depending on the selected option. |
| <b>Tools/Equipment</b>         | None                                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                                               |
| <b>Required/As Needed</b>      | As needed                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                               |
| <b>Security Level</b>          | Retrieve or higher                                                                             |



**Caution**

The Clear button can mask problems if used incorrectly. This button is commonly used for testing.

**Step 1** In node view, double-click an STM-N card. The card view appears.

**Step 2** Click the **Performance** tab.

**Step 3** Click **Clear**.

- Step 4** In the Clear Statistics menu, choose one of the following options:
- **Displayed statistics:** This option erases from the window display all PM counts that are currently displayed in the Performance tab window.
  - **All statistics for port n:** This option erases from the window display and card memory all PM counts associated with the selected port. This means the 15-minute and one-day, near-end and far-end PM counts for the selected port are cleared from the card and the window display.
  - **All statistics for card:** This option erases from the window display and card memory all PM counts associated with the selected card. This means the 15-minute and one-day, near-end and far-end PM counts for the selected card are cleared from the card and the window display.
  - **All statistics for selected parameters:** This option erases from the window display and card memory all PM counts associated with the selected parameters. For example, if the 15 min and the Near End radio buttons are selected, all near-end PM counts in the current 15-minute interval are erased from the card and the window display.
- Step 5** Click **Yes** to clear the selected statistics.
- Step 6** View the displayed columns to verify that the selected PM counts have been cleared.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F89 Set Auto-Refresh Interval for Displayed PM Counts

|                                |                                                                                |
|--------------------------------|--------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the window autorefresh intervals for updating the PM counts. |
| <b>Tools/Equipment</b>         | None                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15.</a>                               |
| <b>Required/As Needed</b>      | As needed                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                               |
| <b>Security Level</b>          | Retrieve or higher                                                             |

---

- Step 1** In node view, double-click an STM-N card. The card view appears.
- Step 2** Click the **Performance** tab.
- Step 3** From the Auto-refresh drop-down menu choose one of the following options:
- **None:** This option disables the autorefresh feature.
  - **15 Seconds:** This option sets the window to autorefresh at 15-second time intervals.
  - **30 Seconds:** This option sets the window to autorefresh at 30-second time intervals.
  - **1 Minute:** This option sets the window to autorefresh at one-minute time intervals.
  - **3 Minutes:** This option sets the window to autorefresh at three-minute time intervals.
  - **5 Minutes:** This option sets the window to autorefresh at five-minute time intervals.
- Step 4** Click **Refresh**. The PM counts for the new time interval appear.

Depending on the selected autorefresh interval, the PM counts shown automatically update when each refresh interval is complete. If the autorefresh interval is set to None, the PM counts are not updated unless you click the Refresh button.

**Step 5** Return to your originating procedure (NTP).

---







## Manage Circuits

---

This chapter explains how to manage Cisco ONS 15600 SDH optical circuits.



**Note**

---

The ONS 15600 SDH Software Release 1.4 does not support a full state model. As a result, the circuit state cannot be changed; it is always In Service (IS).

---

### Before You Begin

To create circuits, complete the procedures as needed in [Chapter 6, “Create Circuits.”](#)

To clear any alarm or trouble conditions, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

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

1. [NTP-F60 Locate and View Circuits, page 9-2](#)—Complete as needed.
2. [NTP-F61 Modify and Delete Circuit Characteristics, page 9-8](#)—Complete as needed to edit a circuit name, change the active and standby colors of spans, or change signal fail thresholds, signal degrade thresholds, and reversion time.
3. [NTP-F62 Monitor a J1 Path Trace, page 9-12](#)—Complete as needed to monitor interruptions or changes to circuit traffic.
4. [NTP-F63 Bridge and Roll Traffic, page 9-14](#)—Complete as needed to reroute circuits.
5. [NTP-F64 Convert Circuits to TL1 Cross-Connections, page 9-31](#)— Complete as needed to repair missing cross-connects or change cross-connects using the TL1-like circuit option.
6. [NTP-F65 Upgrade TL1 Cross-Connects to CTC Circuits, page 9-32](#)—Complete as needed if you want to convert TL1 cross-connects or TL1-like cross-connects created in Cisco Transport Controller (CTC) into a CTC circuit.



**Note**

---

To provision ONS 15600 SDH circuits from an ONS 15454 node, the CTC version launched from the ONS 15454 must be Software R4.1 or later. Cisco recommends launching CTC from the ONS 15600 SDH node before provisioning circuits.

---

## NTP-F60 Locate and View Circuits

|                                |                                                                                                                                                                 |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure locates and displays ONS 15600 circuits.                                                                                                         |
| <b>Tools/Equipment</b>         | None                                                                                                                                                            |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4</a> or <a href="#">NTP-F43 Create a Manually Routed Optical Circuit, page 6-11</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                       |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                              |

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at any node on the network where you want to view the circuits. If you are already logged in, continue with Step 2.
- Step 2** As needed, complete the “[DLP-F90 View Circuit Information](#)” task on page 9-2
- Step 3** As needed, complete the “[DLP-F91 Search for Circuits](#)” task on page 9-5.
- Step 4** As needed, complete the “[DLP-F92 Filter the Display of Circuits](#)” task on page 9-6.
- Step 5** As needed, complete the “[DLP-F93 View Circuits on a Span](#)” task on page 9-7.
- Stop. You have completed this procedure.**
- 

## DLP-F90 View Circuit Information

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>Purpose</b>                 | This task displays ONS 15600 SDH circuits.      |
| <b>Tools/Equipment</b>         | None                                            |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a> |
| <b>Required/As Needed</b>      | As needed                                       |
| <b>Onsite/Remote</b>           | Onsite or remote                                |
| <b>Security Level</b>          | Retrieve or higher                              |

- 
- Step 1** Navigate to the appropriate CTC view:
- To view circuits for an entire network, from the View menu, choose **Go To Network View**.
  - To view circuits that originate, terminate, or pass through a specific node, from the View menu, choose **Go To Other Node**, then choose the node you want to search and click **OK**.
  - To view circuits that originate, terminate, or pass through a specific card, in node view, double-click the card containing the circuits you want to view.



**Note** In node or card view, you can change the scope of the circuits that are displayed by choosing Card (in card view), Node, or Network from the Scope drop-down menu in the bottom right corner of the Circuits window.

---

**Step 2** Click the **Circuits** tab. The Circuits tab has the following information:

- **Name**—The name of the circuit (user-assigned or automatically generated).
- **Type**—For the ONS 15600 SDH, the circuit type is **HOP (VC\_HO\_PATH\_CIRCUIT)**.
- **Size**—The VC\_HO\_PATH\_CIRCUIT size can be VC4, VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, or VC4-64c.
- **Protection**—The protection type; see [Table 9-1](#) for a description of the possible values.

**Table 9-1 Circuit Protection Types**

| Protection Type | Description                                                                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| —               | Circuit protection is not applicable.                                                                                                                                                                                                              |
| 2F MS-SPR       | The circuit is protected by a 2-fiber multiplex section-shared protection ring (MS-SPRing).                                                                                                                                                        |
| SNCP            | The circuit is protected by subnetwork connection protection (SNCP).                                                                                                                                                                               |
| 1+1 (LMSP)      | The circuit is protected by a 1+1 (LMSP (Linear Multiplex Section Protection)) protection group.                                                                                                                                                   |
| Protected       | The circuit is protected by diverse SDH topologies, for example, MS-SPRing and SNCP, or SNCP and 1+1.                                                                                                                                              |
| Unprot (black)  | The circuit is not protected.                                                                                                                                                                                                                      |
| Unprot (red)    | The circuit was created as a fully protected circuit, but is no longer protected due to a system change, such as a traffic switch.                                                                                                                 |
| Unknown         | Circuit protection types display in the Protection column only when all circuit components are known, that is, when the circuit status is ACTIVE or UPGRADABLE. If the circuit is in some other status, protection type is displayed as “unknown.” |

- **Direction**—The circuit direction, either two-way or one-way.
- **Status**—The circuit status; see [Table 9-2](#) for a description of the possible values.

**Table 9-2 Circuit Status**

| Status   | Definition/Activity                                                                                               |
|----------|-------------------------------------------------------------------------------------------------------------------|
| CREATING | CTC is creating a circuit.                                                                                        |
| ACTIVE   | CTC created a circuit. All components are in place and a complete path exists from circuit source to destination. |

Table 9-2 Circuit Status (continued)

| Status     | Definition/Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DELETING   | CTC is deleting a circuit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| INCOMPLETE | <p>Indicates one of the following:</p> <ul style="list-style-type: none"> <li>• A CTC-created circuit is missing a connection or network span (network link).</li> <li>• A complete path from source to destination(s) does not exist.</li> <li>• A MAC address change occurred on one of the circuit nodes and the circuit is in need of repair.</li> </ul> <p>In CTC, circuits are represented using cross-connects and network spans. If a network span is missing from a circuit, the circuit status is INCOMPLETE. However, an INCOMPLETE status does not necessarily mean a circuit traffic failure has occurred, for traffic might flow on a protect path.</p> <p>Network spans are in one of two states: up or down. On CTC circuit and network maps, up spans appear as green lines, and down spans appear as gray lines. If a failure occurs on a network span during a CTC session, the span remains on the network map but its color changes to gray to indicate the span is down. If you restart your CTC session while the failure is active, the new CTC session cannot discover the span and its span line will not appear on the network map.</p> <p>Subsequently, circuits routed on a network span that goes down will appear as ACTIVE during the current CTC session, but they will appear as INCOMPLETE to users who log in after the span failure.</p> |

- Source—The circuit source in the format: *node/slot/port "port name"*.
- Destination—The circuit destination in the *node/slot/port "port name"*.
- # of VLANs—The number of VLANs used by an Ethernet circuit (future use for the ONS 15600 SDH).
- # of Spans—The number of internode links that compose the circuit.
- State—The circuit state. The ONS 15600 SDH Release 1.4 does not support a full state model. As a result, you cannot change the circuit state; it is always IS.

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

## DLP-F91 Search for Circuits

|                                |                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task searches for an ONS 15600 SDH circuit at the network, node, or card level. |
| <b>Tools/Equipment</b>         | None                                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                      |
| <b>Required/As Needed</b>      | As needed                                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                     |
| <b>Security Level</b>          | Retrieve or higher                                                                   |

---

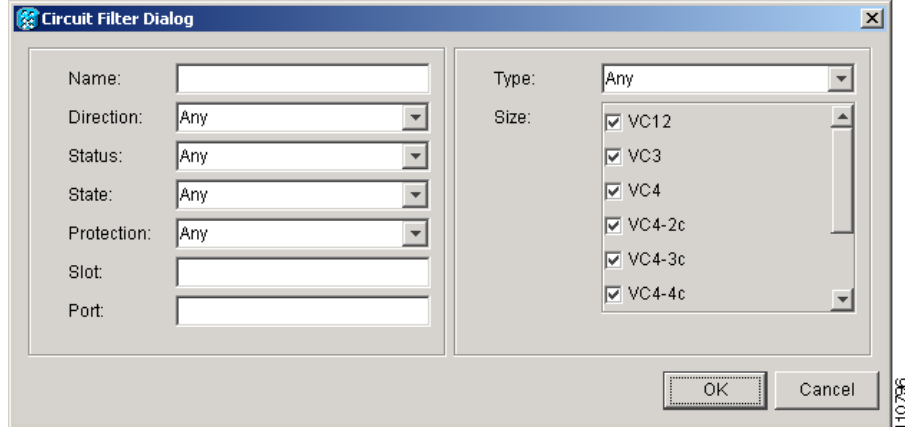
- Step 1** Navigate to the appropriate CTC view:
- To search the entire network, from the View menu choose **Go To Network View**.
  - To search for circuits that originate, terminate, or pass through a specific node, from the View menu choose **Go To Other Node**, then choose the node you want to search and click **OK**.
  - To search for circuits that originate, terminate, or pass through a specific card, double-click the card on the shelf graphic in node view to display the card in card view.
- Step 2** Click the **Circuits** tab.
- Step 3** If you are in node or card view, choose the scope for the search (**Network** or **Node**) from the Scope drop-down menu.
- Step 4** Click **Search**.
- Step 5** In the Circuit Name Search dialog box, complete the following:
- **Find What**—Enter the text of the circuit name you want to find.
  - **Match Whole Word Only**—Check this box to instruct CTC to select circuits only if the entire word matches the text in the Find What field.
  - **Match Case**—Check this box to instruct CTC to select circuits only when the capitalization matches the capitalization entered in the Find What field.
  - **Direction**—Choose the direction for the search. Searches are conducted up or down from the currently selected circuit.
- Step 6** Click **Find Next**.
- Step 7** Repeat Steps 5 and 6 until you are finished, then click **Cancel**.
- Step 8** Return to your originating procedure (NTP).
-

## DLP-F92 Filter the Display of Circuits

|                                |                                                                                                                                                                               |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task filters the display of circuits in the ONS 15600 SDH network, node, or card view Circuits window based on circuit name, size, type, direction and other attributes. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                          |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                               |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                     |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                              |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                            |

- 
- Step 1** Navigate to the appropriate CTC view:
- To filter network circuits, from the View menu choose **Go To Network View**.
  - To filter circuits that originate, terminate, or pass through a specific node, from the View menu choose **Go To Other Node**, then choose the node you want to search and click **OK**.
  - To filter circuits that originate, terminate, or pass through a specific card, double-click the card on the shelf graphic in node view to display the card in card view.
- Step 2** Click the **Circuits** tab.
- Step 3** Click **Filter**.
- Step 4** In the Circuit Filter dialog box ([Figure 9-1](#)), complete the following, as applicable:
- Name—Enter a complete or partial circuit name to filter circuits based on circuit name; otherwise leave the field blank.
  - Direction—Choose one: Any (CTC will not use direction to filter circuits), 1-way (CTC displays only one-way circuits), or 2-way (CTC displays only two-way circuits).
  - Status—Choose one: Any (status not used to filter circuits), Active (CTC displays only active circuits), Incomplete (CTC displays only incomplete circuits, that is, circuits missing a connection or span to form a complete path), or Upgradable (CTC displays only upgradable circuits, that is, circuits created in TL1 that are ready to upgrade in CTC). See [Table 9-2](#) for more information about circuit statuses. (While other statuses are described in the table, filtering is only supported for Active, Incomplete, and Upgradable circuits.)
  - State—Choose **IS** (CTC displays only in-service circuits).
  - Protection—Choose the protection type from the drop-down menu.
  - Slot—Enter a slot number to filter circuits based on source or destination slot; otherwise leave the field blank.
  - Port—Enter a port number to filter circuits based on source or destination port; otherwise leave the field blank.
  - Type—Choose one: Any (CTC will not use circuit type to filter circuits) or VC\_HO\_PATH\_CIRCUIT (CTC displays only high order circuits).
  - Size—Click the appropriate check boxes to filter circuits based on size: VC12, VC3, VC4, VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-16c, and VC4-64c. The available check boxes depend on the entry in the Type field.

Figure 9-1 Entering Circuit Filter Criteria



- Step 5** Click **OK**. The Circuits tab will display only the circuits that meet the criteria set in the Filter dialog box.
- Step 6** To turn filtering off, click the Filter icon in the lower-right corner of the Circuits window. Click the icon again to turn filtering on.
- Step 7** Return to your originating procedure (NTP).

## DLP-F93 View Circuits on a Span

|                                |                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to view circuits on an ONS 15600 SDH span.                                        |
| <b>Tools/Equipment</b>         | None                                                                                            |
| <b>Prerequisite Procedures</b> | <a href="#">Chapter 6, “Create Circuits”</a><br><a href="#">DLP-F36 Log into CTC, page 3-15</a> |
| <b>Required/As Needed</b>      | As needed                                                                                       |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                |
| <b>Security Level</b>          | Retrieve or higher                                                                              |

- Step 1** From the View menu, choose **Go To Network View**. If you are already in network view, continue with [Step 2](#).
- Step 2** Right-click the green line (span) containing the circuits you want to view and choose **Circuits** from the shortcut menu.

In the Circuits on Span dialog box, you can view the following information for all circuits provisioned on the span:

- VC4—Displays VC4s used by the circuits.
- VC12, VC3—Displays VC12 and VC3s used by the circuits (not applicable for the ONS 15600 SDH).
- SNCP—Indicates whether the circuit is in an SNCP or not.
- Circuit—Displays the circuit name.

- **Switch State**—(SNCP span only) Displays the switch state of the circuit, that is, whether or not any span switches are active. For SNCP spans, switch types include: CLEAR (no spans are switched), MANUAL (a Manual switch is active), FORCE (a Force switch is active), and LOCKOUT OF PROTECTION (a span lockout is active).



**Note** You can complete other procedures from the Circuits on Span dialog box. If the span is in an SNCP, you can switch the span traffic. See “[DLP-F59 SNCP Protection Switching Test](#)” task on page 5-23 for instructions. If you want to edit a circuit on the span, double-click the circuit. See the “[DLP-F96 Edit SNCP Circuit Path Selectors](#)” task on page 9-10 for instructions.

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

## NTP-F61 Modify and Delete Circuit Characteristics

|                                |                                                                                                                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to edit or change the properties of ONS 15600 SDH circuits.                                                                                                                                                                                       |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F42 Create an Automatically Routed Optical Circuit</a> , page 6-4 or <a href="#">NTP-F43 Create a Manually Routed Optical Circuit</a> , page 6-11 or <a href="#">NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops</a> , page 6-13 |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                     |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                               |

**Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 the network containing the circuit you want to modify. If you are already logged in, continue with Step 2.

**Step 2** As needed, complete the “[DLP-F94 Edit a Circuit Name](#)” task on page 9-9.

**Step 3** As needed, complete the “[DLP-F95 Change Active and Standby Span Color](#)” task on page 9-9.

**Step 4** As needed, complete the “[DLP-F96 Edit SNCP Circuit Path Selectors](#)” task on page 9-10.

**Step 5** As needed, complete the “[DLP-E97 Delete Circuits](#)” task on page 9-11.

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



## DLP-F94 Edit a Circuit Name

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>Purpose</b>                 | This task edits a circuit name.                 |
| <b>Tools/Equipment</b>         | None                                            |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a> |
| <b>Required/As Needed</b>      | As needed                                       |
| <b>Onsite/Remote</b>           | Onsite or remote                                |
| <b>Security Level</b>          | Provisioning or higher                          |

- 
- Step 1** Click the **Circuits** tab.
- Step 2** Click the circuit you want to rename, then click **Edit**.
- Step 3** In the General tab, click the **Name** field, and edit or rename the circuit. Names can be up to 48 alphanumeric and/or special characters.
- Step 4** Click **Apply**.
- Step 5** From File menu, choose **Close**.
- Step 6** In the Circuits window, verify that the circuit was correctly renamed.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F95 Change Active and Standby Span Color

|                                |                                                                                                                                                                                                                            |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the color of active (working) and standby (protect) circuit spans that appear on the detailed circuit map of the Edit Circuits window. By default, working spans are green and protect spans are purple. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                       |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                                                            |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                           |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                     |

- 
- Step 1** From the Edit menu, choose **Preferences**.
- Step 2** In the Preferences dialog box, click the **Circuit** tab.
- Step 3** Complete one or more of the following steps, as required:
- To change the color of the active (working) span, continue with [Step 4](#).
  - To change the color of the standby (protect) span, continue with [Step 5](#).
  - To return active and standby spans to their default colors, continue with [Step 6](#).
- Step 4** Change the color of the active span:
- a. Next to Active Span Color, click **Color**.

- b. In the Pick a Color dialog box, click the color for the active span. Click the **Reset** button if you want the active span to display the last applied (saved) color.
- c. Click **OK** to close the Pick a Color dialog box.
- d. If you want to change the standby span color, continue with [Step 5](#). If not, click **OK** to save the change and close the Preferences dialog box, or click **Apply** to save the change and keep the Preferences dialog box open.

**Step 5** Change the color of the standby span:

- a. Next to Standby Span Color, click the **Color** button.
- b. In the Pick a Color dialog box, click the color for the standby span. Click the **Reset** button if you want the standby span to display the last applied (saved) color.
- c. Click **OK** to close the Pick a Color dialog box.
- d. Click **OK** to save the change and close the Preferences dialog box, or click **Apply** to save the change and keep the Preferences dialog box open.

**Step 6** If you want to return the active and standby spans to their default colors:

- a. From the Edit menu, choose **Preferences**.
- b. In the Preferences dialog box, click the **Circuit** tab.
- c. Click the **Reset to Defaults** button.
- d. Click **Apply** and click **OK** to close the Preferences dialog box.

**Step 7** Return to your originating procedure (NTP).

---

## DLP-F96 Edit SNCP Circuit Path Selectors

|                                |                                                                                                            |
|--------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task changes the SNCP signal fail and signal degrade thresholds and the reversion time.               |
| <b>Tools/Equipment</b>         | None                                                                                                       |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">NTP-F39 Provision SNCP Nodes, page 5-20</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                           |
| <b>Security Level</b>          | Provisioning or higher                                                                                     |

---

**Step 1** Click the **Circuits** tab.

**Step 2** In the Circuits tab, click the SNCP circuit that you want to edit. To change the settings for multiple circuits, press the **Shift** key (to choose adjoining circuits) or the **Ctrl** key (to choose nonadjoining circuits) and click each circuit you want to change.

**Step 3** From the Tools menu, choose **Circuits > Set Path Selector Attributes**.

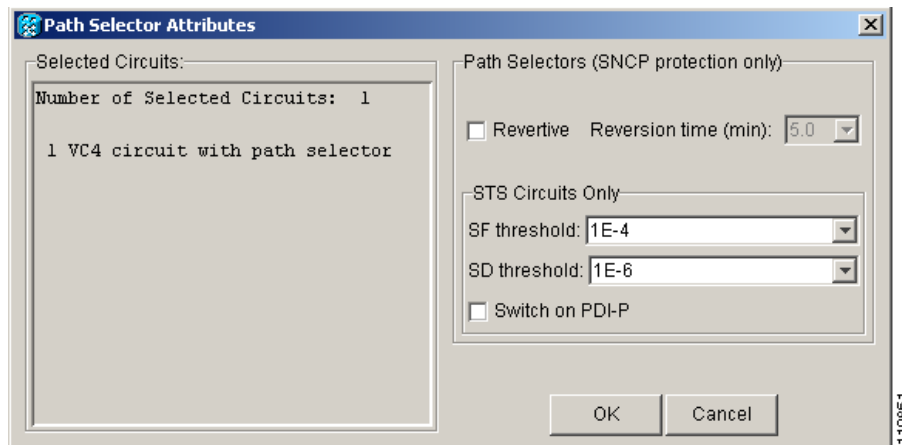


**Note** Alternatively, for single circuits, you can click the Edit button, then click the SNCP Selectors tab in the Edit Circuits window.

---

- Step 4** In the Path Selectors Attributes dialog box (Figure 9-2), edit the following SNCP selectors, as needed:
- Revertive—If checked, traffic reverts to the working path when conditions that diverted it to the protect path are repaired. If not checked, traffic does not revert.
  - Reversion Time (Min)—If Revertive is checked, sets the amount of time that will elapse before traffic reverts to the working path. The range is 0.5 to 12 minutes in 0.5 minute increments.
  - SF Ber Level—Sets the SNCP signal failure BER threshold (VC4 circuits only).
  - SD Ber Level—Sets the SNCP signal degrade BER threshold (VC4 circuits only).
  - PDI-P—Not enabled for ONS 15600 SDH.

**Figure 9-2** Editing SNCP Path Selectors



- Step 5** Click **OK** and verify that the changed values are correct.
- Step 6** Return to your originating procedure (NTP).

## DLP-E97 Delete Circuits

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>Purpose</b>                 | This task deletes circuits.                     |
| <b>Tools/Equipment</b>         | None                                            |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a> |
| <b>Required/As Needed</b>      | As needed                                       |
| <b>Onsite/Remote</b>           | Onsite or remote                                |
| <b>Security Level</b>          | Provisioning or higher                          |

- Step 1** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Step 2** Investigate all network alarms and resolve any problems that might be affected if the circuit is deleted. If necessary, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 3** Verify that traffic is no longer carried on the circuit and that the circuit can be safely deleted.
- Step 4** Click the **Circuits** tab.

- Step 5** Choose the circuit that you want to delete, then click **Delete**.
- Step 6** In the Delete Circuits confirmation dialog box, check the **Set drop ports to OOS** check box if you want to put the circuit source and destination ports out of service. (CTC will place the ports out of service only if the circuit is the same size as the port or is the only circuit using the port.) Click **Yes** to confirm the deletion.




---

**Note** The drop port will not be set to out of service state (OOS) if the same port is being used by another circuit or timing source.

---

- Step 7** Click **Yes** to confirm the deletion.
- Step 8** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3, if needed.




---

**Note** If a schedule is established for database backup, you do not need to complete a backup after every circuit addition and deletion.

---

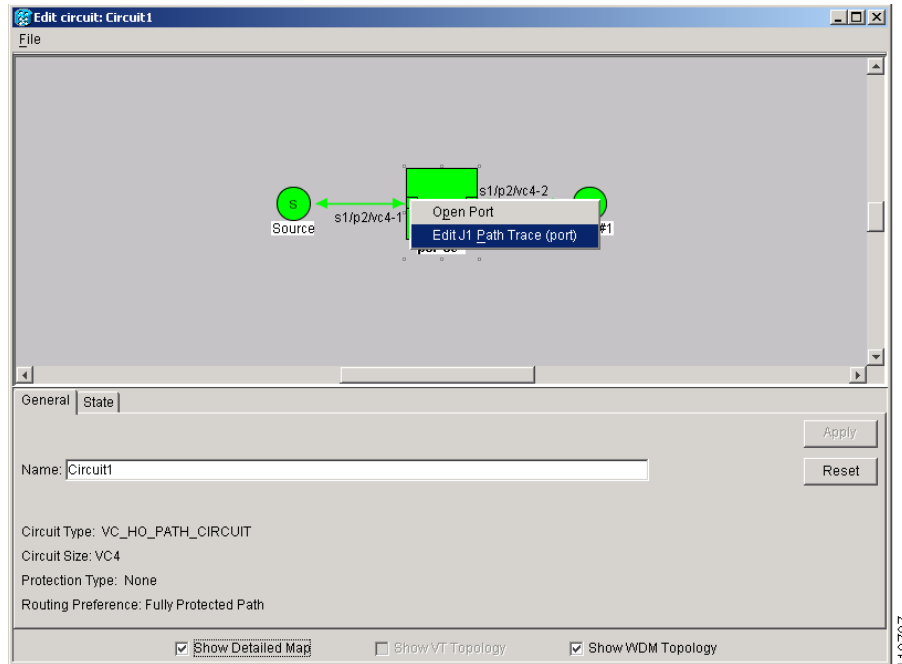
- Step 9** Return to your originating procedure (NTP).
- 

## NTP-F62 Monitor a J1 Path Trace

|                                |                                                                                                                                                                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure allows you to monitor interruptions or changes to circuit traffic and edit the expected path trace string.                                                                                                                                         |
| <b>Tools/Equipment</b>         | ONS 15600 SDH cards capable of transmitting and/or receiving path trace must be installed.                                                                                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F42 Create an Automatically Routed Optical Circuit, page 6-4</a> or <a href="#">NTP-F43 Create a Manually Routed Optical Circuit, page 6-11</a> or <a href="#">NTP-F44 Create a Unidirectional Optical Circuit with Multiple Drops, page 6-13</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                         |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                  |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                            |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node on the network where path trace was provisioned on the circuit source and destination ports. If you are already logged in, continue with [Step 2](#).
- Step 2** Click the **Circuits** tab.
- Step 3** Choose the VC4 circuit that has path trace provisioned on the source and destination ports, then click **Edit**.
- Step 4** In the Edit Circuit window, check **Show Detailed Map** at the bottom of the window ([Figure 9-3](#)). A detailed circuit graphic showing source and destination ports appears.

Figure 9-3 Selecting the Edit Path Trace Option (Manual)



- Step 5** On the detailed circuit map, right-click the circuit STM-N port (the square on the left or right of the source node icon) and choose **Edit Path Trace (Port)** from the shortcut menu.
- Step 6** In the Circuit Path Trace window, enable the path trace expected string by choosing **Manual** from the Path Trace Mode drop-down menu.
- Manual sets the string entered in the Current Expected String field is the baseline. An alarm is raised when a string that differs from the Current Expected String is received.
- Step 7** Enter the string that the circuit destination should receive from the circuit source in the New Expected String field.
- Step 8** Enter the string that the STM-N port should receive in the New Expected String field. To do this, trace the circuit path on the detailed circuit window to determine whether the port is in the circuit source or destination path, then set the New Expected String to the string transmitted by the circuit source or destination.
- Step 9** Click **Apply**.
- Step 10** After you set up the expected receive string, the received string appears in the Received box on the path trace setup window. The following options are available:
- Click **Hex Mode** to display path trace in hexadecimal. The button name changes to ASCII Mode. Click **ASCII Mode** to return the path trace to ASCII.
  - Click the **Reset** button to reread values from the port.
  - Click **Default** to return to the path trace default settings (Path Trace Mode is set to Off and the New Transmit and New Expected Strings are null).

The Expect and Receive strings are updated every few seconds. When you open the detailed circuit window, path trace is indicated by an M (manual path trace) at the circuit source and destination ports.

**Caution**

Clicking Default will generate alarms if the port on the other end is provisioned with a different string.

**Step 11** Click **Close**.

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

---

## NTP-F63 Bridge and Roll Traffic

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure reroutes live traffic without interrupting service. You can use the Bridge and Roll wizard for maintenance functions such as card replacement or load balancing. A circuit consists of a source facility, destination facility(s), and intermediate facilities (path).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Prerequisite Procedures</b> | <ul style="list-style-type: none"> <li>• Circuits must exist on the network. See <a href="#">Chapter 6, “Create Circuits”</a> for circuit creation procedures.</li> <li>• To route circuits on protected ports, you must create a protection group using the <a href="#">“NTP-F27 Create a 1+1 (LMSP) Protection Group” procedure on page 4-19</a>.</li> <li>• When a roll involves two circuits, a data communications channel (DCC) connection must exist. See the <a href="#">“DLP-F53 Provision SDH DCC Terminations” task on page 5-6</a>.</li> <li>• Use <a href="#">“NTP-F60 Locate and View Circuits” procedure on page 9-2</a> to verify that the planned Roll To paths are in service. Verify that the planned Roll To and Roll From paths are not in the Roll Pending state, used in test access, or used in a loopback. Refer to the <i>Cisco ONS 15600 SDH Troubleshooting Guide</i> to clear any alarms.</li> </ul> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Security Level</b>          | Provisioning and higher                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



### Note

You can upgrade an unprotected circuit to a fully protected circuit or downgrade a 1+1 protected circuit to an unprotected circuit.

---

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at the ONS 15600 SDH source node. If you are already logged in, continue with [Step 2](#).
- Step 2** As needed, complete the [“DLP-F98 Roll the Source or Destination of One Optical Circuit” task on page 9-15](#).
- Step 3** As needed, complete the [“DLP-F99 Roll One Cross-Connection from an Optical Circuit to a Second Optical Circuit” task on page 9-17](#).
- Step 4** As needed, complete the [“DLP-F100 Roll Two Cross-Connections on One Optical Circuit Using Automatic Routing” task on page 9-19](#) or [“DLP-F101 Roll Two Cross-Connections on One Optical Circuit Using Manual Routing” task on page 9-24](#).
- Step 5** As needed, complete the [“DLP-F102 Roll Two Cross-Connections from One Optical Circuit To a Second Optical Circuit” task on page 9-27](#).
- Step 6** As needed, complete the [“DLP-F103 Delete a Roll” task on page 9-30](#).

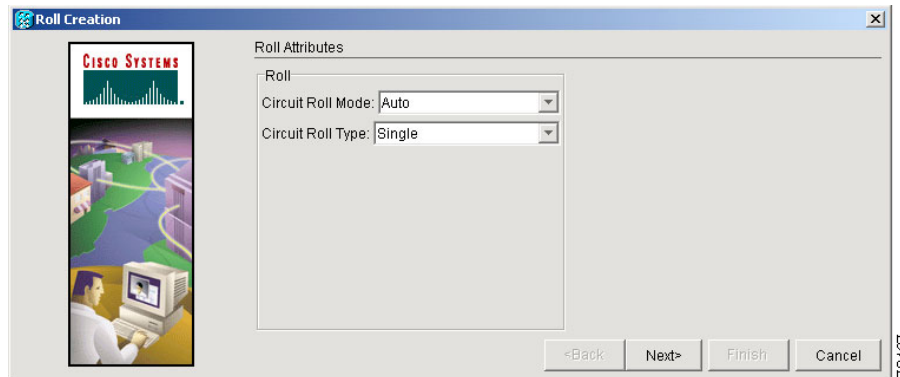
**Stop. You have completed this procedure.**

## DLP-F98 Roll the Source or Destination of One Optical Circuit

|                                |                                                                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task reroutes traffic from one source or destination to another on the same circuit, which changes the original source or destination. |
| <b>Tools/Equipment</b>         | None                                                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                             |
| <b>Required/As Needed</b>      | As needed                                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                      |

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Circuits** tab.
- Step 3** Click the circuit that you want to roll. The circuit must be in the Active state for you to complete a roll.
- Step 4** From the Tools menu, choose **Circuits > Roll Circuit**.
- Step 5** In the Roll Attributes area, complete the following ([Figure 9-4](#)):
- From the Circuit Roll Mode drop-down menu, choose **Auto** to create an automatic roll (required for a 1-way source roll) or **Manual** to create a manual roll (required for a 1-way destination roll).
  - From the Circuit Roll Type drop-down menu, choose **Single** to indicate that you want to roll one cross-connection on the chosen circuit.

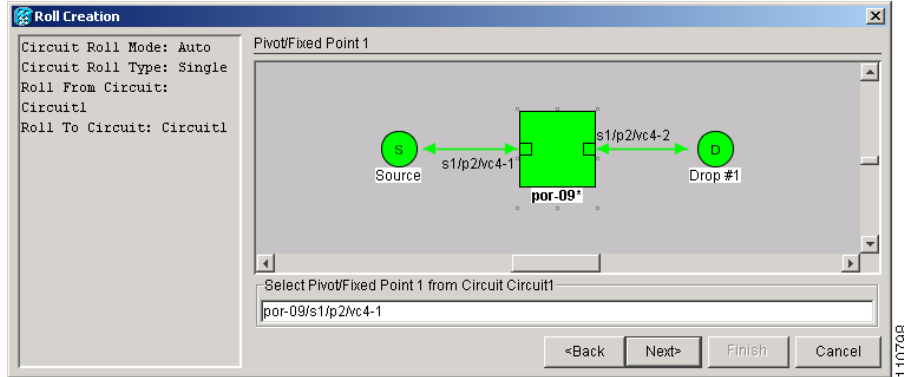
**Figure 9-4** *Selecting Single Roll Attributes*



- Step 6** Click **Next**.
- Step 7** In the Pivot/Fixed Point 1 window, click the square in the graphic image that represents the facility that you want to keep ([Figure 9-5](#)).

This facility is the fixed location in the cross-connection involved in the roll process. The identifier appears in the text box below the graphic image. The facility that is not selected is the Roll From path. The Roll From path is deleted after the roll is completed.

Figure 9-5 Selecting a Path

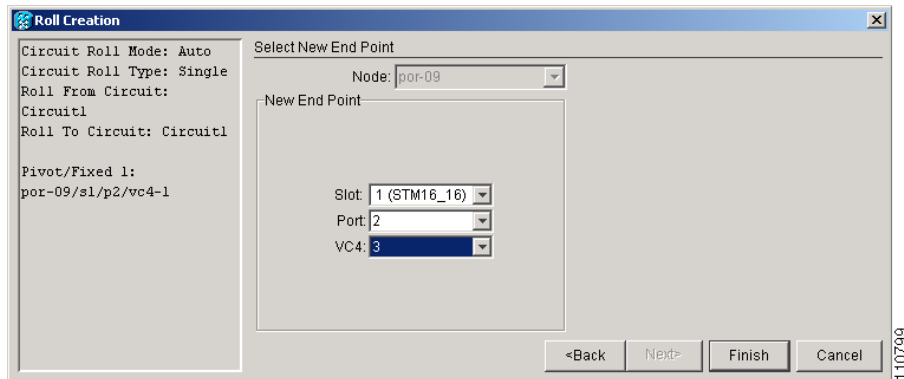


**Step 8** Click **Next**.

**Step 9** In the Select New End Point area, choose the **Slot**, **Port**, and **VC4** from the drop-down menus (Figure 9-6).

This selection indicates the Roll To facility.

Figure 9-6 Selecting a New Endpoint



**Step 10** Click **Finish**. On the Circuits tab, the circuit state for the Roll To port changes from Active to Roll Pending.

**Step 11** Click the **Rolls** tab (Figure 9-7). For the pending roll, view the Roll Valid Signal status:

- If the Roll Valid Signal status is true, a valid signal was found on the new port. Continue with [Step 12](#).
- If the roll is a one-way destination roll and the Roll Valid Signal is false, continue with [Step 12](#). It is not possible to get a Roll Valid Signal status of true for a one-way destination roll.
- If the roll is not a one-way destination roll and the Roll Valid Signal status is false, a valid signal was not found. Wait until the signal is found and continue with [Step 12](#). If the signal is not found, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*. To cancel the roll, click the roll and then click **Cancel**.



**Note** You cannot cancel an Auto roll after a valid signal is found.



Figure 9-7 Viewing the Rolls Tab

| Alarms   Conditions   History   Circuits   Provisioning   Maintenance |                   |                 |              |                   |           |                 |                 |                 |  |
|-----------------------------------------------------------------------|-------------------|-----------------|--------------|-------------------|-----------|-----------------|-----------------|-----------------|--|
| Circuits                                                              | Roll From Circuit | Roll To Circuit | Roll State   | Roll Valid Signal | Roll Mode | Roll Path       | Roll From Path  | Roll To Path    |  |
| Rolls                                                                 | Circuit1          | Circuit1        | ROLL_PENDING | false             | Auto      | por-09/s1/p2/S1 | por-09/s1/p2/S2 | por-09/s1/p2/S3 |  |

Complete Finish Cancel Scope: Network 110800

- Step 12** If you selected Manual in [Step 5](#), click the rolled facility on the Rolls tab and then click **Complete**.
- Step 13** For both Manual and Auto rolls, click **Finish** to complete the circuit roll process. The roll clears from the Rolls tab and the rolled circuit now appears on the Circuits tab in the Active state.
- Step 14** Return to your originating procedure (NTP).

## DLP-F99 Roll One Cross-Connection from an Optical Circuit to a Second Optical Circuit

|                                |                                                                                                                                                        |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task reroutes a cross-connection on one circuit onto another circuit, resulting in a new destination.                                             |
| <b>Tools/Equipment</b>         | None                                                                                                                                                   |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F53 Provision SDH DCC Terminations, page 5-6</a> for the ports involved in the roll |
| <b>Required/As Needed</b>      | As needed                                                                                                                                              |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                       |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                 |

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Circuits** tab.
- Step 3** Press **Ctrl** and click the two circuits that you want to use in the roll process.  
The circuits must be in the Active state; in addition, they must be the same size and direction for you to complete a roll.



**Note** The planned Roll To circuit must not carry traffic.

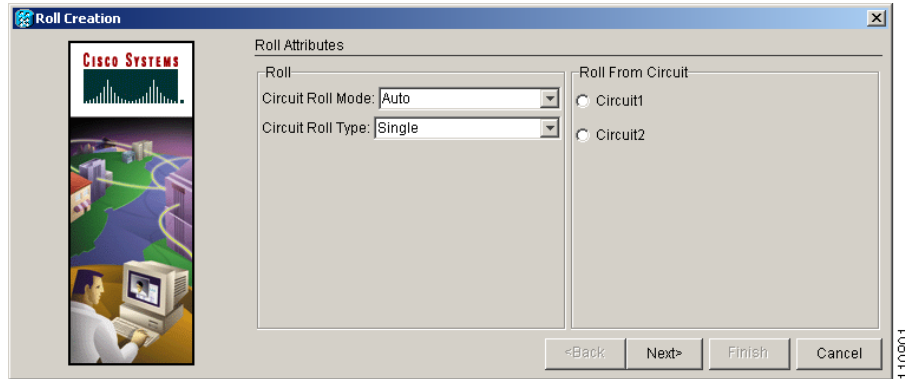


**Note** The Roll To facility should be DCC connected to the source node of the Roll To circuit.

- Step 4** From the Tools menu, choose **Circuits > Roll Circuit**.

- Step 5** In the Roll Attributes area, complete the following (Figure 9-8):
- From the Circuit Roll Mode drop-down menu, choose **Auto** to create an automatic roll (required for a 1-way source roll) or **Manual** to create a manual roll (required for 1-way destination roll).
  - From the Circuit Roll Type drop-down menu, choose **Single** to indicate that you want to roll a single connection from the Roll From circuit to the Roll To circuit.
  - In the Roll From Circuit area, click the circuit that contains the Roll From connection.

**Figure 9-8** Selecting Roll Attributes for a Single Roll onto a Second Circuit

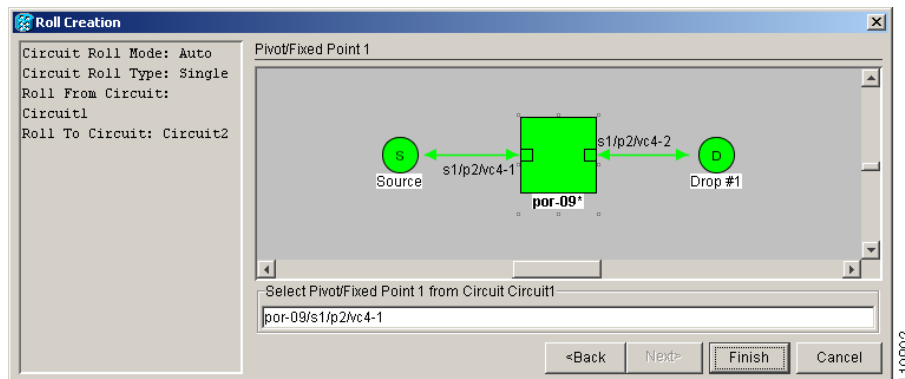


- Step 6** Click **Next**.

- Step 7** In the Pivot/Fixed Point 1 window, click the square representing the facility that you want to keep (Figure 9-9).

This facility is the fixed location in the cross-connection involved in the roll process. The identifier appears in the text box below the graphic image. The facility that is not selected is the Roll From path. The Roll From path is deleted after the roll is completed.

**Figure 9-9** Selecting the Fixed Path



- Step 8** Click **Next**.

- Step 9** In the Select New End Point area, choose the **Slot**, **Port**, and **VC4** from the drop-down menus to identify the Roll To facility on the connection being rolled.

- Step 10** Click **Finish**.

The states of the Roll From and Roll To circuits change from Active to Roll Pending in the Circuits tab.

- Step 11** Click the **Rolls** tab. For the pending roll, view the Roll Valid Signal status:
- If the Roll Valid Signal status is true, a valid signal was found on the new port. Continue with [Step 12](#).
  - If the roll is a one-way destination roll and the Roll Valid Signal is false, continue with [Step 12](#). It is not possible to get a Roll Valid Signal status of true for a one-way destination roll.
  - If the roll is not a one-way destination roll and the Roll Valid Signal status is false, a valid signal was not found. Wait until the signal is found and continue with [Step 12](#). If the signal is not found, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*. To cancel the roll, click the roll on the Rolls tab and click **Cancel**.




---

**Note** You cannot cancel an Auto roll after a valid signal is found.

---

- Step 12** If you selected Manual in [Step 5](#), click the roll on the Rolls tab and click **Complete** to route the traffic to the new port.
- Step 13** For both Manual and Auto rolls, click **Finish** to complete the circuit roll process.  
The roll is cleared from the Rolls tab and the new rolled circuit on Circuits tab returns to the Active state.
- Step 14** Return to your originating procedure (NTP).
- 

## DLP-F100 Roll Two Cross-Connections on One Optical Circuit Using Automatic Routing

|                                |                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task reroutes the network path while maintaining the same source and destination. This task allows CTC to automatically select a Roll To path. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                     |
| <b>Required/As Needed</b>      | As needed                                                                                                                                           |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                    |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                              |




---

**Note** Although the new network path might include multiple nodes (ONS 15600 SDH, and ONS 15454 SDH), the original source and destination must remain on ONS 15600 SDH nodes.

---

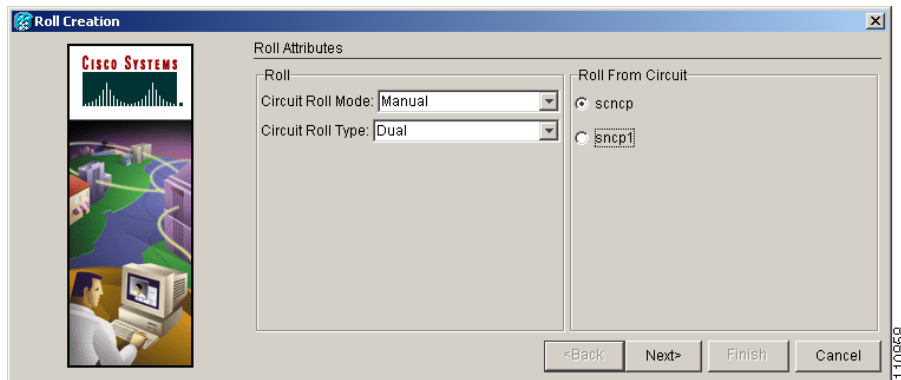
- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Circuits** tab.
- Step 3** Click the circuit that has the connections that you want to roll. The circuit must be in the Active state for you to complete a roll.
- Step 4** From the Tools menu, choose **Circuits > Roll Circuit**.
- Step 5** In the Roll Attributes area, complete the following ([Figure 9-10](#)):
- From the Circuit Roll Mode drop-down menu, choose **Auto** to create an automatic roll or **Manual** to create a manual roll.



**Note** Cisco recommends using Manual roll, especially for dual rolls. It is possible to cancel a manual roll if one end receives a valid signal but the other end does not receive one.

- b. From the Circuit Type drop-down menu, choose **Dual** to indicate that you want to roll two connections on the chosen circuit.

**Figure 9-10** Selecting Dual Roll Attributes

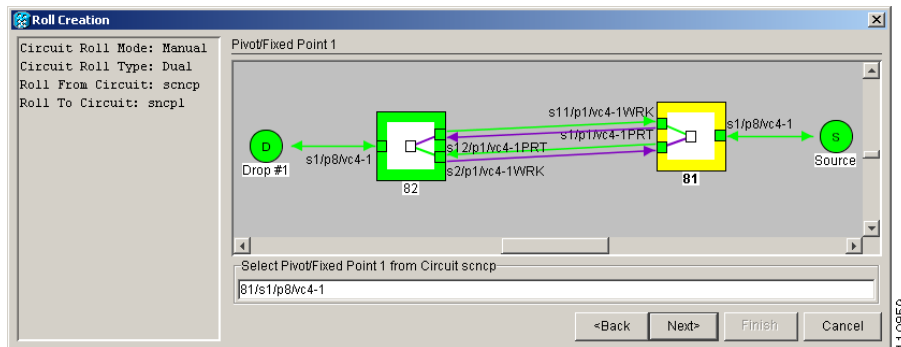


**Step 6** Click **Next**.

**Step 7** In the Pivot/Fixed Point 1 window, click the square representing the fixed path of the first connection to be rolled (Figure 9-11).

This path is a fixed point in the cross connection involved in the roll process. The path identifier appears in the text box below the graphic image. The path that is not selected contains the Roll From path. The Roll From path is deleted after the roll is completed.

**Figure 9-11** Selecting the First Fixed Path on a Circuit

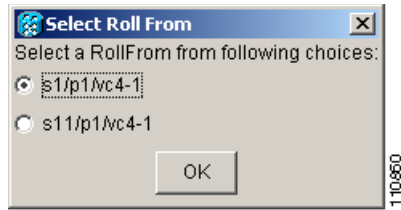


**Step 8** Click **Next**.

**Step 9** Complete one of the following:

- If multiple Roll From paths exist, the Select Roll From dialog box appears. Select the path from which you want to roll traffic and click **OK** (Figure 9-12).
- If multiple Roll From paths do not exist, continue with [Step 10](#). The circuit state for the Roll To path changes states from Active to Roll Pending.

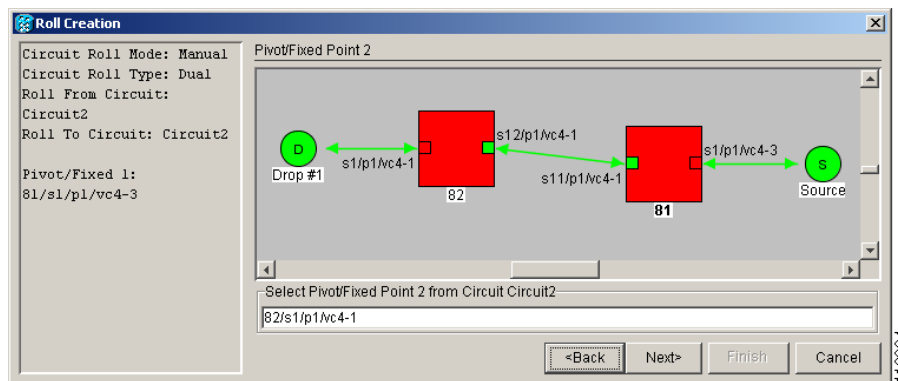
Figure 9-12 Selecting the Roll From Path



- Step 10** In the Pivot/Fixed Point 2 window, click the square that represents the fixed path of the second connection to be rolled (Figure 9-14).

The path that is not selected is the Roll From path. The Roll From path is deleted after the roll is completed. The path identifier appears in the text box below the graphic image.

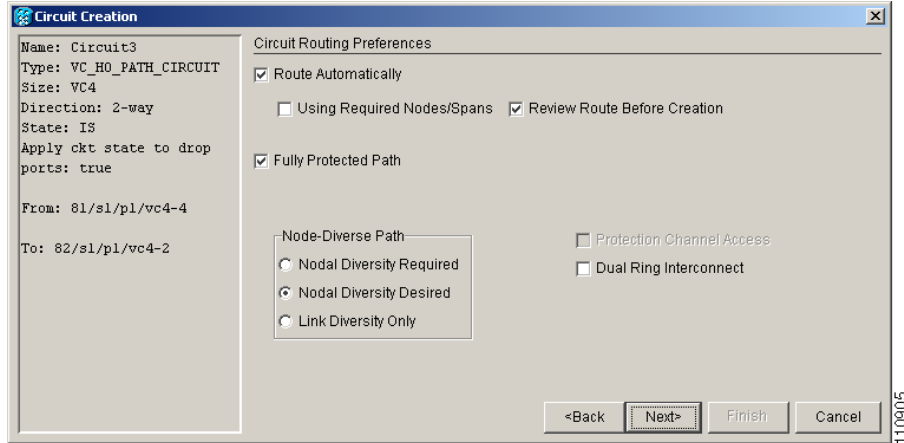
Figure 9-13 Selecting the Second Fixed Path on a Circuit



- Step 11** Click **Next**.

- Step 12** In the Circuit Routing Preferences area, check **Route Automatically** to allow CTC to find the route (Figure 9-14). If you check Route Automatically, the following options are available:
- Using Required Nodes/Spans—If checked, you can specify nodes and spans to include or exclude in the CTC-generated circuit route in Step 15.
  - Review Route Before Creation—If checked, you can review and edit the circuit route before the circuit is created.

Figure 9-14 Setting Circuit Routing Preferences



- Step 13** To route the circuit over a protected path, check **Fully Protected Path**. (If you do not want to route the circuit on a protected path, continue with [Step 14](#).) CTC creates a primary and alternate circuit route (virtual SNCP) based on the following nodal diversity options. Select one of the following and follow subsequent window prompts to complete the routing:
- Nodal Diversity Required—Ensures that the primary and alternate paths within path-protected mesh network (PPMN) portions of the complete circuit path are nodally diverse.
  - Nodal Diversity Desired—Specifies that node diversity should be attempted, but if node diversity is not possible, CTC creates link diverse paths for the PPMN portion of the complete circuit path.
  - Link Diversity Only—Specifies that only link-diverse primary and alternate paths for PPMN portions of the complete circuit path are needed. The paths might be node-diverse, but CTC does not check for node diversity.
- Step 14** If you checked Route Automatically in [Step 12](#):
- If you checked Using Required Nodes/Spans, continue with [Step 15](#).
  - If you checked both Using Required Nodes/Spans and Review Route Before Creation, continue with [Step 15](#).
  - If you checked only Review Route Before Creation, continue with [Step 16](#).
  - If you did not check Using Required Nodes/Spans or Review Route Before Creation, continue with [Step 17](#).
- Step 15** If you checked Using Required Nodes/Spans:
- a. In the Roll Route Constraints area, click a node or span on the circuit map.
  - b. Click **Include** to include the node or span in the circuit. Click **Exclude** to exclude the node/span from the circuit. The order in which you select included nodes and spans sets the circuit sequence. Click spans twice to change the circuit direction.
  - c. Repeat [Step b](#) for each node or span that you wish to include or exclude.
  - d. Review the circuit route. To change the circuit routing order, select a node in the Required Nodes/Lines or Excluded Notes Links list, then click the **Up** or **Down** buttons to change the circuit routing order. Click **Remove** to remove a node or span.

**Step 16** If you checked Review Route Before Creation in [Step 12](#):

- a. In the Roll Route Review and Edit area, review the circuit route. To add or delete a circuit span, select a node on the circuit route. Blue arrows show the circuit route. Green arrows indicate spans that you can add. Click a span arrowhead, then click **Include** to include the span or **Remove** to remove the span.
- b. If the provisioned circuit does not reflect the routing and configuration you want, click **Back** to verify and change circuit information.

**Step 17** Click **Finish**.

In the Circuits tab, verify that a new circuit appears. This circuit is the Roll To circuit. It is designated with the Roll From circuit name appended with ROLL\*\*.

**Step 18** Click the **Rolls** tab. Two new rolls now appear. For each pending roll, view the Roll Valid Signal status:

- If the Roll Valid Signal status is true, a valid signal was found on the new port. Continue with [Step 19](#).
- If the roll is a one-way destination roll and the Roll Valid signal status is false, continue with [Step 19](#). It is not possible to get a Roll Valid Signal status of true for a one-way destination roll.
- If the roll is not a one-way destination roll and the Roll Valid Signal status is false, a valid signal was not found. Wait until the signal is found and continue with [Step 19](#). If the signal is not found, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*. To cancel the roll, click both rolls on the Rolls tab and click **Cancel**.



---

**Note** If you have completed a roll, you cannot cancel the sibling roll. You must cancel the two rolls together.

---



---

**Note** You cannot cancel an Auto roll after a valid signal is found.

---

**Step 19** If you selected Manual in [Step 5](#), click both rolls on the Rolls tab and click **Complete** to route the traffic to the new port.



---

**Note** You cannot complete a roll if you cancelled the sibling roll. You must complete the two rolls together.

---

**Step 20** For both Manual and Auto rolls, click **Finish** to complete circuit roll process.



---

**Note** If you tried to roll an SNCP circuit, an error message appears. Click **OK** to close the error message. To cancel the roll, click the roll on the Rolls tab and click **Cancel**.

---

**Step 21** Return to your originating procedure (NTP).

---

# DLP-F101 Roll Two Cross-Connections on One Optical Circuit Using Manual Routing

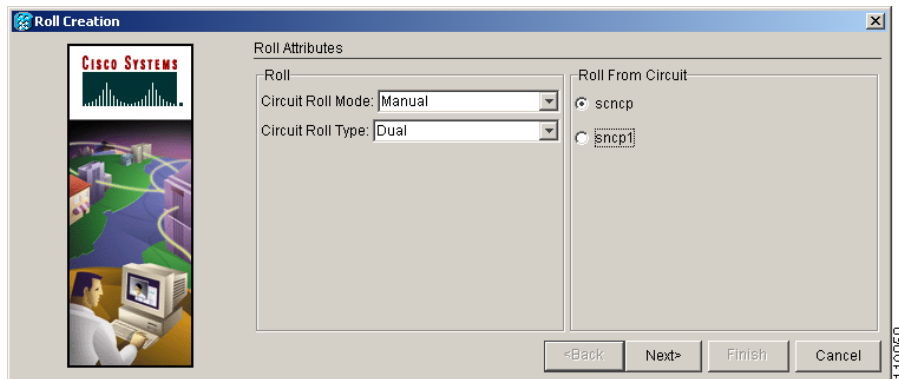
|                                |                                                                               |
|--------------------------------|-------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task reroutes a network path of an optical circuit using manual routing. |
| <b>Tools/Equipment</b>         | None                                                                          |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                               |
| <b>Required/As Needed</b>      | As needed                                                                     |
| <b>Onsite/Remote</b>           | Onsite or remote                                                              |
| <b>Security Level</b>          | Provisioning and higher                                                       |


**Note**

Although the new network path might include multiple nodes (ONS 15600 SDH and ONS 15454 SDH), the original source and destination must remain on ONS 15600 SDH nodes.

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Circuits** tab.
- Step 3** Click the circuit that you want to roll to a new path. The circuit must be in the Active state for you to complete a roll.
- Step 4** From the Tools menu, choose **Circuits > Roll Circuit**.
- Step 5** In the Roll Attributes area, complete the following ([Figure 9-15](#)):
  - a. From the Circuit Roll Mode drop-down menu, choose **Auto** to create an automatic roll or **Manual** to create a manual roll.
  - b. From the Circuit Type drop-down menu, choose **Dual** to indicate that you want to roll two connections on the chosen circuit.

**Figure 9-15** Selecting Dual Roll Attributes

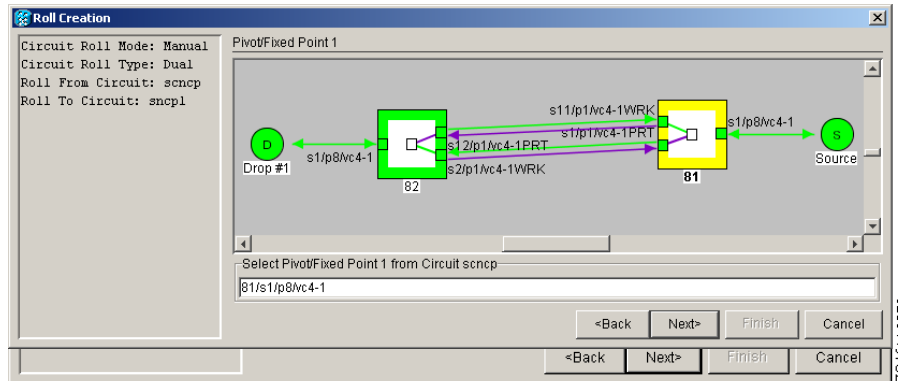


- Step 6** Click **Next**.
- Step 7** In the Pivot/Fixed Point 1 window, click the square representing the fixed path of the first cross-connection to be rolled ([Figure 9-16](#)).



This path is a fixed point in the cross-connection involved in the roll process. The path identifier appears in the text box below the graphic image. The path that is not selected contains the Roll From path. The Roll From path is deleted after the roll is completed.

**Figure 9-16** Selecting the First Fixed Path on a Circuit

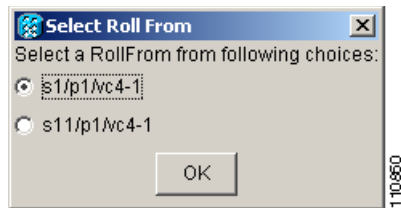


**Step 8** Click **Next**.

**Step 9** Complete one of the following:

- If multiple Roll From paths exist, the Select Roll From dialog box appears. Select the path from which you want to roll traffic and click **OK** (Figure 9-17).
- If multiple Roll From paths do not exist, continue with [Step 10](#). The circuit state for the Roll To path changes from Active to Roll Pending.

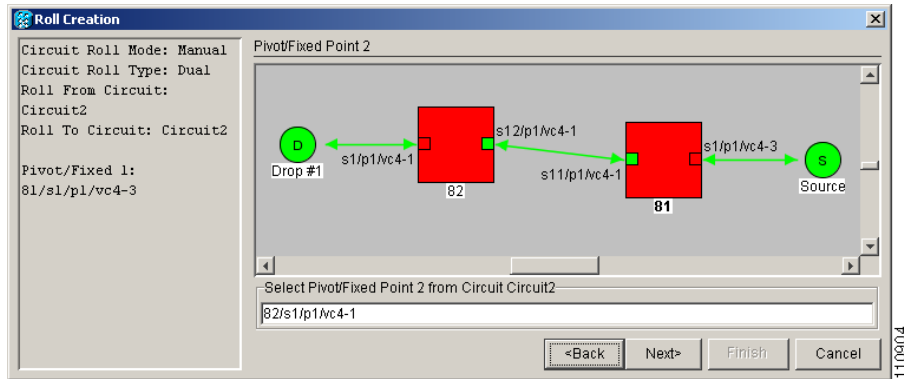
**Figure 9-17** Selecting the Roll From Point



**Step 10** In the Pivot/Fixed Point 2 window, click the square that represents the fixed path of the second connection to be rolled (Figure 9-18).

The path that is not selected is the Roll From path. The Roll From path is deleted after the roll is complete. The path identifier appears in the text box below the graphic image.

Figure 9-18 Selecting the Second Fixed Path on the Circuit



- Step 11** Click **Next**.
- Step 12** In the Circuit Routing Preferences area, uncheck **Route Automatically**.
- Step 13** Set the circuit path protection:
- To route the circuit on a protected path, leave **Fully Protected Path** checked and continue with [Step 14](#).
  - To create an unprotected circuit, uncheck **Fully Protected Path** and continue with [Step 15](#).
- Step 14** If you checked Fully Protected Path, choose one of the following:
- Nodal Diversity Required—Ensures that the primary and alternate paths within the SNCP portions of the complete circuit path are nodally diverse.
  - Nodal Diversity Desired—Specifies that node diversity is preferred, but if node diversity is not possible, CTC creates fiber-diverse paths for the SNCP portion of the complete circuit path.
  - Link Diversity Only—Specifies that only fiber-diverse primary and alternate paths for SNCP portions of the complete circuit path are needed. The paths might be node-diverse, but CTC does not check for node diversity.
- Step 15** Click **Next**. Beneath Route Review and Edit, node icons appear for you to route the circuit manually. The green arrows pointing from the source node to other network nodes indicate spans that are available for routing the circuit.
- Step 16** Complete the “[DLP-F63 Provision an Optical Circuit Route](#)” task on page 6-10.
- Step 17** Click **Finish**. In the Circuits tab, verify that a new circuit appears. This circuit is the Roll To circuit. It is designated with the Roll From circuit name appended with ROLL\*\*.
- Step 18** Click the **Rolls** tab. Two new rolls now appear on the Rolls tab. For each pending roll, view the Roll Valid Signal status.
- If the Roll Valid Signal status is true, a valid signal was found on the new port. Continue with [Step 19](#).
  - If the roll is a one-way destination roll and the Roll Valid signal status is false, continue with [Step 19](#). It is not possible to get a Roll Valid Signal status of true for a one-way destination roll.
  - If the roll is not a one-way destination roll and the Roll Valid Signal status is false, a valid signal was not found. Wait until the signal is found and continue with [Step 19](#). If the signal is not found, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*. To cancel the roll, click both rolls and click **Cancel**.



**Note** You cannot cancel an Auto roll after a valid signal is found.

**Step 19** If you selected Manual in [Step 5](#), click each roll and click **Complete** to route the traffic to the new port.



**Note** You cannot complete a roll if you cancelled the sibling roll. You must complete the two rolls together.

**Step 20** For both Manual and Auto rolls, click **Finish** to complete the circuit roll process.



**Note** If you tried to roll an SNCP circuit, an error message appears. Click **OK** to close the error message. To cancel the roll, click the roll on the Rolls tab and click **Cancel**.

**Step 21** Return to your originating procedure (NTP).

## DLP-F102 Roll Two Cross-Connections from One Optical Circuit To a Second Optical Circuit

|                                |                                                                                                                                              |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task reroutes a network path using two optical circuits by allowing CTC to select the Roll To path on the second circuit automatically. |
| <b>Tools/Equipment</b>         | None                                                                                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                              |
| <b>Required/As Needed</b>      | As needed                                                                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                             |
| <b>Security Level</b>          | Provisioning and higher                                                                                                                      |

**Step 1** From the View menu, choose **Go To Network View**.

**Step 2** Click the **Circuits** tab.

**Step 3** Press **Ctrl** and click the two circuits that you want to use in the roll process.

The Roll From path will be on one circuit and the Roll To path will be on the other circuit. The circuits must be in the Active state; in addition, they must be the same size and direction for you to complete a roll.



**Note** The planned Roll To circuit must not carry traffic.

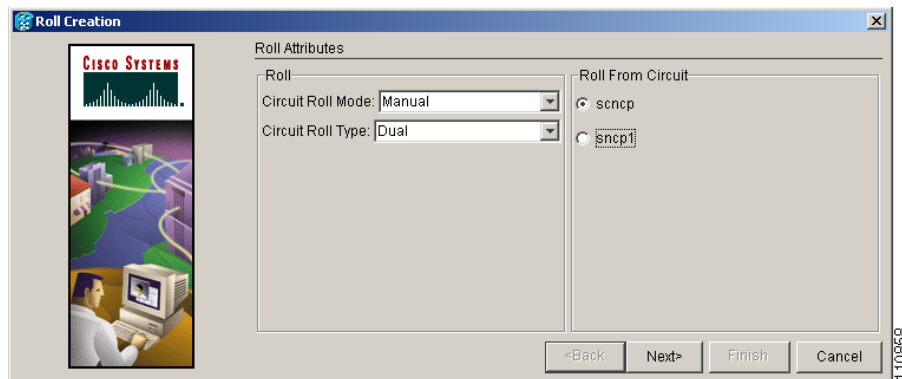


**Note** The first Roll To path must be DCC connected to the source node of the Roll To circuit, and the second Roll To path must be DCC connected to the destination node of the Roll To circuit.

**Step 4** From the Tools menu, choose **Circuits > Roll Circuit**.

- Step 5** In the Roll Attributes area, complete the following (Figure 9-19):
- From the Circuit Roll Mode drop-down menu, choose **Auto** to create an automatic roll (required for a 1-way source roll) or **Manual** to create a manual roll (required for 1-way destination roll).
  - From the Circuit Roll Type drop-down menu, choose **Dual**.
  - In the Roll From Circuit area, click the circuit that contains the Roll From path.

**Figure 9-19** Selecting Roll Attributes for a Dual Roll onto a Second Circuit

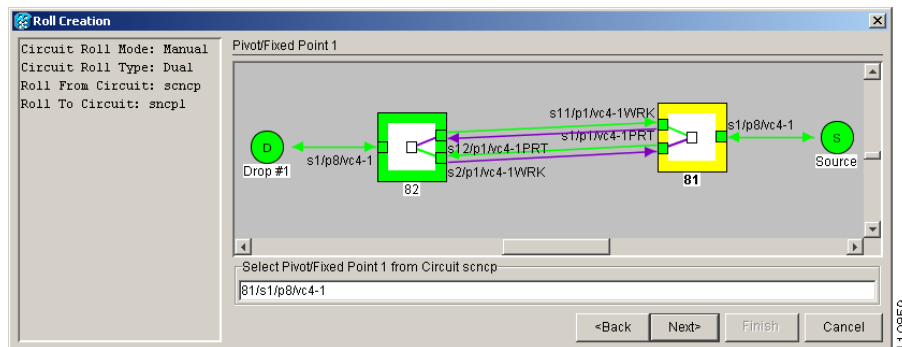


- Step 6** Click **Next**.

- Step 7** In the Pivot/Fixed Point 1 window, click the square representing the fixed path of the first cross-connection to be rolled (Figure 9-20).

This path is a fixed point in the cross-connection involved in the roll process. The path identifier appears in the text box below the graphic image. The path that is not selected contains the Roll From path. The Roll From path is deleted after the roll is completed.

**Figure 9-20** Selecting the First Fixed Path on a Circuit



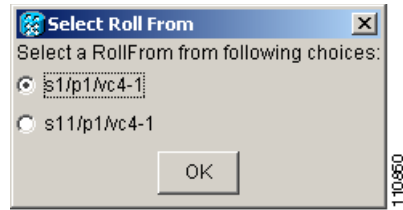
- Step 8** Click **Next**.

- Step 9** Complete one of the following:

- If multiple Roll From paths exist, the Select Roll From dialog box appears. Select the path from which you want to roll traffic and click **OK** (Figure 9-21).
- If multiple Roll From paths do not exist, continue with **Step 10**.

The circuit state for the Roll To path changes from Active to Roll Pending.

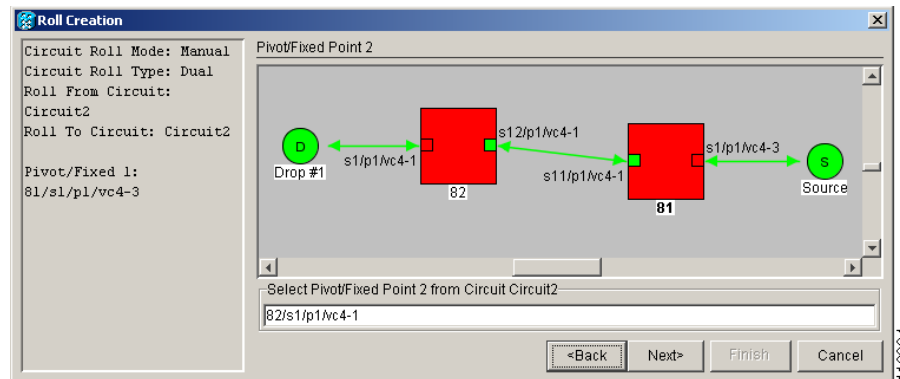
Figure 9-21 Selecting the Roll From Connection



- Step 10** In the Pivot/Fixed Point 2 window, click the square that represents the fixed path of the second connection to be rolled (Figure 9-22).

The path that is not selected is the Roll From path. The Roll From path is deleted after the roll is completed. The path identifier appears in the text box below the graphic image.

Figure 9-22 Selecting the Second Fixed Path on the Circuit



- Step 11** Click **Next**.
- Step 12** Click **Finish**. In the Circuits tab, the Roll From and Roll To circuits change from the Active state to Roll Rendering.
- Step 13** Click the **Rolls** tab. Two new rolls now appear on the Rolls tab. For each pending roll, view the Roll Valid Signal status.
- If the Roll Valid Signal status is true, a valid signal was found on the new port. Continue with [Step 14](#).
  - If the roll is a one-way destination roll and the Roll Valid signal status is false, continue with [Step 14](#). It is not possible to get a Roll Valid Signal status of true for a one-way destination roll.
  - If the roll is not a one-way destination roll and the Roll Valid Signal status is false, a valid signal was not found. Wait until the signal is found and continue with [Step 14](#). If the signal is not found, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*. To cancel the roll, click both rolls on the Rolls tab and click **Cancel**.



**Note** You cannot cancel an Auto roll after a valid signal is found.

- Step 14** If you selected Manual in [Step 5](#), click both rolls on the Rolls tab and click **Complete** to route the traffic to the new port. If you selected Auto in [Step 5](#), continue with [Step 15](#).




---

**Note** You cannot complete a roll if you cancelled the sibling roll. You must complete the two rolls together.

---

**Step 15** For both Manual and Auto rolls, click **Finish** to complete the circuit roll process.




---

**Note** If you tried to roll an SNCP circuit, an error message appears. Click **OK** to close the error message. To cancel the roll, click the roll on the Rolls tab and click **Cancel**.

---

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

---

## DLP-F103 Delete a Roll

|                                |                                                                                                               |
|--------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task deletes a roll.                                                                                     |
| <b>Tools/Equipment</b>         | None                                                                                                          |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">NTP-F63 Bridge and Roll Traffic, page 9-14</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                     |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                              |
| <b>Security Level</b>          | Provisioning or higher                                                                                        |




---

**Note** You must complete a roll before you can delete it.

---

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Circuits > Rolls** tabs.
- Step 3** Click the rolled circuit that you want to delete.
- Step 4** From the Tools menu, choose **Circuits > Delete Rolls**.
- Step 5** In the confirmation dialog box, click **Yes**.
- Step 6** Return to your originating procedure (NTP).
-

# NTP-F64 Convert Circuits to TL1 Cross-Connections

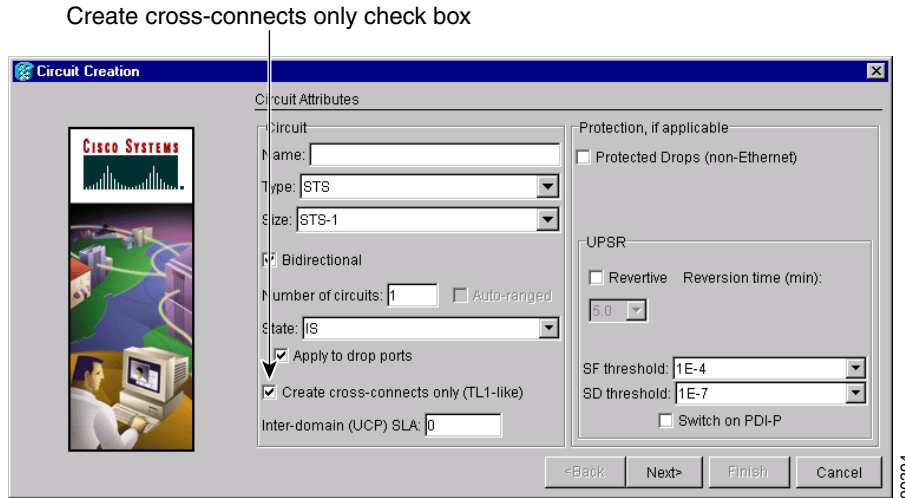
|                                |                                                                                                                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure converts CTC circuits to a set of TL1 cross-connects, which enables you to repair a missing cross-connect or change the cross-connect(s) using the TL1-like circuit option during circuit creation. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">Chapter 6, “Create Circuits”</a>                                                                                                                                                                       |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                   |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                             |


**Note**

One-way SNCP circuits can be downgraded but will not be Upgradable to Active circuits. These circuits will remain in the Non\_Upgradable state after the merge.

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at an ONS 15600 SDH node on the network where you want to convert the CTC circuits. If you are already logged in, continue with [Step 2](#).
- Step 2** From the View menu, choose **Go To Network View**.
- Step 3** Click the **Circuits** tab, then choose the CTC circuits that you want to convert to TL1 cross-connects. The circuit(s) must have an INCOMPLETE or ACTIVE status.
- Step 4** From the Tools menu, choose **Circuits > Convert CTC Circuit to TL1 Cross-Connects**.
- Step 5** In the Convert to TL1 Cross Connect dialog box, click **OK**.  
The Convert to TL1 Cross Connect Results dialog box displays the results of the conversion. If any circuits could not be converted, those circuits are listed.
- Step 6** In the Convert to TL1 Cross Connect Results dialog box, click **OK**.  
If the circuit you selected had an INCOMPLETE status, its status will not change. If you selected an ACTIVE (complete) circuit, its status will change to UPGRADABLE.
- Step 7** If you are repairing a circuit, complete the circuit creation procedure in [Chapter 6, “Create Circuits,”](#) appropriate to the circuit you are repairing to replace or repair the circuit cross-connects.  
After you repair or replace all missing cross-connects, CTC automatically merges them and the circuit status changes to UPGRADABLE.

Figure 9-23 Choosing the Cross-Connects Only Option



- Step 8** To upgrade the repaired circuit to a CTC circuit, continue with the “[NTP-F65 Upgrade TL1 Cross-Connects to CTC Circuits](#)” procedure on page 9-32.

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

## NTP-F65 Upgrade TL1 Cross-Connects to CTC Circuits

|                                |                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure converts a series of cross-connects shown as UPGRADABLE in the CTC Circuits window to an ACTIVE CTC circuit. |
| <b>Tools/Equipment</b>         | None                                                                                                                        |
| <b>Prerequisite Procedures</b> | TL1-created or CTC-created TL1-like cross-connects must exist on the network                                                |
| <b>Required/As Needed</b>      | As needed                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                                                                      |

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at an ONS 15600 SDH node on the network where you want to upgrade the TL1-created or CTC-created TL1-like cross-connects. If you are already logged in, continue with [Step 2](#).
- Step 2** From the View menu, choose **Go To Network View**.
- Step 3** Click the **Circuits** tab, then choose one or more circuits with an UPGRADABLE status. These circuits contain a series of cross-connects that are linked together to form a circuit path. The cross-connects might have been created with TL1 or with CTC using the TL1-like cross-connects option.
- Step 4** From the Tools menu, choose **Circuits > Upgrade TL1 Cross-Connects to CTC Circuits**.
- Step 5** In the Upgrade Circuits dialog box, click **OK**.  
The circuit status changes to ACTIVE.



- Step 6** In the Circuit Upgrade Results dialog box, click **OK**.  
**Stop. You have completed this procedure.**
-





## Change Node Settings

---

This chapter explains how to modify provisioning for the Cisco ONS 15600 SDH. To provision a new node, see [Chapter 4, “Turn Up Node.”](#)

### Before You Begin

Before performing the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* as needed.

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

1. [NTP-F66 Change Node Management Information, page 10-2](#)—Complete as needed to change node name, contact information, latitude, longitude, date, and time.
2. [NTP-F67 Change CTC Network Access, page 10-4](#)—Complete as needed to change the IP address, default router, subnet mask, and network configuration settings, and to modify static routes.
3. [NTP-F68 Customize the CTC Network View, page 10-8](#)—Complete as needed to customize the appearance of the network map.
4. [NTP-F69 Modify or Delete Optical 1+1 Port Protection Settings, page 10-13](#)—Complete as needed to modify and delete 1+1 protection groups.
5. [NTP-F70 Delete an RS-DCC Termination, page 10-15](#)—Complete as needed to delete a regenerator section data communications channel (RS-DCC) termination.
6. [NTP-F71 Delete a GCC Termination, page 10-15](#)—Complete as needed to delete general communications channel (GCC) termination.
7. [NTP-F72 Change Node Timing, page 10-16](#)—Complete as needed to make changes to the ONS 15600 SDH timing parameters.
8. [NTP-F73 Modify Users and Change Security, page 10-18](#)—Complete as needed to make changes to user settings and to delete users.
9. [NTP-F74 Change SNMP Settings, page 10-25](#)—Complete as needed to modify or delete SNMP.
10. [NTP-F75 Change the Internal IP Addresses for the TSC Cards Using CTC, page 10-27](#)—Complete as needed to change the internal subnet address on the Timing and Shelf Controller (TSC) cards.

## NTP-F66 Change Node Management Information

|                                |                                                                                                         |
|--------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to change the node name, date, time, contact information, or login legal disclaimer. |
| <b>Tools/Equipment</b>         | None                                                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F24 Set Up Date, Time, and Contact Information, page 4-6</a>                            |
| <b>Required/As Needed</b>      | As needed                                                                                               |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                        |
| <b>Security Level</b>          | Provisioning or higher                                                                                  |

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** As needed, complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Step 3** Click the **Provisioning > General** tabs.
- Step 4** Complete the “[DLP-F104 Change the Node Name, Date, Time, and Contact Information](#)” task on page 10-2.
- Step 5** As needed, complete the “[DLP-F105 Change the Login Legal Disclaimer](#)” task on page 10-3.
- Step 6** After you confirm the changes, complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Stop. You have completed this procedure.**
- 

## DLP-F104 Change the Node Name, Date, Time, and Contact Information

|                                |                                                                                                        |
|--------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change basic node information such as node name, date, time, and contact information. |
| <b>Tools/Equipment</b>         | None                                                                                                   |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                        |
| <b>Required/As Needed</b>      | As needed                                                                                              |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                       |
| <b>Security Level</b>          | Provisioning or higher                                                                                 |



**Note** Changing the date, time, or time zone might invalidate node performance monitoring counters.

---

- Step 1** In node view, click the **Provisioning > General** tabs.
- Step 2** Change any of the following:
- General: Node Name
  - General: Contact
  - Location: Latitude
  - Location: Longitude

- Location: Description



**Note** To see changes to longitude or latitude on the network map, you must go to network view and right-click the specified node, then click **Reset Node Position**.

- Time: Use SNTP Server
- Time: Date (M/D/Y)
- Time: Time (H:M:S)
- Time: Time Zone
- Time: Use Daylight Saving Time

See the “[NTP-F24 Set Up Date, Time, and Contact Information](#)” procedure on page 4-6 for detailed field descriptions.

**Step 3** Click **Apply**. Confirm that the changes appear; if not, repeat the task.

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

## DLP-F105 Change the Login Legal Disclaimer

|                                |                                                                                                                                                                                                              |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to modify the legal disclaimer statement shown in the Cisco Transport Controller (CTC) login dialog box so that it will display customer-specific information when users log into the network. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                                                                                                                                             |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                             |
| <b>Security Level</b>          | Superuser                                                                                                                                                                                                    |

**Step 1** In node view, click the **Provisioning > Security > Legal Disclaimer > HTML** tabs.

**Step 2** The existing statement is a default, non-customer-specific disclaimer. If you want to edit this statement with specifics for your company, you can change the text. You can also use the following HTML commands to format the text:

| HTML Command                                    | Function                                |
|-------------------------------------------------|-----------------------------------------|
| <b>                                             | Begins boldface font                    |
| </b>                                            | Ends boldface font.                     |
| <center>                                        | Aligns type in the center of the window |
| </center>                                       | Ends the center alignment               |
| <font= <i>n</i> > (where <i>n</i> = point size) | Changes the font to the new size        |
| </font>                                         | Ends the font size command              |
| <p>                                             | Creates a line break                    |

| HTML Command | Function          |
|--------------|-------------------|
| <sub>        | Begins subscript. |
| </sub>       | Ends subscript    |
| <sup>        | Begins subscript  |
| </sup>       | Ends superscript  |
| <u>          | Starts underline  |
| </u>         | Ends underline    |

- Step 3** If you want to preview your changed statement and formatting, click the **Preview** subtab.
- Step 4** Click **Apply**.
- Step 5** Return to the “[NTP-F66 Change Node Management Information](#)” procedure on page 10-2.

## NTP-F67 Change CTC Network Access

|                                |                                                                                                                                                |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to change essential network information, including IP settings, static routes, and Open Shortest Path First (OSPF) options. |
| <b>Tools/Equipment</b>         | None                                                                                                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F25 Set Up CTC Network Access</a> , page 4-8                                                                                   |
| <b>Required/As Needed</b>      | As needed                                                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                               |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                         |



### Note

Additional ONS 15600 SDH networking information and procedures, including IP addressing examples, static route scenarios, OSPF protocol, and routing information protocol options are provided in the *Cisco ONS 15600 SDH Reference Manual*.

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Step 3** As needed, complete the following tasks:
- [DLP-F106 Change IP Settings](#), page 10-5
  - [DLP-F107 Modify a Static Route](#), page 10-6
  - [DLP-F108 Delete a Static Route](#), page 10-6
  - [DLP-F109 Disable OSPF](#), page 10-7
- Step 4** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Stop. You have completed this procedure.**

## DLP-F106 Change IP Settings

|                                |                                                                                                                  |
|--------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change the IP address, subnet mask, default router, and network defaults for the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                                                             |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F43 Provision IP Settings, page 4-8</a>       |
| <b>Required/As Needed</b>      | As needed                                                                                                        |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                 |
| <b>Security Level</b>          | Superuser                                                                                                        |

---

**Step 1** In node view, click the **Provisioning > Network > General** tabs.

**Step 2** Change any of the following:

- IP Address
- Default Router
- Subnet Mask Length
- Forward DHCP Request To
- TSC CORBA (IIOP) Listener Port
- Gateway Settings

See the “[DLP-F43 Provision IP Settings](#)” task on page 4-8 for detailed field descriptions.

**Step 3** Click **Apply**.

If you changed any network fields that will cause the node to reboot, the Change Network Configuration confirmation dialog box appears. If you changed a Gateway Setting, a confirmation appropriate to the gateway field appears.

**Step 4** If a confirmation dialog box appears, click **Yes**.

If you changed an IP address, subnet mask length, or TSC CORBA(Common Object Request Broker) (Internet Inter-ORB Protocol(IIOP)) Listener Port, both ONS TSC cards will reboot, one at a time. A TSC reboot causes a temporary loss of connectivity to the node, but traffic is unaffected.

**Step 5** Confirm that the changes appear on the Provisioning > Network > General tabs. If the changes do not appear, repeat the task.

**Step 6** Return to your originating procedure (NTP).

---

## DLP-F107 Modify a Static Route

|                                |                                                                                                             |
|--------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to modify a static route on the ONS 15600 SDH.                                                |
| <b>Tools/Equipment</b>         | None                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F44 Create a Static Route, page 4-10</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                                                      |

- 
- Step 1** In node view, click the **Provisioning > Network > Static Routing** tabs.
- Step 2** Click the static route you want to edit.
- Step 3** Click **Edit**.
- Step 4** In the Edit Selected Static Route dialog box, enter the following:
- Mask
  - Next Hop
  - Cost
- See the “[DLP-F44 Create a Static Route](#)” task on page 4-10 for detailed field descriptions.
- Step 5** Click **OK**.
- Step 6** Return to your originating procedure (NTP).
- 

## DLP-F108 Delete a Static Route

|                                |                                                                |
|--------------------------------|----------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to delete a static route from the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                           |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                |
| <b>Required/As Needed</b>      | As needed                                                      |
| <b>Onsite/Remote</b>           | Onsite or remote                                               |
| <b>Security Level</b>          | Provisioning or higher                                         |

- 
- Step 1** In node view, click the **Provisioning > Network > Static Routing** tabs.
- Step 2** Click the static route you want to delete.
- Step 3** Click **Delete**. A confirmation dialog box appears.
- Step 4** Click **Yes**. Confirm that the static route is deleted; if not, repeat the task.
- Step 5** Return to your originating procedure (NTP).
-



## DLP-F109 Disable OSPF

|                                |                                                                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to disable the OSPF routing protocol process for the LAN on the ONS 15600 SDH.                                             |
| <b>Tools/Equipment</b>         | None                                                                                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F45 Set Up or Change Open Shortest Path First Protocol, page 4-11</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                   |


**Note**

If the ONS 15600 SDH has interfaces (DCC or LAN) in multiple OSPF areas, at least one ONS 15600 SDH interface (DCC or LAN) must be in the backbone area 0.0.0.0.


**Note**

When you are logged into a ONS 15600 SDH node, CTC will not allow both a DCC interface and a LAN interface in the same nonzero OSPF area.


**Note**

Cisco recommends limiting the number of link-state packets (LSPs) that will be forwarded over the DCC interfaces.

- Step 1** In node view, click the **Provisioning > Network > OSPF** tabs.
- Step 2** In the OSPF on LAN area, uncheck **OSPF active on LAN**.
- Step 3** Click **Apply**. Confirm that the changes appear; if not, repeat the task.


**Note**

Disabling OSPF can cause the TSCs to reboot. This results in a temporary loss of connectivity to the node, but traffic is unaffected.

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

## NTP-F68 Customize the CTC Network View

|                                |                                                                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to modify the CTC network view, including grouping nodes into domains for a neater display, changing the network view background color, and using a custom image for the network view background. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                 |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                                                 |
| <b>Required/As needed</b>      | As needed                                                                                                                                                                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                     |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                               |

---

**Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged on, continue with [Step 2](#).

**Step 2** As needed, complete the following tasks:

- [DLP-F110 Change the Network View Background Color](#), page 10-8
- [DLP-F111 Change the Default Network View Background Map](#), page 10-9
- [DLP-F112 Apply a Custom Network View Background](#), page 10-10
- [DLP-F113 Create Domain Icons](#), page 10-11
- [DLP-F114 Manage Domain Icons](#), page 10-11
- [DLP-F115 Enable Dialog Box Do-Not-Display Option](#), page 10-12

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

---

## DLP-F110 Change the Network View Background Color

|                                |                                                                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change the network view background color and the domain view background color (the area displayed when you open a domain). |
| <b>Tools/Equipment</b>         | None                                                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                                                                            |
| <b>Required/As needed</b>      | As needed                                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                            |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                          |




---

**Note** If you modify background colors, the change is stored in your CTC user profile on the computer. The change does not affect other CTC users.

---

**Step 1** From the View menu, choose **Go To Network View**.

**Step 2** Right-click the network view or domain map area and choose **Set Background Color** from the shortcut menu.

- Step 3** In the Choose Color dialog box, select a background color.
- Step 4** Click **OK**.
- Step 5** Return to your originating procedure (NTP).

## DLP-F111 Change the Default Network View Background Map

|                                |                                                                  |
|--------------------------------|------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change the default map of the CTC network view. |
| <b>Tools/Equipment</b>         | None                                                             |
| <b>Prerequisite procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                  |
| <b>Required/As needed</b>      | As needed                                                        |
| <b>Onsite/Remote</b>           | Onsite or remote                                                 |
| <b>Security Level</b>          | Provisioning or higher                                           |



### Note

If you modify the background image, the change is stored in your CTC user profile on the computer. The change does not affect other CTC users.

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** From the Edit menu, choose **Preferences**.
- Step 3** In the Preferences dialog box, click the **Map** tab and check the **Use Default Map** check box if it is not already selected.
- Step 4** Click the **Default Maps** field and choose a default map from the drop-down menu. Map choices are: Germany, Japan, Netherlands, South Korea, United Kingdom, and United States (default).
- Step 5** Click **Apply**. The new default network map appears.
- Step 6** Click **OK**.
- Step 7** If the ONS 15600 SDH icons are not visible, right-click the network view and choose **Zoom Out**. Repeat until the ONS 15600 SDH icons are visible.



### Tip

If you need to reposition the node icons, drag and drop them one at a time to a new location on the map.

- Step 8** If you want to change the magnification of the icons, right-click the network view and choose **Zoom In**. Repeat until the ONS 15600 SDH icons are displayed at the magnification you want.
- Step 9** Return to your originating procedure (NTP).

## DLP-F112 Apply a Custom Network View Background

|                                |                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change the background image of the CTC network view on your login workstation. |
| <b>Tools/Equipment</b>         | None                                                                                            |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                 |
| <b>Required/As needed</b>      | As needed                                                                                       |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                |
| <b>Security Level</b>          | Provisioning or higher                                                                          |



### Note

You can replace the network view background image with any JPEG or GIF image that is accessible on a local or network drive. If you want to position nodes on the map based on the node coordinates, you will need the longitudes and latitudes for the edges of the map. You can obtain the longitude and latitude for cities and zip codes from the U.S. Census Bureau U.S. Gazetteer website ([www.census.gov/cgi-bin/gazetteer](http://www.census.gov/cgi-bin/gazetteer)). If you will use your mouse to position nodes, coordinates for the image edges are not necessary. The change does not affect other CTC users.

- 
- Step 1** From the View menu, choose **Go To Network View**.
  - Step 2** Right-click the network or domain map and choose **Set Background Image**.
  - Step 3** Click **Browse**. Navigate to the graphic file that you want to use as a background.
  - Step 4** Select the file. Click **Open**.
  - Step 5** Click **Apply** and then click **OK**.
  - Step 6** If the ONS 15600 SDH icons are not visible, right-click the network view and choose **Zoom Out**. Repeat this step until all the ONS 15600 SDH icons are visible.



**Tip** If you need to reposition the node icons, drag and drop them one at a time to a new location on the map.

- 
- Step 7** If you want to change the magnification of the icons, right-click the network view and choose **Zoom In**. Repeat until the ONS 15600 SDH icons are displayed at the magnification you want.
  - Step 8** At the network view, use the CTC toolbar Zoom buttons (or right-click the graphic area and select a Zoom command from the shortcut menu) to set the area of the image you want to view.
  - Step 9** Return to your originating procedure (NTP).
-

## DLP-F113 Create Domain Icons

|                                |                                                                                                            |
|--------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to create a domain icon, which can be used to group ONS 15600 SDH icons in CTC network view. |
| <b>Tools/Equipment</b>         | None                                                                                                       |
| <b>Prerequisite procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                            |
| <b>Required/As needed</b>      | As needed                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                           |
| <b>Security Level</b>          | Provisioning or higher                                                                                     |



**Note** Domains are visible to all users who log into the network.

- 
- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Right-click the network map and choose **Create New Domain** from the shortcut menu.
- Step 3** When the domain icon appears on the map, click the map name and type the domain name.
- Step 4** Press **Enter**.
- Step 5** Return to your originating procedure (NTP).
- 

## DLP-F114 Manage Domain Icons

|                                |                                                                                                             |
|--------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to manage CTC network view domain icons, including moving, renaming, and removing domains.    |
| <b>Tools/Equipment</b>         | None                                                                                                        |
| <b>Prerequisite procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F113 Create Domain Icons, page 10-11</a> |
| <b>Required/As needed</b>      | As needed                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                                                      |



**Note** All domain changes, such as added or removed nodes, are visible to all users who log into the network.

- 
- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Locate the domain action you want in [Table 10-1](#) and complete the appropriate steps.

**Table 10-1 Managing Domains**

| Domain Action                                | Steps                                                                                                                                                                                                                                     |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Move a domain                                | Press <b>Ctrl</b> and drag and drop the domain icon to the new location.                                                                                                                                                                  |
| Rename a domain                              | Right-click the domain icon and choose <b>Rename Domain</b> from the shortcut menu. Type the new name in the domain name field.                                                                                                           |
| Add a node to a domain                       | Drag and drop the node icon on the domain icon.                                                                                                                                                                                           |
| Move a node from a domain to the network map | Open the domain and right-click a node. Select <b>Move Node Back to Parent View</b> .                                                                                                                                                     |
| Open a domain                                | Double-click the domain icon, right-click the domain, and choose <b>Open Domain</b> .                                                                                                                                                     |
| Return to network view                       | Right-click the domain view area and choose <b>Go To Parent View</b> from the shortcut menu.                                                                                                                                              |
| Preview domain contents                      | Right-click the domain icon and choose <b>Show Domain Overview</b> . The domain icon shows a small preview of the nodes in the domain. To turn off the domain overview, right-click the overview and select <b>Show Domain Overview</b> . |
| Remove domain                                | Right-click the domain icon and choose <b>Remove Domain</b> . Any nodes residing in the domain are returned to the network map.                                                                                                           |

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

## DLP-F115 Enable Dialog Box Do-Not-Display Option

|                                |                                                                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to enable or disable the do-not-display dialog box preference for subsequent sessions or disables the do-not-display option. |
| <b>Tools/Equipment</b>         | None                                                                                                                                       |
| <b>Prerequisite procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                            |
| <b>Required/As needed</b>      | As needed                                                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                           |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                     |



**Note** If any user who has rights to perform an operation (for example, creating a circuit) selects the “Do not show this dialog again” check box in a dialog box, the dialog box is not displayed for any other users who perform that operation on the network unless the command is overridden using the following task.

**Step 1** From the Edit menu, choose **Preferences**.

**Step 2** In the Preferences dialog box, click the **General** tab.

The Preferences Management area field lists all dialog boxes where “Do not show this dialog again” was checked.

- Step 3** Choose one of the following:
- Don't Show Any—Hides all do-not-display check boxes.
  - Show All—Overrides do-not-display check box selections and displays all dialog boxes.
- Step 4** Click **OK**.
- Step 5** Return to your originating procedure (NTP).

## NTP-F69 Modify or Delete Optical 1+1 Port Protection Settings

|                                |                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to modify or delete port protection settings on optical cards. |
| <b>Tools/Equipment</b>         | None                                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F27 Create a 1+1 (LMSP) Protection Group, page 4-19</a>           |
| <b>Required/As Needed</b>      | As needed                                                                         |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                  |
| <b>Security Level</b>          | Provisioning or higher                                                            |



**Caution** Modifying and deleting protection groups can be service affecting.

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged into the correct node, continue with [Step 2](#).
- Step 2** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Step 3** As needed, complete any of the following tasks or procedures:
- [DLP-F116 Modify a 1+1 Protection Group, page 10-13](#)
  - [DLP-F117 Delete a 1+1 Protection Group, page 10-14](#)
  - [NTP-F70 Delete an RS-DCC Termination, page 10-15](#)
- Step 4** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Stop. You have completed this procedure.**

## DLP-F116 Modify a 1+1 Protection Group

|                                |                                                                      |
|--------------------------------|----------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to modify a 1+1 protection group for any optical port. |
| <b>Tools/Equipment</b>         | None                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                      |
| <b>Required/As Needed</b>      | As needed                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                     |
| <b>Security Level</b>          | Provisioning or higher                                               |

- 
- Step 1** In node view, click the **Provisioning > Protection** tabs.
- Step 2** In the Protection Groups list, click the 1+1 protection group that you want to modify.
- Step 3** In the Selected Group area, you can modify the following:
- Name
  - Bidirectional switching
  - Revertive
  - Reversion time



**Note** The bidirectional switching and revertive settings must be identical at each end of the span.

See the “[NTP-F27 Create a 1+1 \(LMSP\) Protection Group](#)” procedure on page 4-19 for field descriptions.

- Step 4** Click **Apply**. Confirm that the changes appear; if not, repeat the task.
- Step 5** Return to your originating procedure (NTP).
- 

## DLP-F117 Delete a 1+1 Protection Group

|                                |                                                                      |
|--------------------------------|----------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to delete a 1+1 protection group for any optical port. |
| <b>Tools/Equipment</b>         | None                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                      |
| <b>Required/As Needed</b>      | As needed                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                     |
| <b>Security Level</b>          | Provisioning or higher                                               |

- 
- Step 1** From node view, click the **Provisioning > Protection** tabs.
- Step 2** In the Protection Groups list, click the 1+1 protection group that you want to delete.
- Step 3** Click **Delete**. The Delete Protection Group window appears.
- Step 4** Click **Yes**. Confirm that the changes appear; if not, repeat the task.
- Step 5** Return to your originating procedure (NTP).
-



## NTP-F70 Delete an RS-DCC Termination

|                                |                                                                          |
|--------------------------------|--------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to delete an RS-DCC termination on the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                          |
| <b>Required/As Needed</b>      | As needed                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                   |



**Note** Deleting a RS-DCC termination might cause you to lose visibility of nodes that do not have other DCCs or network connections to the CTC computer.



**Note** If you have circuits traversing the fiber on which you delete a DCC termination, the circuits will go to an Incomplete state.

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** In node view, click the **Provisioning > DCC/GCC** tabs.
- Step 3** Select the DCC termination and click **Delete**. The Delete RS-DCC Termination dialog box appears.
- Step 4** Check the **Set Port Out of Service** check box if you want to change the port state to out of service (this might be service affecting).
- Step 5** Click **Yes**. Confirm that the changes appear; if not, repeat the task.
- Stop. You have completed this procedure.**
- 

## NTP-F71 Delete a GCC Termination

|                                |                                                                      |
|--------------------------------|----------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to delete a GCC termination on the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                      |
| <b>Required/As Needed</b>      | As needed                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                     |
| <b>Security Level</b>          | Provisioning or higher                                               |



**Note** Deleting a GCC termination might cause you to lose visibility of nodes that do not have other GCCs or network connections to the CTC computer.

**Note**

If you have circuits traversing the fiber on which you delete a GCC termination, the circuits will go to an Incomplete state.

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** In node view, click the **Provisioning > DCC/GCC** tabs.
- Step 3** Select the GCC termination and click **Delete**. The Delete GCC Termination dialog box appears.
- Step 4** Check the **Set Port Out of Service** check box if you want to change the port state to out of service (this might be service affecting).
- Step 5** Click **Yes**. Confirm that the changes appear; if not, repeat the task.
- Stop. You have completed this procedure.**
- 

## NTP-F72 Change Node Timing

|                                |                                                                             |
|--------------------------------|-----------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to change the SDH timing settings for the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F26 Set Up Timing</a> , page 4-16                           |
| <b>Required/As Needed</b>      | As needed                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                      |

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Step 3** As needed, complete the “[DLP-F118 Change the Node Timing Source](#)” task on page 10-17.
- Step 4** If you need to change any internal timing settings, follow the “[DLP-F49 Set Up Internal Timing](#)” task on page 4-18 for the settings you need to modify.

**Caution**

Internal timing is G.813 SDH Equipment Slave Clocks and not intended for permanent use. All ONS 15600 SDHs should be timed to a G812T or G811 Primary Reference Clock (PRC).

- 
- Step 5** As needed, complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Stop. You have completed this procedure.**
-

## DLP-F118 Change the Node Timing Source

|                                |                                                                      |
|--------------------------------|----------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change the SDH timing source for the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                      |
| <b>Required/As Needed</b>      | As needed                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                     |
| <b>Security Level</b>          | Provisioning or higher                                               |



### Caution

The following procedure might be service affecting; complete during a scheduled maintenance window.

**Step 1** In node view, click the **Provisioning > Timing** tabs.

**Step 2** In the General Timing area, change any of the following information:

- Timing Mode
- SSM Message Set
- Revertive
- Reversion Time

For detailed descriptions of these fields, see the “[NTP-F26 Set Up Timing](#)” procedure on page 4-16.

**Step 3** In the BITS Facilities area, you can change the following information:



**Note** The BITS Facilities area sets the parameters for your building integrated timing supply one (BITS1) and BITS2 timing references. Many of these settings are determined by the timing source manufacturer.

- State
- Coding
- Framing
- Sync Messaging
- Cable Type (ohm)
- Sa bit

**Step 4** In the Reference Lists area, you can change the NE Reference.

**Step 5** Click **Apply**. Confirm that the changes appear; if not, repeat the task.



**Note** Both TSCs must acquire the new clock. The UNPROT-SYNCCLK alarm will occur for 700 seconds, and both TSCs will report FSTSYNC for the same period of time. This is normal.

**Step 6** Return to your originating procedure (NTP).


# NTP-F73 Modify Users and Change Security

|                                |                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to modify user and security properties for the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                             |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F23 Create Users and Assign Security, page 4-4</a>               |
| <b>Required/As Needed</b>      | As needed                                                                        |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                 |
| <b>Security Level</b>          | Superuser                                                                        |

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
- Step 2** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Step 3** To view logged on users, click the **Provisioning > Security > Active Logins** tabs.
- Step 4** As needed, complete any of the following tasks:
- [DLP-F119 Change Security Policy—Single Node, page 10-18](#)
  - [DLP-F120 Change Security Policy—Multiple Nodes, page 10-19](#)
  - [DLP-F121 Change User Password and Security Levels—Single Node, page 10-20](#)
  - [DLP-F122 Change User and Security Settings—Multiple Nodes, page 10-21](#)
  - [DLP-F123 Manually Lock or Unlock a User—Single Node, page 10-22](#)
  - [DLP-F124 Manually Lock or Unlock a User—Multiple Nodes, page 10-22](#)
  - [DLP-F125 Log Out a User—Single Node, page 10-23](#)
  - [DLP-F126 Log Out a User—Multiple Nodes, page 10-23](#)
  - [DLP-F127 Delete User—Single Node, page 10-24](#)
  - [DLP-F128 Delete User—Multiple Nodes, page 10-25](#)
- Step 5** As needed, complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
- Stop. You have completed this procedure.**
- 

## DLP-F119 Change Security Policy—Single Node


|                                |                                                                                                                                                              |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change the security policy for a single node, including idle user timeouts, user lockouts, password changes, and concurrent login policies. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                              |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                             |
| <b>Security Level</b>          | Superuser                                                                                                                                                    |

- 
- Step 1** In node view, click the **Provisioning > Security > Policy** tabs.
- Step 2** In the Idle User Timeout area, you can modify the timeout times for each security level by clicking the hour (H) and minute (M) arrows. You can choose values between 0 and 16 hours and 0 and 59 minutes.
- Step 3** In the User Lockout area, you can modify the following:
- Failed Logins Before Lockout—Choose the number of failed login attempts a user can make before the user is locked out from the node. You can choose a value between 0 and 10.
  - Manual Unlock by Superuser—Check this box if you want to allow a user with Superuser privileges to manually unlock a user who has been locked out from a node. The user will remain locked out until a Superuser manually unlocks the user.
  - Lockout Duration—Choose the amount of time the user will be locked out after a failed login. You can choose a value between 0 and 10 minutes, and 0 and 55 seconds (in five-second intervals).
- Step 4** In the Password Change area, you can modify the following:
- Require [nn] different passwords—Choose a value between 0 and 10 to determine how many different passwords have to be created before a password can be reused.
  - or a waiting period of [nn] days before password reuse—Choose a value between 0 and 30 days to set the amount of time (in days) before a password can be reused.
-  **Note** “Require [nn] different passwords or a waiting period of [nn] days before password reuse” is an OR statement, meaning that either one of the two conditions you set can be satisfied for a password to be reused.
- 
- Step 5** In the Concurrent Logins area, click **Single Session Per User** if you want to limit users to a single login session.
- Step 6** Click **Apply**. Confirm that the changes appear; if not, repeat the task.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F120 Change Security Policy—Multiple Nodes

|                                |                                                                                                                                                             |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change the security policy for multiple nodes including idle user timeouts, user lockouts, password change, and concurrent login policies. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                             |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                            |
| <b>Security Level</b>          | Superuser                                                                                                                                                   |

- 
- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Click the **Provisioning > Security > Policy** tabs. A read-only table of nodes and their policies appears.
- Step 3** Click a node on the table that you want to modify, then click **Change**.

- Step 4** In the Idle User Timeout area, you can modify the timeout times for each security level by clicking the hour (H) and minute (M) arrows. You can choose values between 0 and 16 hours and 0 and 59 minutes.
- Step 5** In the User Lockout area, you can modify the following:
- Failed Logins Before Lockout—Choose the number failed login attempts a user can make before the user is locked out from the node. You can choose a value between 0 and 10.
  - Manual Unlock by Superuser—Check this box if you want to allow a user with Superuser privileges to manually unlock a user who has been locked out from a node. The user will remain locked out until a Superuser manually unlocks the user.
  - Lockout Duration—Choose the amount of time the user will be locked out after a failed login. You can choose a value between 0 and 10 minutes, and 0 and 55 seconds (in five-second intervals).
- Step 6** In the Password Change area, you can modify the following:
- Require [nn] different passwords—Choose the number of different passwords that have to be created before a password can be reused. You can choose a value between 0 and 10 days.
  - or a waiting period of [nn] days before password reuse—Choose the number of days the user must wait before reusing a password. You can choose a value between 0 and 30 days.
-  **Note** “Require [nn] different passwords or a waiting period of [nn] days before password reuse” is an OR statement, meaning that either one of the two conditions you set can be satisfied for a password to be reused.
- Step 7** In the Concurrent Logins area, click **Single Session Per User** if you want to limit users to a single login session.
- Step 8** Click **OK**. The Security Policy Change Results dialog box appears.
- Step 9** Confirm that the changes are correct and click **OK**.
- Step 10** Return to your originating procedure (NTP).

## DLP-F121 Change User Password and Security Levels—Single Node

|                                |                                                                    |
|--------------------------------|--------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change settings for an existing user at one node. |
| <b>Tools/Equipment</b>         | None                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                    |
| <b>Required/As Needed</b>      | As needed                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                   |
| <b>Security Level</b>          | Superuser                                                          |

- Step 1** In node view, click the **Provisioning > Security > Users** tabs.
- Step 2** Click the user whose settings you want to modify, then click **Change**.
- Step 3** In the Change User dialog box, you can:
- Change a user’s password
  - Modify the user’s security level

- Lock out the user

See the “[NTP-F23 Create Users and Assign Security](#)” procedure on page 4-4 for field descriptions.

**Step 4** Click **Apply**.



**Note** User settings that you changed during this task will not appear until that user logs off and logs back in again.

**Step 5** Return to your originating procedure (NTP).

## DLP-F122 Change User and Security Settings—Multiple Nodes

|                                |                                                                         |
|--------------------------------|-------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to change an existing user’s settings for multiple nodes. |
| <b>Tools/Equipment</b>         | None                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                        |
| <b>Required/As Needed</b>      | As needed                                                               |
| <b>Onsite/Remote</b>           | Onsite or remote                                                        |
| <b>Security Level</b>          | Superuser                                                               |



**Note** You must add the same user name and password to each node the user will access.

**Step 1** From the View menu, choose **Go To Network View**. Verify that all the nodes where you want to add users are accessible in network view.

**Step 2** Click the **Provisioning > Security > Users** tabs. Click the user’s name whose settings you want to change.

**Step 3** Click **Change**. The Change User window appears.

**Step 4** In the Change User dialog box, you can:

- Change a user’s password
- Modify the user’s security level
- Lock out the user

See the “[DLP-F42 Create a New User—Multiple Nodes](#)” task on page 4-5 for field descriptions.

**Step 5** In the Select applicable nodes list dialog box, uncheck any nodes where you do not want to change the user’s settings. (All network nodes are selected by default.)

**Step 6** Click **OK**. The User Change Results confirmation dialog box appears.

**Step 7** Click **OK**. Confirm that the changes appear; if not, repeat the task.

**Step 8** Return to your originating procedure (NTP).

## DLP-F123 Manually Lock or Unlock a User—Single Node

|                                |                                                                         |
|--------------------------------|-------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to manually lock out or unlock a user from a single node. |
| <b>Tools/Equipment</b>         | None                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                         |
| <b>Required/As Needed</b>      | As needed                                                               |
| <b>Onsite/Remote</b>           | Onsite or remote                                                        |
| <b>Security Level</b>          | Superuser                                                               |

- 
- Step 1** In node view, click the **Provisioning > Security > Users** tabs.
- Step 2** Choose the user you want to log out.
- Step 3** Click **Change**.
- Step 4** Complete one of the following:
- To lock a user out so the user cannot log into the node, check the **Locked out** check box.
  - If the user is currently locked out, uncheck the **Locked out** check box.
- See the “[DLP-F119 Change Security Policy—Single Node](#)” task on page 10-18 for more information about manual lockouts versus lockout duration.
- Step 5** Click **OK**. A confirmation dialog box appears.
- Step 6** Click **OK**. Confirm that the changes appear; if not, repeat the task.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F124 Manually Lock or Unlock a User—Multiple Nodes

|                                |                                                                          |
|--------------------------------|--------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to manually lock out or unlock a user from multiple nodes. |
| <b>Tools/Equipment</b>         | None                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                          |
| <b>Required/As Needed</b>      | As needed                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                         |
| <b>Security Level</b>          | Superuser                                                                |

- 
- Step 1** From the View menu, chose **Go To Network View**.
- Step 2** Click the **Provisioning > Security > Users** tabs.
- Step 3** Click the user you want to log out.
- Step 4** Click **Change**.
- Step 5** Complete one of the following:
- To lock a user out so the user cannot log into nodes on the network, check the **Locked out** check box.
  - If the user is currently locked out, uncheck the **Locked out** check box.



See the “[DLP-F119 Change Security Policy—Single Node](#)” task on page 10-18 for more information about manual lockouts versus lockout duration.

- Step 6** Click **OK**. A confirmation dialog box appears.
- Step 7** Click **OK**. Confirm that the changes appear; if not, repeat the task.
- Step 8** Return to your originating procedure (NTP).
- 

## DLP-F125 Log Out a User—Single Node

|                                |                                                     |
|--------------------------------|-----------------------------------------------------|
| <b>Purpose</b>                 | Use this task to log out a user from a single node. |
| <b>Tools/Equipment</b>         | None                                                |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>     |
| <b>Required/As Needed</b>      | As needed                                           |
| <b>Onsite/Remote</b>           | Onsite or remote                                    |
| <b>Security Level</b>          | Superuser                                           |

---

- Step 1** In node view, click the **Provisioning > Security > Active Logins** tabs.
- Step 2** Choose the user you want to log out.
- Step 3** Click **Logout**.
- Step 4** In the Logout User dialog box, check **Lockout before Logout** if you want to lock the user out before logout. This prevents the user from logging in after logout based on parameters set under User Lockouts in the Policy tab. Either a manual unlock by a Superuser is required, or the user is locked out for the amount of time specified in the Lockout Duration field. See the “[DLP-F119 Change Security Policy—Single Node](#)” task on page 10-18 for more information.
- Step 5** Click **OK**. A confirmation dialog box appears.
- Step 6** Click **OK**. Confirm that the changes appear; if not, repeat the task.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F126 Log Out a User—Multiple Nodes

|                                |                                                      |
|--------------------------------|------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to log out a user from multiple nodes. |
| <b>Tools/Equipment</b>         | None                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>      |
| <b>Required/As Needed</b>      | As needed                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                     |
| <b>Security Level</b>          | Superuser                                            |

---

- Step 1** From the View menu, chose **Go To Network View**.
- Step 2** Click the **Provisioning > Security > Active Logins** tabs.

- Step 3** Choose the user you want to log out.
- Step 4** Click **Logout**.
- Step 5** In the Logout User dialog box, uncheck the nodes where you do not want to log out the user.
- Step 6** Check **Lockout before Logout** if you want to lock the user out before logout. This prevents the user from logging in after logout based on parameters set under User Lockouts in the Policy tab. Either a manual unlock by a Superuser is required, or the user is locked out for the amount of time specified in the Lockout Duration field. See the “[DLP-F119 Change Security Policy—Single Node](#)” task on [page 10-18](#) for more information.
- Step 7** Click **OK**. A confirmation dialog box appears.
- Step 8** Click **OK**. Confirm that the changes appear; if not, repeat the task.
- Step 9** Return to your originating procedure (NTP).
- 

## DLP-F127 Delete User—Single Node

|                                |                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to delete an existing user from a single node.                                                       |
| <b>Tools/Equipment</b>         | None                                                                                                               |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F41 Create a New User—Single Node, page 4-4</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                   |
| <b>Security Level</b>          | Superuser                                                                                                          |

---

- Step 1** In node view, select the **Provisioning > Security > Users** tabs.
- Step 2** Choose the user you want to delete.
- Step 3** Click **Delete**. The Delete User dialog box appears.
- Step 4** Verify that you selected the correct user to delete and click **OK**.
- Step 5** Click **OK**. Confirm that the changes appear; if not, repeat the task.
- Step 6** Return to your originating procedure (NTP).
-

## DLP-F128 Delete User—Multiple Nodes

|                                |                                                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to delete an existing user from multiple nodes.                                                    |
| <b>Tools/Equipment</b>         | None                                                                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a><br><a href="#">DLP-F42 Create a New User—Multiple Nodes, page 4-5</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                      |
| <b>Security Level</b>          | Superuser                                                                                                             |



**Note** Users who are logged in when you delete them will not be logged out. The delete user action will take effect after the user logs out. To log out a user while they are logged in, complete the “[DLP-F126 Log Out a User—Multiple Nodes](#)” task on page 10-23.

- 
- Step 1** From the View menu, choose **Go To Network View**.
  - Step 2** Click the **Provisioning > Security > Users** tabs.
  - Step 3** Choose the user that you want to delete.
  - Step 4** Click **Delete**. The Delete User dialog box appears.
  - Step 5** In the Select Applicable Nodes area, uncheck any nodes where you do not want to delete this user.
  - Step 6** Click **OK**. The User Deletion Results confirmation dialog box appears.
  - Step 7** Click **OK**. Confirm that the changes appear; if not, repeat the task.
  - Step 8** Return to your originating procedure (NTP).
- 

## NTP-F74 Change SNMP Settings

|                                |                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to modify Simple Network Management Protocol (SNMP) properties for the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F28 Set Up SNMP, page 4-21</a>                                                      |
| <b>Required/As Needed</b>      | As needed                                                                                           |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                    |
| <b>Security Level</b>          | Superuser                                                                                           |

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15. If you are already logged in, continue with [Step 2](#).
  - Step 2** Complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.
  - Step 3** As needed, complete the following tasks:
    - [DLP-F129 Modify SNMP Trap Destinations, page 10-26](#)

- [DLP-F130 Delete SNMP Trap Destination, page 10-27](#)

**Step 4** As needed, complete the “[NTP-F88 Back Up the Database](#)” procedure on page 14-3.

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

---

## DLP-F129 Modify SNMP Trap Destinations

|                                |                                                                     |
|--------------------------------|---------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to modify SNMP trap destinations on an ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                     |
| <b>Required/As Needed</b>      | As needed                                                           |
| <b>Onsite/Remote</b>           | Onsite or remote                                                    |
| <b>Security Level</b>          | Provisioning or higher                                              |

---

**Step 1** In node view, click the **Provisioning > SNMP** tabs.

**Step 2** Click a trap in the Trap Destinations list box.

For a description of SNMP traps, refer to the *Cisco ONS 15600 SDH Reference Manual*.

**Step 3** In the Selected Destination area, complete as needed:

- Type the SNMP community name in the Community Name field.



**Note** The community name is a form of authentication and access control. The community name assigned to the ONS 15600 SDH is case-sensitive and must match the community name of the network management system (NMS).

---



**Note** The default User Datagram Protocol (UDP) port for SNMP is 162.

---

- Set the Trap Version field to either SNMPv1 or SNMPv2.  
Refer to your NMS documentation to determine whether to use SNMPv1 or SNMPv2.

**Step 4** Click **Apply**. SNMP settings are now configured.

**Step 5** To view SNMP information for each node, click the node IP address in the Trap Destinations list.

**Step 6** Return to your originating procedure (NTP).

---

## DLP-F130 Delete SNMP Trap Destination

|                                |                                                                       |
|--------------------------------|-----------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this task to delete an SNMP trap destination on an ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | None                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                       |
| <b>Required/As Needed</b>      | As needed                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                |

- 
- Step 1** In node view, click the **Provisioning > SNMP** tabs.
- Step 2** Click the trap that you want to delete in the Trap Destination list box.
- Step 3** Click **Delete**. A confirmation dialog box appears.
- Step 4** Confirm that the changes are correct and click **Yes**. Confirm that the changes appear; if not, repeat the task.
- Step 5** Return to your originating procedure (NTP).
- 

## NTP-F75 Change the Internal IP Addresses for the TSC Cards Using CTC

|                                |                                                                                                                                                                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to change the class B subnet address for the TSC cards. You should change the class B subnet address if your internal network uses the same address range as the default subnet addresses to avoid IP address conflict. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                       |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F22 Verify Card Installation, page 4-2</a><br><a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                              |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                           |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                     |



### Caution

All network changes should be approved by your network or LAN administrator.



### Note

This procedure causes the node to reboot.

- 
- Step 1** Click the **Provisioning > Network > Internal Subnet** tabs.
- Step 2** Complete the following information in the fields listed:
- TSC 1—Enter the class B subnet address for the first TSC.

- TSC 2—If two TSCs are installed, enter the class B subnet address for the second TSC.

**Step 3** Click **Apply**. A confirmation dialog box appears.

**Step 4** Verify that the information is correct and click **Yes**.

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

---



## Change Card Settings

---

This chapter explains how to change transmission settings on cards in a Cisco ONS 15600 SDH.

### Before You Begin

As necessary, complete the [“NTP-F49 Document Existing Provisioning” procedure on page 7-2](#).

Before performing the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* as necessary.

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

- [NTP-F76 Modify Line and Status Thresholds for Optical Ports, page 11-1](#)—As needed, complete this procedure to change line (drop) and threshold settings for all STM-N cards.

### NTP-F76 Modify Line and Status Thresholds for Optical Ports

|                                |                                                                                                                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure changes line settings (line type, coding, and length), line status (in service or out of service), and performance monitoring (PM) thresholds for STM-16 and STM-64 cards. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                      |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                      |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                 |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                          |
| <b>Security</b>                | Provisioning or higher                                                                                                                                                                    |

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at the node where you want to change the settings. If you are already logged in, continue with Step 2.
- Step 2** Complete the [“NTP-F88 Back Up the Database” procedure on page 14-3](#).
- Step 3** On the shelf graphic, double-click the STM-N card that you want to provision. The card view appears.
- Step 4** Click the **Provisioning > MS** tabs.
- Step 5** As needed, provision the options in [Table 11-1](#) for each STM-N port.

**Table 11-1 STM-N Card Line Settings**

| Heading              | Description                                                                                                                                  | Options                                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Port #               | Identifies the port number.                                                                                                                  | 1 to 16 for an STM-16 card, 1 to 4 for an STM-64 card                                                                              |
| Port Name            | Provides the ability to assign the specified port a name.                                                                                    | User-defined; name can be up to 32 alphanumeric/special characters (blank by default)                                              |
| SF BER               | Sets the signal fail bit error rate.                                                                                                         | <ul style="list-style-type: none"> <li>• 1E-3</li> <li>• 1E-4 (default)</li> <li>• 1E-5</li> </ul>                                 |
| SD BER               | Sets the signal degrade bit error rate.                                                                                                      | <ul style="list-style-type: none"> <li>• 1E-5</li> <li>• 1E-6</li> <li>• 1E-7 (default)</li> <li>• 1E-8</li> <li>• 1E-9</li> </ul> |
| Provides Sync        | Indicates that the port has been provisioned as a network element timing reference on another node (ONS 15600 SDH, ONS 15454, or ONS 15327). | Read-only <ul style="list-style-type: none"> <li>• Yes (checked)</li> <li>• No (unchecked)</li> </ul>                              |
| Enable Sync Messages | Enables synchronization status messages (S1 byte), which allow the node to choose the best timing source.                                    | <ul style="list-style-type: none"> <li>• Yes (checked, default)</li> <li>• No (unchecked)</li> </ul>                               |
| Send Do Not Use      | When checked, sends a DUS (do not use) message on the S1 byte                                                                                | <ul style="list-style-type: none"> <li>• Yes (checked)</li> <li>• No (unchecked; default)</li> </ul>                               |
| MS-SPRing Ext. Byte  | Chosen extended byte carries information that governs MS-SPRing protection switches.                                                         | <ul style="list-style-type: none"> <li>• K3</li> <li>• Z2</li> <li>• E2</li> <li>• F1</li> </ul>                                   |
| State                | Places port in or out of service.                                                                                                            | <ul style="list-style-type: none"> <li>• OOS_MT (default)—Out of service, maintenance</li> <li>• IS—In service</li> </ul>          |



Table 11-1 STM-N Card Line Settings (continued)

| Heading             | Description                                                                              | Options                                                                                                                                                                                                                                                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sync Status Message | Allows you to view the incoming synchronization status message by clicking <b>Show</b> . | <ul style="list-style-type: none"> <li>• G811(Primary reference clock)</li> <li>• STU (Sync traceability unknown)</li> <li>• G812T (Transit node clock traceable)</li> <li>• G812L (Local node clock traceable)</li> <li>• SMC (SONET minimum clock)</li> <li>• SETS (Synchronous equipment)</li> <li>• DUS (Do not use for timing synchronization)</li> </ul> |
| Type                | Defines the port as SDH.                                                                 | <ul style="list-style-type: none"> <li>• SDH (default)</li> </ul>                                                                                                                                                                                                                                                                                              |

**Step 6** Click **Apply**.

**Step 7** Click the **Qos Thresholds** subtab. The default selection is Near End, 15 Min, and MS (Figure 11-1).

Figure 11-1 Provisioning Thresholds for the STM-16 Card

The screenshot shows the Cisco Transport Controller interface for the STM-16 card. The 'Qos Thresholds' subtab is active, displaying a table of thresholds for ports 1 through 8. The 'MS' threshold is selected, and the 'Near End, 15 Min, Line' option is chosen. The 'Types' section shows 'MS' selected, and the 'Directions' section shows 'Near End' selected. A 'Refresh' button is visible.

| Port | EB    | BBE   | ES | SES | UAS | PSC | PSD | PSC-W | PSD-V |
|------|-------|-------|----|-----|-----|-----|-----|-------|-------|
| 1    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |
| 2    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |
| 3    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |
| 4    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |
| 5    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |
| 6    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |
| 7    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |
| 8    | 21260 | 21260 | 87 | 1   | 3   | 1   | 300 | 1     | 30    |

**Step 8** As needed, complete the following:

- Click **MS**, **RS**, **Path**, or **Physical** to provision the line, section, path, and physical options in Table 11-2 for each STM-N port.
- Change the selection to Near End/Far End, 15 Min/1Day as necessary.
- Click **Refresh** to view or modify the thresholds for each selection.

Table 11-2 STM-N Threshold Options (MS, RS, and Path)

| Heading     | Description              | Options                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Port</b> | Port number              | 1 to 16 for an STM-16 card, 1 to 4 for an STM-64 card                                                                                                                                                                                                                                                                                                                                                                         |
| <b>EB</b>   | Errored blocks           | Numeric. Defaults (15 min/1 day):<br>MS <ul style="list-style-type: none"> <li>• 21260/212600 (STM-16 Near and Far End)</li> <li>• 85040/850400 (STM-64 Near and Far End)</li> </ul> RS <ul style="list-style-type: none"> <li>• 10000/100000 (Near End); 0/0 (Far End)</li> <li>• 10000/100000 (STM-64 Near End)</li> </ul> Path <ul style="list-style-type: none"> <li>• 75/750 (STM-16/STM-64 Near and Far End)</li> </ul> |
| <b>ES</b>   | Errored seconds          | Numeric. Default (15 min/1 day):<br>MS <ul style="list-style-type: none"> <li>• 87/864 (STM-16/STM-64 Near and Far End)</li> </ul> RS <ul style="list-style-type: none"> <li>• 500/5000 (Near End); 0/0 (Far End)</li> </ul> Path <ul style="list-style-type: none"> <li>• 60/600 (STM-16/STM-64 Near and Far End)</li> </ul>                                                                                                 |
| <b>SES</b>  | Severely errored seconds | Numeric. Defaults (15 min/1 day):<br>MS <ul style="list-style-type: none"> <li>• 1/4 (Near and Far End)</li> </ul> RS <ul style="list-style-type: none"> <li>• 500/5000 (Near End); 0/0 (Far End)</li> </ul> Path <ul style="list-style-type: none"> <li>• 3/7 (STM-16/STM-64 Near and Far End)</li> </ul>                                                                                                                    |
| <b>BBE</b>  | Background block errors  | Numeric. Defaults (15 min/1 day):<br>MS <ul style="list-style-type: none"> <li>• 21260/212600 (STM-16 Near and Far End)</li> <li>• 85040/850400 (STM-64 Near and Far End)</li> </ul> RS <ul style="list-style-type: none"> <li>• 10000/100000 (Near End);</li> <li>• 10000/100000 (STM-64 Near End)</li> </ul> Path <ul style="list-style-type: none"> <li>• 25/250 (STM-16/STM-64 Near and Far End)</li> </ul>               |

**Table 11-2 STM-N Threshold Options (MS, RS, and Path) (continued)**

| Heading      | Description                             | Options                                                                                                                                                                                                               |
|--------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UAS</b>   | Unavailable seconds                     | Numeric. Defaults (15 min/1 day):<br>MS<br><ul style="list-style-type: none"> <li>3/10 (STM-16/STM-64 Near and Far End)</li> </ul> Path<br><ul style="list-style-type: none"> <li>10/10 (Near and Far End)</li> </ul> |
| <b>PSC</b>   | Protection Switching Count (MS)         | Numeric. Defaults (15 min/1 day):<br>MS<br><ul style="list-style-type: none"> <li>1/5 (Near End)</li> </ul>                                                                                                           |
| <b>PSD</b>   | Protection Switch Duration (MS)         | Numeric. Defaults (15 min/1 day):<br>MS<br><ul style="list-style-type: none"> <li>300/600 (Near End)</li> </ul>                                                                                                       |
| <b>PSC-W</b> | Protection Switching Count (Working MS) | Numeric. Defaults (15 min/1 day):<br>MS<br><ul style="list-style-type: none"> <li>1/5 (Near End)</li> </ul>                                                                                                           |
| <b>PSD-W</b> | Protection Switch Duration (Working MS) | Numeric. Defaults (15 min/1 day):<br>MS<br><ul style="list-style-type: none"> <li>300/600 (Near End)</li> </ul>                                                                                                       |

**Step 9** As needed, complete the following:

- Click **Physical** to provision the physical options in [Table 11-3](#) for each STM-N port.
- Change the selection to 15 Min or 1 Day as necessary.
- Click **Refresh** to view or modify the thresholds for each selection.

**Table 11-3 STM-N Threshold Options (Physical)**

| Heading         | Description                                                                                                                                                                                                                                                                              | Options                                               |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>Port</b>     | Port number                                                                                                                                                                                                                                                                              | 1 to 16 for an STM-16 card, 1 to 4 for an STM-64 card |
| <b>LBC-HIGH</b> | Laser bias current—maximum                                                                                                                                                                                                                                                               | Default (15 min/1 day): 200 percent                   |
| <b>LBC-LOW</b>  | Laser bias current—minimum                                                                                                                                                                                                                                                               | Default (15 min/1 day): 20 percent                    |
| <b>OPT-HIGH</b> | Optical power transmitted—maximum                                                                                                                                                                                                                                                        | Default (15 min/1 day): 120 percent                   |
| <b>OPT-LOW</b>  | Optical power transmitted—minimum                                                                                                                                                                                                                                                        | Default (15 min/1 day): 80 percent                    |
| <b>OPR-HIGH</b> | Optical power received—maximum                                                                                                                                                                                                                                                           | Default (15 min/1 day): 200 percent                   |
| <b>OPR-LOW</b>  | Optical power received—minimum                                                                                                                                                                                                                                                           | Default (15 min/1 day): 50 percent                    |
| <b>Set OPR</b>  | Setting the optical power received (OPR) establishes the received power level as 100 percent. If the receiver power decreases, then the OPR percentage decreases to reflect the loss in receiver power. For example, if the receiver power decreases 3 dB, the OPR decreases 50 percent. |                                                       |

**Step 10** Click **Apply**.



---

**Note** See [Chapter 7, “Manage Alarms,”](#) for information about the Alarm Behavior tab, including alarm profiles and alarm suppression.

---

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

---



## Convert Network Configurations

---

This chapter explains how to convert from one SDH topology to another in an ONS 15600 SDH network. For initial network turn up, see [Chapter 5, “Turn Up Network.”](#)

### Before You Begin

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

1. [NTP-F77 Add a Node to a Point-to-Point Configuration, page 12-2](#)—Complete as needed.
2. [NTP-F78 Convert a Point-to-Point or Linear ADM \(LMSP\) to a Two-Fiber MS-SPRing, page 12-4](#)—Complete as needed.
3. [NTP-F79 Convert a Point-to-Point or Linear ADM to an SNCP, page 12-7](#)—Complete as needed.
4. [NTP-F80 Convert an SNCP to a Two-Fiber MS-SPRing, page 12-7](#)—Complete as needed.
5. [NTP-F81 Modify an MS-SPRing, page 12-9](#)—Complete as needed.
6. [NTP-F82 Manage MS-SPRing Manual Ring Switches, page 12-10](#)—Complete as needed.

# NTP-F77 Add a Node to a Point-to-Point Configuration

|                                |                                                                                                                                                             |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure adds a node to a point-to-point configuration (two nodes) to create a linear add/drop multiplexer (ADM) configuration (three or more nodes). |
| <b>Tools/Equipment</b>         | None                                                                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F34 Provision a Point-to-Point Connection, page 5-5</a>                                                                                     |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                      |



**Note** Optical transmit and receive levels should be in their acceptable range as shown in the specifications section for each card in [Table 2-2 on page 2-9](#).



**Note** In a point-to-point configuration, two STM-N cards are connected to two STM-N cards on a second node.

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at either point-to-point node. If you are already logged in, continue with Step 2.
- Step 2** Complete the [“DLP-F131 Check the Network for Alarms and Conditions” task on page 12-3](#).
- Step 3** In network view, double-click the node that will be added to the point-to-point configuration.
- Step 4** Verify that the new node has four STM-N ports at the same rate as the point-to-point node.
- Step 5** Complete the [“NTP-F32 Verify Node Turn Up” procedure on page 5-2](#) for the new node.
- Step 6** Physically connect the fibers between the point-to-point node and the new node.
- Step 7** On the new node, create a 1+1 (LMSP (Linear Multiplex Section Protection)) protection group for the STM-N cards that will connect to the point-to-point node. See the [“NTP-F27 Create a 1+1 \(LMSP\) Protection Group” procedure on page 4-19](#) for instructions.
- Step 8** Complete the [“DLP-F53 Provision SDH DCC Terminations” task on page 5-6](#) for the working STM-N ports in the new node that will connect to the linear add/drop multiplexer (ADM) network. Make sure to set the Port State in the Create RS-DCC Termination dialog box to **IS**.



**Note** Data communications channel (DCC) failure alarms appear until you create DCC terminations in the point-to-point node during [Step 13](#).

- Step 9** From the View menu, choose **Go To Network View**.
- Step 10** Double-click the point-to-point node that will connect to the new node.
- Step 11** Ensure that the point-to-point node has STM-N cards installed that can connect to the new node.
- Step 12** Create a 1+1 protection group for the STM-N ports that will connect to the new node. See the [“NTP-F27 Create a 1+1 \(LMSP\) Protection Group” procedure on page 4-19](#) for instructions.
- Step 13** Create DCC terminations on the working STM-N port that will connect to the new node. See the [“DLP-F53 Provision SDH DCC Terminations” task on page 5-6](#). In the Create RS-DCC Termination dialog box, set the port state to **IS**.

- Step 14** From the View menu, choose **Go To Network View**.
- Step 15** Double-click the point-to-point node that will connect to the new node.
- Step 16** Complete the “[NTP-F26 Set Up Timing](#)” procedure on page 4-16 for the new node. If the new node is using line timing, make the working STM-N card the timing source.
- Step 17** Display the network view to verify that the newly created linear ADM configuration is correct. Two green span lines should appear between each linear node.
- Step 18** Click the **Alarms** tab.
- Verify that the alarm filter is not on. See the “[DLP-F74 Disable Alarm Filtering](#)” task on page 7-14 for instructions.
  - Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 19** Repeat the procedure for each node that you want to add to the linear ADM.
- Stop. You have completed this procedure.**
- 

## DLP-F131 Check the Network for Alarms and Conditions

|                                |                                                                       |
|--------------------------------|-----------------------------------------------------------------------|
| <b>Purpose</b>                 | This task verifies that no alarms or conditions exist on the network. |
| <b>Tools/Equipment</b>         | None                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                      |
| <b>Required/As Needed</b>      | As needed                                                             |
| <b>Onsite/Remote</b>           | Remote                                                                |
| <b>Security Level</b>          | Retrieve or higher                                                    |

---

- Step 1** From the View menu, choose **Go To Network View**. Verify that all affected spans on the network map are green.
- Step 2** Verify that the affected spans do not have active switches on the network map. Span ring switches are graphically displayed on the span with the letters “L” for lockout ring, “F” for Force ring, “M” for manual ring, and “E” for Exercise ring.
- Another way you can verify that no active switches exist is to click the **Conditions** tab, and click **Retrieve**. Make sure the Filter button is not selected.
- Step 3** Click the **Alarms** tab.
- Verify that the alarm filter is not on. See the “[DLP-F74 Disable Alarm Filtering](#)” task on page 7-14 for instructions.
  - Verify that no unexplained alarms appear on the network. If unexplained alarms appear, resolve them before continuing. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 4** Return to your originating procedure (NTP).
-

# NTP-F78 Convert a Point-to-Point or Linear ADM (LMSP) to a Two-Fiber MS-SPRing

|                                |                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure upgrades a point-to-point configuration to a two-fiber multiplex section-shared protection ring (MS-SPRing). |
| <b>Tools/Equipment</b>         | None                                                                                                                        |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F34 Provision a Point-to-Point Connection, page 5-5</a>                                                     |
| <b>Required/As Needed</b>      | As needed                                                                                                                   |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                                                                      |



### Caution

This procedure is service affecting.



### Note

Optical transmit and receive levels should be in their acceptable range as shown in the specifications section for each card in the *Cisco ONS 15600 SDH Reference Manual*.

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at one of the nodes that you want to convert from a point-to-point or ADM to an MS-SPRing. If you are already logged in, continue with Step 2.
- Step 2** Complete the [“DLP-F131 Check the Network for Alarms and Conditions” task on page 12-3](#).
- Step 3** Right-click a span adjacent to the node you are logged into.
- Step 4** From the shortcut menu, choose **Circuits**. The Circuits on Span window appears.
- Step 5** Verify that the total number of active VC4 circuits does not exceed 50 percent of the span bandwidth. In the Circuits column there is a block titled “Unused.” This number should exceed 50 percent of the span bandwidth.



### Note

If the span is an STM-16, no more than 8 VC4s can be provisioned on the span. If the span is an STM-64, no more than 32 VC4s can be provisioned on the span.



### Caution

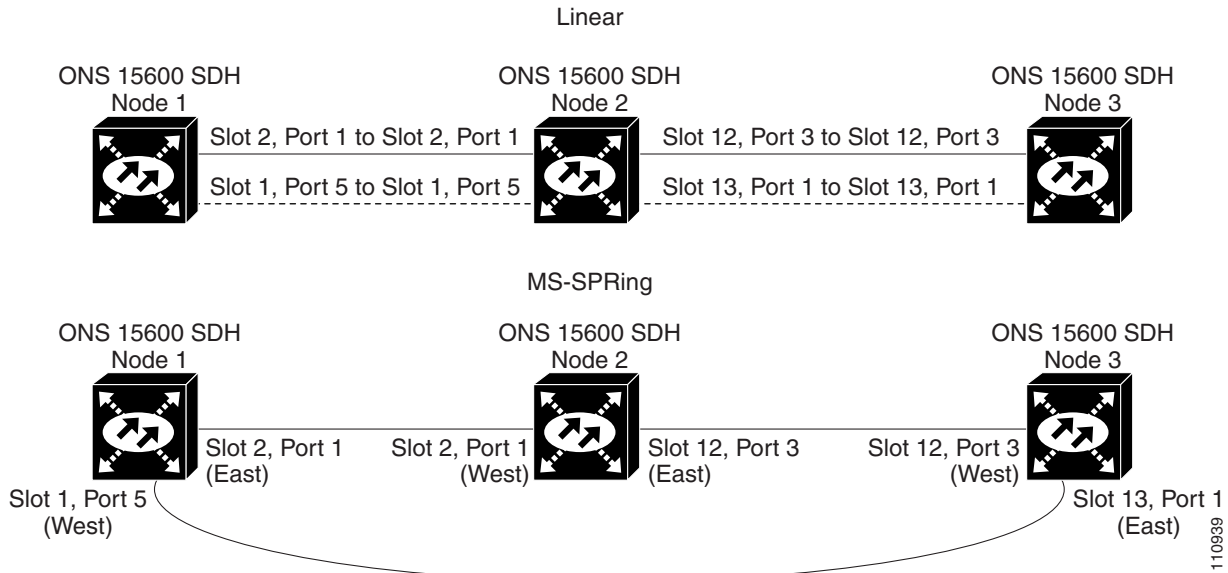
If the first half of the capacity is exceeded, this procedure cannot be completed. Bandwidth must be 50 percent unassigned to convert to MS-SPRing. Refer to local procedures for relocating circuits if these requirements are not met.

- Step 6** Repeat Steps 3 through 5 the each node in the point-to-point or linear ADM that you will convert to the MS-SPRing. If all nodes comply with Step 5, continue with Step 7.
- Step 7** Complete the [“DLP-F132 Verify that a 1+1 \(LMSP\) Working Port is Active” task on page 12-6](#) for every 1+1 protection group that supports a span in the point-to-point or linear ADM network.
- Step 8** Complete the [“DLP-F117 Delete a 1+1 Protection Group” task on page 10-14](#) at each node that supports the point-to-point or linear ADM span.
- Step 9** Complete the [“DLP-F54 Change the Service State for a Port” task on page 5-6](#) to put the protect ports out of service at each node that supports the point-to-point or linear ADM span.



- Step 10** (Linear ADM only) Physically remove the protect fibers from all nodes in the linear ADM; for example, you can remove the fiber running from Node 2/Slot 13/Port 1 to Node 3/Slot 13/Port 1 (Figure 12-1).

Figure 12-1 Linear ADM to MS-SPRing Conversion



- Step 11** Create the ring by connecting the protect fiber from one end node to the protect port on the other end node. For example, the fiber between Node 1/Slot 1/Port 5 and Node 2/Slot 1/Port 5 (Figure 12-1) can be rerouted to connect Node 1/Slot 1/Port 5 to Node 3/Slot 13/Port 1.



**Note** If you need to physically remove any STM-N cards, do so now. In this example, cards in Node 2/Slots 1 and 13 can be removed. See the “[NTP-F15 Remove and Replace a Card](#)” procedure on page 2-7.

- Step 12** In network view, click the **Circuits** tabs and complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3 to save the circuit data to a file on your hard drive.
- Step 13** Complete the “[DLP-F53 Provision SDH DCC Terminations](#)” task on page 5-6 at the end nodes to provision the slot in each node that is not already in the RS-DCC Terminations list.
- Step 14** For circuits provisioned on a VC4 that is now part of the protection bandwidth (VC4s 9 to 16 for an STM-16 MS-SPRing, and VC4s 33 to 64 for an STM-64 MS-SPRing), delete and recreate each circuit:



**Note** Deleting circuits is service affecting.

- Complete the “[DLP-E97 Delete Circuits](#)” task on page 9-11 for one circuit.
- Create the circuit on VC4s 1 to 8 for an STM-16 MS-SPRing, or 1 to 32 for an STM-64 MS-SPRing on the fiber that served as the protect fiber in the linear ADM. See the “[NTP-F43 Create a Manually Routed Optical Circuit](#)” procedure on page 6-11 for instructions.
- Repeat Steps a and b for each circuit residing on an MS-SPRing protect VC4.

**Step 15** Complete the “[NTP-F37 Create an MS-SPRing](#)” procedure on page 5-12 to put the nodes into an MS-SPRing.

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

---

## DLP-F132 Verify that a 1+1 (LMSP) Working Port is Active

|                                |                                                                                                                               |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task verifies that a working slot in a 1+1 (LMSP) protection scheme is active (and that the protect slot is in standby). |
| <b>Tools/Equipment</b>         | None                                                                                                                          |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                                                              |
| <b>Required/As Needed</b>      | As needed                                                                                                                     |
| <b>Onsite/Remote</b>           | Both                                                                                                                          |
| <b>Security Level</b>          | Maintenance or higher                                                                                                         |

---

- Step 1** In node view, click the **Maintenance > Protection** tabs.
- Step 2** In the Selected Group area, verify that the working slot/port is shown as Working/Active. If so, this task is complete.
- Step 3** If the working slot says Working/Standby, perform a Manual switch on the working port:
- a. In the Selected Group area, choose the Protect/Active port.
  - a. In the Switch Commands field, choose **Manual**.
  - b. Click **Yes** in the confirmation dialog box.
- Step 4** Verify that the working slot is carrying traffic (Working/Active).



**Note** If the slot is not active, look for conditions or alarms that might be preventing the card from carrying working traffic. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

---

- Step 5** When the working port is carrying traffic, clear the Manual switch:
- a. In the Switch Commands field, choose **Clear**.
  - b. Click **Yes** in the confirmation dialog box.
- Step 6** Verify that the working port does not revert to Standby, which might indicate a problem on the working span.
- Step 7** Return to your originating procedure (NTP).
-

## NTP-F79 Convert a Point-to-Point or Linear ADM to an SNCP

|                                |                                                                                                      |
|--------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure upgrades a point-to-point or Linear ADM to a subnetwork connection protection (SNCP). |
| <b>Tools/Equipment</b>         | None                                                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F34 Provision a Point-to-Point Connection, page 5-5</a>                              |
| <b>Required/As Needed</b>      | As needed                                                                                            |
| <b>Onsite/Remote</b>           | Onsite                                                                                               |
| <b>Security Level</b>          | Provisioning or higher                                                                               |


**Caution**

This procedure is service affecting. All circuits are deleted and reprovisioned.

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at a node on the point-to-point or linear ADM. If you are already logged in, continue with Step 2.
- Step 2** Complete the “[DLP-F131 Check the Network for Alarms and Conditions](#)” task on page 12-3.
- Step 3** Complete the “[DLP-F132 Verify that a 1+1 \(LMSP\) Working Port is Active](#)” task on page 12-6 for each node.
- Step 4** Complete the “[DLP-F117 Delete a 1+1 Protection Group](#)” task on page 10-14 for each 1+1 protection group that supports the point-to-point or linear ADM span.
- Step 5** Complete the “[DLP-F53 Provision SDH DCC Terminations](#)” task on page 5-6 at the protect cards in all nodes.
- Step 6** Complete the “[DLP-E97 Delete Circuits](#)” task on page 9-11 and the “[NTP-F42 Create an Automatically Routed Optical Circuit](#)” procedure on page 6-4 to delete and recreate the circuits one at a time.
- Step 7** Complete the “[NTP-F39 Provision SNCP Nodes](#)” procedure on page 5-20.
- Stop. You have completed this procedure.**
- 

## NTP-F80 Convert an SNCP to a Two-Fiber MS-SPRing

|                                |                                                           |
|--------------------------------|-----------------------------------------------------------|
| <b>Purpose</b>                 | This procedure converts an SNCP to a two-fiber MS-SPRing. |
| <b>Tools/Equipment</b>         | None                                                      |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F39 Provision SNCP Nodes, page 5-20</a>   |
| <b>Required/As Needed</b>      | As needed                                                 |
| <b>Onsite/Remote</b>           | Both                                                      |
| <b>Security Level</b>          | Provisioning or higher                                    |


**Caution**

This procedure is service affecting. All circuits on the ring are deleted and reprovisioned.


**Caution**

Read through this procedure completely before beginning the conversion.

**Note**

Before beginning this procedure, you should have a unique ring ID number to identify the new MS-SPRing and a unique node ID number for each node on the ring.

**Note**

Before beginning this procedure, optical transmit and receive levels should be in their acceptable range as shown in the specifications section for each card in the *Cisco ONS 15600 SDH Reference Manual*.

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at an ONS 15600 SDH on the network where you will begin the ring conversion. If you are already logged in, continue with Step 2.
- Step 2** Complete the “[DLP-F131 Check the Network for Alarms and Conditions](#)” task on page 12-3.
- Step 3** In network view, right-click a span adjacent to the node you are logged into.
- Step 4** From the shortcut menu, choose **Circuits**. The Circuits on Span window appears.
- Step 5** Verify that the total number of active VC4 circuits does not exceed 50 percent of the span bandwidth. In the Circuits column there is a block titled “Unused.” This number should exceed 50 percent of the span bandwidth.

**Note**

If the span is an STM-16, no more than 8 VC4s can be provisioned on the span. If the span is an STM-64, no more than 32 VC4s can be provisioned on the span.

**Caution**

If the first half of the capacity is exceeded, this procedure cannot be completed. Bandwidth must be 50 percent unassigned to convert to MS-SPRing. Refer to local procedures for relocating circuits if these requirements are not met.

- Step 6** Repeat Steps 3 through 5 for each span in the SNCP that you will convert to the MS-SPRing. If all nodes comply with Step 5, continue with Step 7.
- Step 7** Save the circuit information:
- a. In network view, click the **Circuits > Circuits** tabs.
  - b. Record the circuit information using one of the following tasks:
    - From the File menu, choose **Print** to print the circuits table.
    - Complete the “[DLP-F66 Export CTC Data](#)” task on page 7-3.

- Step 8** Delete the circuits:

**Note**

This method uses the network view. To delete circuits one at a time from each node, see the “[DLP-E97 Delete Circuits](#)” task on page 9-11.

- a. In network view, click the **Circuits** tab. All circuits on the ring appear.
  - b. Press **Shift** and click each circuit in the display. Each line in the display turns dark blue as it is selected.
  - c. After you have selected the circuits, click **Delete**. Allow several minutes for processing; the actual length of time depends on the number of circuits in the network.
- Step 9** Complete the “[NTP-F37 Create an MS-SPRing](#)” procedure on page 5-12.

**Step 10** To recreate the circuits, see [Chapter 6, “Create Circuits”](#) and choose the applicable procedure for the circuit type you want to enter.

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

---

## NTP-F81 Modify an MS-SPRing

|                                |                                                                                         |
|--------------------------------|-----------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure changes an MS-SPRing ring ID, node ID, or ring and span reversion times. |
| <b>Tools/Equipment</b>         | None                                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F37 Create an MS-SPRing, page 5-12</a>                                  |
| <b>Required/As Needed</b>      | As needed                                                                               |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                        |
| <b>Security Level</b>          | Provisioning or higher                                                                  |

---

**Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at a node in the MS-SPRing you want to modify. If you are already logged in, continue with Step 2.

**Step 2** Check the MS-SPRing for outstanding alarms and conditions. See the [“DLP-F131 Check the Network for Alarms and Conditions” task on page 12-3](#) for instructions.



**Note** Some or all of the following alarms appear during MS-SPRing setup: E-W MISMATCH, RING MISMATCH, APSCIMP, APSDFLTK, and MS-SPRingOSYNC. The alarms clear after you configure all the nodes in the MS-SPRing. For definitions of these alarms, see the *Cisco ONS 15600 SDH Troubleshooting Guide*.

---

**Step 3** To change the MS-SPRing ring ID or the ring or span reversion times, complete the following steps. If you want to change a node ID, continue with [Step 4](#).

- a. In network view, click the **Provisioning > MS-SPRing** tabs.
- b. Click the MS-SPRing you want to modify and click **Edit**.
- c. In the MS-SPRing window, change any of the following:
  - Ring ID—If needed, change the MS-SPRing ring ID (a number between 0 and 9999). Do not choose a number that is already assigned to another MS-SPRing.
  - Reversion time—If needed, change the amount of time that will pass before the traffic reverts to the original working path after a ring switch.
- d. Click **Apply**.

If you changed the ring ID, the MS-SPRing window closes automatically. If you only changed a reversion time, close the window by choosing **Close** from the File menu.

**Step 4** To change an MS-SPRing node ID, complete the following steps; otherwise, proceed to [Step 5](#).

- a. On the network map, double-click the node with the node ID you want to change.
- b. Click the **Provisioning > MS-SPRing** tabs.

- c. Choose a Node ID number. Do not choose a number already assigned to another node in the same MS-SPRing.
- d. Click **Apply**.

**Step 5** Verify the following:

- A green span line appears between all MS-SPRing nodes.
- All E-W MISMATCH, RING MISMATCH, APSCIMP, DFLTK, MS-SPRingOSYNC, and Node ID Mismatch alarms are cleared.



**Note** For definitions of these alarms, see the *Cisco ONS 15600 SDH Troubleshooting Guide*.

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

## NTP-F82 Manage MS-SPRing Manual Ring Switches

|                                |                                                                     |
|--------------------------------|---------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure initiates or clears an MS-SPRing manual ring switch. |
| <b>Tools/Equipment</b>         | None                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F37 Create an MS-SPRing, page 5-12</a>              |
| <b>Required/As Needed</b>      | As needed                                                           |
| <b>Onsite/Remote</b>           | Onsite or remote                                                    |
| <b>Security Level</b>          | Provisioning or higher                                              |

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at a node in the MS-SPRing where you want to initiate the Manual ring switch. If you are already logged in, continue with Step 2.
- Step 2** As needed, complete the [“DLP-F133 Initiate an MS-SPRing Manual Ring Switch” task on page 12-11](#).
- Step 3** As needed, complete the [“DLP-F134 Clear an MS-SPRing Manual Ring Switch” task on page 12-12](#).

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

## DLP-F133 Initiate an MS-SPRing Manual Ring Switch

|                                |                                                      |
|--------------------------------|------------------------------------------------------|
| <b>Purpose</b>                 | This task initiates an MS-SPRing manual ring switch. |
| <b>Tools/Equipment</b>         | None                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>      |
| <b>Required/As Needed</b>      | As needed                                            |
| <b>Onsite/Remote</b>           | Onsite                                               |
| <b>Security Level</b>          | Provisioning or higher                               |

---

**Step 1** From the View menu, choose **Go To Network View**.

**Step 2** Click the **Provisioning > MS-SPRing** tabs.

**Step 3** Choose the MS-SPRing and click **Edit**.



**Tip**

To move an icon to a new location, for example, to see MS-SPRing channel (port) information more clearly, click an icon, press **Ctrl**, and drag and drop it in a new location.

**Step 4** Right-click any MS-SPRing node channel (port) and choose **Set West Protection Operation** (if you chose a west channel) or **Set East Protection Operation** (if you chose an east channel).



**Note**

For two-fiber MS-SPRings, the squares on the node icons represent the MS-SPRing working and protect channels. You can right-click either channel.

**Step 5** In the Set West Protection Operation dialog box or the Set East Protection Operation dialog box, choose **MANUAL RING** from the drop-down menu. Click **OK**.

**Step 6** Click **Yes** in the two Confirm MS-SPRing Operation dialog boxes.

**Step 7** Verify that the channel (port) displays the letter “M” for manual ring. Also verify that the span lines between the nodes where the manual switch was invoked turn purple, and that the span lines between all other nodes turn green on the network view map. This confirms the manual switch.

**Step 8** From the File menu, choose **Close**.

**Step 9** Return to your originating procedure (NTP).

---

## DLP-F134 Clear an MS-SPRing Manual Ring Switch

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>Purpose</b>                 | This task clears a manual ring switch.          |
| <b>Tools/Equipment</b>         | None                                            |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a> |
| <b>Required/As Needed</b>      | As needed                                       |
| <b>Onsite/Remote</b>           | Onsite                                          |
| <b>Security Level</b>          | Provisioning or higher                          |

---

**Step 1** From the View menu, choose **Go To Network View**.

**Step 2** Click the **Provisioning > MS-SPRing** tabs.

**Step 3** Choose the MS-SPRing and click **Edit**.



**Tip**

To move an icon to a new location, for example, to see MS-SPRing channel (port) information more clearly, click an icon on the Edit MS-SPRing network graphic and press **Ctrl** while you drag and drop the icon to a new location.

---

**Step 4** Right-click the MS-SPRing node channel (port) where the manual ring switch was applied and choose **Set West Protection Operation** or **Set East Protection Operation**, as applicable.

**Step 5** In the dialog box, choose **CLEAR** from the drop-down menu. Click **OK**.

**Step 6** Click **Yes** in the Confirm MS-SPRing Operation dialog box. The letter “M” is removed from the channel (port) and the span turns green on the network view map.

**Step 7** From the File menu, choose **Close**.

**Step 8** Return to your originating procedure (NTP).

---





## Add and Drop MS-SPRing and SNCP Nodes

This chapter explains how to add and remove Cisco ONS 15600 SDH nodes from multiplex section-shared protection rings (MS-SPRings) and subnetwork connection protection (SNCP) rings.

### Before You Begin

Refer to [Chapter 7, “Manage Alarms”](#) to investigate all alarms, clear any trouble conditions, and manually document existing provisioning.

This section lists the chapter procedures (NTPs). Turn to a procedure for a list of its tasks (DLPs).

1. [NTP-F83 Add an MS-SPRing Node, page 13-1](#)—Complete as needed.
2. [NTP-F84 Remove an MS-SPRing Node, page 13-8](#)—Complete as needed.
3. [NTP-F85 Add an SNCP Node, page 13-12](#)—Complete as needed.
4. [NTP-F86 Remove an SNCP Node, page 13-15](#)—Complete as needed.

### NTP-F83 Add an MS-SPRing Node

|                                |                                                        |
|--------------------------------|--------------------------------------------------------|
| <b>Purpose</b>                 | This procedure expands an MS-SPRing by adding a node.  |
| <b>Tools/Equipment</b>         | Fiber for new node connections                         |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F37 Create an MS-SPRing, page 5-12</a> |
| <b>Required/As Needed</b>      | As needed                                              |
| <b>Onsite/Remote</b>           | Onsite                                                 |
| <b>Security Level</b>          | Provisioning or higher                                 |



#### Note

You can add only one node at a time. Perform these steps onsite and not from a remote location.

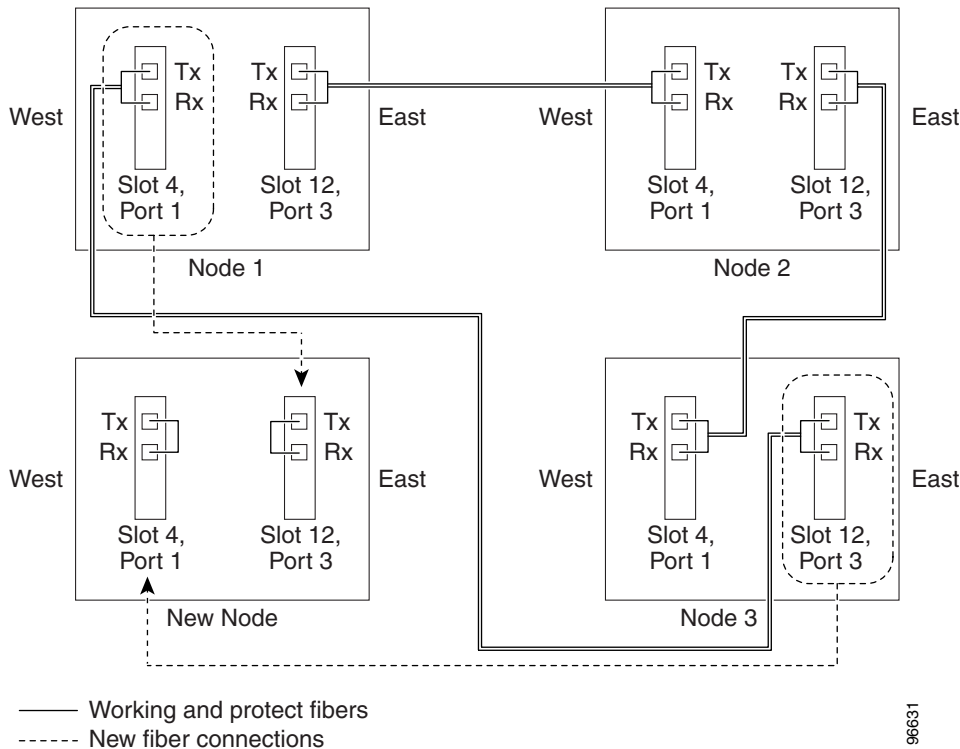


#### Caution

Adding an MS-SPRing node can be service affecting and should be performed during a maintenance window.

- Step 1** Draw a diagram of the MS-SPRing where you will add the node. In the diagram, identify the east and west MS-SPRing STM-N trunk (span) cards/ports that will connect to the new node. This information is essential to complete this procedure without error. [Figure 13-1](#) shows a drawing of a three-node, two-fiber MS-SPRing that uses Slot 4/Port 1 and Slot 12/Port 3 for the MS-SPRing trunk cards/ports. The dashed arrow shows the new fiber connections that will be made to add the fourth node to the MS-SPRing.

**Figure 13-1 Three-Node, Two-Fiber MS-SPRing Before a Fourth Node Is Added**



- Step 2** Verify the card installation in the new node using the “[NTP-F22 Verify Card Installation](#)” procedure on [page 4-2](#). Verify that the STM-N cards that will be the MS-SPRing trunk cards match the MS-SPRing optical rate. For example, if the MS-SPRing is STM-16, the new node must have STM-16 cards installed. If the STM-N cards are not installed or the optical rates do not match the MS-SPRing, complete the “[NTP-F11 Install the STM-N Cards](#)” procedure on [page 2-4](#).
- Step 3** Verify that fiber is available to connect the new node to the existing nodes. Refer to the diagram drawn in [Step 1](#).
- Step 4** Complete the “[NTP-F32 Verify Node Turn Up](#)” procedure on [page 5-2](#). In order to have Cisco Transport Controller (CTC) visibility to the new node after it is added, you must be an authorized user on the node and you must have IP connectivity to the node.
- Step 5** Check to see if the new node IP address is on the same subnet as other nodes in the network. If two or more PCs are directly connected to different nodes that belong to the same subnet and Craft Access Only is not checked under Gateway Settings, add static routes on the gateway ONS 15600 SDH nodes. Use the following settings:
- Destination IP address: *Local-PC-IP-address*
  - Net Mask: **255.255.255.255**

- Next Hop: *IP-address-of-the-Cisco-ONS-15600-SDH*
- Cost: 1

See the “DLP-F44 Create a Static Route” task on page 4-10. To view Gateway Settings, see the “DLP-F43 Provision IP Settings” task on page 4-8.

- Step 6** Log into a node that is in the MS-SPRing. See the “DLP-F36 Log into CTC” task on page 3-15.
- Step 7** Complete the “DLP-F135 Check MS-SPRing or SNCP for Alarms and Conditions” task on page 13-5 to verify that the MS-SPRing is free of major alarms or problems. If trouble is indicated (for example, a major alarm exists), resolve the problem before proceeding. See Chapter 7, “Manage Alarms” or, if necessary, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 8** Click the **Provisioning > MS-SPRing** tabs.
- Step 9** On paper, record the Ring ID, Type, Rate, and Ring Reversion.
- Step 10** From the Node column, record the Node IDs in the MS-SPRing. The Node IDs are the numbers in parentheses next to the node name.
- Step 11** Log into the new node:
- If the node has a LAN connection and appears on the network map, from the View menu, choose **Go to Other Node**, then enter the new node.
  - If the new node is not connected to the network, log into it using the “DLP-F36 Log into CTC” task on page 3-15.
- Step 12** Click the **Alarms** tab. Verify that no critical or major alarms are present, nor any facility alarms, such as LOS, LOF, MS-AIS, MS-EXC, or MS-DEG. If trouble is indicated (for example, a major alarm exists), resolve the problem before proceeding. See Chapter 7, “Manage Alarms” or, if necessary, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 13** Using the information recorded in Steps 9 and 10 and the diagram created in Step 1, create an MS-SPRing on the new node. See the “DLP-F136 Create an MS-SPRing on a Single Node” task on page 13-5.
- Step 14** (Optional) Create test circuits, making sure they pass through the MS-SPRing trunk cards/ports, and run test traffic through the node to ensure the cards are functioning properly. See the “NTP-F43 Create a Manually Routed Optical Circuit” procedure on page 6-11.
- Step 15** Create the data communications channel (DCC) terminations on the new node. See the “DLP-F53 Provision SDH DCC Terminations” task on page 5-6.



**Note** Creating the DCC terminations causes the SDCC Termination Failure and Loss of Signal alarms to appear. These alarms will remain active until you connect the node to the MS-SPRing.



**Note** If you map the K3 byte to another byte (such as E2), you must remap the line cards on either side of the new node or span to the same byte. See the “DLP-F56 Remap the K3 Byte” task on page 5-12.

- Step 16** Log into an MS-SPRing node that will connect to the new node. See the “DLP-F36 Log into CTC” task on page 3-15.
- Step 17** Referring to the diagram created in Step 1, complete the “DLP-F137 Initiate an MS-SPRing Force Ring Switch” task on page 13-6 on the node that will connect to the new node via its west line (port).
- Step 18** Referring to the diagram created in Step 1, complete the “DLP-F137 Initiate an MS-SPRing Force Ring Switch” task on page 13-6 on the node that will connect to the new node via its east line (port).

- Step 19** Click the **Alarms** tab. If unexpected critical or major alarms appear, resolve them before you continue. If necessary, refer to the alarm troubleshooting procedures in the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 20** Following the diagram created in [Step 1](#), remove the fiber connections from the two nodes that will connect to the new node.
- Remove the west fiber from the node that will connect to the east port of the new node. In the [Figure 13-1](#) example, this is Node 1/Slot 4/Port 1.
  - Remove the east fiber from the node that will connect to the west port of the new node. In the [Figure 13-1](#) example, this is Node 3/Slot 12/Port 3.
- Step 21** Connect fibers from the adjacent nodes to the new node following the diagram created in [Step 1](#). Connect the west port of the new node to the east port of its connecting node and the east port of the new node to the west port of the its connecting node.

**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. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.**

- Step 22** Display the newly added node in node view.
- Step 23** If the node does not appear, check DCC and fiber connections.
- Step 24** Click the **Provisioning > MS-SPRing** tabs.
- Step 25** Select the new MS-SPRing and click **Ring Map**. Verify that the new node appears on the Ring Map with the other MS-SPRing nodes, then click **OK**.
- Step 26** From the View menu, choose **Go to Network View** and check the following:
- Click the **Provisioning > MS-SPRing** tabs. Verify that the new node appears in the Node column.
  - Click the **Alarms** tab. Verify that MS-SPRing alarms such as RING MISMATCH, E-W MISMATCH, PRC-DUPID (duplicate node ID), and APSCDFLTK (default K) do not appear.
- If the new node does not appear in the Node column, or if MS-SPRing alarms are displayed, log into the new node and verify that the MS-SPRing is provisioned on it correctly with the information from [Steps 9 and 10](#). If the node still does not appear, or if alarms persist, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 27** Click the **Circuits** tab. Wait until all the circuits are discovered. The circuits that pass through the new node are incomplete.
- Step 28** In network view, right-click the new node and choose **Update Circuits With The New Node** from the shortcut menu. Verify that the number of updated circuits in the dialog box is correct.
- Step 29** If incomplete circuits still appear, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 30** Click the **History** tab. Verify that MS-SPRing\_RESYNC conditions are present for every node in the MS-SPRing.
- Step 31** Complete the “[DLP-F138 Clear an MS-SPRing Force Ring Switch](#)” task on page 13-7 to remove the ring switch from the east MS-SPRing span.
- Step 32** Complete the “[DLP-F138 Clear an MS-SPRing Force Ring Switch](#)” task on page 13-7 to remove the ring switch from the west MS-SPRing span.
- Step 33** Complete the “[NTP-F38 Two-Fiber MS-SPRing Acceptance Test](#)” procedure on page 5-14.

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

---

## DLP-F135 Check MS-SPRing or SNCP for Alarms and Conditions

|                                |                                                                                                                                                                     |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task checks an MS-SPRing or an SNCP for alarms and conditions before performing any major administrative change to the ring such as adding and removing nodes. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                     |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                           |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                              |
| <b>Security Level</b>          | Retrieve or higher                                                                                                                                                  |

---

- Step 1** From the View menu, choose **Go to Network View**. Verify that all MS-SPRing or SNCP spans on the network map are green.
- Step 2** Click the **Alarms** tab. Verify that no critical or major alarms are present, nor any facility alarms, such as LOS, LOF, AIS-L, SF, and SD. In an MS-SPRing, these facility conditions might be reported as minor alarms. Make sure the Filter button in the lower right corner of the window is off (not indented).
- Step 3** Click the **Conditions** tab and click **Retrieve Conditions**. Verify that no ring switches are active. Make sure the Filter button in the lower right corner of the window is off (not indented).
- Step 4** Return to the originating procedure (NTP).
- 

## DLP-F136 Create an MS-SPRing on a Single Node

|                                |                                                                                                                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task creates an MS-SPRing on a single node. Use this task to add a node to an existing MS-SPRing or when you delete and then recreate an MS-SPRing temporarily on one node. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                             |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                  |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                        |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                           |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                           |

---

- Step 1** In node view, click the **Provisioning > MS-SPRing** tabs.
- Step 2** Click **Create**.
- Step 3** Click **OK** in the Suggestion box if it appears.
- Step 4** In the Create MS-SPRing dialog box, enter the MS-SPRing information:
- Ring ID—Enter the MS-SPRing ring ID.

- Node ID—Enter the node ID. Use an ID that is not used by other MS-SPRing nodes.
- Ring Reversion—Enter the ring reversion time of the existing MS-SPRing.
- West Line—Select the slot/port on the node that will connect to the existing MS-SPRing via the node's west line (port).
- East Line—Select the slot/port on the node that will connect to the existing MS-SPRing via the node's east line (port).

**Step 5** Click **OK**.



**Note** Alarms appear and the MS-SPRing is Incomplete until the node is connected to other MS-SPRing nodes.

**Step 6** Return to your originating procedure (NTP).

## DLP-F137 Initiate an MS-SPRing Force Ring Switch

|                                |                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task initiates a Force Ring external switching command on an MS-SPRing port. |
| <b>Tools/Equipment</b>         | None                                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                   |
| <b>Required/As Needed</b>      | As needed                                                                         |
| <b>Onsite/Remote</b>           | Onsite                                                                            |
| <b>Security Level</b>          | Provisioning or higher                                                            |



**Caution**

The Force Switch Away command overrides normal protective switching mechanisms. Applying this command incorrectly can cause traffic outages.



**Caution**

Traffic is not protected during a Force protection switch.

**Step 1** From the View menu, choose **Go to Network View**.

**Step 2** Click the **Provisioning > MS-SPRing** tabs. Select the MS-SPRing.

**Step 3** Click **Edit**.



**Note** If node icons overlap, drag and drop the icons to a new location. You can also return to network view and change the positions of the network node icons. MS-SPRing node icons are based on the network view node icon positions.

**Step 4** To apply a Force switch to the west line:

- Right-click the west MS-SPRing port where you want to switch the MS-SPRing traffic and choose **Set West Protection Operation**.



**Note** For two-fiber MS-SPRings, the squares on the node icons represent the MS-SPRing working and protect channels. You can right-click either channel.

- b. In the Set West Protection Operation dialog box choose **FORCE RING** from the drop-down menu. Click **OK**.
- c. Click **Yes** in the two Confirm MS-SPRing Operation dialog boxes that appear.

On the network graphic, an F appears on the working MS-SPRing channel where you invoked the protection switch. The span lines change color to reflect the forced traffic. Green span lines indicate the new MS-SPRing path, and the lines between the protection switch are purple.

Performing a Force switch generates several conditions including FORCED-REQ-RING and WKSWPR.

**Step 5** To apply a Force switch to the east line:

- a. Right-click the east MS-SPRing port and choose **Set East Protection Operation**.



**Note** If node icons overlap, drag and drop the icons to a new location or return to network view and change the positions of the network node icons. MS-SPRing node icons are based on the network view node icon positions.



**Note** For two-fiber MS-SPRings, the squares on the node icons represent the MS-SPRing working and protect channels. You can right-click either channel.

- b. In the Set East Protection Operation dialog box, choose **FORCE RING** from the drop-down menu. Click **OK**.
- c. Click **Yes** in the two Confirm MS-SPRing Operation dialog boxes that appear.

On the network graphic, an F appears on the working MS-SPRing channel where you invoked the protection switch. The span lines change color to reflect the forced traffic. Green span lines indicate the new MS-SPRing path, and the lines between the protection switch are purple.

Performing a Force switch generates several conditions including FORCED-REQ-RING and WKSWPR.

**Step 6** From the File menu, choose **Close**.

**Step 7** Return to your originating procedure (NTP).

## DLP-F138 Clear an MS-SPRing Force Ring Switch

|                                |                                                                                     |
|--------------------------------|-------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task removes the Force Ring external switching command from an MS-SPRing port. |
| <b>Tools/Equipment</b>         | None                                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                     |
| <b>Required/As Needed</b>      | As needed                                                                           |
| <b>Onsite/Remote</b>           | Onsite                                                                              |
| <b>Security Level</b>          | Provisioning or higher                                                              |

---

**Step 1** From the View menu, choose **Go to Network View**.

**Step 2** Click the **Provisioning > MS-SPRing** tabs.

**Step 3** Select the MS-SPRing and click **Edit**.




---

**Note** If node icons overlap, drag and drop the icons to a new location or return to network view and change the positions of the network node icons. MS-SPRing node icons are based on the network view node icon positions.

---

**Step 4** To clear a Force switch on the west line:

- a. Right-click the MS-SPRing west port where you want to clear the protection switch and choose **Set West Protection Operation**. Ports with a Force switch applied are marked with an F.
- b. In the Set West Protection Operation dialog box, choose **CLEAR** from the drop-down menu. Click **OK**.
- c. In the Confirm MS-SPRing Operation dialog box, click **Yes**.

**Step 5** To clear a Force switch on the east line:

- a. Right-click the MS-SPRing east port where you want to clear the protection switch and choose **Set East Protection Operation**. Ports with a Force switch applied are marked with an F.
- b. In the Set East Protection Operation dialog box, choose **CLEAR** from the drop-down menu. Click **OK**.
- c. In the Confirm MS-SPRing Operation dialog box, click **Yes**.

On the MS-SPRing network graphic, a green and a purple span line connects each node. This is normal for MS-SPRings when protection operations are not invoked.

**Step 6** From the File menu, choose **Close**.

**Step 7** Return to your originating procedure (NTP).

---

## NTP-F84 Remove an MS-SPRing Node

|                                |                                                        |
|--------------------------------|--------------------------------------------------------|
| <b>Purpose</b>                 | This procedure removes a node from an MS-SPRing.       |
| <b>Tools/Equipment</b>         | None                                                   |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F37 Create an MS-SPRing, page 5-12</a> |
| <b>Required/As Needed</b>      | As needed                                              |
| <b>Onsite/Remote</b>           | Onsite                                                 |
| <b>Security Level</b>          | Provisioning or higher                                 |



### Caution

---

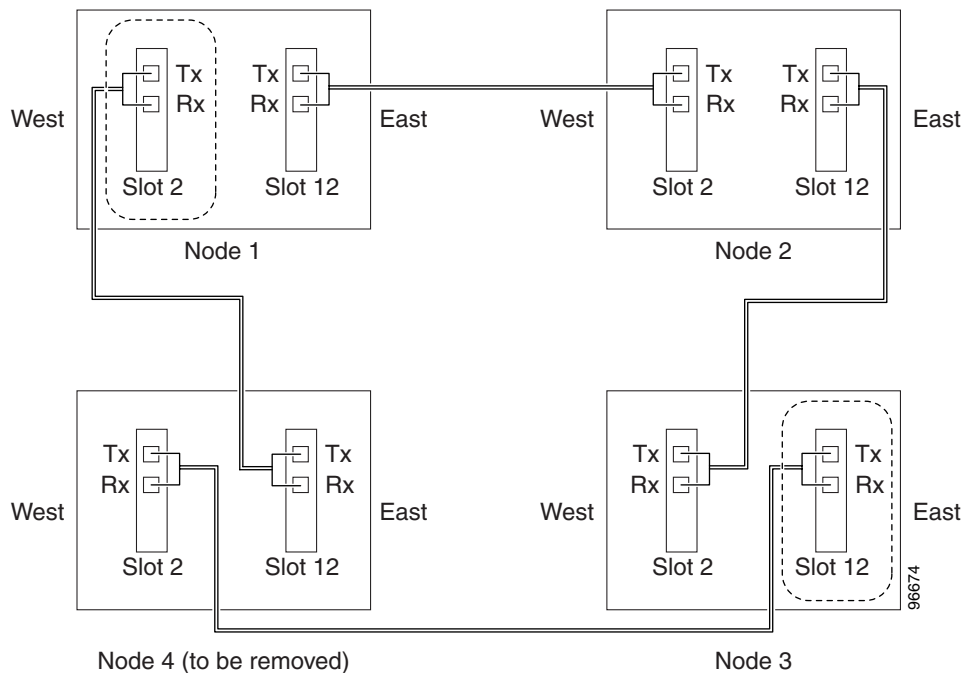
The following procedure minimizes traffic outages during node removal. You will delete all circuits that originate and terminate on the node that will be removed. In addition, you will verify that circuits passing through the node do not enter and exit the node on different VC4s. If they do, you will delete and recreate the circuits, and traffic will be lost on that circuit during this time.

---



- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node you want to remove from the MS-SPRing.
- Step 2** Create a diagram of the MS-SPRing where you will remove the node. You can draw the MS-SPRing manually or print it from CTC by completing the “[DLP-F65 Print CTC Data](#)” task on page 7-2.
- Step 3** Referring to the MS-SPRing diagram, identify the following:
- The node that is connected via its west port to the target (removal) node. For example, if you were removing Node 4 in [Figure 13-2](#), Node 1 is the node connected via its west port to Node 4.
  - The node that is connected via its east port to the target (removal) node. In [Figure 13-2](#), Node 3 is the node connected via its east port to Node 4.

**Figure 13-2 Four-Node, Two-Fiber MS-SPRing Before a Node Is Removed**



- Step 4** Complete the “[DLP-F135 Check MS-SPRing or SNCP for Alarms and Conditions](#)” task on page 13-5 to verify that the MS-SPRing is free of alarms. If trouble is indicated (for example, a major alarm exists), resolve the problem before proceeding. See [Chapter 7, “Manage Alarms”](#) or, if necessary, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 5** From the View menu, choose **Go to Other Node**. Choose the node that you will remove and click **OK**.
- Step 6** Click the **Circuits** tab. If the Scope setting is set to Network, choose **Node** from the Scope drop-down menu. Make sure the Filter button is off (not indented) to ensure that all circuits are visible.
- Step 7** Delete all circuits that originate or terminate on the node. See the “[DLP-E97 Delete Circuits](#)” task on page 9-11.
- Step 8** Complete the “[DLP-F139 Verify MS-SPRing Pass-Through Circuits](#)” task on page 13-10 to verify that circuits passing through the target node enter and exit the node on the same VC4.
- Step 9** Complete the “[DLP-F140 Verify MS-SPRing Extension Byte Mapping](#)” task on page 13-11.

- Step 10** Referring to the diagram created in [Step 1](#), complete the “[DLP-F137 Initiate an MS-SPRing Force Ring Switch](#)” task on [page 13-6](#) at each node that connects to the target (removal) node to force traffic away from it. You must perform a Force switch at each port connected to the target node. For example, in [Figure 13-2](#), you would perform a Force switch on the east port of Node 3 and the west port of Node 1.
- Step 11** Click the **Alarms** tab. If unexpected critical or major alarms appear, resolve them before you continue. If necessary, refer to the alarm troubleshooting procedures in the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 12** Remove the fiber connections between the target node and the two neighboring nodes.

**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. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.**

- Step 13** Reconnect the fiber of the two neighboring nodes directly, west port to east port. For example in [Figure 13-2](#), the east port of Node 3 (Slot 12) connects to the west port of Node 1 (Slot 2).
- Step 14** Complete the “[DLP-F141 Delete an MS-SPRing from a Single Node](#)” task on [page 13-12](#).
- Step 15** If you delete a node that was in a login node group, you will see incomplete circuits for that node in the CTC network view. (Although it is no longer part of the ring, the removed node still reports to CTC until it is no longer in a login node group.) Delete the node from the login node group:
- From the CTC Edit menu, choose **Preferences**.
  - In the Preferences dialog box, click the **Login Node Groups** tab.
  - Click the login node group tab containing the node you want to remove.
  - Click the node you want to remove, then click **Remove**.
  - Click **OK**.
- Step 16** Complete the “[DLP-F138 Clear an MS-SPRing Force Ring Switch](#)” task on [page 13-7](#) to remove the Force protection switches.
- Step 17** Complete the “[NTP-F38 Two-Fiber MS-SPRing Acceptance Test](#)” procedure on [page 5-14](#).
- Stop. You have completed this procedure.**

## DLP-F139 Verify MS-SPRing Pass-Through Circuits

|                                |                                                                                                                                         |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task verifies that circuits passing through a node that will be removed from an MS-SPRing enter and exit the node on the same VC4. |
| <b>Tools/Equipment</b>         | None                                                                                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                         |
| <b>Required/As Needed</b>      | As needed                                                                                                                               |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                        |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                  |

- 
- Step 1** In the Circuits window, choose a circuit that passes through the MS-SPRing node that will be removed and click **Edit**.
- Step 2** In the Edit Circuits window, check **Show Detailed Map**.
- Step 3** Verify that the VC4 mapping on the node's east and west ports is the same. For example, if a circuit is mapping on the west port s2/p1/V1 (Slot 2, Port 1, VC4 1), verify that the mapping is VC4 1 on the east port. If the circuit displays different VC4s on the east and west ports, write down the name of the circuit.
- Step 4** Repeat Steps 1 to 3 for each circuit in the Circuits tab.
- Step 5** Delete and recreate each circuit recorded in Step 3 that entered/exited the node on different VC4s. To delete the circuit, see the [“DLP-E97 Delete Circuits” task on page 9-11](#). To create the circuit, see [Chapter 6, “Create Circuits.”](#)
- Step 6** Return to your originating procedure (NTP).
- 

## DLP-F140 Verify MS-SPRing Extension Byte Mapping

|                                |                                                                                                                                                                  |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task verifies that the extension byte mapping is the same on MS-SPRing trunk (span) cards that will be connected after a node is removed from an MS-SPRing. |
| <b>Tools/Equipment</b>         | STM-N cards must be installed at one or both ends of the MS-SPRing span that will be connected.                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                  |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                        |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                 |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                           |

- 
- Step 1** In network view, double-click one of the MS-SPRing nodes with STM-N trunk cards that will be reconnected after an MS-SPRing node removal.
- Step 2** Double-click one STM-N MS-SPRing trunk card to open the card view.
- Step 3** Click the **Provisioning > MS** tab.
- Step 4** Under MS-SPRing Ext Byte, record the byte that is displayed.
- Step 5** Repeat Steps 2 through 4 for the second STM-N trunk card.
- Step 6** If the trunk cards on each end of the new span are not mapped to the same MS-SPRing extension byte, remap the extension byte of the trunk cards at one of the nodes. See the [“DLP-F56 Remap the K3 Byte” task on page 5-12](#).
- Step 7** Return to your originating procedure (NTP).
-

## DLP-F141 Delete an MS-SPRing from a Single Node

|                                |                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task deletes an MS-SPRing from a node after you remove the node from the MS-SPRing. |
| <b>Tools/Equipment</b>         | None                                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                          |
| <b>Required/As Needed</b>      | As needed                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                                   |

- 
- Step 1** In network view, double-click the node that was removed from the MS-SPRing. If you are already in node view, continue with Step 2.
- Step 2** Click the **Provisioning > MS-SPRing** tabs.
- Step 3** Highlight the ring and click **Delete**.
- Step 4** In the Suggestion dialog box, click **OK**.
- Step 5** In the confirmation message, confirm that this is the ring you want to delete. If so, click **Yes**.
- Step 6** Return to your originating procedure (NTP).
- 

## NTP-F85 Add an SNCP Node

|                                |                                                         |
|--------------------------------|---------------------------------------------------------|
| <b>Purpose</b>                 | This procedure adds a node to an existing SNCP.         |
| <b>Tools/Equipment</b>         | None                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F39 Provision SNCP Nodes, page 5-20</a> |
| <b>Required/As Needed</b>      | As needed                                               |
| <b>Onsite/Remote</b>           | Onsite                                                  |
| <b>Security Level</b>          | Provisioning or higher                                  |



**Note** You can add only one node at a time. Perform these steps onsite and not from a remote location.

---

- Step 1** Verify the card installation on the new node. See the “[NTP-F22 Verify Card Installation](#)” procedure on [page 4-2](#). Check that the STM-N cards that will serve as the SNCP line cards match the SNCP optical rate. For example, if the SNCP is STM-16, the new node must have STM-16 cards installed. If the STM-N cards are not installed or the rate does not match the SNCP, complete the “[NTP-F11 Install the STM-N Cards](#)” procedure on [page 2-4](#) to install them.
- Step 2** Verify that fiber is available to connect the new node to the existing nodes.
- Step 3** Complete the “[NTP-F32 Verify Node Turn Up](#)” procedure on [page 5-2](#).
- Step 4** Log into a node in the network where you want to add an SNCP node. See the “[DLP-F36 Log into CTC](#)” task on [page 3-15](#) for instructions. In order to have CTC visibility to the node after it is added, you must be an authorized user on the node and you must have IP connectivity to the node.

- Step 5** Check to see if the new node IP address is on the same subnet as other nodes in the network. If two or more PCs are directly connected to different nodes that belong to the same subnet and Craft Access Only is not checked under Gateway Settings, add static routes on the gateway ONS 15600 SDH nodes. Use the following settings:
- Destination IP address: *Local-PC-IP-address*
  - Net Mask: **255.255.255.255**
  - Next Hop: *IP-address-of-the-Cisco-ONS-15600-SDH*
  - Cost: **1**
- See the “DLP-F44 Create a Static Route” task on page 4-10.
- Step 6** Complete the “DLP-F135 Check MS-SPRing or SNCP for Alarms and Conditions” task on page 13-5. If trouble is indicated (for example, a major alarm exists), resolve the problem before proceeding. See Chapter 7, “Manage Alarms,” or, if necessary, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 7** Log into the new node. If the node has a LAN connection and appears on the network map, from the View menu, choose **Go to Other Node**, then enter the new node. If the new node is not connected to the network, you will need to log into it directly. See the “DLP-F36 Log into CTC” task on page 3-15.
- Step 8** Click the **Alarms** tab. Verify that no critical or major alarms are present, nor any facility alarms, such as LOS, LOF, AIS-L, SF, or SD. If trouble is indicated (for example, a major alarm exists), resolve the problem before proceeding. See Chapter 7, “Manage Alarms,” or, if necessary, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 9** (Optional) Create test circuits, making sure they pass through the SNCP line cards, and run test traffic through the node to ensure the cards are functioning properly. See the “NTP-F43 Create a Manually Routed Optical Circuit” procedure on page 6-11.
- Step 10** Create the DCC terminations on the new node. See the “DLP-F53 Provision SDH DCC Terminations” task on page 5-6.
- Step 11** Complete the “DLP-F142 Switch All SNCP Circuits on a Span” task on page 13-16 to switch traffic away from the span that will be broken to connect to the new node.

**Caution**


---

Traffic is not protected during a protection switch.

---

**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. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.**

---

- Step 12** Two nodes will connect directly to the new node; remove their fiber connections:
- a. Remove the east fiber connection from the node that will connect to the west port of the new node.
  - b. Remove the west fiber connection from the node that will connect to the east port of the new node.
- Step 13** Replace the removed fibers with fibers connected to the new node.

- Step 14** Check to see if your new node's IP address is on the same subnet as other nodes in the network. If two or more PCs are directly connected to different nodes that belong to the same subnet, you need to add static routes on the gateway ONS 15600 SDH nodes. Use the following settings:
- Destination IP address: *Local-PC-IP-address*
  - Net Mask: **255.255.255.255**
  - Next Hop: *IP-address-of-the-Cisco-ONS-15600-SDH*
  - Cost: **1**
- See the “[DLP-F44 Create a Static Route](#)” task on page 4-10.
- Step 15** Log out of CTC and log back into a node in the network. See the “[DLP-F36 Log into CTC](#)” task on page 3-15 for instructions.
- Step 16** From the View menu choose **Go to Network View** to display the SNCP nodes. The new node should appear in the network map. Wait for a few minutes to allow all the nodes to appear.
- Step 17** Click the **Circuits** tab and wait for all the circuits to appear, including spans. Count the number of incomplete circuits.
- Step 18** In the network view, right-click the new node and choose **Update Circuits With New Node** from the list of options. Wait for the confirmation dialog box to appear. Verify that the number of updated circuits displayed in the dialog box is correct.
- Step 19** Click the **Circuits** tab and verify that no incomplete circuits are present.
- Step 20** Use the “[DLP-F143 Clear a Switch for all SNCP Circuits on a Span](#)” task on page 13-14 to clear the protection switch.




---

**Note** This will clear switches for both spans.

---

- Step 21** Complete the “[NTP-F40 SNCP Acceptance Test](#)” procedure on page 5-21.  
**Stop. You have completed this procedure.**
- 

## DLP-F143 Clear a Switch for all SNCP Circuits on a Span

|                                |                                                                           |
|--------------------------------|---------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task clears a Force traffic switch for all circuits on an SNCP span. |
| <b>Tools/Equipment</b>         | None                                                                      |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                          |
| <b>Required/As Needed</b>      | As needed                                                                 |
| <b>Onsite/Remote</b>           | Onsite                                                                    |
| <b>Security Level</b>          | Provisioning or higher                                                    |

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Right-click the span where you want to clear the switch ([Figure 13-3](#)).
- Step 3** Choose **Circuits** from the shortcut menu.
- Step 4** In the Circuits on Span dialog box, select **CLEAR** to remove a previously set switch command.
- Step 5** In the confirmation dialog box, click **Yes**.

In the Circuits on Span dialog box, the Switch State listed for all circuits is CLEAR.

**Step 6** Return to your originating procedure (NTP).

## NTP-F86 Remove an SNCP Node

|                                |                                                         |
|--------------------------------|---------------------------------------------------------|
| <b>Purpose</b>                 | This procedure removes a node from an SNCP.             |
| <b>Tools/Equipment</b>         | None                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F39 Provision SNCP Nodes, page 5-20</a> |
| <b>Required/As Needed</b>      | As needed                                               |
| <b>Onsite/Remote</b>           | Onsite                                                  |
| <b>Security Level</b>          | Provisioning or higher                                  |



### Caution

The following procedure minimizes traffic outages during node removals. You will delete all circuits that originate and terminate on the node that will be removed.



### Caution

If you remove a node that is the only building integrated timing supply (BITS) timing source for the ring, you will remove the only source of synchronization for all the nodes in that ring. Circuits that leave the ring to connect to other networks that are synchronized to Stratum 1 will experience a high level of pointer adjustments, which might adversely affect customer service.

- Step 1** Draw a diagram of the SNCP where you will remove the node. In the diagram, identify the following:
- The node that is connected through its west port to the node that will be removed.
  - The node that is connected through its east port to the node that will be removed.
- Step 2** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at a node in the network where you will remove the SNCP node.
- Step 3** Complete the [“DLP-F135 Check MS-SPRing or SNCP for Alarms and Conditions” task on page 13-5](#).
- Step 4** At each SNCP node, ensure that all fibers are securely connected to the appropriate ports.
- If trouble is indicated (for example, a critical or major alarm exists), resolve the problem before proceeding. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.
- Step 5** Complete the [“DLP-F142 Switch All SNCP Circuits on a Span” task on page 13-16](#) for all spans connected to the node you are removing.



### Caution

Traffic is not protected during a Force protection switch.

- Step 6** See the [“DLP-E97 Delete Circuits” task on page 9-11](#) and [Chapter 6, “Create Circuits”](#) to delete and recreate each circuit that passed through the deleted node on different VC4s.
- Step 7** Remove all fiber connections between the node being removed and the two neighboring nodes.
- Step 8** Reconnect the fiber of the two neighboring nodes directly, west port to east port.

**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. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.**

- Step 9** If you delete a node that was in a login node group, you will see incomplete circuits for that node in the CTC network view. (Although it is no longer part of the ring, the removed node still reports to CTC until it is no longer in a login node group.) Delete the node from the login node group:
- a. From the CTC Edit menu, choose **Preferences**.
  - b. In the Preferences dialog box, click the **Login Node Groups** tab.
  - c. Click the login node group tab containing the node you want to remove.
  - d. Click the node you want to remove, then click **Remove**.
  - e. Click **OK**.
- Step 10** Exit CTC and log back in. See the “[DLP-F36 Log into CTC](#)” task on page 3-15 for instructions.
- Step 11** Complete the “[DLP-F135 Check MS-SPRing or SNCP for Alarms and Conditions](#)” task on page 13-5.
- Step 12** See the “[DLP-E97 Delete Circuits](#)” task on page 9-11 and Chapter 6, “[Create Circuits](#)” to delete and recreate each circuit that passed through the deleted node on different VC4s.
- Step 13** Complete the “[DLP-F144 Verify Timing in a Reduced Ring](#)” task on page 13-18.
- Step 14** Complete the “[DLP-F143 Clear a Switch for all SNCP Circuits on a Span](#)” task on page 13-14 to clear the protection switch.
- Step 15** Click the **Circuits** tab and verify that no incomplete circuits are present.
- Step 16** Complete the “[NTP-F40 SNCP Acceptance Test](#)” procedure on page 5-21.
- Stop. You have completed this procedure.**

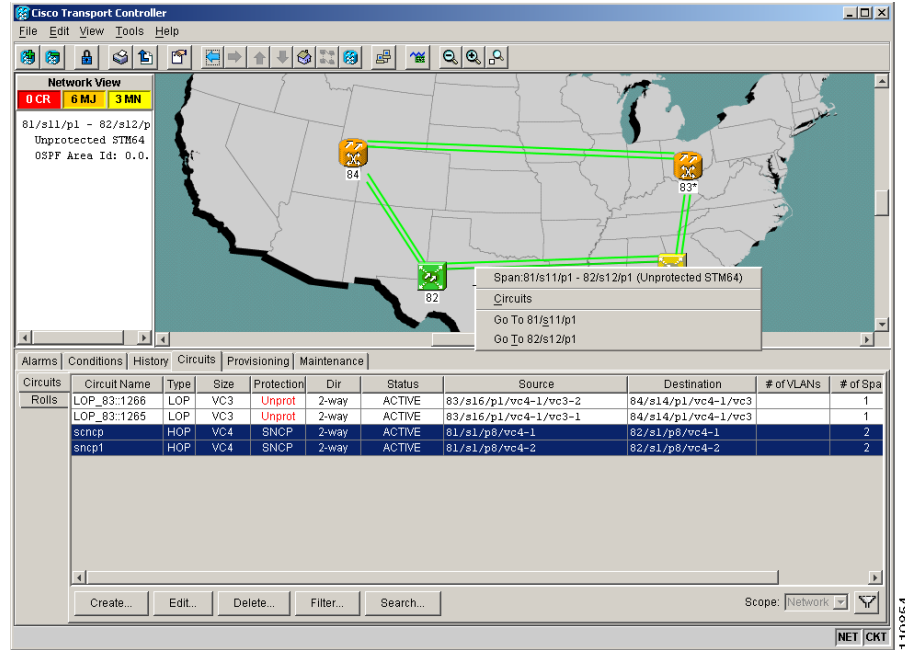
## DLP-F142 Switch All SNCP Circuits on a Span

|                                |                                                                                                                                       |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task applies a Force external switching command to all circuits on an SNCP span. The Force switches the traffic to another span. |
| <b>Tools/Equipment</b>         | None                                                                                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC</a> , page 3-15                                                                                      |
| <b>Required/As Needed</b>      | As needed                                                                                                                             |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                |

- Step 1** From the View menu, choose **Go To Network View**.
- Step 2** Right-click the span where you want to switch SNCP traffic ([Figure 13-3](#)).



Figure 13-3 Using the Span Shortcut Menu to Display Circuits

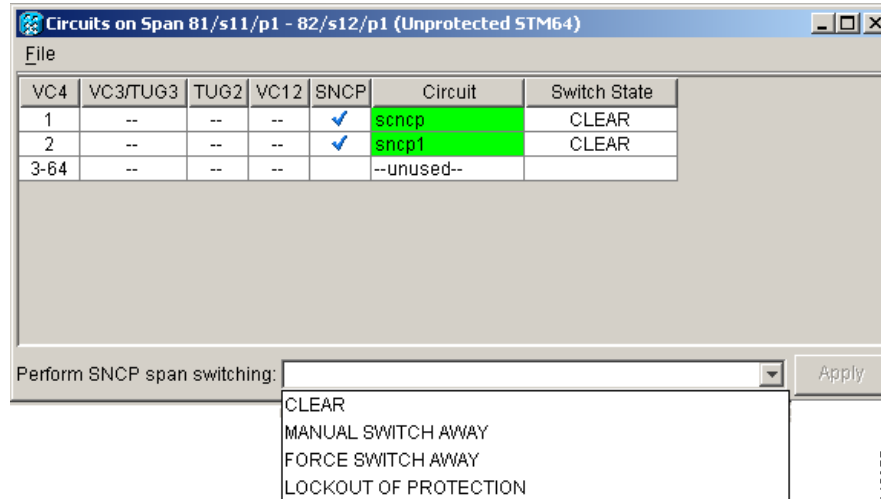


- Step 3** Choose **Circuits** from the shortcut menu.
- Step 4** In the Circuits on Span dialog box, select **Force Switch Away** (Figure 13-4).



**Caution** The Force command overrides normal protective switching mechanisms. Applying this command incorrectly can cause traffic outages.

Figure 13-4 Switching an SNCP Path



- Step 5** In the confirmation dialog box, click **Yes**.  
In the Circuits on Span dialog box, the Switch State listed for all circuits is FORCE.

**Step 6** Return to your originating procedure (NTP).

---

## DLP-F144 Verify Timing in a Reduced Ring

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| <b>Purpose</b>                 | This task verifies timing in a reduced ring.    |
| <b>Tools/Equipment</b>         | None                                            |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a> |
| <b>Required/As Needed</b>      | As needed                                       |
| <b>Onsite/Remote</b>           | Onsite/remote                                   |
| <b>Security Level</b>          | Provisioning or higher                          |

---

**Step 1** In node view, click the **Provisioning > Timing** tabs.

**Step 2** Observe the Timing Mode field to see the type of timing (Line, External) that has been set for that node.

**Step 3** Scroll down to the Reference Lists and observe the NE Reference fields to see the timing references provisioned for that node.

**Step 4** If the removed node was the BITS timing source, perform the following:

- a. Look for another node on the ring that can be used as a BITS source and set that node's Timing Mode to **External**. Choose that node as the primary timing source for all other nodes in the ring. See the "[DLP-F118 Change the Node Timing Source](#)" task on page 10-17.
- b. If no node in the reduced ring can be used as a BITS source, choose one node to be your internal timing source. Set that node's Timing Mode to **External** and set the BITS 1 and 2 State to **OOS**. Then, choose line timing for all other nodes in the ring. This will force the first node to be their primary timing source. See the "[DLP-F118 Change the Node Timing Source](#)" task on page 10-17.



**Note** This type of timing conforms to Stratum 3E requirements and is not considered optimal.

---

**Step 5** If the removed node was not the BITS timing source, provision the adjacent nodes to line timing using SDH links (east and west) as timing sources, traceable to the node with external BITS timing.

**Step 6** Return to your originating procedure (NTP).

---



## Maintain the Node

---

This chapter provides procedures for maintaining the Cisco ONS 15600 SDH.

### Before You Begin

Before performing any of the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15600 SDH Troubleshooting Guide* as necessary. This section lists the chapter procedures (NTPs). Turn to a procedure to view its tasks (DLPs).

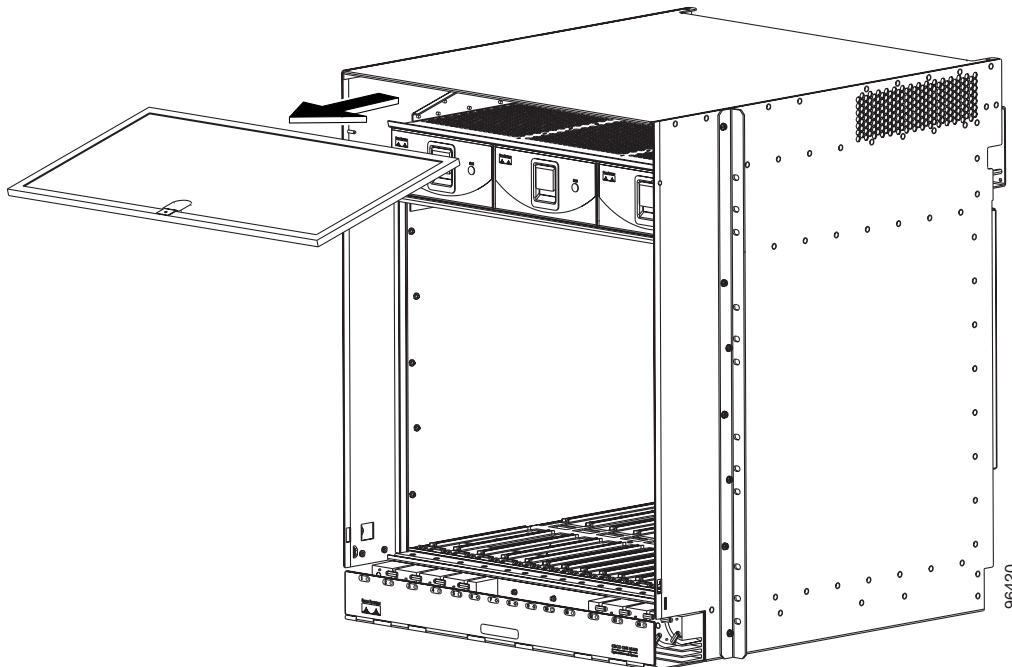
1. [NTP-F87 Inspect and Replace the Disposable Air Filter, page 14-2](#)—Complete as needed.
2. [NTP-F88 Back Up the Database, page 14-3](#)—Complete as needed.
3. [NTP-F89 Restore the Database, page 14-5](#)—Complete as needed.
4. [NTP-F90 Initiate a Manual or Force Switch in a 1+1 Protection Group, page 14-7](#)—Complete as needed.
5. [NTP-F91 Inhibit Protection Switching in a 1+1 Protection Group, page 14-11](#)—Complete as needed.
6. [NTP-F92 Initiate an External Switching Command on an SNCP Circuit, page 14-13](#)—Complete as needed.
7. [NTP-F93 Offload the Security Audit Trail Log, page 14-17](#)—Complete as needed.
8. [NTP-F94 Clean Fiber Connectors and Adapters, page 14-18](#)—Complete as needed.
9. [NTP-F95 Reset the TSC Card Using CTC, page 14-21](#)—Complete as needed.
10. [NTP-F96 Change the Node Timing Reference, page 14-22](#)—Complete as needed.

# NTP-F87 Inspect and Replace the Disposable Air Filter

|                                |                                                                                                                                                            |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure ensures that the air filter is free from dirt and dust to allow optimum air flow and prevent dirt and dust from entering the ONS 15600 SDH. |
| <b>Tools/Equipment</b>         | Extra filters, pinned hex key                                                                                                                              |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                       |
| <b>Required/As Needed</b>      | Inspection required every 30 days. Replace as needed.                                                                                                      |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                     |
| <b>Security Level</b>          | None                                                                                                                                                       |

- 
- Step 1** Verify that you are replacing a disposable air filter. The disposable filter is made of spun white polyester that is flame retardant.
- Step 2** Remove the front door of the shelf assembly. If the front door is already removed, continue with [Step 3](#).
- Locate the latches on the bottom left and right sides of the door.
  - Pull each latch outward to release the latch.
  - Swing the door up to open it.
  - Lift the door off its hinge pins and remove it. Set the door aside so you can reinstall it after you complete this procedure.
- Step 3** Gently remove the air filter from the shelf assembly ([Figure 14-1](#)). Be careful not to dislodge any dust that might have collected on the filter.

**Figure 14-1 Removing a Disposable Air Filter (Front Door Removed)**



- Step 4** Visually inspect the white filter material for dirt and dust.

- Step 5** 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 top of the shelf assembly. Make sure that the front of the filter is even with the front of the shelf assembly and that the air flow indicators on the filter point downwards.
- Step 6** Reinstall the front door of the shelf assembly.
- a. Insert the front door (removed in [Step 2](#)) into the hinge pins on the shelf assembly.
  - b. Lower the door onto the face of the shelf assembly.
  - c. Pull the metal latches on the door outward and gently push the door toward the shelf, making sure no optical cables are caught or pinched in the door.
  - d. Click the latches in place and release.
- Stop. You have completed this procedure.**
- 

## NTP-F88 Back Up the Database

|                                |                                                                                                                                                                                     |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure stores a backup version of the Timing and Shelf Controller (TSC) software database on a workstation running Cisco Transport Controller (CTC) or on a network server. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                |
| <b>Required/As Needed</b>      | Required. Cisco recommends performing a database backup at approximately weekly intervals and prior to and after configuration changes.                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                    |
| <b>Security Level</b>          | Superuser                                                                                                                                                                           |



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

---

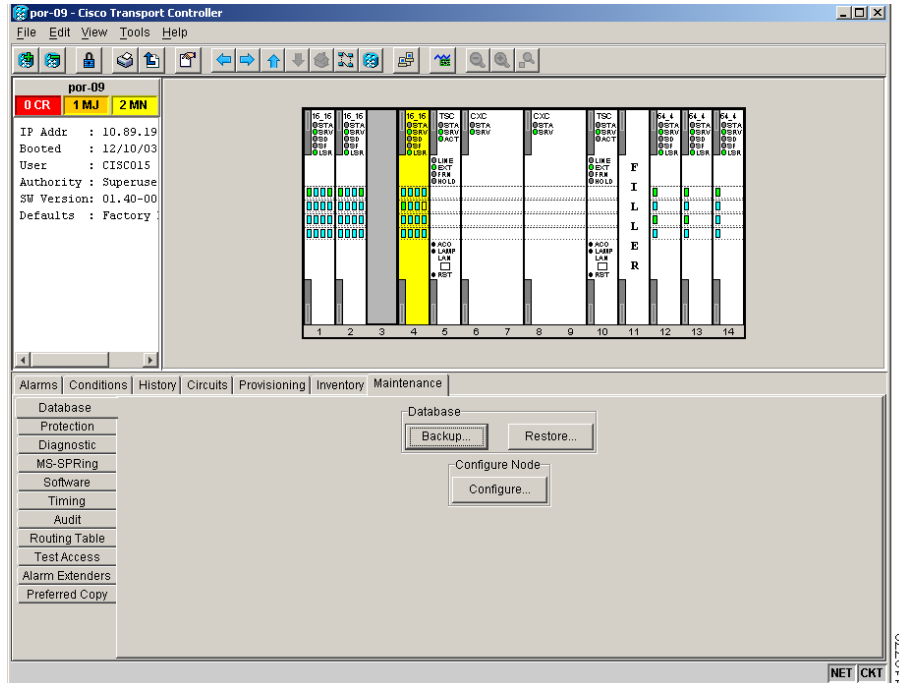


**Note** The following parameters are not backed up and restored: Node name, subnet mask and gateway, and Internet Inter-ORB Protocol (IIOP) port. If you change the node name and then restore a backed up database with a different node name, the circuits will map to the new node name. Cisco recommends keeping a record of the old and new node names.

---

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on [page 3-15](#) at the node where you are performing the database backup. If you are already logged in, continue with [Step 2](#).
- Step 2** In node view, click the **Maintenance > Database** tabs ([Figure 14-2](#)).

Figure 14-2 Backing Up the TSC Database



**Step 3** Click **Backup**.

**Step 4** In the Database Backup window, click **Browse**.

**Step 5** In the Save window, navigate to a local PC directory or network directory and type a database name (such as database.db) in the File name field.



**Note** The database file must have a .db extension.

**Step 6** Click **Save**.

**Step 7** In the Database Backup window, click the **Alarms** check box, and/or **Performance** check box to choose these database items in addition to provisioning information (Figure 14-3).



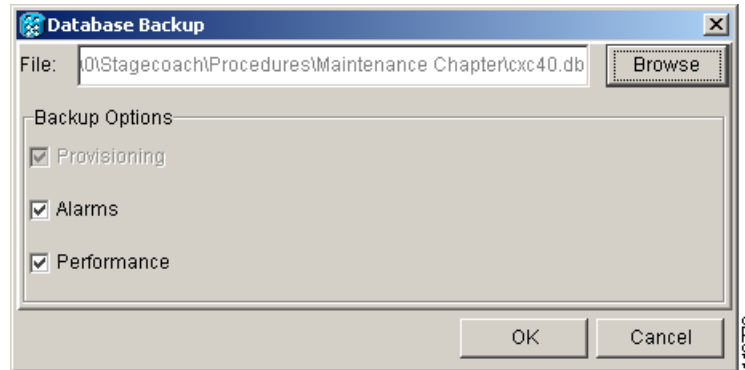
**Note** Provisioning is a default component of the backup file.

**Step 8** Click **OK**.

**Step 9** If you are overwriting an existing file, click **OK** in the confirmation dialog box.

**Step 10** Click **OK** in the Database Backup window.

Figure 14-3 Database Filename Entered and Backup Options Checked



Stop. You have completed this procedure.

## NTP-F89 Restore the Database

|                                |                                                         |
|--------------------------------|---------------------------------------------------------|
| <b>Purpose</b>                 | This procedure restores the TSC software database.      |
| <b>Tools/Equipment</b>         | None                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F88 Back Up the Database, page 14-3</a> |
| <b>Required/As Needed</b>      | As needed                                               |
| <b>Onsite/Remote</b>           | Onsite or remote                                        |
| <b>Security Level</b>          | Superuser                                               |



### Note

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



### Note

You need separate backups for each node in a circuit path to be able to restore the entire circuit.

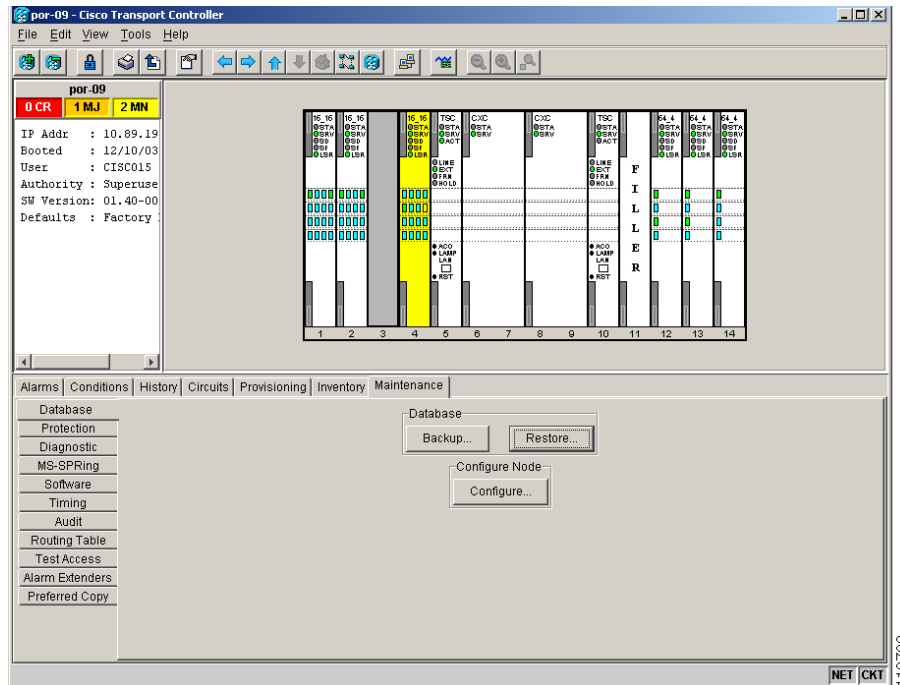


### Note

The ONS 15600 SDH does not allow a database from one node to be restored to another node. A database from one node can be installed on another node by using the Configure Node option in the Database pane. See the [“NTP-F30 Configure a Node Using an Existing Database” procedure on page 4-22](#).

- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at the node where you are performing the database restore. If you are already logged in, continue with [Step 2](#).
- Step 2** In node view, click the **Maintenance > Database** tabs ([Figure 14-4](#)).

Figure 14-4 Restoring a Backup TSC Database to the Node



**Step 3** Click **Restore**.

**Step 4** In the Database Restore window, click the **Alarms** check box and/or **Performance** check box to choose these database items in addition to provisioning information.



**Note** You can back up five databases as part of one backup file package; therefore the ONS 15600 SDH allows you to select all of the files or a subset of the files to restore as part of the restore package.

**Step 5** In the Database Restore window, click **Browse**.

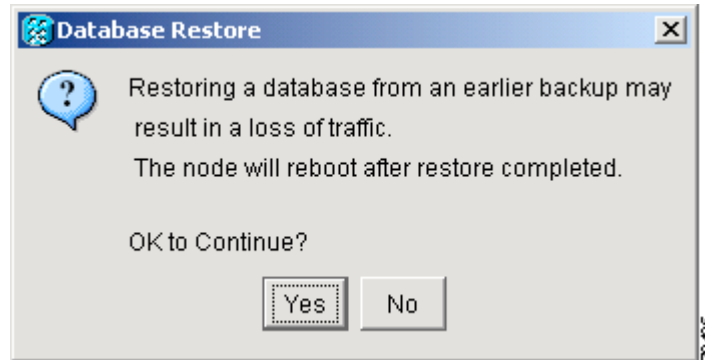
**Step 6** Navigate to the backup file stored on the workstation hard drive or on network storage.  
The file has a .db extension.

**Step 7** Click the database file to highlight it.

**Step 8** Click **Open**. The Database Restore dialog box appears. Opening a restore file from another node or a network location rather than the local workstation hard drive affects traffic on the login node.  
[Figure 14-5](#) shows the traffic loss warning dialog box.



Figure 14-5 Restoring the Database: Traffic Loss Warning



**Step 9** Click **Yes**.

The Database Restore window monitors the file transfer. Wait for the file to complete the transfer to the TSC.

**Step 10** Click **OK** in the Lost connection to node, changing to Network View dialog box. Wait for the node to reconnect.

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

## NTP-F90 Initiate a Manual or Force Switch in a 1+1 Protection Group

|                                |                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure initiates a Manual or Force external switch on a 1+1 port protection group. A Manual switch will switch traffic if the path has an error rate less than the signal degrade (SD). A Force switch will switch traffic even if the path has SD or signal fail (SF) conditions. A Force switch has a higher priority than a Manual switch. |
| <b>Tools/Equipment</b>         | Installed and provisioned STM-N cards                                                                                                                                                                                                                                                                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F27 Create a 1+1 (LMSP) Protection Group, page 4-19</a>                                                                                                                                                                                                                                                                               |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                                                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                                                                                |

**Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 on the ONS 15600 SDH node where you want to switch the protection group. If you are already logged in, continue with Step 2.

**Step 2** Complete the “[DLP-F145 Initiate a Manual Switch on a Port in a 1+1 Protection Group](#)” task on page 14-8 as needed.

**Step 3** Complete the “[DLP-F146 Initiate a Force Switch on a Port in a 1+1 Protection Group](#)” task on page 14-9 as needed.

**Step 4** Complete the “[DLP-F147 Clear a Manual or Force Switch in a 1+1 Protection Group](#)” task on page 14-10 as needed.

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

---

## DLP-F145 Initiate a Manual Switch on a Port in a 1+1 Protection Group

|                                |                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure applies the Manual external switching command to a 1+1 protection scheme. |
| <b>Tools/Equipment</b>         | Installed STM-N cards                                                                    |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                          |
| <b>Required/As Needed</b>      | As needed                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                                   |

---

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

**Step 2** In the Protection Group area, select the protection group that contains the port you want to switch. In the Selected Group area, each port is identified as Working or Protect. Each port also has a status:

- Active—The port is carrying traffic.
- Standby—The port is not carrying traffic.
- [MANUAL TO WORKING]—A Manual switch has moved traffic to the Working port.
- [MANUAL TO PROTECT]—A Manual switch has moved traffic to the Protect port.
- [FORCE TO WORKING]—A Force switch has moved traffic to the Working port.
- [FORCE TO PROTECT]—A Force switch has moved traffic to the Protect port.

The normal assignment status is for one port assignment to be Working/Active and for the other to be Protect/Standby.

**Step 3** In the Selected Group, click the port that you want to switch. For example, if you want to switch traffic from the working port to the protect port, click the working port.

**Step 4** Click **Manual**.

If the Manual switch is successful, CTC shows both ports as [MANUAL TO PROTECT] (or [MANUAL TO WORKING]). This indicates that the ONS 15600 SDH system has been able to carry out the switch request and has moved traffic from one port to the other.

If the Bidirectional switching check box on the Provisioning > Protection tab in node view is checked, both the near-end and far-end nodes switch to the designated protection ports. For example, if the near-end node has a loss of signal (LOS), it switches to the protection port and transmits a switch request to the far-end node to switch to the protection port also. This ensures that both nodes process traffic from the same span.

If the Bidirectional switching check box is not selected, the near-end and far-end nodes switch independently of each other. For example, if the near-end node has an LOS on its working port, it switches to the protection port. If the far-end node does not have a LOS, traffic remains on the working port.

If the Manual switch is not successful, CTC continues to show the ports as active and standby, and an alarm such as FAILTOSWS is raised. This failure occurs because the target port is not available and troubleshooting is required. For information about troubleshooting, refer to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

- Step 5** Click the node view **Conditions** tab and click **Retrieve** to see new events. The switch procedure raises a MANUAL-REQ-SPAN condition that is visible in the window unless Not Alarmed conditions have been filtered out from the view.
- Step 6** Click the node view **Alarms** tab.
- If any traffic loss alarms occur or if a switching failure alarm such as FAILTOSWS occurs, troubleshoot the alarms that have prevented the switch and attempt the switch procedure again.
- Step 7** Return to your originating procedure (NTP).

## DLP-F146 Initiate a Force Switch on a Port in a 1+1 Protection Group

|                                |                                                                                    |
|--------------------------------|------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task applies the Force external switching command to a 1+1 protection scheme. |
| <b>Tools/Equipment</b>         | Installed STM-N cards                                                              |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                    |
| <b>Required/As Needed</b>      | As needed                                                                          |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                   |
| <b>Security Level</b>          | Provisioning or higher                                                             |

- Step 1** In node view, click the **Maintenance > Protection** tabs.
- Step 2** In the Protection Group area, select the protection group that contains the port you want to switch. In the Selected Group area, each port is identified as Working or Protect. Each port also has a status:
- Active—The port is carrying traffic.
  - Standby—The port is not carrying traffic.
  - [MANUAL TO WORKING]—A Manual switch has moved traffic to the working port.
  - [MANUAL TO PROTECT]—A Manual switch has moved traffic to the protect port.
  - [FORCE TO WORKING]—A Force switch has moved traffic to the working port.
  - [FORCE TO PROTECT]—A Force switch has moved traffic to the protect port.
- The normal status is for one port to be Working/Active and the other to be Protect/Standby.
- Step 3** In the Selected Group area, select the port that you want to switch. For example, if you want to switch traffic from the working port to the protect port, click the working port.
- Step 4** Click **Force**.
- If the Force switch is successful, CTC shows both ports as [FORCE TO PROTECT] (or [FORCE TO WORKING]). This indication is shown whether or not the ONS 15600 SDH system has been able to move traffic from one port to the other.

If the Bidirectional switching check box in node view under **Provisioning > Protection** tabs, is checked, both the near-end and far-end nodes switch to the designated protection ports. For example, if the near-end node has a LOS, it switches to the protection port and transmits a switch request to the far-end node to switch to the protection port also. This ensures that both nodes process traffic from the same span.

If the Bidirectional switching check box is not selected, the near-end and far-end nodes switch independently of each other. For example, if the near-end node has an LOS on its working port, it switches to the protection port. If the far-end node does not have a LOS, traffic remains on the working port.

If the Force switch is unsuccessful, clear the switch immediately using the “[DLP-F147 Clear a Manual or Force Switch in a 1+1 Protection Group](#)” task on page 14-10, and then troubleshoot the problems preventing the switch by referring to the *Cisco ONS 15600 SDH Troubleshooting Guide*.

- Step 5** Click the node view **Conditions** tab and click **Retrieve** to see new events. The switch procedure raises a FORCED-REQ-SPAN condition that is visible in the window unless Not Alarmed conditions have been filtered out from the view.
- Step 6** Click the **Alarms** tab.
- No new traffic loss alarms or failure-to-switch alarms should have been raised.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F147 Clear a Manual or Force Switch in a 1+1 Protection Group

|                                |                                                                                                                                                                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | For ports configured for revertive switching, this task clears the Manual or Force switch and restores traffic to the preswitch port. For nonrevertive ports, it clears the switch but does not revert traffic to the previous port. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                 |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F145 Initiate a Manual Switch on a Port in a 1+1 Protection Group</a> , page 14-8 or<br><a href="#">DLP-F146 Initiate a Force Switch on a Port in a 1+1 Protection Group</a> , page 14-9                             |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                            |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                     |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                               |

---

- Step 1** In node view, click the **Maintenance > Protection** tabs.
- Step 2** In the Protection Groups area, choose the protection group that contains the card you want to clear.
- Step 3** In the Selected Group area, choose the card you want to clear.
- Step 4** In the Switch Command area, click **Clear**.
- Step 5** Click **Yes** in the confirmation dialog box.
- The Manual or Force switch is cleared.

**Step 6** Return to your originating procedure (NTP).

---

## NTP-F91 Inhibit Protection Switching in a 1+1 Protection Group

|                                |                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure describes how to inhibit 1+1 protection switching by applying a lockon or lockout. A lockon can be applied to the working port; it prevents traffic from switching to the protect port in the protection group. Lockouts can only be applied to protect ports; a lockout prevents traffic from switching to the protect port under any circumstance. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                                                                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F27 Create a 1+1 (LMSP) Protection Group, page 4-19</a>                                                                                                                                                                                                                                                                                             |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                                                                                           |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                                                                                                    |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                                                                                              |

---

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node where you want to inhibit 1+1 group protection switching. If you are already logged in, continue with Step 2.
- Step 2** To prevent traffic from switching to the protect port in the protection group, complete the “[DLP-F148 Apply a Lockon in a 1+1 Group](#)” task on page 14-11.
- Step 3** To prevent traffic from switching to the protect port under any circumstances, complete the “[DLP-F149 Apply a Lockout in a 1+1 Group](#)” task on page 14-12 to lock out the protect port.
- Step 4** Complete the “[DLP-F150 Clear a Lockon or Lockout in a 1+1 Protection Group](#)” task on page 14-13 as needed.



**Note** Refer to the *Cisco ONS 15600 SDH Reference Manual* for a description of protection switching and switch state priorities.

---

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

---

## DLP-F148 Apply a Lockon in a 1+1 Group

|                                |                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task locks traffic onto a working port to prevent traffic from switching to the protect port in a protection group. |
| <b>Tools/Equipment</b>         | None                                                                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                          |
| <b>Required/As Needed</b>      | As needed                                                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                                                                   |




---

**Note** A lockon can be applied to a working port only.

---

- Step 1** In node view, click the **Maintenance > Protection** tabs.
- Step 2** In the Protection Groups area, select the protection group where you want to apply a lockon.
- Step 3** If you determine that the protect port is in standby and you want to apply the lockon to the protect port, make the protect port active:
- a. In the Selected Group field, click the protect port.
  - b. In the Switch Commands field, click **Force**.
- Step 4** In the Selected Group area, choose the active port where you want to lock on traffic.
- Step 5** In the Inhibit Switching field, click **Lock On**.
- Step 6** Click **Yes** in the confirmation dialog box.
- The lockon has been applied and traffic cannot be switched from that port. See the [“DLP-F150 Clear a Lockon or Lockout in a 1+1 Protection Group” task on page 14-13](#) as needed.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F149 Apply a Lockout in a 1+1 Group

|                                |                                                                                                                              |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task locks traffic out of a protect port in a 1+1 protection group, which prevents traffic from switching to that port. |
| <b>Tools/Equipment</b>         | None                                                                                                                         |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                              |
| <b>Required/As Needed</b>      | As needed                                                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                             |
| <b>Security Level</b>          | Provisioning or higher                                                                                                       |




---

**Note** A lockout can be applied to a protect port only.

---

- Step 1** In node view, click the **Maintenance > Protection** tabs.
- Step 2** In the Protection Groups field, click the protection group that contains the card you want to lock out.
- Step 3** In the Selected Group area, select the card you want to lock out.
- Step 4** In the Inhibit Switching field, click **Lock Out**.
- Step 5** Click **Yes** on the confirmation dialog box.
- The lockout has been applied and traffic is switched to the opposite card. To clear the lockout, see the [“DLP-F150 Clear a Lockon or Lockout in a 1+1 Protection Group” task on page 14-13](#).
- Step 6** Return to your originating procedure (NTP).
-

## DLP-F150 Clear a Lockon or Lockout in a 1+1 Protection Group

|                                |                                                                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task clears the lockon or lockout to resume normal protection switching capability.                                                  |
| <b>Tools/Equipment</b>         | None                                                                                                                                      |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F148 Apply a Lockon in a 1+1 Group, page 14-11</a> or <a href="#">DLP-F149 Apply a Lockout in a 1+1 Group, page 14-12</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                 |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                          |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                    |

- 
- Step 1** In node view, click the **Maintenance > Protection** tabs.
- Step 2** In the Protection Groups area, choose the protection group that contains the card you want to clear.
- Step 3** In the Selected Group area, choose the card you want to clear.
- Step 4** In the Inhibit Switching area, click **Unlock**.
- Step 5** Click **Yes** in the confirmation dialog box.
- The lockon or lockout is cleared.
- Step 6** Return to your originating procedure (NTP).
- 

## NTP-F92 Initiate an External Switching Command on an SNCP Circuit

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure initiates a Manual, Force, or Lockout switch on an SNCP circuit. A Manual switch will switch traffic if the path has an error rate less than the signal degrade. A Force switch will switch traffic even if the path has SD or SF conditions. A Force switch has a higher priority than a Manual switch. Lockouts prevent traffic from switching under any circumstance and have the highest priority. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F39 Provision SNCP Nodes, page 5-20</a>                                                                                                                                                                                                                                                                                                                                                               |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                                                                                                                                                |



**Note** This procedure switches traffic on a single SNCP circuit; to switch all circuits on a span, see the [“DLP-F142 Switch All SNCP Circuits on a Span” task on page 13-16](#).

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at the node where you want to switch traffic on an SNCP circuit. If you are already logged in, continue with Step 2.

- Step 2** Complete the “[DLP-F151 Initiate a Manual Switch on an SNCP Circuit](#)” task on page 14-14 as needed.
- Step 3** Complete the “[DLP-F152 Initiate a Force Switch to an SNCP Circuit](#)” task on page 14-15 as needed.
- Step 4** Complete the “[DLP-F153 Initiate a Lockout on an SNCP Path](#)” task on page 14-15 to prevent traffic from switching to the protect path.
- Step 5** Complete the “[DLP-F154 Clear a Switch or Lockout on an SNCP Circuit](#)” task on page 14-16 as needed.



**Note** Refer to the *Cisco ONS 15600 SDH Reference Manual* for a description of protection switching and switch state priorities.

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

## DLP-F151 Initiate a Manual Switch on an SNCP Circuit

|                                |                                                                                                                                                                            |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task switches traffic to the protect SNCP path using a Manual switch. A Manual switch will switch traffic if the path has an error rate less than the signal degrade. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                       |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                            |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                           |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                     |

- Step 1** In node view, click the **Circuits** tab.
- Step 2** Click the path you want to switch and then click **Edit**.
- Step 3** In the Edit Circuit window, click the **SNCP Selectors** tab.
- Step 4** In the Switch State column, click the row for the path you want to switch and select **Manual to Protect** or **Manual to Working** as appropriate.
- Step 5** Click **Apply**.
- Step 6** To verify that the switch has occurred, view the SNCP Selectors tab Switch State column. The row for the circuit you switched will show a MANUAL status.
- Traffic switches from the working SNCP path to the protect path. If the path is configured for revertive switching, the traffic reverts to the working path when the Manual switch is cleared. See the “[DLP-F154 Clear a Switch or Lockout on an SNCP Circuit](#)” task on page 14-16 as needed.
- Step 7** Return to your originating procedure (NTP).



## DLP-F152 Initiate a Force Switch to an SNCP Circuit

|                                |                                                                                                                                                                                                                                                                                               |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task switches traffic to the working SNCP circuit using a Force switch. A Force switch will switch traffic even if the path has High Order Path Excessive BER (HP-EXC) or High Order Path Signal Degrade (HP-DEG) conditions. A Force switch has a higher priority than a Manual switch. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                                                          |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                                                                                                                               |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                                                     |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                                                              |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                                                        |

- 
- Step 1** In node view, click the **Circuits** tab.
- Step 2** Click the path you want to switch and click **Edit**.
- Step 3** In the Edit Circuit window, click the **SNCP Selectors** tab.
- Step 4** In the Switch State column, click the row for the path you want to switch and select **Force to Working** or **Force to Protect** as appropriate.
- Step 5** Click **Apply**.
- Step 6** To verify that the switch has occurred, view the SNCP Selectors tab Switch State column. The circuit row shows a FORCE status.
- Traffic switches from the protect path to the working path. Protection switching cannot occur until the Force switch is cleared. See the “[DLP-F154 Clear a Switch or Lockout on an SNCP Circuit](#)” task on [page 14-16](#) as needed.
- Step 7** Return to your originating procedure (NTP).
- 

## DLP-F153 Initiate a Lockout on an SNCP Path

|                                |                                                                                                                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task applies a lockout of protection to an SNCP circuit so that working traffic cannot switch to the protection path. Lockouts prevent traffic from switching under any circumstance and have a higher priority than Manual or Force switches. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                                                                                     |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                           |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                    |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                              |

- 
- Step 1** In node view, click the **Circuits** tab.
- Step 2** Click the path you want to switch and click **Edit**.

- Step 3** In the Edit Circuit window, click the **SNCP Selectors** tab.
- Step 4** In the Switch State column, click the row for the path you want to switch and select **Lockout of Protection**.



**Note** Refer to the *Cisco ONS 15600 SDH Reference Manual* for a description of protection switching and switch state priorities.

- Step 5** Click **Apply**.  
Working traffic is prevented from switching to the protect path. To clear the SNCP path lockout, complete the “[DLP-F154 Clear a Switch or Lockout on an SNCP Circuit](#)” task on page 14-16.
- Step 6** Return to your originating procedure (NTP).

## DLP-F154 Clear a Switch or Lockout on an SNCP Circuit

|                                |                                                                                                                                                                                                                                                          |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task clears an external switching command on an SNCP circuit.                                                                                                                                                                                       |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                     |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F151 Initiate a Manual Switch on an SNCP Circuit, page 14-14</a> , or<br><a href="#">DLP-F152 Initiate a Force Switch to an SNCP Circuit, page 14-15</a> , or<br><a href="#">DLP-F153 Initiate a Lockout on an SNCP Path, page 14-15</a> |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                         |
| <b>Security Level</b>          | Provisioning or higher                                                                                                                                                                                                                                   |

- Step 1** Click the **Circuits** tab.
- Step 2** Click the path you want to switch and click **Edit**.
- Step 3** In the Edit Circuit window, click the **SNCP Selectors** tab.
- Step 4** In the Switch State column, click the row for the path you want to switch and select **Clear**.
- Step 5** Click **Apply**.



**Note** This task does revert traffic unless ports are configured for revertive switching.

- Step 6** Return to your originating procedure (NTP).

# NTP-F93 Offload the Security Audit Trail Log

|                                |                                                                                                                                                                                                                                                              |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure stores up to 650 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 offloaded, the oldest entries are overwritten after the log reaches capacity. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                                                         |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                                                                                         |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                                                                    |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                                                             |
| <b>Security Level</b>          | Superuser                                                                                                                                                                                                                                                    |

- 
- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node where you want to offload 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** and click **Archive**.
- Step 4** In the Archive Audit Trail dialog box, navigate to the directory (local or network) where you want to save the file.
- Step 5** 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 6** Click **Save**.
- The 650 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-F94 Clean Fiber Connectors and Adapters

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | Use this procedure to clean the fiber connectors and adapters.                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Tools/Equipment</b>         | <p>Inspection microscope (suggested: Westover FBP-CIS-1)</p> <p>Scrub tool</p> <p>Grounding strap</p> <p>Wipes</p> <p>Rinse tool</p> <p>HFE-based cleaning fluid and pump head assembly</p> <p>Replacement scrub tool wipes</p> <p>Replacement rinse tool absorbent pads</p> <p>Desktop hand tool</p> <p>Pen-type hand tool</p> <p>3M high-performance fiber-optic wipes</p> <p>Empty disposable container</p> <p>Canned air</p> |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Required/As Needed</b>      | Required                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Security Level</b>          | 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.**



## Caution

Follow established site safety practices when working with any laser equipment.

**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-F155 Clean Fiber Connectors](#)” task on page 14-19 as necessary.

**Step 4** Complete the “[DLP-F156 Clean the Fiber Adapters](#)” task on page 14-20 as necessary.



## Caution

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

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

## DLP-F155 Clean Fiber Connectors

|                                |                                                                                                                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task cleans the fiber connectors.                                                                                                                                            |
| <b>Tools/Equipment</b>         | <p>Inspection microscope (suggested: Westover FBP-CIS-1)</p> <p>Desktop hand tool</p> <p>Scrub tool</p> <p>3M high-performance fiber-optic wipes</p> <p>Compressed air/duster</p> |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                              |
| <b>Required/As Needed</b>      | Required                                                                                                                                                                          |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                            |
| <b>Security Level</b>          | None                                                                                                                                                                              |



**Note** Replace all dust caps whenever the equipment will be unused for 30 minutes or more.

**Step 1** Remove the dust cap from the fiber connector.

**Step 2** To use the desktop hand tool:

- a. Advance the 3M high-performance fiber-optic wipe in the desktop hand tool to access the unused wipe area.



**Note** To replace the fiber-optic wipe in the desktop hand tool, remove the frame cover. Put a new wipe over the base of the desktop hand tool with the stitching of the wipe aligned lengthwise with the tool. Place the frame cover on the tool and press firmly to reattach.

- b. Place the connector tip at the top of the slot at a slight angle. In a single stroke, move the connector down the wipe without lifting the connector from the wipe. Before lifting the connector from the wipe, straighten the connector.
- c. Repeat the single stroke motion on each side of the alignment pins to clean the entire connector face.
- d. Blow off any wipe lint left on the fiber connector using the compressed air.

**Step 3** To use the scrub tool:

- a. Connect the grounding strap to the scrub tool and to suitable ground.
- b. Install or replace the scrub wipe in the scrub tool with a new wipe. Avoid handling the wipe excessively.
- c. Scrub between the alignment pins of the fiber connector, and then wipe around the outside of each alignment pin.

**Step 4** Inspect the connector for cleanliness. Repeat Steps 2 and 3 as necessary.

**Step 5** Replace the dust cap on the fiber connector until ready for use.

**Step 6** Return to your originating procedure (NTP).

## DLP-F156 Clean the Fiber Adapters

|                                |                                                                                                                                                                                                                                                                                                                |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task cleans the fiber adapters.                                                                                                                                                                                                                                                                           |
| <b>Tools/Equipment</b>         | <p>Inspection microscope (suggested: Westover FBP-CIS-1)</p> <p>Scrub tool</p> <p>Grounding strap</p> <p>Wipes</p> <p>Rinse tool</p> <p>HFE-based cleaning fluid and pump head assembly</p> <p>Replacement scrub tool wipes</p> <p>Replacement rinse tool absorbent pads</p> <p>Empty disposable container</p> |
| <b>Prerequisite Procedures</b> | None                                                                                                                                                                                                                                                                                                           |
| <b>Required/As Needed</b>      | Required                                                                                                                                                                                                                                                                                                       |
| <b>Onsite/Remote</b>           | Onsite                                                                                                                                                                                                                                                                                                         |
| <b>Security Level</b>          | None                                                                                                                                                                                                                                                                                                           |

---

**Step 1** Remove the dust plugs from the fiber adapter.

**Step 2** To remove stubborn particles from the fiber adapter:

- a. Connect the grounding strap to the scrub tool and to suitable ground.
- b. Install or replace the scrub wipe in the scrub tool with a new wipe. Avoid handling the wipe excessively.
- c. Insert the scrub tool tip into the fiber adapter.
- d. Remove and insert the scrub tool tip several times to clean the fiber adapter.

**Step 3** To remove loose particles from the fiber adapter:

- a. Remove the dust cap from the rinse tool.



**Note** If the absorbent pad on the rinse tool needs replacement, slide the old pad and mesh retainer off of the rinse tool tube. Slide the new absorbent pad and mesh retainer over the rinse tip onto the rinse tool tube. Roll the absorbent pad and mesh retainer between your hands until the opening on the absorbent pad is closed. Discard the old absorbent pad and mesh retainer.

- b. Connect the grounding strap to the rinse tool and to suitable ground.
- c. Connect the rinse tool to the HFE-based cleaning fluid bottle and pump head assembly.
- d. Turn the aluminum nozzle on the pump one-half turn counterclockwise and squirt the cleaning fluid into an empty container to soak the rinse tool.
- e. Remove the dust cover from the fiber adapter.
- f. Insert the rinse tool tip into the fiber adapter with the bent part of the handle pointing downwards. Squirt twice.

- g. Remove the rinse tool and replace the dust cover on the adapter. Replace the dust cap on the rinse tool.
  - h. Turn the aluminum nozzle on the pump clockwise until it is tight and disconnect the HFE bottle from the pump.
- Step 4** Inspect the fiber adapter to ensure that it is clean. If it is not clean, repeat Steps 2 and 3.
- Step 5** Replace the dust plug in the fiber adapter until ready for use.
- Step 6** Return to your originating procedure (NTP).

## NTP-F95 Reset the TSC Card Using CTC

|                                |                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure resets the active TSC card and switches the node to the redundant TSC card. |
| <b>Tools/Equipment</b>         | None                                                                                       |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F10 Install the Common Control Cards, page 2-2</a>                         |
| <b>Required/As Needed</b>      | As needed                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                           |
| <b>Security Level</b>          | 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 TSC, you should wait at least 60 seconds after the last provisioning change you made to avoid losing any changes to the database.

- Step 1** Complete the “[DLP-F36 Log into CTC](#)” task on page 3-15 at the node where you want to perform the TSC card reset. If you are already logged in, continue with [Step 2](#).
- Step 2** In node view, right-click the active TSC card to reveal a drop-down menu.
- Step 3** Click **Soft Reset Card** to reset the card temporarily or **Hard Reset Card** to permanently reset the card.
- Step 4** Click **Yes** in the “Are You Sure?” dialog box.
- Step 5** Click **OK** in the “Lost connection to node, changing to Network View” dialog box.



### Note

For LED behavior during a TSC reboot, see [Table 2-1 on page 2-3](#).

- Step 6** Confirm that the TSC card LED is amber (standby).
- Stop. You have completed this procedure.**

## NTP-F96 Change the Node Timing Reference

|                                |                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This procedure switches the node timing reference to enable maintenance on a timing reference or returning the node timing to normal operation. |
| <b>Tools/Equipment</b>         | None                                                                                                                                            |
| <b>Prerequisite Procedures</b> | <a href="#">NTP-F26 Set Up Timing, page 4-16</a>                                                                                                |
| <b>Required/As Needed</b>      | As needed                                                                                                                                       |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                |
| <b>Security Level</b>          | Maintenance or higher                                                                                                                           |

- 
- Step 1** Complete the [“DLP-F36 Log into CTC” task on page 3-15](#) at the node where you want to change the node timing reference. If you are already logged in, continue with Step 2.
- Step 2** Complete the [“DLP-F157 Manually Switch the Node Timing Reference” task on page 14-22](#) as needed.
- Step 3** Complete the [“DLP-F158 Clear a Manual Switch on a Node Timing Reference” task on page 14-23](#) as needed.

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

---

## DLP-F157 Manually Switch the Node Timing Reference

|                                |                                                                                                                                                                                                                        |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task commands the network element (NE) to switch to the timing reference you have selected if the synchronization status message (SSM) quality of the requested reference is not less than the current reference. |
| <b>Tools/Equipment</b>         | None                                                                                                                                                                                                                   |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                                                                                                                        |
| <b>Required/As Needed</b>      | As needed                                                                                                                                                                                                              |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                                                                                                                       |
| <b>Security Level</b>          | Maintenance or higher                                                                                                                                                                                                  |

- 
- Step 1** In node view, click the **Maintenance > Timing** tabs. The Timing source window appears.
- Step 2** In the Reference drop-down menu for the desired Clock, choose the desired reference.
- Step 3** In the Operation drop-down menu, choose **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.
- 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 timing reference does not revert.



**Step 7** Return to your originating procedure (NTP).

---

## DLP-F158 Clear a Manual Switch on a Node Timing Reference

|                                |                                                                                                                            |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                 | This task clears a Manual switch on a node timing reference and reverts the timing reference to its provisioned reference. |
| <b>Tools/Equipment</b>         | None                                                                                                                       |
| <b>Prerequisite Procedures</b> | <a href="#">DLP-F36 Log into CTC, page 3-15</a>                                                                            |
| <b>Required/As Needed</b>      | As needed                                                                                                                  |
| <b>Onsite/Remote</b>           | Onsite or remote                                                                                                           |
| <b>Security Level</b>          | 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 in the Operation menu.
- Step 3** In the Operation drop-down menu, choose **Clear**.
- Step 4** Click **Apply**.
- 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).
-





## Power Down the Node

---

This chapter explains how to power down a node and stop all node activity on the Cisco ONS 15600 SDH.

### NTP-F97 Power Down the ONS 15600 SDH

|                                |                                         |
|--------------------------------|-----------------------------------------|
| <b>Purpose</b>                 | This procedure stops all node activity. |
| <b>Tools/Equipment</b>         | None                                    |
| <b>Prerequisite Procedures</b> | None                                    |
| <b>Required/As Needed</b>      | As needed                               |
| <b>Onsite/Remote</b>           | Onsite                                  |
| <b>Security Level</b>          | Provisioning or higher                  |



#### 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.**

---



#### Caution

The following procedure is designed to minimize traffic outages when powering down nodes, but traffic is lost if you delete and recreate circuits that passed through a working node.

---



#### Note

Always use the supplied ESD wristband when working with the Cisco ONS 15600 SDH. Plug the wristband into the ESD jack located on the fan-tray assembly or on the lower-left outside edge of the shelf on the shelf assembly.

---

- Step 1** Identify the node that you want to power down. If no cards are installed, go to Step 15. If cards are installed, complete the [“DLP-F36 Log into CTC” task on page 3-15](#).
- Step 2** From the View menu, choose **Go To Network View**.
- Step 3** Verify that the node is not connected to a working network:
- If the node is part of a subnetwork connection protection (SNCP) configuration, log out of the node and complete the [“NTP-F86 Remove an SNCP Node” procedure on page 13-15](#). Continue with [Step 4](#).

- b. If the node is part of a multiplex section-shared protection ring (MS-SPRing), log out of the node and complete the [“NTP-F84 Remove an MS-SPRing Node” procedure on page 13-8](#). Continue with [Step 4](#).
- c. If the node is part of a point-to-point or linear ADM, go to [Step 6](#).
- d. If the node is not connected to a working network and the current configurations are no longer required, proceed to [Step 4](#).




---

**Note** You can save the current configurations by skipping [Steps 4 through 15](#).

---

- Step 4** From the View menu, choose **Go To Home View**.
- Step 5** Click the **Circuits** tab and verify that no circuits appear, then proceed to [Step 6](#). If circuits appear, delete all the circuits that originate or terminate in the node:
- a. Click the circuit that needs to be deleted and click **Delete**.
  - b. Click **Yes**.
- Repeat until no circuits are present. For more information, see the [“DLP-E97 Delete Circuits” task on page 9-11](#).
- Step 6** Click the **Provisioning > Protection** tabs and delete all protection groups:
- a. Click the protection group that needs to be deleted and click **Delete**.
  - b. Click **Yes**.
- Repeat until no protection groups are present. For more information, see the [“DLP-F117 Delete a 1+1 Protection Group” task on page 10-14](#).
- Step 7** Click the **Provisioning > DCC/GCC** tabs and delete all regenerator section-data communications channel (RS-DCC) terminations:
- a. Click the RS-DCC Termination that needs to be deleted and click **Delete**.
  - b. Click **Yes**.
- Repeat until no RS-DCC terminations are present. For more information, see the [“NTP-F70 Delete an RS-DCC Termination” procedure on page 10-15](#).
- Step 8** For each installed card, put all ports in Out of Service status:
- a. Double-click a card to display card view.
  - a. Click the **Provisioning > MS** tabs.
  - b. Click in the State column for each port and choose **Out of Service**.
  - c. Click **Apply**.
- For more information, see the [“NTP-F76 Modify Line and Status Thresholds for Optical Ports” procedure on page 11-1](#).
- Step 9** Remove all fiber connections to the cards. For more information about fiber cabling, see the [“NTP-F16 Install the Fiber-Optic Cables” procedure on page 2-8](#).
- Step 10** From the View menu, choose **Go To Home View** to return to node view.
- Step 11** Right-click an installed card and click **Delete**.
- You cannot delete a card if any of the following conditions apply:
- The card is part of a protection group.
  - The card has circuits.

- The card is being used for timing.
- The card has a SDH DCC termination.

**Step 12** Click **Yes**.

For more information about card deletion, see the [“DLP-F22 Delete a Card from CTC” task on page 2-8](#).

**Step 13** After you have deleted the card, open the card ejectors and remove it from the node.

**Step 14** Repeat Steps 8 through 13 for each installed card.

**Step 15** Shut off the power from the power supply that feeds the node. For more information about power issues, see the [“NTP-F5 Install the Bay Power and Ground” procedure on page 1-22](#).

**Step 16** Disconnect the node from its external fuse source.

**Step 17** Store all cards and update inventory records according to local site practice.

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

---





## CTC Information and Shortcuts

This appendix describes how to navigate in the Cisco Transport Controller (CTC) and change CTC table data. It also describes menu and tool options and the shelf inventory data presented in CTC. For information about CTC, refer to the Cisco Transport Controller Operation chapter in the *Cisco ONS 15600 SDH Reference Manual*.

### Display Node, Card, and Network Views

CTC provides three views of the ONS network:

- Node view appears when you first log into an ONS 15600 SDH. This view shows a graphic of the ONS 15600 SDH shelf and provides access to tabs and subtabs that you use to manage the node.
- Card view provides access to individual ONS 15600 SDH cards. This view provides a graphic of the card and provides access to tabs and subtabs that you use to manage the card.
- Network view shows all the nodes in a ring. A Superuser can set up this feature so each user will see the same network view, or the user can create a custom view with maps. This view provides access to tabs and subtabs that you use to manage the network.

[Table A-1](#) lists different actions for changing CTC views.

**Table A-1** Change CTC Views

| To Display:                                                          | Perform One of the Following:                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node view                                                            | <ul style="list-style-type: none"> <li>• Log into a node; node view is the default view.</li> <li>• In network view, double-click a node icon, or right-click the node and choose <b>Open Node</b>.</li> <li>• From the CTC View menu, choose <b>Go To Other Node</b>, then choose the node you want from the shortcut menu.</li> <li>• Use the arrows on the CTC toolbar to navigate up or down views. For example, in network view click a node and click the down arrow.</li> </ul> |
| Home view (node view of the first node you logged into in a network) | <ul style="list-style-type: none"> <li>• From the CTC View menu, choose <b>Go To Home View</b>.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                             |

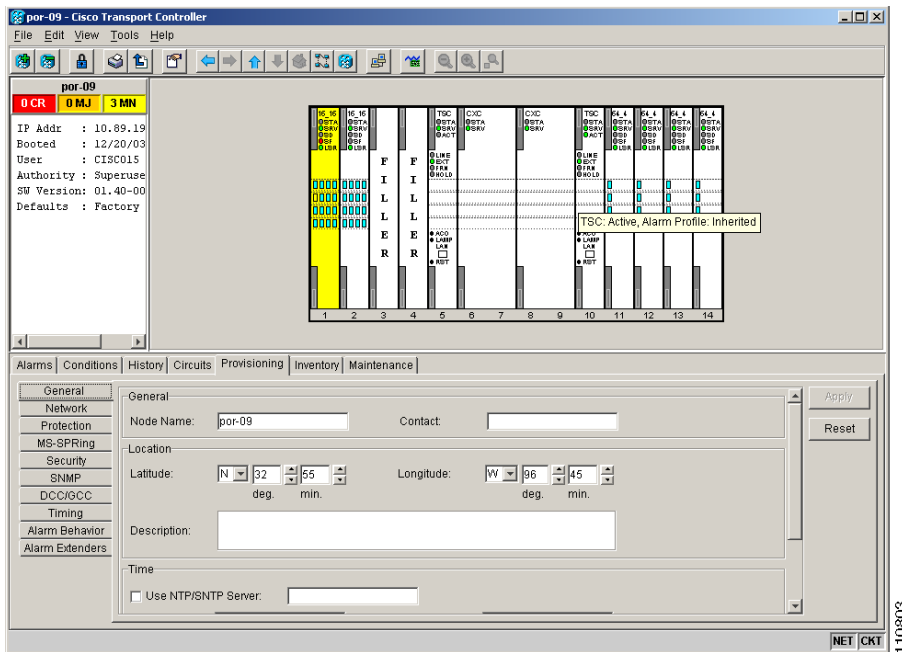
Table A-1 Change CTC Views (continued)

| To Display:  | Perform One of the Following:                                                                                                                                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Card view    | <ul style="list-style-type: none"> <li>In node view, double-click a card or right-click the card and choose <b>Open Card</b>.</li> <li>In node view, single-click a card icon, then select <b>Go To Selected Object</b> from the View menu.</li> <li>Use the arrows on the CTC toolbar to navigate up or down. For example, in node view click a card and then click the down arrow.</li> </ul> |
| Network view | <ul style="list-style-type: none"> <li>In node view, click the up arrow on the CTC toolbar.</li> <li>From the View menu, choose <b>Go To Network View</b>.</li> </ul>                                                                                                                                                                                                                           |

## CTC Window

Different navigational methods are available within the CTC window to access views and perform management actions. You can double-click and right-click objects in the graphic area and move the mouse over nodes, cards, and ports to view popup status information (Figure A-1).

Figure A-1 CTC Node View with Popup Information



## CTC Menu and Toolbar Options

The CTC window menu bar and toolbar provide primary CTC functions. Table A-2 shows the actions that are available from the CTC menu and toolbar.



Table A-2 CTC Menu and Toolbar Options








| Menu | Menu Option          | Toolbar                                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|----------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| File | Add Node             |  | Adds a node to the current session. See the “ <a href="#">DLP-F39 Add a Node to the Current Session or Login Group</a> ” task on page 3-20.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|      | Delete Selected Node |  | Deletes a node from the current session.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|      | Lock CTC             |  | Locks CTC without closing the CTC session. A user name and password are required to reopen CTC.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|      | Print                |  | Prints CTC data. See the “ <a href="#">DLP-F65 Print CTC Data</a> ” task on page 7-2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|      | Export               |  | Exports CTC data. See the “ <a href="#">DLP-F66 Export CTC Data</a> ” task on page 7-3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|      | Exit                 |  | Closes the CTC session.<br>The exit icon only appears in the File menu.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Edit | Preferences          |  | Displays the Preferences dialog box: <ul style="list-style-type: none"> <li>• General tab—Allows you to change event defaults and manage preferences.</li> <li>• Login Node Group tab—Allows you to create login node groups. See the “<a href="#">DLP-F38 Create Login Node Groups</a>” task on page 3-19.</li> <li>• Map—Allows you to customize the network view. See the “<a href="#">DLP-F110 Change the Network View Background Color</a>” task on page 10-8 and the “<a href="#">DLP-F112 Apply a Custom Network View Background</a>” task on page 10-10.</li> <li>• Circuit—Allows you to change the color of circuit spans. See the “<a href="#">DLP-F95 Change Active and Standby Span Color</a>” task on page 9-9.</li> <li>• Firewall—Sets the Internet Inter-ORB Protocol (IIOP) listener ports for access to the ONS 15600 SDH through a firewall. See the “<a href="#">NTP-F98 Set Up the ONS 15600 SDH for Firewall Access</a>” procedure on page 4-13.</li> </ul> |

Table A-2 CTC Menu and Toolbar Options (continued)













| Menu | Menu Option                | Toolbar                                                                             | Description                                                                                                                                                                                                   |
|------|----------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| View | Go To Previous View        |    | Displays the previous CTC view.                                                                                                                                                                               |
|      | Go To Next View            |    | Displays the next CTC view. Available only after you navigate to a previous view. Go to Previous and Go to Next are similar to web browser forward/backward navigation buttons.                               |
|      | Go To Parent View          |    | References the CTC view hierarchy: network view, node view, and card view. In card view, this command displays the node view; in node view, the command displays network view. Not available in network view. |
|      | Go To Selected Object View |    | Displays the object selected in the CTC window.                                                                                                                                                               |
|      | Go To Home View            |    | Displays the login node in node view.                                                                                                                                                                         |
|      | Go To Network View         |    | Displays the network view.                                                                                                                                                                                    |
|      | Go To Other Node           |    | Displays a dialog box allowing you to type in the node name or IP address of a network node that you want to view.                                                                                            |
|      | Show Status Bar            | —                                                                                   | Displays/hides the status bar at the bottom of the CTC window.                                                                                                                                                |
|      | Show Tool Bar              | —                                                                                   | Displays/hides the CTC toolbar.                                                                                                                                                                               |
| —    | —                          |  | Zooms out of the network view area (toolbar only).                                                                                                                                                            |
| —    | —                          |  | Zooms into the network view area (toolbar only).                                                                                                                                                              |
| —    | —                          |  | Zooms into a selected network view area (toolbar only).                                                                                                                                                       |

Table A-2 CTC Menu and Toolbar Options (continued)

| Menu  | Menu Option         | Toolbar                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------|---------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tools | Circuits            | —                                                                                   | <p>Displays the following options:</p> <ul style="list-style-type: none"> <li>Repair Circuits—Repairs incomplete circuits (used by Cisco Technical Assistance Center [TAC]).</li> <li>Set Path Selector Attributes—Allows you to edit subnetwork connection protection (SNCP) circuit path selector attributes. See the “<a href="#">DLP-F96 Edit SNCP Circuit Path Selectors</a>” task on page 9-10.</li> <li>Set Circuit State—Future use for the ONS 15600 SDH. The ONS 15600 SDH Release 1.4 does not support a full state model. As a result, the circuit state can not be changed; it is always In Service (IS).</li> <li>Convert Circuits To TL1 Cross Connects—If a cross-connect in a circuit gets deleted, this menu option allows a user to repair a circuit by separating an incomplete CTC circuit into TL1 cross-connects. Then, the user can replace the missing cross-connect. See the “<a href="#">NTP-F64 Convert Circuits to TL1 Cross-Connections</a>” procedure on page 9-31.</li> <li>Upgrade TL1 Cross Connects to CTC Circuits—Allows you to convert TL1 cross-connects to CTC circuits. See the “<a href="#">NTP-F64 Convert Circuits to TL1 Cross-Connections</a>” procedure on page 9-31.</li> <li>Roll Circuit—Allows you to reroute live traffic without interrupting service.</li> <li>Delete Rolls—Removes rolls that are not deleted by CTC after a roll has been completed.</li> </ul> |
|       | Manage VLANs        | —                                                                                   | Displays a list of VLANs that have been created and allows you to delete or create new VLANs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|       | Open TL1 Connection |  | Displays the TL1 session dialog box so you can create a TL1 session to a specific node. Refer to the <i>Cisco ONS 15600 SDH TL1 Command Guide</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|       | Open IOS Connection |  | Displays the Cisco IOS command line interface dialog box if a Cisco IOS capable card (ML1000-2 or ML100T-12) is installed in the node. Refer to the <i>Cisco ONS 15454 SONET/SDH ML-Series Multilayer Ethernet Card Software Feature and Configuration Guide</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Help  | Contents and Index  | —                                                                                   | Displays the online help window.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|       | Manage Help         | —                                                                                   | Displays the versions of online help loaded on your computer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|       | About CTC           | —                                                                                   | Displays the software version and the nodes in the CTC session.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## CTC Mouse Options

Table A-3 shows mouse navigation techniques.

**Table A-3** CTC Mouse Options

| Technique         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Double-click      | <ul style="list-style-type: none"> <li>Node in network view—Displays the node view.</li> <li>Card in node view—Displays the card view.</li> <li>Alarm/Event—Displays the object that raised the alarm or event.</li> <li>Circuits—Displays the Edit Circuit window.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Right-click       | <ul style="list-style-type: none"> <li>Network view graphic area—Displays a menu that you can use to create a new domain, change the position and zoom level of the graphic image, and change the background image and color.</li> <li>Node in network view—Displays a menu that you can use to open the node, go to the node domain, reset the node icon position to the longitude and latitude set on the Provisioning &gt; General tabs, provision circuits, and update circuits with a new node.</li> <li>Span in network view—Displays a menu that you can use to view information about the source and destination ports, the span's protection scheme, and the span's optical level. You can also display the Circuits on Span dialog box, which displays additional span information and allows you to perform SNCP protection switching.</li> <li>Card in node view—Displays a menu that you can use to open, delete, hard and soft reset, and change cards. The card you select determines the commands that appear.</li> <li>Card in card view—Displays a menu that you can use to reset the card, or go to the parent view (node view).</li> <li>Empty slot in node view—Displays a menu that allows you to add (preprovision) a card.</li> </ul> |
| Move mouse cursor | <ul style="list-style-type: none"> <li>Over node in network view—Displays a summary of node alarms and provides a warning if the node icon has been moved out of the map range.</li> <li>Over span in network view—Displays circuit (node, slot, port) bandwidth and protection information.</li> <li>Over card in node view—Displays card type, card status, highest-level alarm, and alarm profile status.</li> <li>Over card port in node view—Displays port number, port status, and alarm profile status.</li> <li>Over card port in card view—Displays port state, protection status (if applicable), and alarm profile status.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Node View Shortcuts

Table A-4 shows actions on ONS 15600 SDH cards that you can perform by moving your mouse over the CTC window.

**Table A-4 Node View Card-Related Shortcuts**

| Action                        | Shortcut                                                                                                                                                                                        |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display card information      | Move your mouse over cards in the graphic to display tooltips with the card type, card status (active or standby), the highest level of alarm (if any), and the alarm profile used by the card. |
| Open, reset, or delete a card | Right-click a card. Choose <b>Open</b> to display the card in card view, <b>Reset</b> to reset the card, or <b>Delete</b> to delete it.                                                         |
| Preprovision a slot           | Right-click an empty slot. Select the card type that you want to provision the slot from the shortcut menu.                                                                                     |
| Change a card                 | Right-click an STM-N card and choose <b>Change Card</b> . In the Change Card dialog box, select the card type. Change Card retains all card provisioning.                                       |

## Network View Shortcuts

Right-click the network view graphic area or a node, span, or domain to display shortcut menus. [Table A-5](#) lists the actions that are available from the network view.

**Table A-5 Network Management Tasks in Network View**

| Action                        | Task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Open a node                   | Do any of the following: <ul style="list-style-type: none"> <li>• Double-click a node icon.</li> <li>• Right-click a node icon, and choose <b>Open Node</b> from the shortcut menu.</li> <li>• Click a node and choose <b>Go To Selected Object View</b> from the CTC View menu.</li> <li>• From the View menu, choose <b>Go To Other Node</b>. Select a node from the Select Node dialog box.</li> <li>• Double-click a node alarm or event in the Alarms or History tabs.</li> </ul> |
| Move a node icon              | Press the <b>Ctrl</b> key and the left mouse button simultaneously and drag the node icon to a new location.                                                                                                                                                                                                                                                                                                                                                                           |
| Reset node icon position      | Right-click a node and choose <b>Reset Node Position</b> from the shortcut menu. The node icon moves to the position defined by the longitude and latitude fields on the Provisioning > General tabs in node view.                                                                                                                                                                                                                                                                     |
| Provision a circuit           | Right-click a node. From the shortcut menu, choose <b>Provision Circuit To</b> and select the node where you want to provision the circuit. For circuit creation procedures, see <a href="#">Chapter 6, "Create Circuits."</a>                                                                                                                                                                                                                                                         |
| Update circuits with new node | Right-click a node and choose <b>Update Circuits With New Node</b> from the shortcut menu. Use this command when you add a new node and want to pass circuits through it.                                                                                                                                                                                                                                                                                                              |
| Display a link end point      | Right-click a span. From the shortcut menu, choose <b>Go To [node/slot/port]</b> for the drop port you want to view. CTC displays the card in card view.                                                                                                                                                                                                                                                                                                                               |

**Table A-5 Network Management Tasks in Network View (continued)**

| Action                                                       | Task                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display span properties                                      | Do any of the following: <ul style="list-style-type: none"> <li>• Move mouse over a span; the properties appear near the span.</li> <li>• Click a span; the properties appear in the upper left corner of the window.</li> <li>• Right-click a span; the properties display at the top of the shortcut menu.</li> </ul> |
| Perform an SNCP protection switch for all circuits on a span | Right-click a network span and click <b>Circuits</b> . In the Circuits on Span dialog box, switch options appear in the SNCP Span Switching field.                                                                                                                                                                      |

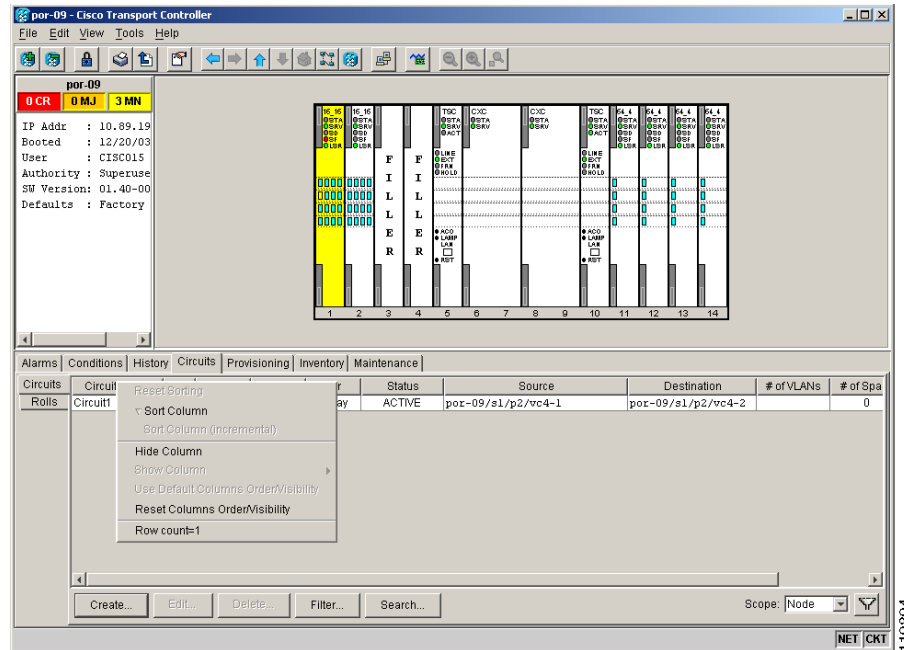
## Table Display Options

Table A-6 shows table display options, which include rearranging or hiding CTC table columns and sorting table columns by primary or secondary keys (Figure A-2).

**Table A-6 Table Display Options**

| Action                              | Click Shortcut                                                                  | Right-Click Shortcut Menu                                 |
|-------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------|
| Resize column                       | Left click while dragging the header separator to the right or left.            | —                                                         |
| Rearrange column order              | Left click while dragging the column header to the right or left.               | —                                                         |
| Reset column order                  | —                                                                               | Choose <b>Reset Columns Order/Visibility</b> .            |
| Hide column                         | —                                                                               | Choose <b>Hide Column</b> .                               |
| Display a hidden column             | —                                                                               | Choose <b>Show Column &gt; column-name</b> .              |
| Display all hidden columns          | —                                                                               | Choose <b>Reset Columns Order/Visibility</b> .            |
| Sort table (primary)                | Click a column header; each click changes sort order (ascending or descending). | Choose <b>Sort Column</b> .                               |
| Sort table (secondary sorting keys) | Press the <b>Shift</b> key and simultaneously click the column header.          | Choose <b>Sort Column (incremental)</b> .                 |
| Reset sorting                       | —                                                                               | Choose <b>Reset Sorting</b> .                             |
| View table row count                | —                                                                               | View Row count; it is the last item on the shortcut menu. |

Figure A-2 Table Shortcut Menu to Customize Table Appearance



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## Equipment Inventory

In node view, the Inventory tab (Figure A-3) displays ONS 15600 SDH equipment information, including:

- Location—Where the equipment is installed, either chassis or slot number.
- Eqpt Type—The equipment type, for example, STM-16 or STM-64.
- Actual Eqpt Type—The actual equipment type, for example, FTA or STM16-LR.
- HW Part #—Hardware part number; this number is printed on the top of the card or equipment piece.
- HW Rev—Hardware revision number.
- Serial #—Equipment serial number; this number is unique to each card.
- CLEI Code—Common Language Equipment Identifier code.
- User Code—A text entry field that allows the user to type a 20-character ASCII code to further identify cards.
- Firmware Rev—Revision number of the software used by the ASIC chip installed.

Figure A-3 Inventory Tab

| Location   | Eqpt Type     | Actual Eqpt Type | HW Part #   | HW Rev | Serial #   | CLEI Code | User Code   | Firmware Rev | Product ID | Vers |
|------------|---------------|------------------|-------------|--------|------------|-----------|-------------|--------------|------------|------|
| Chassis    | BACKPLANE_... | 15600-BP         | 000-0000... |        |            |           |             | TBA          | N/A        | N/A  |
| Fan_Slot_1 | FAN_TRAY      | 15600-FTA        | 000-0000... |        |            |           |             | TBA          | N/A        | N/A  |
| Fan_Slot_2 | FAN_TRAY      | 15600-FTA        | 000-0000... |        |            |           |             | TBA          | N/A        | N/A  |
| Fan_Slot_3 | FAN_TRAY      | 15600-FTA        | 000-0000... |        |            |           |             | TBA          | N/A        | N/A  |
| Chassis    | CAP           | 15600-CAP        | 800-2009... | 07     | SAG0711... |           |             | TBA          | N/A        | N/A  |
| 1          | STM16_16      | 15600-48S16S...  | 800-1877... | 09     | SAG0624... | NOCLEI    | kkdskids... | TBA          | N/A        | N/A  |
| 2          | STM16_16      | 15600-48L16L...  | 800-1877... | 13     | SAG0624... | NOCLEI    |             | TBA          | N/A        | N/A  |
| 3          | FILLER        | FILLER_CARD      |             |        |            |           |             |              |            |      |
| 4          | FILLER        | FILLER_CARD      |             |        |            |           |             |              |            |      |
| 5          | TSC           | 15600-TSC        | 800-1878... | 09     | SAG0713... | SOC2TT... | 800-1878... | TBA          | N/A        | N/A  |
| 6          | CXC           | 15600-CXC        | 800-1878... | 14     | SAG0624... | PROTO     | asd         | TBA          | N/A        | N/A  |
| 7          | CXC           | 15600-CXC        | 800-1878... |        |            |           |             | TBA          | N/A        | N/A  |

## CTC Data Export

CTC data exported in HTML format can be viewed with any web browser, such as Netscape Communicator or Microsoft Internet Explorer. To display the data, use the browser's File > Open command to open the CTC data file.

CTC data exported as comma separated values (CSV) or tab separated values (TSV) can be viewed in text editors, word processors, spreadsheets, and database management applications. Although procedures depend on the application, you can typically use File > Open to display the CTC data. Text editors and word processors display the data exactly as it is exported. Spreadsheet and database management applications display the data in cells. You can then format and manage the data using the spreadsheet or database management application tools.

In addition to the CTC exporting, CTC text information can be copied and pasted into other applications using the Windows Copy (Ctrl-C), Cut (Ctrl-X) and Paste (Ctrl-V) commands. You can also print CTC windows and table data such as alarms and inventory by choosing File > Print. [Table A-7 on page A-11](#) shows the CTC tabs and subtabs that contain exportable data.



**Table A-7 Table Data with Export Capability**

| <b>View or Card</b> | <b>Tab</b>     | <b>Subtab(s)</b>                                         |  |
|---------------------|----------------|----------------------------------------------------------|--|
| <b>Network</b>      | Alarms         | —                                                        |  |
|                     | Conditions     | —                                                        |  |
|                     | History        | —                                                        |  |
|                     | Circuits       | Circuits, Rolls                                          |  |
|                     | Provisioning   | Alarm Profiles                                           |  |
|                     | Maintenance    | Software                                                 |  |
| <b>Node</b>         | Alarms         | —                                                        |  |
|                     | Conditions     | —                                                        |  |
|                     | History        | Session, Node                                            |  |
|                     | Circuits       | Circuits, Rolls                                          |  |
|                     | Provisioning   | Network (General, Static Routing, OSPF, Internal Subnet) |  |
|                     |                | Alarm Behavior                                           |  |
|                     | Inventory      | —                                                        |  |
|                     | Maintenance    | Software                                                 |  |
|                     |                | Audit                                                    |  |
|                     |                | Routing Table                                            |  |
|                     |                | Test Access                                              |  |
| Alarm Extenders     |                |                                                          |  |
|                     | Logged on User |                                                          |  |
| <b>STM-N Cards</b>  | Alarms         | —                                                        |  |
|                     | Conditions     | —                                                        |  |
|                     | History        | Session, Card                                            |  |
|                     | Circuits       | Circuits, Rolls                                          |  |
|                     | Provisioning   | Line, Threshold, VC4, Alarm Behavior                     |  |
|                     | Maintenance    | Loopback, Transceiver, Protection                        |  |
|                     | Performance    | —                                                        |  |





## Hardware Specifications

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This appendix provides detailed shelf assembly hardware specifications for the Cisco ONS 15600 SDH.

Appendix topics follow:

- [Bandwidth, page B-1](#)
- [Slot Assignments, page B-1](#)
- [Cards, page B-2](#)
- [Configurations, page B-2](#)
- [Dimensions, page B-2](#)
- [Cisco Transport Controller, page B-2](#)
- [External LAN Interface, page B-3](#)
- [TL1 Craft Interface, page B-3](#)
- [Modem Interface, page B-3](#)
- [Alarm Interface, page B-3](#)
- [BITS Interface, page B-3](#)
- [Database Storage, page B-3](#)
- [System Timing, page B-4](#)
- [Power Specifications, page B-4](#)
- [Environmental Specifications, page B-4](#)

### Bandwidth

The ONS 15600 SDH has the following bandwidth specifications:

- Total bandwidth: 320 Gbps
- Optical bandwidth: 40 Gbps per slot

### Slot Assignments

The ONS 15600 SDH has the following slot specifications:

- Total card slots: 14

- Optical cards: Slots 1 to 4, 11 to 14
- TSC (Timing and Shelf Controller): Slots 5, 10
- CXC (Core Cross Connect): Slots 6/7, 8/9

## Cards

The ONS 15600 SDH has the following cards:

- TSC
- CXC
- OC48/STM16 LR16 1550
- OC48/STM16 SR16 1310
- OC192/STM64 LR4 1550
- OC192/STM64 SR4 1310

## Configurations

The ONS 15600 SDH has the following possible configurations:

- 1+1 automatic protection switching (APS) (point-to-point and linear)
- Two-fiber subnetwork connection protection (SNCP)
- Extended SNCP Mesh Network
- Two-fiber multiplex section-shared protection ring (MS-SPRing)
- Unprotected

## Dimensions

The ONS 15600 SDH has the following dimensions:

- Height: 83.9 in. (2130 mm)
- Width: 23.6 in. (600 mm)
- Depth: 23.6 in. (600 mm)
- Weight: 500 lb (226.8 kg) (without cards)

## Cisco Transport Controller

Cisco Transport Controller has the following specifications:

- 10/100 BaseT
- TSC access: RJ-45 connector
- Backplane access: RJ-45 connector

## External LAN Interface

The ONS 15600 SDH external LAN interface has the following specifications:

- 10/100 BaseT Ethernet
- Backplane access: RJ-45 connector

## TL1 Craft Interface

The ONS 15600 SDH TL1 craft interface has the following specifications:

- Speed: 9600 bps
- Backplane (customer access panel [CAP]) access: EIA/TIA-232 DB-9 type connector

## Modem Interface

The ONS 15600 SDH modem interface has the following specifications:

- Hardware flow control
- Backplane (CAP) access: EIA/TIA-232 DB-9 type connector

## Alarm Interface

The ONS 15600 SDH alarm interface has the following specifications:

- Visual: Critical, Major, Minor, Remote
- Audible: Critical, Major, Minor, Remote
- Alarm contacts: 0.045 mm, -48 VDC, 50 mA
- Backplane (CAP) access: Alarm pin fields

## BITS Interface

The ONS 15600 SDH building integrated timing supply (BITS) interface has the following specifications:

- 2 E1 BITS inputs
- 2 derived STM-N outputs

## Database Storage

The ONS 15600 SDH has the following database storage specifications:

- Nonvolatile memory: 512 MB, IDE FLASH memory

## System Timing

The ONS 15600 SDH has the following system timing specifications:

- Holdover stability: Stratum 3E per ITU-T G.813
- Free running accuracy:  $\pm 4.6$  ppm
- Reference: External BITS, line, internal

## Power Specifications

The ONS 15600 SDH has the following power specifications:

- Input voltage:  $-48$  to  $-60$  VDC (operational from  $-40.5$  to  $-72$  VDC)
- Input current: 100 A per feed (six feeds provided)
- Power consumption: 2200W (maximum draw with cards)
- Power terminals: Lug

Table B-1 lists the power requirements for each card.

**Table B-1 Power Requirements for Individual Cards**

| Card Type     | Card Name            | Watts |
|---------------|----------------------|-------|
| Control Cards | TSC                  | 58    |
|               | CXC                  | 165   |
| Optical Cards | OC48/STM16 LR16 1550 | 170   |
|               | OC48/STM16 SR16 1310 | 180   |
|               | OC192/STM64 LR4 1550 | 165   |
|               | OC192/STM64 SR4 1310 | 180   |

Table B-2 lists the power requirements for an individual fan in the fan-tray assembly.

**Table B-2 Power Requirements for Individual Fans**

| Condition                                           | Watts | Amperes | BTU/Hr. |
|-----------------------------------------------------|-------|---------|---------|
| Min. at 48 V (ambient temperature less than 25C)    | 12    | 0.25    | 41      |
| Max. at 48 V (ambient temperature greater than 25C) | 46    | 0.95    | 157     |

## Environmental Specifications

The ONS 15600 SDH has the following environmental specifications:

- Operating temperature: 23 to 122 degrees Fahrenheit ( $-5$  to  $+50$  degrees Celsius)
- Operating humidity: 5 to 95 percent, noncondensing



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