Manage Circuits

This chapter explains how to manage Cisco ONS 15454 SDH electrical, STM-N, Ethernet, and virtual concatenated (VCAT) circuits.

Before You Begin

To create circuits, see Chapter 6, "Create Circuits and Low-Order Tunnels."

To clear any alarm or trouble conditions, refer to the *Cisco ONS 15454 SDH Troubleshooting Guide*.

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

1. NTP-D199 Locate and View Circuits, page 9-2—Complete as needed.
2. NTP-D200 View Cross-Connect Card Resource Usage, page 9-2—Complete as needed.
3. NTP-D287 Modify and Delete Circuits, page 9-4—Complete as needed to edit a circuit name; change the active and standby colors of spans; change signal fail, signal degrade thresholds, reversion time, and payload defect indication-path (PDI-P) settings for subnetwork connection protection (SNCP) ring circuits; delete a circuit; or add or delete a VCAT member.
4. NTP-D288 Modify and Delete Overhead Circuits, page 9-4—Complete as needed to change a tunnel type, repair an IP circuit, or delete an overhead circuit.
5. NTP-D78 Create a Monitor Circuit, page 9-5—Complete as needed to monitor traffic on primary bidirectional circuits.
6. NTP-D79 Create a J1 or J2 Path Trace, page 9-6—Complete as needed to monitor interruptions or changes to circuit traffic.
7. NTP-D309 Reconfigure Circuits, page 9-7—Complete as needed to reconfigure circuits.
8. NTP-D310 Merge Circuits, page 9-8—Complete as needed to merge circuits.

NTP-D199 Locate and View Circuits

Purpose	This procedure allows you to locate and view circuits and E-Series Ethernet card spanning tree information.
Tools/Equipment	None
Prerequisite Procedures	Circuit creation procedure(s) in Chapter 6, "Create Circuits and Low-Order Tunnels."
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47 at a node on the network where you want to view the circuits. If you are already logged in, continue with Step 2.

Note Do not check "Disable Circuit Management" on the Login dialog box. No circuits appear if this option is checked.

Step 2 As needed, complete the "DLP-D370 View Circuit Information" task on page 20-70.

Step 3 As needed, complete the "DLP-D131 Search for Circuits" task on page 18-14.

Step 4 As needed, complete the "DLP-D262 Filter the Display of Circuits" task on page 19-44.

Step 5 As needed, complete the "DLP-D229 View Circuits on a Span" task on page 19-18.

Step 6 As needed, complete the "DLP-D371 View the MS-SPRing Squelch Table" task on page 20-73.

Step 7 As needed, complete the "DLP-D23 View Spanning Tree Information" task on page 17-19.

Stop. You have completed this procedure.

NTP-D200 View Cross-Connect Card Resource Usage

Purpose	This procedure provides the percentage of cross-connect card resources used by circuits that traverse or terminate at an ONS 15454 SDH.
Tools/Equipment	XC10G, XC-VXL-10G, or XC-VXL-2.5G cards must be installed.
Prerequisite Procedures	DLP-D333 Install the XC10G, XC-VXL-10G, or XC-VXL-2.5G Cards, page 20-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47 at the node where you want to view the cross-connect card resource usage. If you are already logged in, continue with Step 2.

Step 2 Click the **Maintenance > Cross-Connect > Resource Usage** tabs.

Step 3 In the Summary area of the Resources Usage tab, view the following information:

- VC4 Matrix— (XC10G, XC-VXL-10G, and XC-VXL-2.5G cards) Provides the percent of VC-4 paths and VC-4s dropped to lower order paths that are in use. 384 VC-4s are available with XC10G and XCVXL 10G cross-connect cards; 192 VC-4s are available with XC-VXL-2.5G cards.
- TUG3 Matrix Ports—(XC-VXL-10G and XC-VXL-2.5G only) Provides the percent of cross-connect card TUG3 matrix ports that are in use. TUG3 matrix ports are the number of VC-4s that are dropped to lower order paths (using TUG3s to hold VC-3s and TUG2s) shown in VC-4 size. 384 TUG3 matrix ports are available.
- TUG3 Matrix—(XC-VXL-10G and XC-VXL-2.5G only) Provides the percent of the TUG-3 matrix resources that are in use. 384 TUG-3 paths are available.
- VC12 Matrix Ports—(XC-VXL-10G and XC-VXL-2.5G only) Provides the percent of the VC-12 matrix ports that are in use. VC-12 matrix ports are the number of TUG-3s used to support TUG2s (that is, VC-11s and VC-12s, though only VC-12s are supported in this release). 96 VC-12 matrix ports are available.
- VC12 Matrix—(XC-VXL-10G and XC-VXL-2.5G only) Provides the percent of the VC12 matrix resources that are in use. 2016 VC-12 paths are available.

Step 4 In the TUG3 Matrix Port Detail section, click **VC12**, **VC3**, or **Unused** to view the matrix port details:

- Drop—Identifies the source slot and port.
- Tunnel Name—If the port is used by a tunnel, the tunnel name appears here.
- % Used—Shows the percent of the matrix port that is used.
- Usage—Shows the port usage.

Step 5 As needed, you can perform the following actions:

- Click the **Refresh** button to update the view. For example, if other users create circuits while you view the Resource Usage tab, click **Refresh** to see the effects those circuits have on the matrix usage.
- Click the **Delete** button to delete VC12s or VC3s that use matrix resources but no longer carry circuits. This occasionally occurs when many circuits are added and deleted over a period of time. Stranded VC12s or VC3s appear with 0 percent usage in the TUG3 Matrix Port Detail area. If stranded VC12s or VC3s appear, click the VC, then click **Delete** to free matrix capacity.

Note The Delete button requires a Superuser security level.

Stop. You have completed this procedure.

NTP-D287 Modify and Delete Circuits

Purpose	This procedure edits or changes the properties of ONS 15454 SDH circuits and deletes circuits.
Tools/Equipment	None
Prerequisite Procedures	Circuits must exist on the network. See Chapter 6, "Create Circuits and Low-Order Tunnels."
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47 at a node containing the circuit that you want to modify. If you are already logged in, continue with Step 2.

Step 2 As needed, complete the "DLP-D230 Change a Circuit State" task on page 19-19.

Step 3 As needed, complete the "DLP-D231 Edit a Circuit Name" task on page 19-20.

Step 4 As needed, complete the "DLP-D232 Change Active and Standby Span Color" task on page 19-21.

Step 5 As needed, complete the "DLP-D233 Edit SNCP Circuit Path Selectors" task on page 19-22.

Step 6 As needed, complete the "DLP-D263 Edit SNCP Dual-Ring Interconnect Circuit Hold-Off Timer" task on page 19-45.

Step 7 As needed, complete the "DLP-D27 Delete Circuits" task on page 17-21.

Step 8 As needed, complete the "DLP-D80 Change a VCAT Member Service State" task on page 17-71.

Step 9 As needed, complete the "DLP-D76 Add a Member to a VCAT Circuit" task on page 17-66.

Step 10 As needed, complete the "DLP-D77 Delete a Member from a VCAT Circuit" task on page 17-68.

Stop. You have completed this procedure.

NTP-D288 Modify and Delete Overhead Circuits

Purpose	This procedure changes the tunnel type, repairs IP circuits, and deletes overhead circuits.
Tools/Equipment	None
Prerequisite Procedures	Circuits must exist on the network. See Chapter 6, "Create Circuits and Low-Order Tunnels."
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Caution Deleting circuits can be service affecting and should be performed during a maintenance window.

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47 for a node on the network where you want to delete the circuit. If you are already logged in, continue with Step 2.

Step 2 As needed, complete the "DLP-D29 Change Tunnel Type" task on page 17-24.

Step 3 As needed, complete the "DLP-D30 Repair an IP Tunnel" task on page 17-25.

Step 4 As needed, complete the "DLP-D31 Delete Overhead Circuits" task on page 17-25.

Stop. You have completed this procedure.

NTP-D78 Create a Monitor Circuit

Purpose	This procedure creates a monitor circuit that monitors traffic on primary, bidirectional circuits on E1 or STM-1 cards.
Tools/Equipment	None
Prerequisite Procedures	Bidirectional (2-way) circuits must exist on the network. See Chapter 6, "Create Circuits and Low-Order Tunnels" for circuit creation procedures.
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Note Monitor circuits cannot be used with EtherSwitch circuits.

Note For unidirectional circuits, create a drop to the port where the test equipment is attached.

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47 at a node on the network where you will create the monitor circuit. 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.

Step 4 Choose the bidirectional (2-way) circuit that you want to monitor and double-click it (or click **Edit**).

Step 5 Verify that the circuit name is no longer than 44 characters. Monitor circuits append a "_MON" to the circuit name. If the name is longer than 44 characters, edit the name in the Name field, then click **Apply**.

Step 6 In the Edit Circuit window, click the **Monitors** tab.

The Monitors tab provides ports that you can use to monitor the circuit.

Note The Monitor tab is only available when the circuit has a DISCOVERED status.

Step 7 In the Monitors tab, choose the monitor source port. The monitor circuit will show traffic coming into the node at the port you choose.

Step 8 Click **Create Monitor Circuit**.

Step 9 In the Circuit Destination section of the Circuit Creation wizard, choose the destination node, slot, port, or VC for the monitored circuit.

Note In Figure 9-1, the monitor circuit destination is Port 2 on the STM-1 card.

Step 10 Click **Next**.

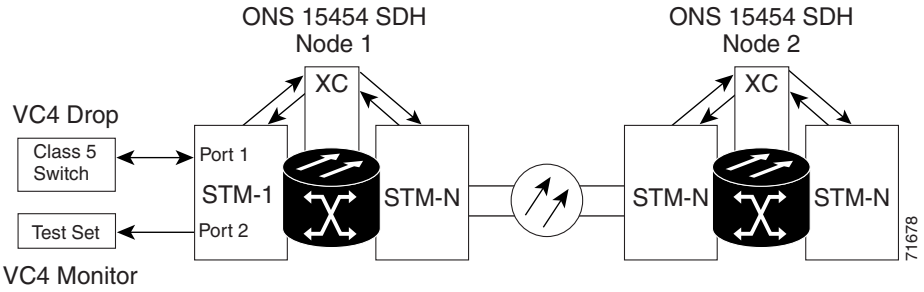
Step 11 In the Circuit Routing Preferences area, review the monitor circuit information. If you want the monitor circuit routed on a MS-SPRing protection channel, click **Protection Channel Access**.

Step 12 Click **Finish**.

Step 13 From the File menu in the Edit Circuit window, click **Close**. The new monitor circuit appears on the Circuits tab.

Figure 9-1 shows an example of a monitor circuit. At Node 1, a VC4 is dropped from Port 1 of an STM-1 card. To monitor the VC4 traffic, test equipment is plugged into Port 2 of the STM-1 card and a monitor circuit to Port 2 is provisioned in CTC. Circuit monitors are one-way. The monitor circuit in Figure 9-1 is used to monitor VC4 traffic received by Port 1 of the STM-1 card.

Figure 9-1 VC4 Monitor Circuit Received at an STM-1 Port



Stop. You have completed this procedure.

NTP-D79 Create a J1 or J2 Path Trace

Purpose	This procedure creates a repeated, fixed-length string of characters used to monitor changes to circuit traffic.
Tools/Equipment	ONS 15454 SDH cards capable of transmitting and/or receiving path trace must be installed. See Table 19-3 on page 19-47 for a list of J1 path trace cards. See Table 20-31 on page 20-66 for a list of J2 path trace cards.
Prerequisite Procedures	J1 path trace can be provisioned on VC3 and VC4 circuits. J2 path trace can be provisioned on VC12 circuits. See Chapter 6, "Create Circuits and Low-Order Tunnels," for circuit creation procedures.
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Note There are two types of J1 bytes, high-order (HO-J1) and low-order (LO-J1). The electrical cards support LO-J1 (VC3). The optical cards support HO-J1 (VC4) and cannot monitor the LO-J1 byte. In addition, the E1-42 card supports HO-J1 when the card is provisioned as an HO circuit endpoint.

Note J1 path trace is available for VC3 and VC4 circuits. In ONS 15454 SDH Software R3.4 and earlier, you can set the VC3 J1 transmit string on E3 and DS3i-N-12 cards, but VC3 is not monitored by STM-N cards. J2 path trace is available for VC12 circuits.

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47 at a node on the network where you will create the path trace. If you are already logged in, continue with Step 2.

Step 2 Complete the following tasks as needed:

- As needed, complete the "DLP-D264 Provision a J1 Path Trace on Circuit Source and Destination Ports" task on page 19-46.
- As needed, complete the "DLP-D137 Provision a J1 Path Trace on STM-N Ports" task on page 18-15.
- As needed, complete the "DLP-D367 Provision a J2 Path Trace on Circuit Source and Destination Ports" task on page 20-66.

Stop. You have completed this procedure.

NTP-D309 Reconfigure Circuits

Purpose	This procedure rebuilds circuits, which might be necessary when a large number of circuits are in the PARTIAL status.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47. 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.

Step 4 Choose the circuits that you want to reconfigure.

Step 5 From the Tools menu, choose **Circuits > Reconfigure Circuits**.

Step 6 In the confirmation dialog box, click **Yes** to continue.

Step 7 In the notification box, view the reconfiguration result. Click **Ok**.

Stop. You have completed this procedure.

NTP-D310 Merge Circuits

Purpose	This procedure merges two circuits that create a single, contiguous path but are separate circuits because of different circuit IDs or conflicting parameters. A merge combines a single master circuit with one or more circuits.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Complete the "DLP-D60 Log into CTC" task on page 17-47. If you are already logged in, continue with Step 2.

Step 2 Click the **Circuits** tab.

Step 3 Click the circuit that you want to use as the master circuit for a merge.

Step 4 Click **Edit.**

Step 5 In the Edit Circuits window, click the **Merge** tab.

Step 6 Choose the circuits that you want to merge with the master circuit.

Step 7 Click **Merge**.

Step 8 In the confirmation dialog box, click **Yes** to continue.

Step 9 In the notification box, view the merge result. Click **Ok**.

Stop. You have completed this procedure.