Manage Circuits

Note The terms "Unidirectional Path Switched Ring" and "UPSR" may appear in Cisco literature. These terms do not refer to using Cisco ONS 15xxx products in a unidirectional path switched ring configuration. Rather, these terms, as well as "Path Protected Mesh Network" and "PPMN," refer generally to Cisco's path protection feature, which may be used in any topological network configuration. Cisco does not recommend using its path protection feature in any particular topological network configuration.

This chapter explains how to manage Cisco ONS 15454 electrical, optical and Ethernet circuits.

Before You Begin

To create circuits, see Chapter 6, "Create Circuits and VT Tunnels."

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

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

1. NTP-A199 Locate and View Circuits, page 9-4—Complete as needed.
2. NTP-A200 View Cross-Connect Card Resource Usage, page 9-8—Complete as needed.
3. NTP-A151 Modify Circuit Characteristics, page 9-9—Complete as needed to edit a circuit name, change the active and standby colors of spans, or change signal fail, signal degrade thresholds, reversion time, and PDI-P settings for path protection configuration circuits.
4. NTP-A416 Convert a CTC Circuit to TL1 Cross-Connects, page 9-14—Complete this procedure if you want to convert a CTC circuit into TL1 cross-connects.
5. NTP-A417 Upgrade TL1 Cross-Connects to CTC Circuits, page 9-15—Complete this procedure if you want to convert TL1 cross-connects or TL1-like cross-connects created in CTC into a CTC circuit.
6. NTP-A152 Delete Circuits, page 9-16—Complete as needed.
7. NTP-A78 Create a Monitor Circuit, page 9-17—Complete as needed to monitor traffic on primary bidirectional circuits.
8. NTP-A79 Create a J1 Path Trace, page 9-18—Complete as needed to monitor interruptions or changes to circuit traffic.

Figure 9-1 shows the Cisco Transport Controller Circuits window. This window displays information about circuits to help you manage the circuits, including circuit status and state.

Figure 9-1 ONS 15454 Circuit Window In Network View

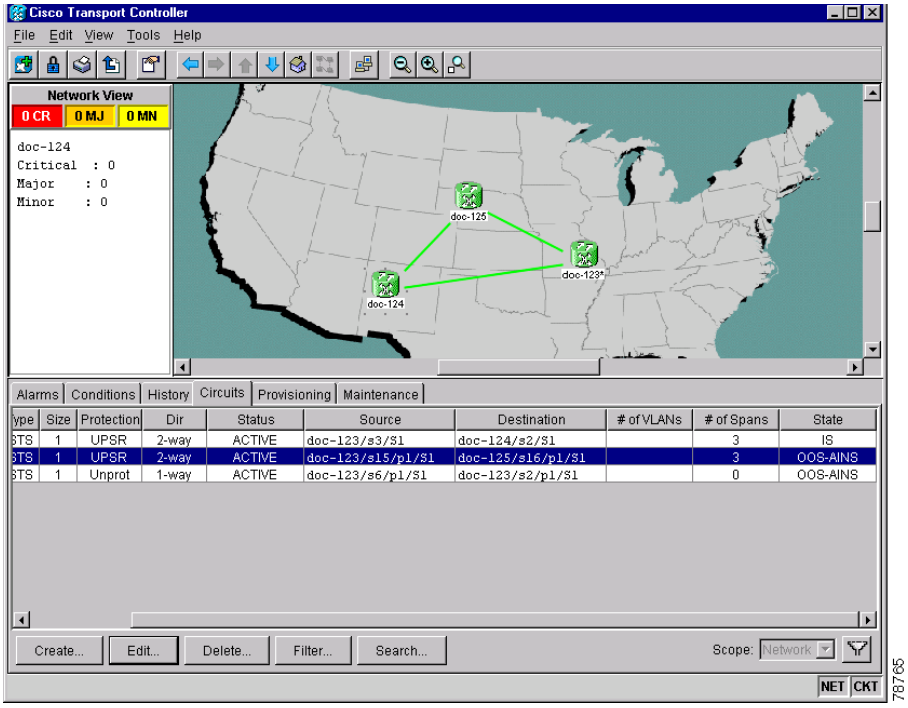


Table 9-1 lists the statuses that CTC can report for each circuit.

Table 9-1 Cisco ONS 15454 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 the circuit source to the circuit destination.
DELETING	CTC is deleting a circuit.

Table 9-1 Cisco ONS 15454 Circuit Status (continued)

Status	Definition/Activity
INCOMPLETE	A CTC-created circuit is missing a cross-connect or network span; a complete path from source to destination(s) does not exist, or an Alarm Interface Panel (AIP) change occurred on one of the circuit nodes and the circuit is in need of repair. (AIPs store the node MAC address.) 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 may flow on a protect path. Network spans are in one of two states: up or down. On CTC circuit and network maps, up spans are displayed as green lines, and down spans are displayed as gray lines. If a failure occurs on a network span during a CTC session, the span remains in 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 display on the network map. Subsequently, circuits routed on a network span that goes down will display as ACTIVE during the current CTC session, but they will display as INCOMPLETE to users who log in after the span failure.
UPGRADABLE	A TL1-created circuit or a TL1-like CTC-created circuit is complete and has upgradable cross-connects. A complete path from source to destination(s) exists. You can upgrade the circuit using the "NTP-A417 Upgrade TL1 Cross-Connects to CTC Circuits" procedure on page 9-15.
INCOMPLETE_UPGRADABLE	A TL1-created circuit or a TL1-like CTC-created circuit with upgradable cross-connects is missing a cross-connect, and a complete path from source to destination(s) does not exist. The circuit cannot be upgraded until missing cross-connects are in place.
NOT_UPGRADABLE	A TL1-created circuit or a TL1-like CTC-created circuit is complete but has at least one non-upgradable cross-connect. UPSR_HEAD, UPSR_EN, UPSR_DC, and UPSR_DROP cross-connects are not upgradable, so all unidirectional path protection configuration circuits created with TL1 are not upgradable.
INCOMPLETE_NOT_UPGRADABLE	A TL1-created circuit or a TL1-like CTC-created circuit with one or more non-upgradable cross-connects is missing a connection or circuit span (network link); a complete path from source to destination(s) does not exist.

Circuit state, shown in Table 9-2, is a user-assigned, administrative status that defines whether the circuit is in or out of service. To carry circuit traffic, circuits must have a status of Active and a state of In Service (IS).

Table 9-2 Cisco ONS 15454 Circuit States

State	Definition
IS	In service; able to carry traffic
OOS	Out of service; unable to carry traffic
OOS-AINS	Out of service, auto in service; alarm reporting is suppressed, but traffic is carried and loopbacks are allowed. 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. VT circuits generally switch to IS when source and destination ports are IS, OOS_AINS, or OOS_MT regardless of whether a physical signal is present. STS circuits switch to IS when a signal is received.
OOS-MT	Out of service, maintenance; alarm reporting is suppressed, but traffic is carried and loopbacks are allowed. 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.

NTP-A199 Locate and View Circuits

Purpose	This procedure allows you to locate and view ONS 15454 circuits.
Tools/Equipment	None
Prerequisite Procedures	Circuit creation procedure(s) in Chapter 6, "Create Circuits and VT Tunnels"
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 Log into the network where you want to view the circuits. See the "DLP-A60 Log into CTC" task on page 3-23 for instructions. If you are already logged in, go to Step 2.

Step 2 As needed, complete the "DLP-A131 Search for Circuits" task on page 9-5.

Step 3 As needed, complete the "DLP-A262 Filter the Display of Circuits" task on page 9-6.

Step 4 As needed, complete the "DLP-A229 View Circuits on a Span" task on page 9-7.

Stop. You have completed this procedure.

DLP-A131 Search for Circuits

Purpose	This task searches for an ONS 15454 circuit at the network, node, or card level.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	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 in the Scope pull-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—Select this check box to instruct CTC to select circuits only if the entire word matches the text in the Find What field.
- Match Case—Select this check 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**. If a match is found, click **Find Next** again to find the next circuit.

Step 7 Repeat Steps 5 and 6 until you are finished, then click **Cancel**.

Step 8 Return to your originating procedure (NTP).

DLP-A262 Filter the Display of Circuits

Purpose	This task filters the display of circuits in the ONS 15454 network, node, or card view Circuits window based on circuit name, size, type, direction, and other attributes.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	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 Set the attributes for filtering the circuit display:

a. Click the **Filter** button.

b. On the Filter Dialog, set the filter attributes:

- Name—Enter a complete or partial circuit name to filter circuits based on circuit name; otherwise leave the field blank.
- Direction—Choose one: **Any** (direction not used to filter circuits), **1-way** (display only one-way circuits), or **2-way** (display only two-way circuits).
- Status—Choose one: **Any** (status not used to filter circuits), **Active** (display only active circuits), **Incomplete** (display only incomplete circuits, that is, circuits missing a connection or span to form a complete path), or **Upgradable** (display only upgradable circuits, that is, circuits created in TL1 that are ready to upgrade in CTC). See Table 9-1 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 one: **OOS** (display only out of service circuits), **IS** (display only inservice circuits), **OOS-AINS** (display only out of service, auto inservice circuits), or **OOS-MT** (display only out of service, maintenance circuits.) See Table 9-2 for more information about circuit states.
- Slot—Enter a slot number to filter circuits based on the source or destination slot; otherwise leave the field blank.
- Port—Enter a port number to filter circuits based on the source or destination port; otherwise leave the field blank.
- Type—Choose one: **Any** (type not used to filter circuits), **STS** (displays only STS circuits), **VT** (displays only VT circuits), **VT Tunnel** (displays only VT tunnels), or **VT Aggregation Point** (displays only VT aggregation points).

- Size—Click the appropriate check boxes to filter circuits based on size: VT1.5, STS-1, STS3c, STS-6c, STS-9c, STS-12c, STS-24c, STS-48c, or STS-192c. The check boxes displayed depend on what you entered in the Type field. If you chose Any, all sizes are available. If you chose VT, only VT1.5 is available. If you chose STS, only STS sizes are available, and if you chose VT Tunnel or VT Aggregation Point, only STS-1 is available.

Step 4 Click **OK**. Circuits matching the attributes in the Filter Circuits dialog box are displayed in the Circuits window.

Step 5 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, and click the Filter button to change the filter attributes.

Step 6 Return to your originating procedure (NTP).

DLP-A229 View Circuits on a Span

Purpose	This task allows you to view circuits on an ONS 15454 span.
Tools/Equipment	None
Prerequisite Procedures	Circuits must be created on the span. See Chapter 6, "Create Circuits and VT Tunnels" DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 From the View menu on the node view, choose **Go to Network View**. If you are already in network view, go to Step 2.

Step 2 Right-click the green line containing the circuits you want to view and choose one of the following:

- **Circuits**—To view BLSR, path protection configuration, 1+1, or unprotected circuits on the span.
- **PCA Circuits**—To view circuits routed on a BLSR protected channel. (This option does not display if the span you right-clicked is not a BLSR span.)

On the Circuits on Span dialog box, you can view the following information for circuits provisioned on the span:

- STS—STSs used by the circuits.
- VT—VTs used by the circuits (VT circuits).
- UPSR—(UPSR span only)—If checked, path protection configuration circuits are on the span.
- Circuit—Displays the circuit name.
- Switch State—(UPSR span only) Displays the switch state of the circuit, that is, whether any span switches are active. For path protection configuration 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 perform other procedures from the Circuits on Span dialog box. If the span is in a path protection configuration, you can switch the span traffic. See "DLP-A197 Initiate a Path Protection Configuration Force Switch" task on page 14-18 for instructions. If you want to edit a circuit on the span, double-click the circuit. See the "DLP-A231 Edit a Circuit Name" task on page 9-10 or the "DLP-A233 Edit Path Protection configuration Circuit Path Selectors" task on page 9-12 for instructions.

Step 3 Return to your originating procedure (NTP).

NTP-A200 View Cross-Connect Card Resource Usage

Purpose	This procedure allows you to view the percentage of cross-connect card resources used by circuits that traverse or terminate at an ONS 15454.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 Log into the node where you want to view the cross-connect card resource usage. See the "DLP-A60 Log into CTC" task on page 3-23 for instructions. If you are already logged in, go to Step 2.

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

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

- STS-1 Paths—(XC, XCVT, XC10G) Provides the percent of the cross-connect card STS-1path resources that are used. 288 STS-1 paths are available for XC or XCVT cards; 1152 STS-1 paths are available for XC10G cards.
- VT Matrix Ports—(XCVT and XC10G) Provides the percent of the cross-connect card VT matrix ports that are used. Each port is one STS in size, and each can transport 28 VT1.5s. 24 VT matrix ports are available for the XCVT and XV10G cards.
- VT Matrix—(XCVT and XC10G) Provides the percent of the VT matrix resources that are used. 672 are available, which is the number of VT matrix ports (24) multiplied by the number of VT1.5s in an STS (28).

Step 4 In the VT Port Matrix Detail section, you can view details of the VT Matrix Port usage:

- Drop—Identifies the source slot, port, and STS.
- Tunnel Name—VT tunnels use VT matrix ports on the tunnel source and destination nodes (VT tunnels do not use matrix resources on pass-through nodes). If the port is used by a VT tunnel, the tunnel name will appear here.
- % Uses—Shows the percent of the matrix port that is used. Each matrix port can carry 28 VT1.5s, so for example, if one STS carries seven VT1.5 circuits, the matrix port will be 25% used.
- Usage—Shows the port usage. For example, if one STS carries seven VT1.5 circuits, the matrix port will show that 7 of 28 are used.

Stop. You have completed this procedure.

NTP-A151 Modify Circuit Characteristics

Purpose	This procedure provides tasks that you can use to edit or change the properties of ONS 15454 circuits.
Tools/Equipment	None
Prerequisite Procedures	Circuits must exist on the network. See Chapter 6, "Create Circuits and VT Tunnels" for circuit creation procedures.
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Log into the network containing the circuit you want to modify. See the "DLP-A60 Log into CTC" task on page 3-23 for instructions. If you are already logged in, go to Step 2.

Step 2 As needed, complete the "DLP-A231 Edit a Circuit Name" task on page 9-10.

Step 3 As needed, complete the "DLP-A232 Change Active and Standby Span Color" task on page 9-11.

Step 4 As needed, complete the "DLP-A233 Edit Path Protection configuration Circuit Path Selectors" task on page 9-12.

Stop. You have completed this procedure.

DLP-A230 Change a Circuit State

Purpose	This task changes the state of a circuit.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Click the **Circuits** tab.

Step 2 Click the circuit with the state you want to change.

Note You cannot edit the circuit state if the circuit is routed to nodes with a CTC software release older than Release 3.4. These circuits will automatically be in service (IS).

Step 3 From the Tools menu, choose **Circuits > Set Circuit State**.

Note Alternatively, you can click the **Edit** button, then click the **State** tab on the Edit Circuits window.

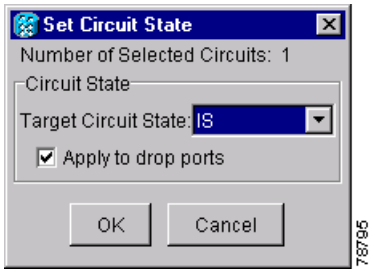
Step 4 On the Set Circuit State dialog box (Figure 9-2) change the circuit state by choosing one of the following choices from the Target Circuit State pull-down menu:

- IS—Places the circuit in service
- OOS—Places the circuit out of service
- OOS-AINS—Places the circuit out of service, auto in service
- OOS-MT—Places the circuit out of service, maintenance

See Table 9-2 on page 9-4 for additional information about circuit states.

Step 5 If you want to apply the state to the circuit source and destination ports, check the **Apply to Drop Ports** check box.

Figure 9-2 Changing Circuit State



Step 6 Click **OK**.

Note CTC will not change the state of the circuit source and destination port in certain circumstances. For example, if the circuit size is smaller than the port, for example, a VT1.5 circuit on an STS port, CTC will not change the port state from IS to OOS. If CTC cannot change the port state, a message is displayed and you must change the port state manually.

Step 7 Return to your originating procedure (NTP).

DLP-A231 Edit a Circuit Name

Purpose	This task edits a circuit name.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Click the **Circuits** tab.

Step 2 Click the circuit you want to rename, then click **Edit**.

Step 3 On the General tab, click the **Name** field and edit or rename the circuit. Names can be up to 48 alphanumeric and/or special characters. However, if you will ever create a monitor circuit on this circuit, do not make the name longer than 44 characters because monitor circuits will add "_MON" (four characters) to the circuit name.

Step 4 Click the **Apply** button.

Step 5 From File menu, select **Close**.

Step 6 On the Circuits window, verify that the circuit was correctly renamed.

Step 7 Return to your originating procedure (NTP).

DLP-A232 Change Active and Standby Span Color

Purpose	This task changes the color of active (working) and standby (protect) circuit spans displayed on the detailed circuit map of the Edit Circuits window. By default, working spans are green and protect spans are purple.
Tools/Equipment	None
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

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

Step 2 On 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, go to Step 4.
- To change the color of the standby (protect) span, go to Step 5.
- To return active and standby spans to their default colors, go to Step 6.

Step 4 Change the color of the active span:

a. Next to Active Span Color, click the **Color** button.

b. On the Pick a Color dialog box, click the color for the active span, or 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. If you want to change the standby span color, go to 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 displayed.

Step 5 Change the color of the standby span:

a. Next to Standby Span Color, click the **Color** button.

b. On the Pick a Color dialog box, click the color for the standby span, or click the **Reset** button if you want the standby span to display the last applied (saved) color.

c. 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 displayed.

Step 6 Return the active and standby spans to their default colors:

a. From the Edit menu, choose **Preferences**.

b. On the Preferences dialog box, click the **Circuits** tab.

c. Click the **Reset to Defaults** button.

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 displayed.

Step 7 Return to your originating procedure (NTP).

DLP-A233 Edit Path Protection configuration Circuit Path Selectors

Purpose	This task changes the path protection configuration signal fail and signal degrade thresholds, the reversion and reversion time, and the PDI-P settings for one or more path protection configuration circuits.
Tools/Equipment	None
Prerequisite Procedures	NTP-A44 Provision Path Protection Nodes, page 5-32 DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Click the **Circuits** tab.

Step 2 On the Circuits tab, click the path protection configuration circuit(s) 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 non-adjoining 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 **UPSR Selectors** tab on the Edit Circuits window.

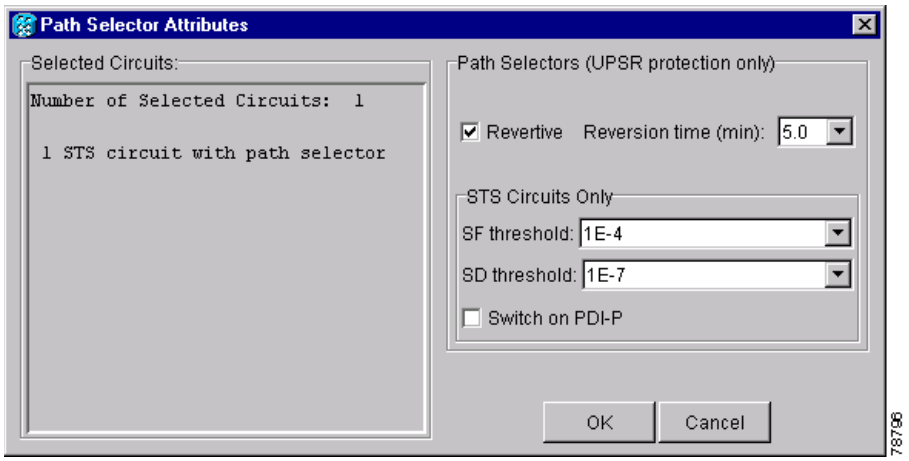
Step 4 On the Path Selectors Attributes dialog box (Figure 9-3), edit the following path protection configuration selectors, as needed:

- 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 path protection configuration signal failure BER threshold (STS circuits only).
- SD Ber Level—Sets the path protection configuration signal degrade BER threshold (STS circuits only).

- PDI-P—When checked, traffic switches if an STS payload defect indication is received (STS circuits only).

Step 5 Click **OK** and verify that the changed values are correct.

Figure 9-3 Editing Path Protection configuration Path Selectors



Step 6 Return to your originating procedure (NTP).

DLP-A263 Edit Path Protection configuration Dual Ring Interconnect Circuit Hold-Off Timer

Purpose	This task changes the amount of time a path selector switch is delayed for circuits routed on path protection configuration dual ring interconnect (DRI) topology. In DRIs, switching contention might occur depending upon the relative switching speed of the path selector and the transmission delay on the alternative routes. The hold-off time (HOT) allows you to change switch times to prevent the switching contention.
Tools/Equipment	None
Prerequisite Procedures	NTP-A44 Provision Path Protection Nodes, page 5-32 DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Note Cisco recommends that you set the DRI port HOT value to zero and the circuit path selector HOT value to a number equal to or greater than zero.

Step 1 Click the **Circuits** tab.

Step 2 Click the path protection configuration circuit you want to edit, then click the **Edit** button.

Step 3 On the Edit Circuit window, click the **UPSR Selectors** tab.

Step 4 Create a hold-off time for the circuit source and destination ports:

a. Under Holder Off Timer, double-click the cell of the circuit source port (top row), then type the new hold-off time. The range is 0 to 10,000 ms in increments of 100.

b. Under Hold-Off Timer, double-click the cell of the circuit destination port (bottom row), then type the hold-off time entered in Step a.

Step 5 Click **Apply**, then close the Edit Circuit window by choosing **Close** from the File menu.

Step 6 Return to your originating procedure (NTP).

NTP-A416 Convert a CTC Circuit to TL1 Cross-Connects

Purpose	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.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Note You can only use this procedure with DS-1, DS-3, or OC-N circuits. You cannot use the procedure with Ethernet circuits, VT tunnels, or VT aggregation points.

Step 1 Log into an ONS 15454 node on the network where you want to convert the CTC circuits. See the "DLP-A60 Log into CTC" task on page 3-23 for instructions. If you are already logged in, go to Step 2.

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

Step 3 Click the **Circuits** tab, then choose the CTC circuit(s) 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 On 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.

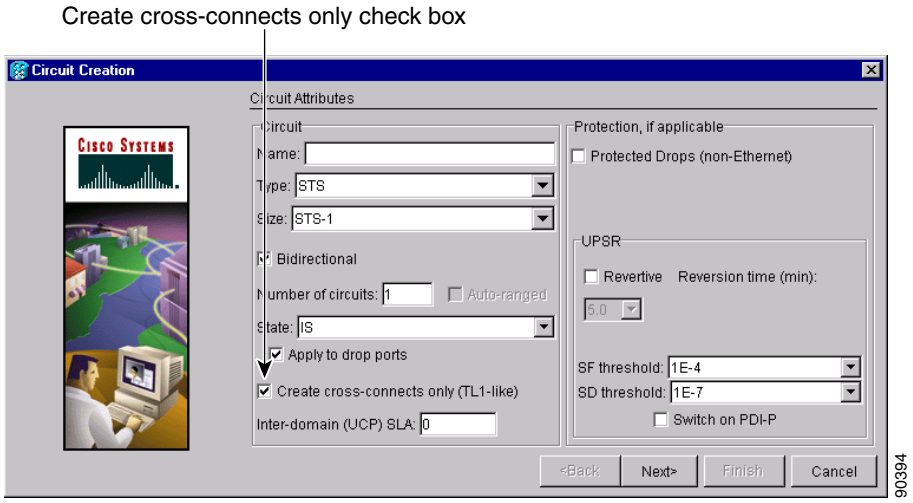
Step 6 On the Convert to TL1 Cross Connect Results dialog box, click **OK**.

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 and VT Tunnels," appropriate to the circuit you are repairing to replace or repair the circuit cross-connects. On the Circuit Creation wizard, shown in Figure 9-4, check **Create cross-connects only (TL1-like)**.

After you repair or replace all missing cross-connects, CTC automatically merges them and the circuit status changes to UPGRADABLE.

Figure 9-4 Choosing the Cross-Connects Only Option



Step 8 To upgrade the repaired circuit to a CTC circuit, go to the "NTP-A417 Upgrade TL1 Cross-Connects to CTC Circuits" procedure on page 9-15.

Stop. You have completed this procedure.

NTP-A417 Upgrade TL1 Cross-Connects to CTC Circuits

Purpose	This procedure converts a series of cross-connects displayed as UPGRADABLE in the CTC Circuits window to an ACTIVE CTC circuit.
Tools/Equipment	None
Prerequisite Procedures	TL1-created or CTC-created TL1-like cross-connects must exist on the network.
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Log into an ONS 15454 node on the network where you want to upgrade the TL1-created or CTC-created TL1-like cross-connects. See the "DLP-A60 Log into CTC" task on page 3-23 for instructions. If you are already logged in, go to 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 may 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 On the Upgrade Circuits dialog box, click **OK**.

The circuit status changes to ACTIVE.

Step 6 On the Circuit Upgrade Results dialog box, click **OK**.

Stop. You have completed this procedure.

NTP-A152 Delete Circuits

Purpose	This procedure deletes circuits.
Tools/Equipment	None
Prerequisite Procedures	Circuits must exist on the network. See Chapter 6, "Create Circuits and VT Tunnels" for circuit creation procedures.
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Log into an ONS 15454 node on the network where you want to delete the circuit. See the DLP-A60 Log into CTC, page 3-23 for instructions. If you are already logged in, go to Step 2.

Step 2 Complete the "NTP-A108 Back Up the Database" procedure on page 15-8.

Step 3 Investigate all network alarms and resolve any problems that may be affected by the circuit deletion. Refer to the Alarm Troubleshooting chapter in the *Cisco ONS 15454 Troubleshooting Guide*.

Step 4 Verify that traffic is no longer carried on the circuit and that the circuit can be safely deleted.

Step 5 Click the **Circuits** tab.

Step 6 Choose the circuit(s) you want to delete, then click **Delete**.

Step 7 On the Delete Circuits confirmation dialog box, check **Set drop ports to OOS** 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.

Step 8 Complete the "NTP-A108 Back Up the Database" procedure on page 15-8.

Stop. You have completed this procedure.

NTP-A78 Create a Monitor Circuit

Purpose	This procedure creates a monitor circuit that monitors traffic on primary, bidirectional circuits.
Tools/Equipment	None
Prerequisite Procedures	Bidirectional (2-way) circuits must exist on the network. See Chapter 6, "Create Circuits and VT 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 Log into an ONS 15454 node on the network where you will create the monitor circuit. See the "DLP-A60 Log into CTC" task on page 3-23 for instructions. If you are already logged in, go to 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 more 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 On the Edit Circuit window, click the **Monitors** tab.

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

Note The Monitor tab is only available when the circuit has an ACTIVE status.

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

Note In Figure 9-5, you would choose either the DS1-14 card (to test circuit traffic entering Node 2 on the DS1-14) or the OC-N card at Node 1 (to test circuit traffic entering Node 1 on the OC-N card).

Step 8 Click **Create Monitor Circuit**.

Step 9 In the Circuit Destination section of the Circuit Creation wizard, choose the destination node, slot, port, STS, VT, or DS1 for the monitored circuit.

Note In the Figure 9-5 example, the monitor circuit destination is Port 2 on the EC1-12 card.

Step 10 Click **Next**.

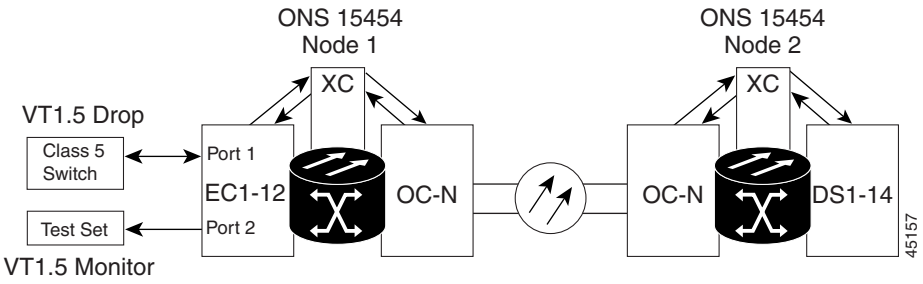
Step 11 On the Circuit Routing Preferences panel, review the monitor circuit information. If you want the monitor circuit routed on a BLSR protection channel, click **Protection Channel Access**.

Step 12 Click **Finish**.

Step 13 On the Edit Circuit window, click **Close**. The new monitor circuit appears on the Circuits tab.

Figure 9-5 shows a sample monitor circuit setup. VT1.5 traffic is received by Port 1 of the EC1-12 card at Node 1. To monitor the VT1.5 traffic, test equipment is plugged into Port 2 of the EC1-12 card and a monitor circuit to Port 2 is provisioned in CTC. (Circuit monitors are one-way.) This example assumes circuits have been created.

Figure 9-5 VT1.5 Monitor Circuit Received at an EC1-12 Port



Stop. You have completed this procedure.

NTP-A79 Create a J1 Path Trace

Purpose	This procedure createa a repeated, fixed-length string of characters used to monitor interruptions or changes to circuit traffic.
Tools/Equipment	ONS 15454 cards capable of transmitting and/or receiving path trace must be installed. See Table 9-3 on page 9-19 for a list of cards.
Prerequisite Procedures	Path trace can only be provisioned on OC-N (STS) circuits. See Chapter 6, "Create Circuits and VT Tunnels" for OC-N circuit creation procedures.
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Log into the node on the network where you will create the path trace. See the "DLP-A60 Log into CTC" task on page 3-23 for instructions. If you are already logged in, go to Step 2.

Step 2 Complete the following tasks as needed:

- As needed, complete the "DLP-A264 Provision Path Trace on Circuit Source and Destination Ports" task on page 9-19.
- As needed, complete the "DLP-A137 Provision Path Trace on OC-N Ports" task on page 9-23.

Stop. You have completed this procedure.

DLP-A264 Provision Path Trace on Circuit Source and Destination Ports

Purpose	This task creates a path trace on STS circuit source ports and destination ports.
Tools/Equipment	ONS 15454 cards capable of transmitting and receiving path trace must be installed at the circuit source and destination ports. See Table 9-3 on page 9-19 for a list of cards.
Prerequisite Procedures	DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Note This procedure assumes you are setting up path trace on a bidirectional circuit and setting up transmit strings at the circuit source and destination.

Step 1 Click the **Circuits tab**.

Step 2 For the STS circuit you want to monitor, verify that the source and destination ports are on a card that can transmit and receive the path trace string. See Table 9-3 for a list of cards.

Table 9-3 Path-Trace-Capable ONS 15454 Cards

J1 Function	Cards
Transmit and Receive	DS1-14, DS1N-14, DS3-12E, DS3N-12E, DS3XM-6, G1000-4 M400T-12 M4000-2
Receive Only	EC1-12 OC3 IR 4/STM1 SH 1310 OC3 IR 4/STM1 SH 1310-8 OC12/STM4-4 OC48 IR/STM16 SH AS 1310, OC48 LR/STM16 LH AS 1550 OC192 SR/STM64 IO 1310 OC192 LR/STM64 LH 1550 OC192 IR/STM SH 1550 ML100T ML1000

If neither port is on a transmit/receive card, you will not be able to complete this procedure. If one port is on a transmit/receive card and the other is on a receive-only card, you can set up the transmit string at the transmit/receive port and the receive string at the receive-only port, but you will not be able to transmit in both directions.

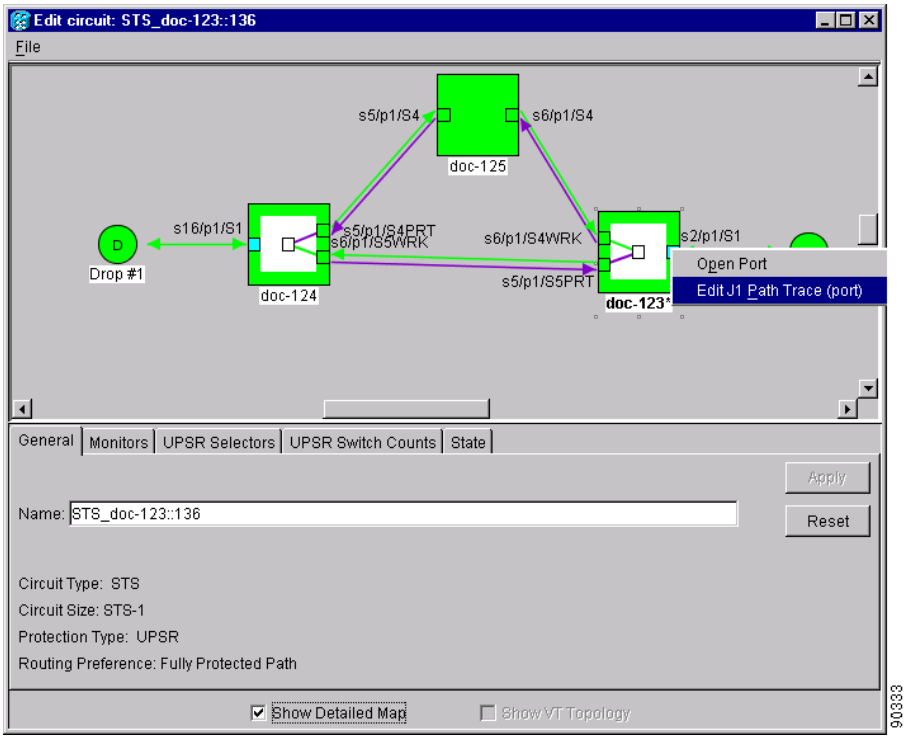
Step 3 Choose the STS circuit you want to trace, then double-click it (or click **Edit**).

Step 4 On the Edit Circuit window, click the **Show Detailed Map** check box at the bottom of the window. A detailed map of the source and destination ports is displayed.

Step 5 Provision the circuit source transmit string:

a. On the detailed circuit map right-click the circuit source port (the square on the left or right of the source node icon) and choose **Edit J1 Path Trace (port)** from the shortcut menu. Figure 9-6 shows an example.

Figure 9-6 Selecting the Edit Path Trace Option



b. In the New Transmit String field, enter the circuit source transmit string. Enter a string that makes the source port easy to identify, such as the node IP address, node name, circuit name, or another string. If the New Transmit String field is left blank, the J1 transmits a string of null characters.

c. Click **Apply**, then click **Close.**

Step 6 Provision the circuit destination transmit string:

a. On the detailed circuit map, (Figure 9-6) right-click the circuit destination port and choose **Edit Path Trace** from the shortcut menu.

b. In the New Transmit String field, enter the string that you want the circuit destination to transmit. Enter a string that makes the destination port easy to identify, such as the node IP address, node name, circuit name, or another string. If the New Transmit String field is left blank, the J1 transmits a string of null characters.

c. Click **Apply.**

Step 7 Provision the circuit destination expected string:

a. On the Circuit Path Trace window, enable the path trace expected string by choosing **Auto** or **Manual** from the Path Trace Mode pull-down menu:
   - Auto—The first string received from the source port is automatically provisioned as the current expected string. An alarm is raised when a string that differs from the baseline is received.
   - Manual—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.

b. If you set the Path Trace Mode field to Manual, enter the string that the circuit destination should receive from the circuit source in the New Expected String field. If you set Path Trace Mode to Auto, skip this step.

c. Click the **Disable AIS and RDI if TIM-P is detected** check box if you want to suppress the alarm indication signal (AIS) and RDI when the STS Path Trace Identifier Mismatch Path (TIM-P) alarm is displayed. Refer to the *Cisco ONS 15454 Troubleshooting Guide* for descriptions of alarms and conditions.

d. (Check box visibility depends on card selection) Click the **Disable AIS on C2 Mis-Match** check box if you want to suppress the Alarm Indication Signal when a C2 mis-match occurs.

e. Click **Apply**, then click **Close.**

Step 8 Provision the circuit source expected string:

a. On the Edit Circuit window (with Show Detailed Map chosen, see Figure 9-6) right-click the circuit source port and choose **Edit Path Trace** from the shortcut menu.

b. On the Circuit Path Trace window, enable the path trace expected string by choosing **Auto** or **Manual** from the Path Trace Mode pull-down menu:
   - Auto—Uses the first string received from the port at the other path trace end as the baseline string. An alarm is raised when a string that differs from the baseline is received.
   - Manual—Uses the Current Expected String field as the baseline string. An alarm is raised when a string that differs from the Current Expected String is received.

c. If you set the Path Trace Mode field to Manual, enter the string that the circuit source should receive from the circuit destination in the New Expected String field. If you set Path Trace Mode to Auto, skip this step.

d. Click the **Disable AIS and RDI if TIM-P is detected** check box if you want to suppress the alarm indication signal (AIS) and RDI when the STS Path Trace Identifier Mismatch Path (TIM-P) alarm is displayed. Refer to the *Cisco ONS 15454 Troubleshooting Guide* for descriptions of alarms and conditions.

e. (Check box visibility depends on card selection) Click the **Disable AIS on C2 Mis-Match** check box if you want to suppress the Alarm Indication Signal when a C2 mis-match occurs.

f. Click **Apply.**

Step 9 After you set up the path trace, the received string is displayed in the Received field on the path trace setup window. Figure 9-7 shows an example. The following options are available:

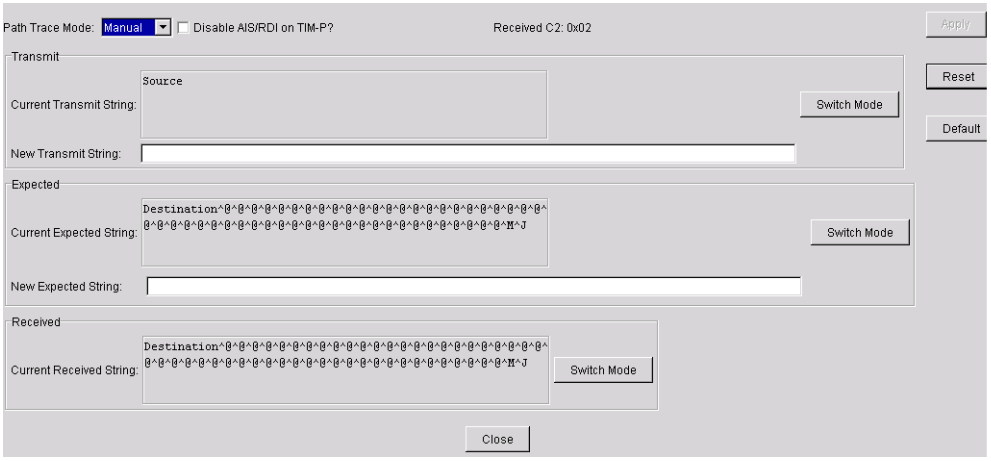
- Click **Hex Mode** to display path trace in hexadecimal display. The button name changes to ASCII Mode. Click it to return the path trace to ASCII display.
- Click the **Reset** button to reread values from the port.
- Click **Default** to return to the path trace default settings (Path Trace Mode is set to Off and the New Transmit and New Expected Strings are null).

Caution Clicking Default will generate alarms if the port on the other end is provisioned with a different string.

The Expect and Receive strings are updated every few seconds if the Path Trace Mode field is set to Auto or Manual.

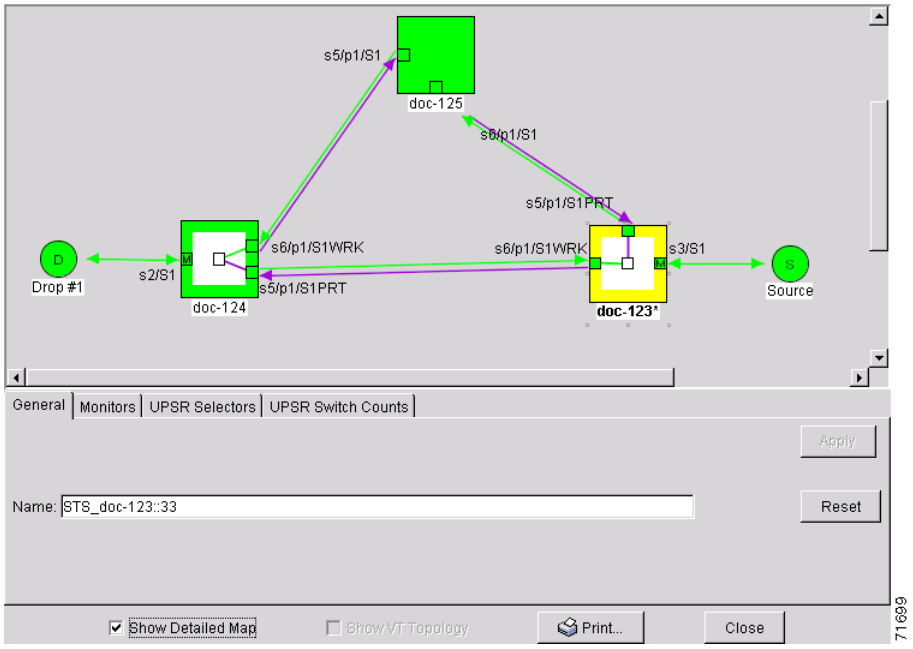
Step 10 Click **Close.**

Figure 9-7 Setting Up a Path Trace



When you display the detailed circuit window, path trace is indicated by an M (manual path trace) or an A (automatic path trace) at the circuit source and destination ports. Figure 9-8 shows an example.

Figure 9-8 Detailed Circuit Window With Manual Expected String Enabled



Step 11 Return to your originating procedure (NTP).

DLP-A137 Provision Path Trace on OC-N Ports

Purpose	This task monitors a path trace on OC-N ports within the circuit path.
Tools/Equipment	The OC-N ports you want to monitor must be on OC-N cards capable of receiving path trace. See Table 9-3 on page 9-19.
Prerequisite Procedures	DLP-A264 Provision Path Trace on Circuit Source and Destination Ports, page 9-19 DLP-A60 Log into CTC, page 3-23
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Display the node where path trace was provisioned on the circuit source and destination ports.

Step 2 Click **Circuits**.

Step 3 Choose the STS circuit that has path trace provisioned on the source and destination ports, then click **Edit**.

Step 4 On the Edit Circuit window, click the Show Detailed Map check box at the bottom of the window. A detailed circuit graphic showing source and destination ports is displayed.

Step 5 On the detailed circuit map right-click the circuit OC-N port (the square on the left or right of the source node icon) and choose **Edit Path Trace** from the shortcut menu.

Note The OC-N port must be on a receive-only card listed in Table 9-3 on page 9-19. If not, the Edit Path Trace menu item will not display.

Step 6 On the Circuit Path Trace window, enable the path trace expected string by choosing **Auto** or **Manual** from the Path Trace Mode pull-down menu:

- Auto—Uses the first string received from the port at the other path trace end as the current expected string. An alarm is raised when a string that differs from the baseline is received. For OC-N ports, Auto is recommended because Manual mode requires you to trace the circuit on the Edit Circuit window to determine whether the port is the source or destination path.
- Manual—Uses the Current Expected String field as the baseline string. An alarm is raised when a string that differs from the Current Expected String is received.

Step 7 If you set the Path Trace Mode field to Manual, enter the string that the OC-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. If you set the Path Trace Mode field to Auto, skip this step.

Step 8 Click **Apply**, then click **Close.**

Step 9 Return to your originating procedure (NTP).