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## DLP-D300 Clear an MS-SPRing Span Lockout

<b>Purpose</b>	This task clears a multiplex section-shared protection ring (MS-SPRing) span lockout. A lockout switches all traffic away from a span.
<b>Tools/Equipment</b>	None

<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u>
	<u>DLP-D299 Initiate an MS-SPRing Span Lockout</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Caution!** Traffic is not protected during a span lockout.

1. From the View menu, choose **Go to Network View**.
2. Click the **Provisioning > MS-SPRing** tabs.
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, press Ctrl and drag and drop the icon to a new location on the Edit MS-SPRing network graphic.

4. Right-click the MS-SPRing node channel (port) where the lockout will be cleared and choose **Set West Protection Operation** or **Set East Protection Operation**.
5. In the dialog box, choose **CLEAR** from the drop-down list. Click **OK**.
6. In the Confirm MS-SPRing Operation dialog box, click **Yes**.
7. From the File menu, choose **Close**.
8. Return to your originating procedure (NTP).

### DLP-D301 Initiate an MS-SPRing Manual Ring Switch

<b>Purpose</b>	This task performs an MS-SPRing Manual ring switch. A Manual ring switch will switch traffic off a span if there is no higher priority switch (Force or lockout) and no signal degrade (SD) or signal failure (SF) conditions.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. From the View menu, choose **Go to Network View**.
2. Click the **Provisioning > MS-SPRing** tabs.
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 while pressing **Ctrl**, drag the icon to a new location.

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:** The squares on the node icons represent the MS-SPRing working and protect channels. You can right-click either channel. For four-fiber MS-SPRings, the squares represent ports. Right-click either working port.

5. In the Set West Protection Operation dialog box or the Set East Protection Operation dialog box, choose **MANUAL RING** from the drop-down list. Click **OK**.

6. Click **Yes** in the two Confirm MS-SPRing Operation dialog boxes.
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. This confirms the Manual switch.
8. From the File menu, choose **Close**.
9. Return to your originating procedure (NTP).

## DLP-D303 Initiate an MS-SPRing Force Ring Switch

<b>Purpose</b>	This task performs a Force Ring protection switch on an MS-SPRing. A Force ring switch will switch traffic off a span if there is no SD, SF, or lockout switch present on the span.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	Provisioning or higher

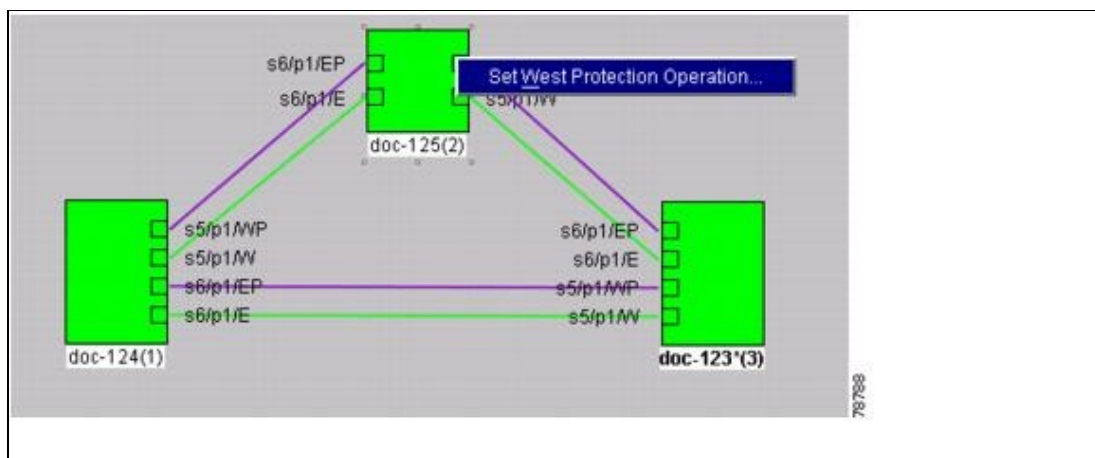
**Caution!** Traffic is not protected during a Force Ring protection switch.

1. From the View menu, choose **Go to Network View**.
2. Click the **Provisioning > MS-SPRing** tabs.
3. Click **Edit**.
4. To apply a Force switch to the west line:
  1. Right-click the west MS-SPRing port where you want to switch the MS-SPRing traffic and choose **Set West Protection Operation** (Figure 20-1).
 

**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, because 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. For four-fiber MS-SPRings, the squares represent ports. Right-click either working port.

**Figure 20-1: Invoking a Protection Operation on a Three-Node MS-SPRing**



2. In the Set West Protection Operation choose **FORCE RING** from the drop-down list. Click **OK**.
3. 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.

5. To apply a Force switch to the east line:

1. 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. You can also return to network view and change the positions of the network node icons because 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. For four-fiber MS-SPRings, the squares represent ports. Right-click either working port.

2. In the Set East Protection Operation dialog box, choose **FORCE RING** from the drop-down list. Click **OK**.

3. 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.

6. From the File menu, choose **Close**.

7. Return to your originating procedure (NTP).

## DLP-D309 View Ethernet MAC Address Table

<b>Purpose</b>	This task displays the Ethernet MAC address table for any node with one or more E-Series Ethernet cards installed.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher

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

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

3. Click the **Retrieve** button.

The MAC address table information appears.

4. Return to your originating procedure (NTP).

## DLP-D310 View Ethernet Trunk Utilization

<b>Purpose</b>	This task changes the screen view to display the Ethernet Trunk bandwidth usage on a selected card.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>

<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher

1. In node view, click the **Maintenance > Ether Bridge > Trunk Utilization** tabs.
2. Select the desired time interval in the Interval field.
3. Click **Refresh**.

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

4. Return to your originating procedure (NTP).

## DLP-D311 Provision a Half Circuit Source and Destination on an MS-SPRing or 1+1 Node

<b>Purpose</b>	This task provisions a half circuit source and destination on an MS-SPRing or 1+1 node. A half circuit allows you to provision a partial path (one end of a circuit), for example, if you want to provision a circuit with the intent that the path will be completed at a later time or at a different location.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u> This task can only be performed as a part of the <u>NTP-D139 Create a Half Circuit on an MS-SPRing or 1+1 Node</u> .
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. From the Node drop-down list, choose the node that will contain the half circuit.
2. From the Slot drop-down list, choose the slot containing the card where the circuit will originate.
3. From the Port drop-down list, choose the port where the circuit will originate. This field might not be available, depending on the card chosen in Step 2.
4. Complete one of the following:
  - ◆ For low-order VC12 circuits, choose the VC4, TUG3, TUG2, and VC12.
  - ◆ For low-order VC11 circuits, choose the VC4, TUG3, TUG2, and VC11.
  - ◆ For low-order VC3 circuits, choose the VC4 and VC3.
  - ◆ For high-order circuits, choose the VC4.
5. Click **Next**.
6. From the Node drop-down list, choose the node chosen in Step 1.
7. From the Slot drop-down list, choose the STM-N card to map the low-order VC3, VC11, or VC12 circuit for optical transport or to map the VC4 circuit to a synchronous transport module (STM).
8. Choose the destination from the drop-down lists that appear.
9. Return to your originating procedure (NTP).

## DLP-D312 Provision a Half Circuit Source and Destination on an SNCP Ring

<b>Purpose</b>	This task provisions a half circuit source and destination on a subnetwork connection protection (SNCP) ring. A half circuit allows you to provision a partial path (one end of a circuit), for example, if you want to provision a circuit with the intent that the path will be completed at a later time or at a different location.
<b>Tools/Equipment</b>	None
	<u>DLP-D60 Log into CTC</u>

<b>Prerequisite Procedures</b>	This task can only be performed as a part of the <a href="#">NTP-D140 Create a Half Circuit on an SNCP Ring Node</a> .
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. From the Node drop-down list, choose the node that will contain the half circuit.
2. From the Slot drop-down list, choose the slot containing the card where the circuit will originate.
3. From the Port drop-down list, choose the port where the circuit will originate. This field might not be available, depending on the card chosen in Step 2.
4. Complete one of the following:
  - ◆ For low-order VC12 circuits, choose the VC4, TUG3, TUG2, and VC12.
  - ◆ For low-order VC11 circuits, choose the VC4, TUG3, TUG2, and VC11.
  - ◆ For low-order VC3 circuits, choose the VC4 and VC3.
  - ◆ For high-order circuits, choose the VC4.
5. Click **Next**.
6. From the Node drop-down list, choose the node chosen in Step 1.
7. From the Slot drop-down list, choose the STM-N card to map the low-order VC3, VC11, or VC12 circuit for optical transport or to map the VC4 circuit to an STM.
8. Click **Next**.
9. Choose the destination VC4, TUG3, TUG2, and VC12 from the drop-down lists that appear.
10. Check **Use Secondary Destination** and repeat Steps 1 through 9.
11. Return to your originating procedure (NTP).

### DLP-D314 Assign a Name to a Port

<b>Purpose</b>	This task assigns a name to a port on any ONS 15454 SDH card.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a> <a href="#">NTP-D24 Verify Card Installation</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. In node view, double-click the card that has the port you want to provision.
2. Click the **Provisioning** tab.
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.
4. Click **Apply**.
5. Return to your originating procedure (NTP).

### DLP-D315 Log Out a User on a Single Node

<b>Purpose</b>	This task logs out a user from a single node.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed

<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser only

1. In node view, click the **Provisioning > Security > Active Logins** tabs.
2. Choose the user that you want to log out and click **Logout**.
3. In the Logout User dialog box, check **Lockout before Logout** if you want to lock the user out. This prevents the user from logging in after logout based on user lockout parameters provisioned in the Policy tab. Either a manual unlock by a Superuser only is required, or the user is locked out for the amount of time specified in the Lockout Duration field. See the "[DLP-D271 Change Node Security Policy on a Single Node](#)" task for more information.
4. Click **OK**.
5. Click **Yes** to confirm the logout.
6. Return to your originating procedure (NTP).

### DLP-D316 Log Out a User on Multiple Nodes

<b>Purpose</b>	This task logs out a user from multiple nodes.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser only

1. From the View menu, chose **Go to Network View**.
2. Click the **Provisioning > Security > Active Logins** tabs.
3. Choose the user you want to log out.
4. Click **Logout**.
5. In the Logout User dialog box, check the nodes where you want to log out the user.
6. In the Logout User dialog box, check **Lockout before Logout** if you want to lock the user out prior to logout. This prevents the user from logging in after logout based on user lockout parameters provisioned in the Policy tab. Either a manual unlock by a Superuser only is required, or the user is locked out for the amount of time specified in the Lockout Duration field. See the "[DLP-D272 Change Node Security Policy on Multiple Nodes](#)" task for more information.
7. In the Select Applicable Nodes area, deselect any nodes where you do not want to change the user's settings (all network nodes are selected by default).
8. Click **OK**.
9. In the User Change dialog box, click **OK**.
10. Return to your originating procedure (NTP).

### DLP-D318 Provision a Low-Order VC3 Circuit Source and Destination

<b>Purpose</b>	This task provisions a circuit source and destination for a low-order VC3 circuit.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a> <a href="#">NTP-D54 Create an Automatically Routed Low-Order VC3 Circuit</a> , or <a href="#">NTP-D55 Create a Manually Routed Low-Order VC3 Circuit</a> , or <a href="#">NTP-D56 Create a Unidirectional Low-Order VC3 Circuit with Multiple Drops</a>

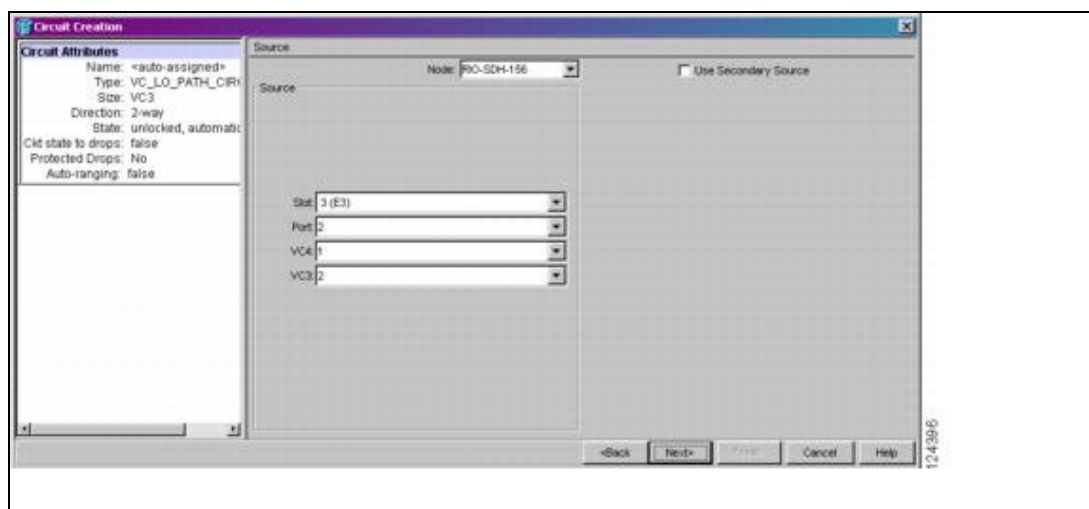


	You must have the Source page of the Circuit Creation wizard open.
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**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.

1. From the Node drop-down list, choose the node where the source will originate.
2. From the Slot drop-down list, choose the slot containing the E3-12 or DS3i-N-12 card where the circuit will originate. You can also choose an STM-N card to map the VC3 to a VC4 for optical transport. [Figure 20-2](#) shows an example of a circuit source for an E3-12 card.

**Figure 20-2: Defining the Circuit Source on an E3-12 Card**



3. Choose the port from the Port drop-down list.
4. Choose the VC4 from the VC4 drop-down list.
5. Choose the VC3 from the VC3 drop-down list.
6. If you need to create a secondary source, for example, an SNCP ring bridge/selector circuit entry point in a multivendor SNCP ring, click **Use Secondary Source** and repeat Steps 1 through 5 to define the secondary source. If you do not need to create a secondary source, continue with Step 7.
7. Click **Next**.
8. From the Node drop-down list, choose the destination (termination) node.
9. From the Slot drop-down list, choose the slot containing the destination card. The destination is typically a E3 or DS3 card. However, you can also choose an STM-N card to map the VC3 to a VC4 for optical transport.
10. Depending on the destination card, choose the destination port from the drop-down lists that appear based on the card selected in Step 2. See [Table 6-2](#) for a list of valid options. Cisco Transport Controller (CTC) does not show ports, VC4s, or VC3s already used by other circuits.

**Note:** If you and a user working on the same network choose the same port, VC4, or VC3 simultaneously, one of you receives a Path in Use error and is unable to complete the circuit. The user with the PARTIAL circuit needs to choose new destination parameters.

11. If you need to create a secondary destination, for example, an SNCP ring bridge/selector circuit exit point in a multivendor SNCP ring, click **Use Secondary Destination** and repeat Steps 8 through 10 to define the secondary destination.
12. Click **Next**.
13. Return to your originating procedure (NTP).

## DLP-D319 Set Up a Solaris Workstation for a Craft Connection to an ONS 15454 SDH

<b>Purpose</b>	This task sets up a Solaris workstation for a craft connection to the ONS 15454 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">NTP-D278 Set Up Computer for CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

1. Log into the workstation as the root user.
2. Check to see if the interface is plumbed by typing:

```
# ifconfig device
For example:
```

```
# ifconfig hme1
```

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

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

If a message similar to this one appears, go to Step 4.

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

```
ifconfig: status: SIOCGLIFFLAGS: hme1: no such interface.
If a message similar to this one appears, go to Step 3.
```

3. Plumb the interface by typing:

```
# ifconfig device plumb
```

For example:

```
# ifconfig hme1 plumb
```

4. Configure the IP address on the interface by typing:

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

For example:

```
# ifconfig hme0 192.1.0.3 netmask 255.255.255.0 up
```

**Note:** Enter an IP address that is identical to the ONS 15454 SDH IP address except for the last octet. The last octet must be 1 or 3 through 254.

5. In the Subnet Mask field, type **255.255.255.0**. Skip this step if you checked Enable Socks Proxy on Port and External Network Element (ENE) at Provisioning > Network > General > Gateway Settings.

6. Test the connection:

1. Start Netscape Navigator.

2. Enter the Cisco ONS 15454 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-D60 Log into CTC](#)" task to complete the login. If the Login dialog box does not appear, complete SubSteps 3 and 4.

3. At the prompt, type:

**ping** *ONS-15454-SDH-IP-address*

For example, to connect to an ONS 15454 SDH with a default IP address of 192.1.0.2, type:

**ping 192.1.0.2**

If your workstation is connected to the ONS 15454 SDH, the following message appears:

*IP-address is alive*

**Note:** Skip this step if you checked Enable Socks Proxy on Port and External Network Element (ENE) at Provisioning > Network > General > Gateway Settings.

4. If CTC is not responding, a "Request timed out" (Windows) or a "no answer from x.x.x.x" (UNIX) message appears. Verify the IP and subnet mask information. Check that the cables connecting the workstation to the ONS 15454 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
```

A result of 1 means that the link is up. A result of 0 means that the link is down.

**Note:** Check the man page for ndd. For example, type **man ndd** at the prompt.

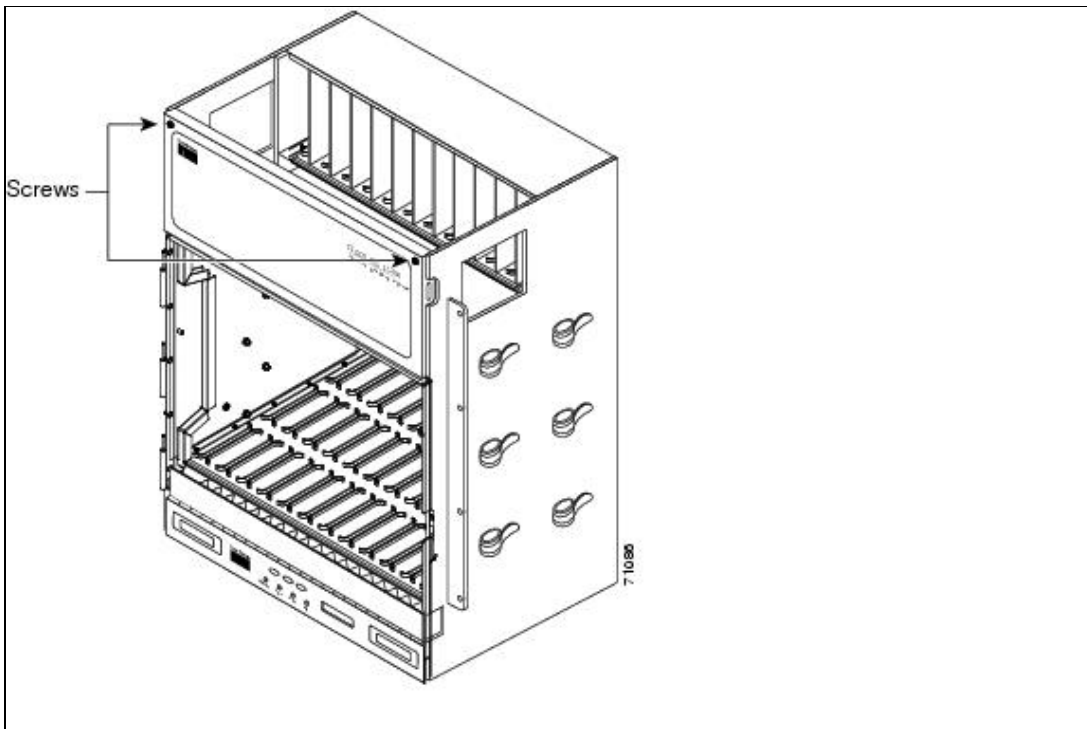
7. Return to your originating procedure (NTP).

## DLP-D321 Open the FMEC Cover

<b>Purpose</b>	This task opens the Front Mount Electrical Connection (FMEC) cover.
<b>Tools/Equipment</b>	Medium slot-head screwdriver
<b>Prerequisite Procedures</b>	<a href="#">DLP-D8 Open the Front Cabinet Compartment (Door)</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

1. Unscrew the screws on the FMEC cover ([Figure 20-3](#)).

**Figure 20-3: Unscrewing the FMEC Cover**



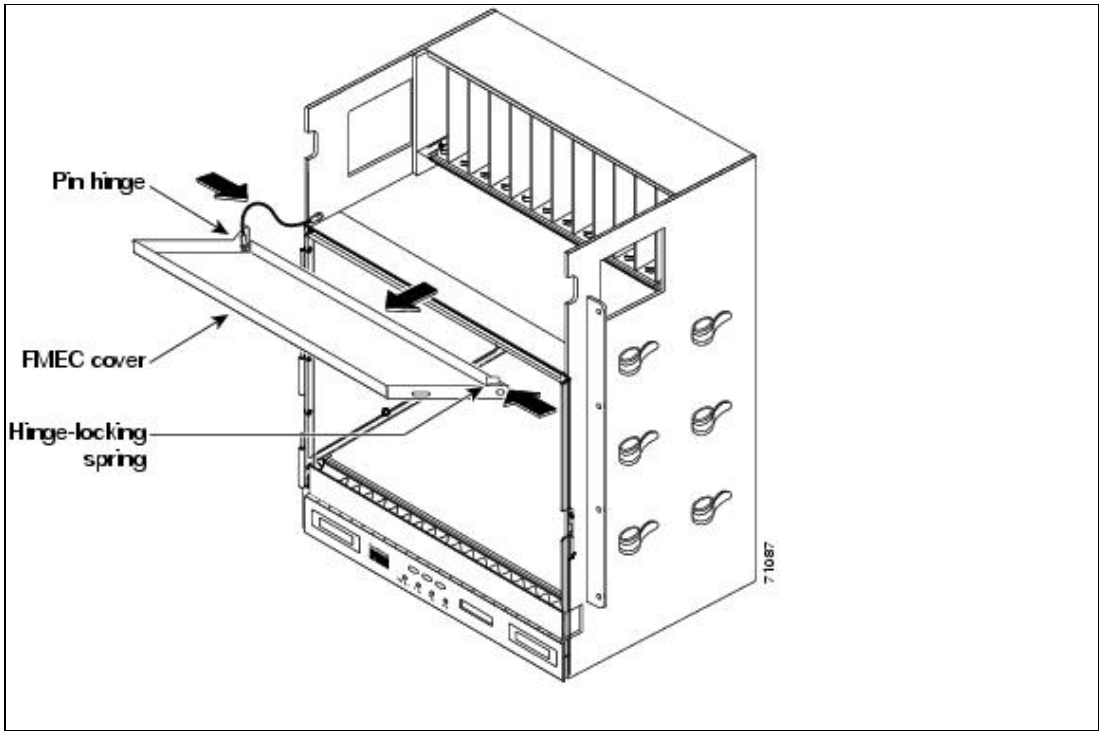
2. Use the handles to pull the cover forward.
3. Return to your originating procedure (NTP).

### DLP-D322 Remove the FMEC Cover

<b>Purpose</b>	This task removes the FMEC cover.
<b>Tools/Equipment</b>	Medium slot-head screwdriver
<b>Prerequisite Procedures</b>	<u>DLP-D321 Open the FMEC Cover</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

1. Unscrew the nut holding the ground wire to the shelf. Remove the nut and washer.
2. Remove the ground wire from the left side of the shelf.
3. Pull the right side of the hinge-locking spring ([Figure 20-4](#)).

Figure 20-4: Removing the ONS 15454 SDH FMEC Cover



4. Detach the cover from the pin of the hinge.
5. Remove the cover carefully from the left pin of the hinge.
6. Return to your originating procedure (NTP).

### DLP-D324 Install Alarm Cables on the MIC-A/P

<b>Purpose</b>	This task installs alarm cables on the MIC-A/P FMEC so that you can provision external (environmental) alarms and controls with the AIC-I card.
<b>Tools/Equipment</b>	DB-62 connector mm <sup>2</sup> or 0.64 mm <sup>2</sup> (#22 or #24 AWG) wires
<b>Prerequisite Procedures</b>	<u>NTP-D220 Install the Power and Signal FMECs</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

1. Using 0.51 mm<sup>2</sup> or 0.64 mm<sup>2</sup> (#22 or #24 AWG) wires, connect the alarm and control wires on the appropriate pins of the DB-62 connector. The pin connectors, signal names, and functions are listed in [Table 20-1](#).

Table 20-1: Alarm Pin Assignments

DB-62 Pin Connector	Signal Name	Function	Wire Color
1	ALMCUTOFF-	Alarm cutoff	White/blue
2	ALMCUTOFF+	Alarm cutoff	Blue/white
3	ALMINP0-	Alarm input pair number 1	White/orange
4	ALMINP0+	Alarm input pair number 1	Orange/white
5	ALMINP1-	Alarm input pair number 2	White/green

6	ALMINP1+	Alarm input pair number 2	Green/white
7	ALMINP2-	Alarm input pair number 3	White/brown
8	ALMINP2+	Alarm input pair number 3	Brown/white
9	ALMINP3-	Alarm input pair number 4	White/gray
10	ALMINP3+	Alarm input pair number 4	Gray/white
11	EXALM0-	Extra alarm 0	Red/blue
12	EXALM0+	Extra alarm 0	Blue/red
13	FGND	Ground	-
14	EXALM1-	Extra alarm 1	Red/orange
15	EXALM1+	Extra alarm 1	Orange/red
16	EXALM2-	Extra alarm 2	Red/green
17	EXALM2+	Extra alarm 2	Green/red
18	EXALM3-	Extra alarm 3	Red/brown
19	EXALM3+	Extra alarm 3	Brown/red
20	EXALM4-	Extra alarm 4	Red/gray
21	EXALM4+	Extra alarm 4	Gray/red
22	EXALM5-	Extra alarm 5	Black/blue
23	EXALM5+	Extra alarm 5	Blue/black
24	EXALM6-	Extra alarm 6	Black/orange
25	EXALM6+	Extra alarm 6	Orange/black
26	FGND	Ground	-
27	EXALM7-	Extra alarm 7	Black/green
28	EXALM7+	Extra alarm 7	Green/black
29	EXALM8-	Extra alarm 8	Black/brown
30	EXALM8+	Extra alarm 8	Brown/black
31	EXALM9-	Extra alarm 9	Black/gray
32	EXALM9+	Extra alarm 9	Gray/black
33	EXALM10-	Extra alarm 10	Yellow/blue
34	EXALM10+	Extra alarm 10	Blue/yellow
35	EXALM11-	Extra alarm 11	Yellow/orange
36	EXALM11+	Extra alarm 11	Orange/yellow
37	ALMOUP0-	Normally open output pair number 1	White/blue
38	ALMOUP0+	Normally open output pair number 1	Blue/white
39	FGND	Ground	-
40	ALMOUP1-	Normally open output pair number 2	White/orange
41	ALMOUP1+	Normally open output pair number 2	Orange/white
42	ALMOUP2-	Normally open output pair number 3	White/green
43	ALMOUP2+	Normally open output pair number 3	Green/white
44	ALMOUP3-	Normally open output pair number 4	White/brown
45	ALMOUP3+	Normally open output pair number 4	Brown/white
46	AUDALM0-	Normally open minor audible alarm	White/gray
47	AUDALM0+	Normally open minor audible alarm	Gray/white
48	AUDALM1-	Normally open major audible alarm	Red/blue
49	AUDALM1+	Normally open major audible alarm	Blue/red

Table 20-1: Alarm Pin Assignments

50	AUDALM2-	Normally open critical audible alarm	Red/orange
51	AUDALM2+	Normally open critical audible alarm	Orange/red
52	FGND	Ground	-
53	AUDALM3-	Normally open remote audible alarm	Red/green
54	AUDALM3+	Normally open remote audible alarm	Green/red
55	VISALM0-	Normally open minor visible alarm	Red/brown
56	VISALM0+	Normally open minor visible alarm	Brown/red
57	VISALM1-	Normally open major visible alarm	Red/gray
58	VISALM1+	Normally open major visible alarm	Gray/red
59	VISALM2-	Normally open minor visible alarm	Black/blue
50	VISALM2+	Normally open minor visible alarm	Blue/black
61	VISALM3-	Normally open minor visible alarm	Black/orange
62	VISALM3+	Normally open minor visible alarm	Orange/black

2. Connect the other end of the alarm and control wires according to local site practice.
3. Connect the DB-62 connector to the ALARM IN/OUT connector on the MIC-A/P faceplate.
4. Tighten the screws of the connector on the alarm cable.
5. Return to your originating procedure (NTP).

### DLP-D325 Install Timing Cables on the MIC-C/T/P

<b>Purpose</b>	This task installs the timing cables on the MIC-C/T/P FMEC.
<b>Tools/Equipment</b>	75-ohm coaxial cable with a 1.0/2.3 miniature coax connector on the MIC-C/T/P side
<b>Prerequisite Procedures</b>	<u>NTP-D220 Install the Power and Signal FMECs</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

1. Using coaxial cable with 1.0/2.3 miniature coax connectors, connect the clock cable to the appropriate connector on the faceplate of the MIC-C/T/P FMEC.
2. Gently push the cable with the 1.0/2.3 miniature coax connector down until the cable connector slides into the 1.0/2.3 miniature coax connector on the faceplate with a click.

The MIC-C/T/P provides 1.0/2.3 miniature coax connectors that are used for timing input and output. The top connectors are for "A" (BITS-1) timing, and the bottom connectors are for "B" (BITS-2) timing. In each case, the left connector is the input and the right connector is the output. The input connectors for timing provide a 75-ohm termination. System cables are available that can convert timing clocks from 75 ohms to 100/120 ohms. Table 20-2 shows MIC-C/T/P pin assignments.

**Table 20-2: MIC-C/T/P Clock Connector Pin Assignment**

Pin	Function
IN 1	Input from external device
OUT 1	Output to external device
IN 2	Input from external device
OUT 2	Output to external device

A high-impedance option (> 3 kilo-ohms or greater) is possible through a jumper on the MIC-C/T/P FMEC. You can change the top timing input to high impedance by removing the jumper on P3 on the MIC-C/T/P FMEC. You can change the bottom timing input to high impedance by removing the jumper on P2 of the MIC-C/T/P FMEC.

**Note:** Refer to ITU-T G.813 for rules about provisioning timing references.

3. Connect the other end of the cable to the external source of the timing signal according to [Table 20-2](#).
4. Repeat Step 3 for each cable that is required.
5. Return to your originating procedure (NTP).

### DLP-D326 Install LAN Wires on the MIC-C/T/P

<b>Purpose</b>	This task installs the LAN wires on the MIC-C/T/P FMEC.
<b>Tools/Equipment</b>	Standard CAT-5 unshielded twisted-pair (UTP) Ethernet cable (straight-through for data terminal equipment [DTE] or cross-over for data circuit-terminating equipment [DCE])  or  RJ-45 connector  Crimping tool for RJ-45 connector  0.51 mm <sup>2</sup> or 0.64 mm <sup>2</sup> (#22 or #24 AWG) wire, preferably CAT-5 UTP
<b>Prerequisite Procedures</b>	<a href="#">NTP-D220 Install the Power and Signal FMECs</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Note:** Rather than using the LAN connection port on the MIC-C/T/P, you can use the LAN connection port on the TCC2/TCC2P card if preferred. Use either the MIC-C/T/P connection or the TCC2/TCC2P card connection. You cannot use the LAN connection port on the MIC-C/T/P and the LAN connection port on the TCC2/TCC2P card simultaneously; however, it is possible for you to make a direct connection from a computer to the LAN connection port on the TCC2/TCC2P card while the LAN connection port on the MIC-C/T/P is in use as long as the computer connected directly to the TCC2/TCC2P card is not connected to the same LAN.

1. Using 0.51 mm<sup>2</sup> or 0.64 mm<sup>2</sup> (#22 or #24 AWG) wire or CAT-5 UTP Ethernet cable, connect the wires to the RJ-45 connector according to [Table 20-3](#) and crimp the connector to the cable.

**Table 20-3: LAN Pin Assignments**

LAN	RJ-45 Pin	RJ-45 Pin	Function
LAN 1 Connecting to DCE <sup>1</sup> (a hub or switch) Cross-over Ethernet cable	1	3	PNMSRX+ white/green
	2	6	PNMSRX- green
	3	1	PNMSTX white/orange



	4	4	-
	5	5	-
	6	2	PNMSTX- orange
	7	7	-
	8	8	-
LAN 1 Connecting to DTE (a PC/workstation or router) Straight-through Ethernet cable	1	1	PNMSRX+ white/green
	2	2	PNMSRX- green
	3	3	PNMSTX+ white/orange
	4	4	-
	5	5	-
	6	6	PNMSTX- orange
	7	7	-
	8	8	-

1. The Cisco ONS 15454 SDH is DCE.

2. Plug the connector into the LAN connection point.
3. Return to your originating procedure (NTP).

### DLP-D328 Install 75-Ohm E-3 or STM-1 Coaxial Cables

<b>Purpose</b>	This task installs the 75-ohm coaxial cables on FMEC-E3/DS3, and FMEC STM1E 1:1 cards. This task also installs the 75-ohm coaxial cables on the E1-75/120 conversion panel.
<b>Tools/Equipment</b>	75-ohm coaxial cables with 1.0/2.3 miniature coax connectors
<b>Prerequisite Procedures</b>	<a href="#">NTP-D220 Install the Power and Signal FMECs</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

1. Using coaxial cable with 1.0/2.3 miniature coax connector, connect the coaxial cable to the appropriate connector on the faceplate of the FMEC.
2. Gently push the cable with the 1.0/2.3 miniature coax connector down until the cable connector slides into the 1.0/2.3 miniature coax connector on the faceplate with a click.
3. Connect the other end of the cable to the external source or sink of the signal.
4. Repeat Step 3 for each cable required.
5. Return to your originating procedure (NTP).

### DLP-D330 Install 120-Ohm E-1 Cables with Molex 96-Pin LFH Connectors

<b>Purpose</b>	This task installs the 120-ohm E-1 cables on FMEC E1-120NP, FMEC E1-120PROA, and FMEC E1-120PROB cards. Also use this task to install the 120-ohm E-1 cables on the E1-75/120 conversion panel.
----------------	---

<b>Tools/Equipment</b>	Twisted-pair cables with Molex 96-pin LFH connectors
<b>Prerequisite Procedures</b>	<u>NTP-D220 Install the Power and Signal FMECs</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

- Using the cables with Molex 96-pin LFH connectors available from Cisco, connect the male connector to the female connector on the FMEC card that you want to connect to.

Use [Table 20-4](#) to make the connection from the E-1 96-pin connector for Ports 1 to 21 to the external balanced 120-ohm E-1 interfaces.

**Table 20-4: Pinout for E-1 Interfaces on Ports 1 to 21**

Pin No.	Signal Name	Wire Color	Pin No.	Signal Name	Wire Color	Pin No.	Signal Name	Wire Color	Pin No.	Signal Name	Wire Color
1	TX 11 N	white-blue	25	RX 11 N	white-blue	49	TX 21 N	black-orange	73	RX 21 N	black-orange
2	TX 11 P	blue-white	26	RX 11 P	blue-white	50	TX 21 P	orange-black	74	RX 21 P	orange-black
3	TX 10 N	white-orange	27	RX 10 N	white-orange	51	TX 20 N	black-green	75	RX 20 N	black-green
4	TX 10 P	orange-white	28	RX 10 P	orange-white	52	TX 20 P	green-black	76	RX 20 P	green-black
5	TX 9 N	white-green	29	RX 9 N	white-green	53	TX 19 N	black-brown	77	RX 19 N	black-brown
6	TX 9 P	green-white	30	RX 9 P	green-white	54	TX 19 P	brown-black	78	RX 19 P	brown-black
7	TX 8 N	white-brown	31	RX 8 N	white-brown	55	TX 18 N	black-slate	79	RX 18 N	black-slate
8	TX 8 P	brown-white	32	RX 8 P	brown-white	56	TX 18 P	slate-black	80	RX 18 P	slate-black
9	TX 7 N	white-slate	33	RX 7 N	white-slate	57	TX 17 N	yellow-blue	81	RX 17 N	yellow-blue
10	TX 7 P	slate-white	34	RX 7 P	slate-white	58	TX 17 P	blue-yellow	82	RX 17 P	blue-yellow
11	TX 6 N	red-blue	35	RX 6 N	red-blue	59	TX 16 N	yellow-orange	83	RX 16 N	yellow-orange
12	TX 6 P	blue-red	36	RX 6 P	blue-red	60	TX 16 P	orange-yellow	84	RX 16 P	orange-yellow
13	TX 5 N	red-orange	37	RX 5 N	red-orange	61	TX 15 N	yellow-green	85	RX 15 N	yellow-green
14	TX 5 P	orange-red	38	RX 5 P	orange-red	62	TX 15 P	green-yellow	86	RX 15 P	green-yellow
15	TX 4 N	red-green	39	RX 4 N	red-green	63	TX 14 N	yellow-brown	87	RX 14 N	yellow-brown
16	TX 4 P	green-red	40	RX 4 P	green-red	64	TX 14 P	brown-yellow	88	RX 14 P	brown-yellow

17	TX 3 N	red-brown	41	RX 3 N	red-brown	65	TX 13 N	yellow-slate	89	RX 13 N	yellow-slate
18	TX 3 P	brown-red	42	RX 3 P	brown-red	66	TX 13 P	slate-yellow	90	RX 13 P	slate-yellow
19	TX 2 N	red-slate	43	RX 2 N	red-slate	67	TX 12 N	violet-blue	91	RX 12 N	violet-blue
20	TX 2 P	slate-red	44	RX 2 P	slate-red	68	TX 12 P	blue-violet	92	RX 12 P	blue-violet
21	TX 1 N	black-blue	45	RX 1 N	black-blue	69	-	-	93	-	-
22	TX 1 P	blue-black	46	RX 1 P	blue-black	70	-	-	94	-	-
23	-	-	47	-	-	71	-	-	95	-	-
24	-	-	48	-	-	72	-	-	96	-	-

Use [Table 20-5](#) to make the connection from the E-1 96-pin connector for Ports 22 to 42 to the external balanced 120-ohm E-1 interfaces.

**Table 20-5: Pinout for E-1 Interfaces on Ports 22 to 42**

Pin No.	Signal Name	Wire Color	Pin No.	Signal Name	Wire Color	Pin No.	Signal Name	Wire Color	Pin No.	Signal Name	Wire Color
1	TX 32 N	white-blue	25	RX 32 N	white-blue	49	TX 42 N	black-orange	73	RX 42 N	black-orange
2	TX 32 P	blue-white	26	RX 32 P	blue-white	50	TX 42 P	orange-black	74	RX 42 P	orange-black
3	TX 31 N	white-orange	27	RX 31 N	white-orange	51	TX 41 N	black-green	75	RX 41 N	black-green
4	TX 31 P	orange-white	28	RX 31 P	orange-white	52	TX 41 P	green-black	76	RX 41 P	green-black
5	TX 30 N	white-green	29	RX 30 N	white-green	53	TX 40 N	black-brown	77	RX 40 N	black-brown
6	TX 30 P	green-white	30	RX 30 P	green-white	54	TX 40 P	brown-black	78	RX 40 P	brown-black
7	TX 29 N	white-brown	31	RX 29 N	white-brown	55	TX 39 N	black-slate	79	RX 39 N	black-slate
8	TX 29 P	brown-white	32	RX 29 P	brown-white	56	TX 39 P	slate-black	80	RX 39 P	slate-black
9	TX 28 N	white-slate	33	RX 28 N	white-slate	57	TX 38 N	yellow-blue	81	RX 38 N	yellow-blue
10	TX 28 P	slate-white	34	RX 28 P	slate-white	58	TX 38 P	blue-yellow	82	RX 38 P	blue-yellow
11	TX 27 N	red-blue	35	RX 27 N	red-blue	59	TX 37 N	yellow-orange	83	RX 37 N	yellow-orange
12	TX 27 P	blue-red	36	RX 27 P	blue-red	60	TX 37 P	orange-yellow	84	RX 37 P	orange-yellow
13	TX 26 N	red-orange	37	RX 26 N	red-orange	61	TX 36 N	yellow-green	85	RX 36 N	yellow-green
14		orange-red	38		orange-red	62		green-yellow	86		green-yellow

	TX 26 P			RX 26 P			TX 36 P			RX 36 P	
15	TX 25 N	red-green	39	RX 25 N	red-green	63	TX 35 N	yellow-brown	87	RX 35 N	yellow-brown
16	TX 25 P	green-red	40	RX 25 P	green-red	64	TX 35 P	brown-yellow	88	RX 35 P	brown-yellow
17	TX 24 N	red-brown	41	RX 24 N	red-brown	65	TX 34 N	yellow-slate	89	RX 34 N	yellow-slate
18	TX 24 P	brown-red	42	RX 24 P	brown-red	66	TX 34 P	slate-yellow	90	RX 34 P	slate-yellow
19	TX 23 N	red-slate	43	RX 23 N	red-slate	67	TX 33 N	violet-blue	91	RX 33 N	violet-blue
20	TX 23 P	slate-red	44	RX 23 P	slate-red	68	TX 33 P	blue-violet	92	RX 33 P	blue-violet
21	TX 22 N	black-blue	45	RX 22 N	black-blue	69	-	-	93	-	-
22	TX 22 P	blue-black	46	RX 22 P	blue-black	70	-	-	94	-	-
23	-	-	47	-	-	71	-	-	95	-	-
24	-	-	48	-	-	72	-	-	96	-	-

2. Tighten the screws of the cable connector to the FMEC connector.
3. Label all cables at each end of the connection to avoid confusion with cables that are similar in appearance.
4. Return to your originating procedure (NTP).

### DLP-D332 Install the TCC2/TCC2P Cards

<b>Purpose</b>	This task installs redundant TCC2/TCC2P cards. The first card you install in the ONS 15454 SDH must be a TCC2/TCC2P card, and it must initialize before you install any cross-connect or traffic cards.
<b>Tools/Equipment</b>	Two TCC2/TCC2P cards
<b>Prerequisite Procedures</b>	None
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Note:** When installing cards, allow each card to boot completely before installing the next card.

1. Open the latches/ejectors of the TCC2/TCC2P card that you will install.
2. Use the latches/ejectors to firmly slide the card along the guide rails until the card plugs into the receptacle at the back of the slot (Slot 7 or 11).
3. Verify that the card is inserted correctly and close the latches/ejectors on the card.
 

**Note:** It is possible to close the latches/ejectors when the card is not completely plugged into the backplane. Ensure that you cannot insert the card any further.

If you insert a card into a slot provisioned for a different card, all LEDs turn off.
4. Go to SubStep 1 to verify the LED activity on the TCC2 card. For the TCC2P card, go to SubStep 2.
  1. For the TCC2 card:

- ◇ All LEDs turn on briefly. The red FAIL LED and the yellow ACT/STBY LED turn on for about 15 seconds.
- ◇ The red FAIL LED and the green ACT/STBY LED turn on for about 40 seconds.
- ◇ The red FAIL LED blinks for about 15 seconds.
- ◇ The red FAIL LED turns on for about 15 seconds. All LEDs turn on for about 3 seconds before turning off for about 3 seconds.
- ◇ Both green PWR LEDs turn on for 10 seconds. The PWR LEDs then turn red for 2 to 3 minutes before going to steady green.
- ◇ While the PWR LEDs are red for two to three minutes, the ACT/STBY, MJ, and MN LEDs turn on, followed by the SNYC LED.
- ◇ The boot up process is complete when the PWR LEDs turn green and the ACT/STBY remains on. (The ACT/STBY LED will be green if this is the first TCC2 card installed, and amber if this is the second TCC2 card installed.)

**Note:** It might take up to 4 minutes for the A and B power alarms to clear.

**Note:** Alarm LEDs might be on; disregard alarm LEDs until you are logged into CTC and can view the Alarms tab.

**Note:** If you are logged into CTC, the SFTWDOWN alarm might appear as many as two times while the TCC2 card initializes. The alarm should clear after the card completely boots.

**Note:** If the FAIL LED is on continuously, see the tip below about the TCC2 card automatic upload.

2. For the TCC2P card:

- ◆ All LEDs turn on briefly. The red FAIL LED, the yellow ACT/STBY LED, the green SYNC LED, and the green ACO LED turn on for about 15 seconds.
- ◆ The red FAIL LED and the green ACT/STBY LED turn on for about 30 seconds.
- ◆ The red FAIL LED blinks for about 3 seconds.
- ◆ The red FAIL LED turns on for about 15 seconds.
- ◆ The red FAIL LED blinks for about 10 seconds and then becomes solid.
- ◆ All LEDs (including the CRIT, MAJ, MIN, REM, SYNC, and ACO LEDs) blink once and turn off for about 5 seconds.
- ◆ Both green PWR LEDs turn on for 10 seconds. The PWR LEDs then turn red for 2 to 3 minutes before going to steady green. During this time, the ACT/STBY, MJ, and MN LEDs might turn on, followed by the SNYC LED briefly.
- ◆ The boot up process is complete when the PWR LEDs turn green and the yellow ACT/STBY remains on. (The ACT/STBY LED will be green if this is the first TCC2 card installed, and yellow if this is the second TCC2 card installed.)

**Note:** It might take up to 3 minutes for the A and B power alarms to clear.

**Note:** Alarm LEDs might be on; disregard alarm LEDs until you are logged into CTC and can view the Alarms tab.

**Note:** If you are logged into CTC, the SFTWDOWN alarm might appear as many as two times while the TCC2P card initializes. The alarm should clear after the card completely boots.

**Note:** If the FAIL LED is on continuously, see the tip below about the TCC2P card automatic upload.

5. Verify that the ACT/STBY LED is green for active if this is the first powered-up TCC2/TCC2P card installed, or yellow for standby if this is the second powered-up TCC2/TCC2P. The IP address, temperature of the node, and time of day appear on the LCD. The default time and date is 12:00 AM, January 1, 1970.

6. The LCD cycles through the IP address (the default is 192.1.0.2), node name, and software version. Verify that the correct software version displays on the LCD. The software text string indicates the node type (SDH or SONET) and software release. (For example: SDH 07.00-05L-20.10 indicates it is an SDH software load, Release 7.00. The numbers following the release number do not have any significance.)
7. If the LCD shows the correct software version, continue with Step 8. If the LCD does not show the correct software version, upgrade the software or remove the TCC2/TCC2P card and install a replacement card.

Refer to the release-specific software upgrade document to replace the software. To exchange the TCC2/TCC2P card, see the *Cisco ONS 15454 SDH Troubleshooting Guide*.

8. Repeat Steps 1 through 7 for the redundant TCC2/TCC2P card.
  - Tip:** If you install a standby TCC2/TCC2P card that has a different software version than the active TCC card, the newly installed standby TCC2/TCC2P card automatically copies the software version from the active TCC2/TCC2P card. You do not need to do anything in this situation, but the loading TCC2/TCC2P card does not boot up in the normal manner. When the standby card is first inserted, the LEDs follow most of the sequence listed in Step 4. However, after the red FAIL LED turns on for about 5 seconds, the FAIL LED and the ACT/STBY LED begin to flash alternately for up to 30 minutes while the new software loads onto the active TCC2/TCC2P card. After loading the new software, the upgraded TCC2/TCC2P card's LEDs repeat the sequence from Step 4, and the amber ACT/STBY LED turns on.
  - Note:** If you insert a card into a slot provisioned for a different card, all LEDs turn off.
  - Note:** Alarm LEDs might be on; disregard alarm LEDs until you are logged into CTC and can view the Alarms tab.
9. Verify that the ACT/STBY LED is amber for standby.
10. Return to your originating procedure (NTP).

### DLP-D333 Install the XC-VXL-10G, XC-VXL-2.5G, or XC-VXC-10G Cards

<b>Purpose</b>	This task installs the ONS 15454 SDH cross-connect cards.
<b>Tools/Equipment</b>	XC-VXL-10G, XC-VXL-2.5G, or XC-VXC-10G cards
<b>Prerequisite Procedures</b>	<a href="#">DLP-D332 Install the TCC2/TCC2P Cards</a>
<b>Required/As Needed</b>	Redundant cross-connect cards are required.
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Note:** When installing cards, allow each card to boot completely before installing the next card.

**Caution!** The XC-VXL-2.5G cross-connect card only works for rates up to STM-16.

1. Open the latches/ejectors of the first XC-VXL-10G, XC-VXL-2.5G, or XC-VXC-10G card that you will install.
2. Use the latches/ejectors to firmly slide the card along the guide rails until the card plugs into the receptacle at the back of the slot (Slot 8 or 10).
3. Verify that the card is inserted correctly and close the latches/ejectors on the card.
  - Note:** It is possible to close the latches/ejectors when the card is not completely plugged into the back panel of the shelf assembly. Ensure that you cannot insert the card any further.
4. Verify the LED activity:
  - ◆ The red LED turns on for 20 to 30 seconds.

- ◆ The red LED blinks for 35 to 45 seconds.
  - ◆ The red LED remains on for 5 to 10 seconds.
  - ◆ All LEDs blink once and turn on.
  - ◆ The ACT/STBY LED turns on.
- Note:** If you insert a card into a slot provisioned for a different card, all LEDs turn off.
- Note:** If the red FAIL LED does not turn on, check the power.
- Note:** If the red FAIL LED is on continuously or the LEDs act erratically, the card is not installed properly. Remove the card and repeat Steps 1 to 4.
5. Verify that the ACT/STBY LED is green for active.
  6. Use the latches/ejectors to firmly slide the second cross-connect card along the guide rails until the card plugs into the receptacle at the back of the slot (Slot 8 or 10).
  7. Verify that the card is inserted correctly and close the latches/ejectors on the card.
 

**Note:** It is possible to close the latches/ejectors when the card is not completely plugged into the backplane. Ensure that you cannot insert the card any further.
  8. Verify the LED activity:
    - ◆ The red LED turns on for 20 to 30 seconds.
    - ◆ The red LED blinks for 35 to 45 seconds.
    - ◆ The red LED remains on for 5 to 10 seconds.
    - ◆ All LEDs blink once and turn on.
    - ◆ The ACT/STBY LED turns on.

**Note:** If you insert a card into a slot provisioned for a different card, all LEDs turn off.

**Note:** If the red FAIL LED does not turn on, check the power.

**Note:** If the red FAIL LED is on continuously or the LEDs act erratically, the card is not installed properly. Remove the card and repeat Steps 6 to 8.
  9. Verify that the ACT/STBY LED is amber for standby.
  10. Return to your originating procedure (NTP).

## DLP-D334 Install the Alarm Interface Controller-International Card

<b>Purpose</b>	This task installs the AIC-I card. The AIC-I card provides connections for external alarms and controls (environmental alarms).
<b>Tools/Equipment</b>	AIC-I card
<b>Prerequisite Procedures</b>	<a href="#">DLP-D332 Install the TCC2/TCC2P Cards</a> <a href="#">DLP-D333 Install the XC-VXL-10G, XC-VXL-2.5G, or XC-VXC-10G Cards</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

1. Open the latches/ejectors on the card.
2. Use the latches/ejectors to firmly slide the card along the guide rails until the card plugs into the receptacle at the back of the slot (Slot 9).
3. Verify that the card is inserted correctly and close the latches/ejectors on the card.
 

**Note:** It is possible to close the latches/ejectors when the card is not completely plugged into the backplane. Ensure that you cannot insert the card any further.
4. Verify the LED activity:
  - ◆ The red FAIL LED turns on, then blinks for 1 to 5 seconds.
  - ◆ The PWR A and PWR B LEDs become red and the two INPUT/OUTPUT LEDs become green for approximately 3 seconds.
  - ◆ The PWR A LED turns green, the INPUT/OUTPUT LEDs turn off, and the ACT LED turns on.

**Note:** If the red FAIL LED does not illuminate, check the power.

**Note:** If you insert a card into a slot provisioned for a different card, all LEDs turn off.

**Note:** If the red FAIL LED is on continuously or the LEDs act erratically, the card is not installed properly. Remove the card and repeat Steps 1 to 4.

5. Verify that the MIC-A/P provides connection for alarm contacts into and out of the shelf assembly. For more information, see the "[DLP-D324 Install Alarm Cables on the MIC-A/P](#)" task.
6. Return to your originating procedure (NTP).

## DLP-D335 Install GBIC or SFP/XFP Devices

<b>Purpose</b>	This task installs Gigabit Interface Converters (GBICs), which are required for E-Series Ethernet, G-Series Ethernet, CE-1000-4, and FC_MR-4 cards, and Small Form-factor Pluggables (SFPs/XFPs), which are required for CE-MR-10, ML1000-2, 15454_MRC-12 (MRC-12), OC192SR1/STM64IO Short Reach (STM64-XFP Short Reach), OC192/STM64 Any Reach (STM64-XFP Any Reach), and ML-MR-10 cards. SFPs/XFPs are hot-swappable input/output devices that plug into a line card port to link the port with the fiber-optic network. For a description of SFP/XFP devices on transponder (TXP) or muxponder (MXP) cards, refer to the "Transponder and Muxponder Cards" chapter in the <i>Cisco ONS 15454 DWDM Reference Manual</i> .
<b>Tools/Equipment</b>	For information on which GBICs, SFPs, and XFPs are compatible with which cards, refer to the "Optical Cards" or "Ethernet Cards" chapters in the <i>Cisco ONS 15454 SDH Reference Manual</i> .
<b>Prerequisite Procedures</b>	<a href="#">DLP-D39 Install Ethernet Cards</a> <a href="#">NTP-D286 Install the FC_MR-4 Cards</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Warning! Class 1 laser product. Statement 1008**

**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. Statement 70**

**Note:** OC192SR1/STM64IO Short Reach and OC192/STM64 Any Reach cards are listed as OC192-XFP cards in CTC.

**Note:** The operating temperature of the DWDM GBICs is 23 degrees Fahrenheit (-5 degrees Celsius) to 104 degrees Fahrenheit (40 degrees Celsius).

**Note:** GBICs and SFPs are hot-swappable and can be installed or removed while the card or shelf assembly is powered and running.

**Note:** All versions of GBICs used with the ONS 15454 SDH can be one of two types: with clips or with a handle.

1. Remove the GBIC, SFP, or XFP from its protective packaging.
2. Check the label to verify that the GBIC, SFP, or XFP is the correct type for your network.



**Note:** Before you install SFPs on the MRC-12 card, refer to the MRC-12 card reference section in the "Optical Cards" chapter of the *Cisco ONS 15454 SDH Reference Manual* for bandwidth restrictions based on the port where you install the SFP and the cross-connect card being used.

3. Verify the type of GBIC or SFP you are using:

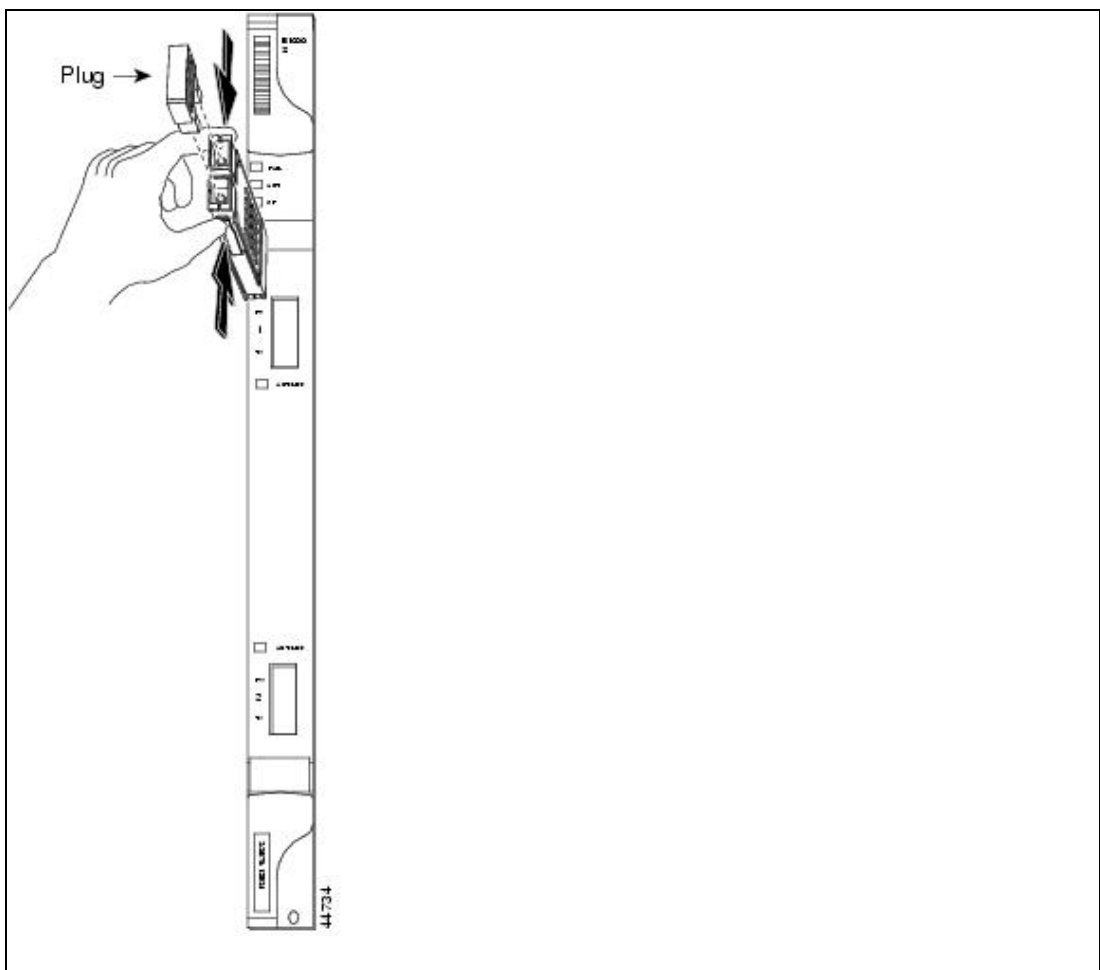
- If you are using a GBIC with clips, go to Step 4.
- If you are using a GBIC with a handle, go to Step 5.
- If you are using an SFP, go to Step 6.

4. For GBICs with clips:

1. Grip the sides of the GBIC with your thumb and forefinger and insert the GBIC into the slot on the card ([Figure 20-5](#)).

**Note:** GBICs are keyed to prevent incorrect installation.

**Figure 20-5: GBIC Installation (with Clips)**



2. Slide the GBIC through the flap that covers the opening until you hear a click. The click indicates that the GBIC is locked into the slot.
3. When you are ready to attach the network fiber-optic cable, remove the protective plug from the GBIC, save the plug for future use, and install the fiber connector.
4. Continue with Step 8.

5. For GBICs with a handle:

1. Remove the protective plug from the SC-type connector.
2. Grip the sides of the GBIC with your thumb and forefinger and insert the GBIC into the slot on the card.

3. Lock the GBIC into place by closing the handle down. The handle is in the correct closed position when it does not obstruct access to an SC-type connector.
4. Slide the GBIC through the cover flap until you hear a click.

The click indicates the GBIC is locked into the slot.

5. When you are ready to attach the network fiber-optic cable, remove the protective plug from the GBIC, save the plug for future use, and install the fiber connector.
6. Continue with Step 8.
6. For SFPs/XFPs:
  1. Plug the LC duplex connector of the fiber into a Cisco-supported SFP or XFP connector.
  2. If the new SFP/XFP connector has a latch, close the latch over the cable to secure it.
  3. Plug the cabled SFP/XFP connector into the card port until it clicks.
7. Multirate SFPs on the MRC-12 card must be provisioned in CTC. If the SFP was not preprovisioned, complete the "DLP-D132 Provision a Multirate PPM on the MRC-12 and MRC-2.5G-12 Cards" task.
8. Return to your originating procedure (NTP).

## DLP-D336 Remove GBIC or SFP/XFP Device

<b>Purpose</b>	This task disconnects fiber attached to GBICs or SFPs/XFPs.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D335 Install GBIC or SFP/XFP Devices</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**Warning! Class 1 laser product. Statement 1008**

**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. Statement 70**

1. Disconnect the network fiber cable from the GBIC SC connector or SFP/XFP LC duplex connector. If the SFP/XFP connector has a latch securing the fiber cable, pull it upward to release the cable.
2. If you are using a GBIC with clips:
  1. Release the GBIC from the slot by simultaneously squeezing the two plastic tabs on each side of it.
  2. Slide the GBIC or SFP/XFP out of the Gigabit Ethernet module slot. A flap closes over the GBIC or SFP/XFP slot to protect the connector on the Gigabit Ethernet card.
3. If you are using a GBIC with a handle:
  1. Release the GBIC by opening the handle.
  2. Pull the handle of the GBIC.
  3. Slide the GBIC out of the card slot. A flap closes over the GBIC slot to protect the connector on the card.
4. If you are using an SFP/XFP:
  1. If the SFP/XFP connector has a latch securing the fiber cable, pull it upward to release the cable.
  2. Pull the fiber cable straight out of the connector.
  3. Unplug the SFP/XFP connector and fiber from the card.
  4. Slide the SFP/XFP out of the card slot.
5. Return to your originating procedure (NTP).

## DLP-D337 Install Fiber-Optic Cables for SNCP Configurations

<b>Purpose</b>	This task connects the fiber-optic cables to the east and west SNCP ports at each node. See <a href="#">Turn Up a Network</a> to provision and test SNCP configurations.
<b>Tools/Equipment</b>	Fiber-optic cables
<b>Prerequisite Procedures</b>	<a href="#">NTP-D112 Clean Fiber Connectors</a>
<b>Required/As Needed</b>	Required
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

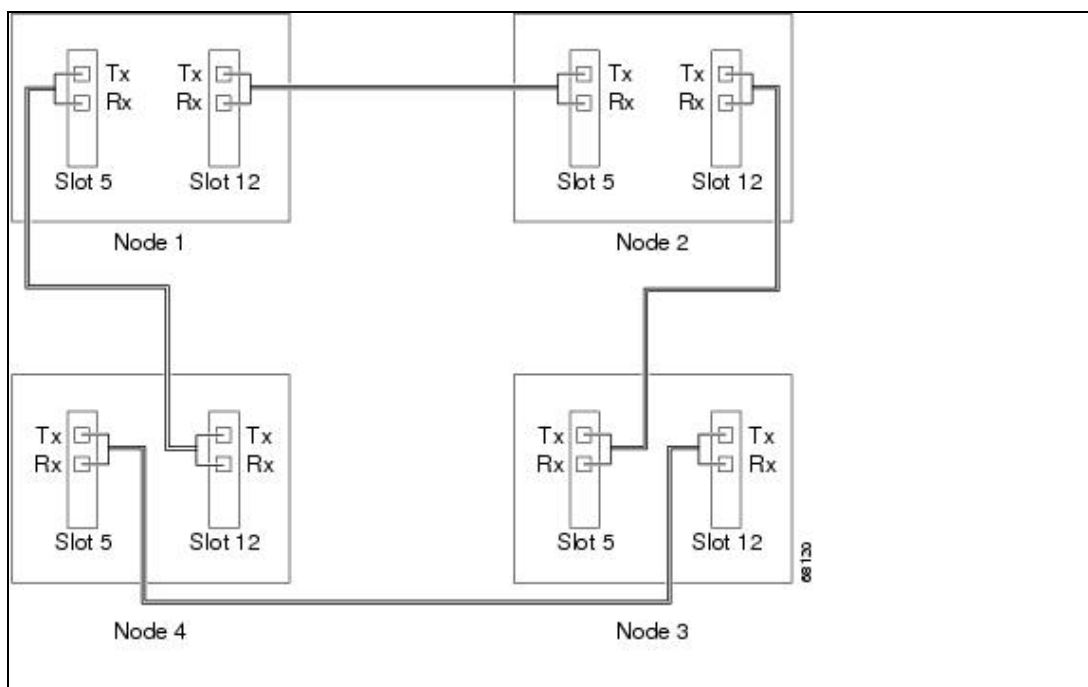
**Note:** To avoid error, connect fiber-optic cable so that the farthest slot to the right represents the east port, and the farthest slot to the left represents the west port. Fiber connected to an east port at one node must plug into the west port at an adjacent node.

**Caution!** Do not provision the SNCP east and west ports on the same STM-N card.

1. Plan your fiber connections. Use the same plan for all SNCP nodes.
2. Plug the fiber into the transmit (Tx) connector of an STM-N card at one node and plug the other end of the fiber into the receive (Rx) connector of an STM-N card at the adjacent node. The card displays an 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).
3. Repeat Step 2 until you have configured the ring.

[Figure 20-6](#) shows fiber connections for a four-node SNCP with trunk (span) cards in Slot 5 (west) and Slot 12 (east).

**Figure 20-6: Connecting Fiber to a Four-Node SNCP**



[Figure 20-7](#) shows an SNCP dual-ring interconnect (DRI) example.

**Figure 20-7: Connecting Fiber to an Eight-Node SNCP DRI**

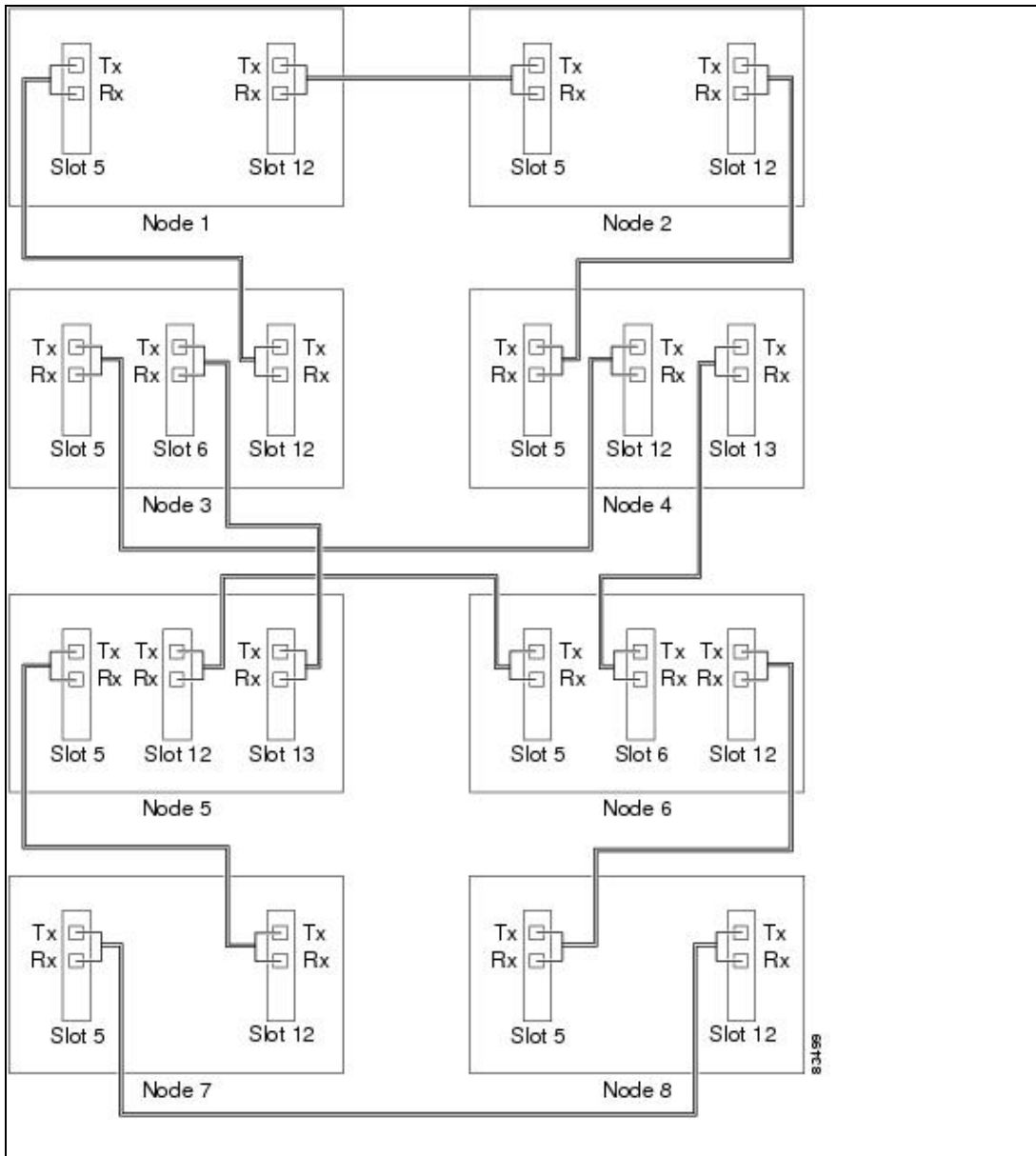
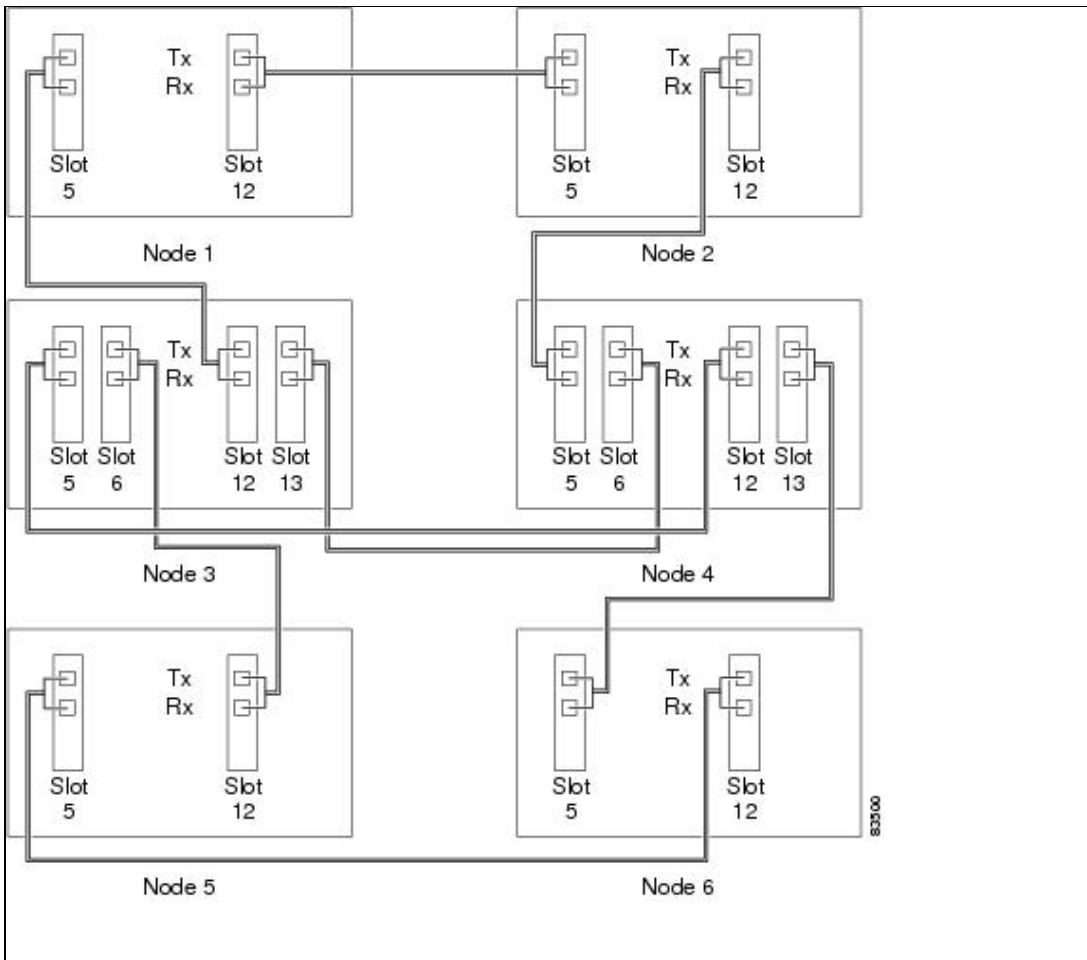


Figure 20-8 shows an integrated SNCP DRI example.

**Figure 20-8: Connecting Fiber to a Six-Node Integrated SNCP DRI**



4. Return to your originating procedure (NTP).

### DLP-D338 Install Fiber-Optic Cables for MS-SPRing Configurations

<b>Purpose</b>	This task installs the fiber optic cables to the east and west MS-SPRing ports at each node. See <a href="#">Turn Up a Network</a> to provision and test MS-SPRing configurations.
<b>Tools/Equipment</b>	Fiber-optic cables
<b>Prerequisite Procedures</b>	<a href="#">NTP-D112 Clean Fiber Connectors</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite
<b>Security Level</b>	None

**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 at an adjacent node.

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

1. Plan your fiber connections. Use the same plan for all MS-SPRing nodes.
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.

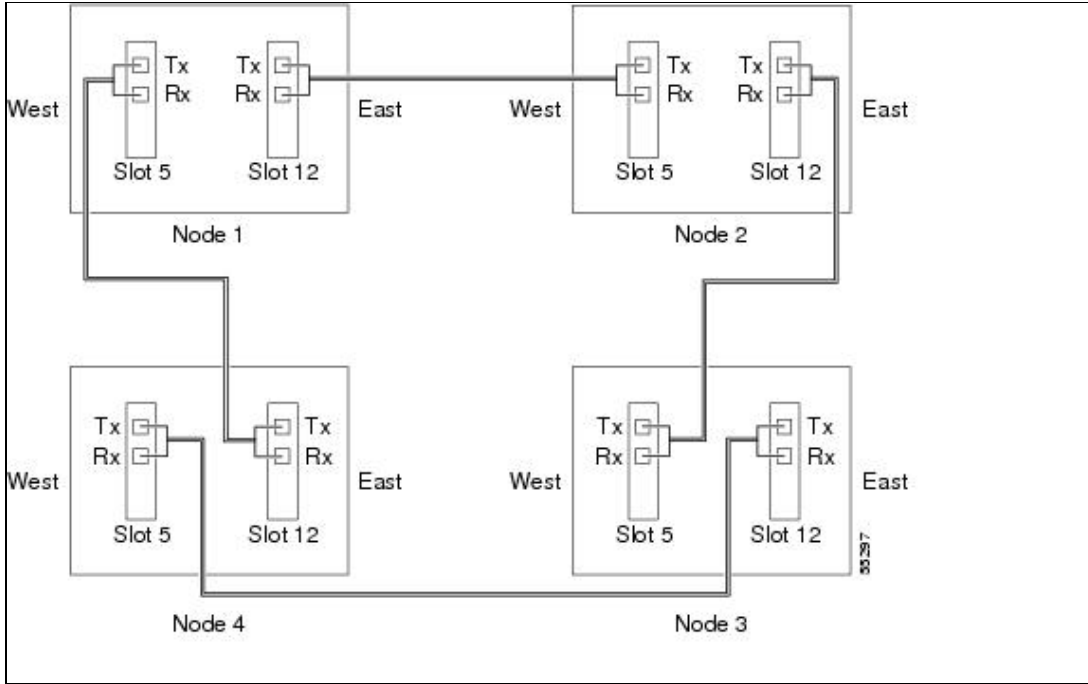
Figure 20-8: Connecting Fiber to a Six-Node Integrated SNCP DRI

**Note:** Do not mix working and protect card connections when connecting a four-fiber MS-SPRing. The MS-SPRing does not function if working and protect cards are interconnected. See [Figure 20-10](#) for an example of correct four-fiber MS-SPRing cabling.

3. Repeat Step 2 until you have configured the ring.

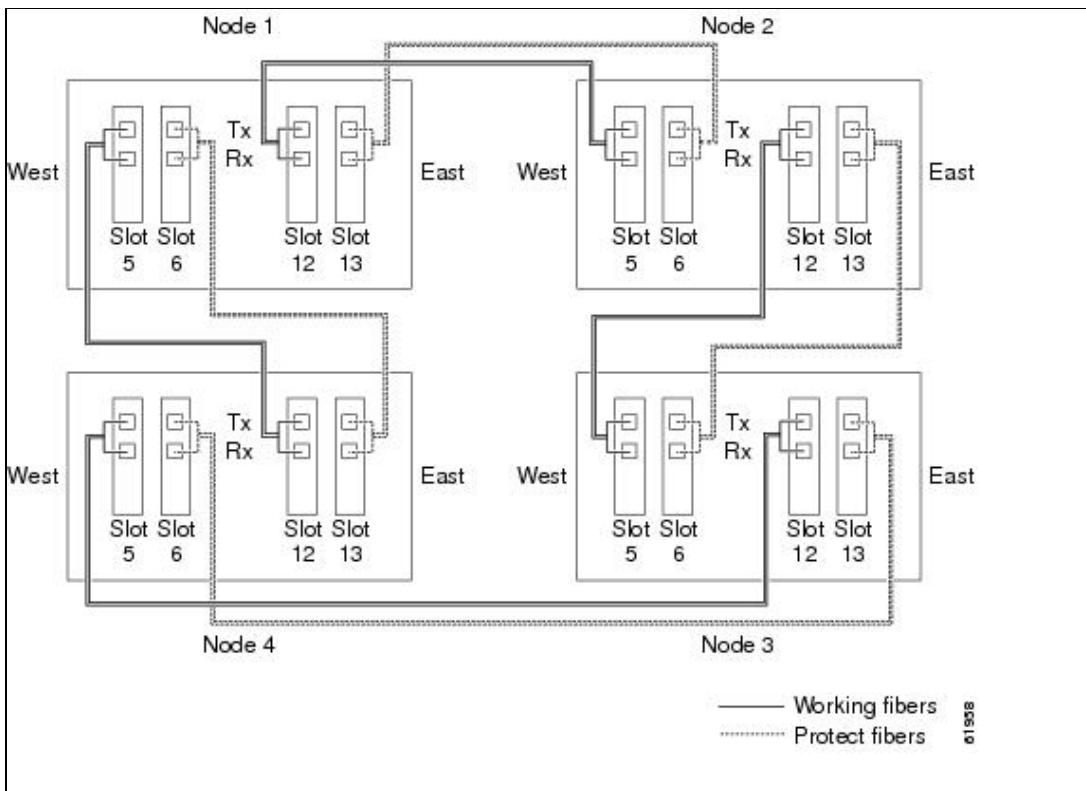
[Figure 20-9](#) shows fiber connections for a two-fiber MS-SPRing with trunk (span) cards in Slot 5 (west) and Slot 12 (east).

**Figure 20-9: Connecting Fiber to a Four-Node, Two-Fiber MS-SPRing**



[Figure 20-10](#) shows fiber connections for a four-fiber MS-SPRing. Slot 5 (west) and Slot 12 (east) carry the working traffic. Slot 6 (west) and Slot 13 (east) carry the protect traffic.

**Figure 20-10: Connecting Fiber to a Four-Node, Four-Fiber MS-SPRing**



4. Return to your originating procedure (NTP).

### DLP-D340 Change Line and Threshold Settings for the E3-12 Cards

<b>Purpose</b>	This task changes the line and threshold settings for the E3-12 cards.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** For the default values and domains of user-provisionable card settings, refer to the "Network Element Defaults" appendix in the *Cisco ONS 15454 SDH Reference Manual*.

1. In node view, double-click the E3-12 card where you want to change the line or threshold settings.
2. Click the **Provisioning** tab.
3. Depending on the setting you need to modify, click the **Line**, **Line Thresholds**, **Elect Path Thresholds**, or **SDH Thresholds** subtab.
  - Note:** See Manage Alarms for information about the Alarm Profiles tab.
  - Note:** If you want to modify a threshold setting, it might be necessary to click on the available directional, type, and interval (15 Min, 1 Day) radio buttons and then click **Refresh**. This will display the desired threshold setting.
4. Modify any of the settings found under these subtabs by clicking in the field you want to modify. In some fields you can choose an option from a drop-down list; in others you can type a value or select or deselect a check box.
5. Click **Apply**.
6. Repeat Steps 3 through 5 for each subtab that has parameters you want to provision.

Figure 20-10: Connecting Fiber to a Four-Node, Four-Fiber MS-SPRing

For definitions of the line settings, see [Table 20-6](#). For definitions of the line threshold settings, see [Table 20-7](#). For definitions of the electrical path threshold settings, see [Table 20-8](#). For definitions of the SDH threshold settings, see [Table 20-9](#). [Table 20-6](#) describes the values on the Provisioning > Line tab for the E3-12 cards.

**Table 20-6: Line Options for E3-12 Cards**

Parameter	Description	Options
Port	(Display only) Port number.	1 to 12
Port Name	Port name.	User-defined, up to 32 alphanumeric/special characters. Blank by default.  See the " <a href="#">DLP-D314 Assign a Name to a Port</a> " task.
SF BER	Sets the signal fail bit error rate.	<ul style="list-style-type: none"> <li>• 1E-3</li> <li>• 1E-4</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</li> <li>• 1E-8</li> <li>• 1E-9</li> </ul>
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, refer to the "Administrative and Service States" appendix of the <i>Cisco ONS 15454 SDH Reference Manual</i> .	<ul style="list-style-type: none"> <li>• Unlocked-Puts the port in service. The port service state changes to Unlocked-enabled.</li> <li>• Unlocked,automaticInService-Puts the port in automatic in-service. The port service state changes to Unlocked-disabled,automaticInService.</li> <li>• Locked,disabled-Removes the port from service and disables it. The port service state changes to Locked-enabled,disabled.</li> <li>• Locked,maintenance-Removes the port from service for maintenance. The port service state changes to Locked-enabled,maintenance.</li> </ul> <p><b>Note:</b> CTC will not allow you to change a port service state from Unlocked-enabled to Locked-enabled,disabled. You must first change a port to the Locked-enabled,maintenance service state before putting it in the Locked-enabled,disabled service state.</p>
Service State	(Display only) Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, refer to the "Administrative and Service States" appendix of the <i>Cisco ONS 15454 SDH</i>	<ul style="list-style-type: none"> <li>• Unlocked-enabled-The port is fully operational and performing as provisioned.</li> <li>• Unlocked-disabled,automaticInService-The port is out-of-service, but traffic is carried. Alarm reporting is suppressed. The ONS node monitors the ports for an error-free signal. After an error-free signal is detected, the port stays in the Unlocked-disabled,automaticInService state for the duration of the soak period. After the soak period ends, the port service state changes to</li> </ul>



	<i>Reference Manual.</i>	<p>Unlocked-enabled.</p> <ul style="list-style-type: none"> <li>• Locked-enabled,disabled-The port is out-of-service and unable to carry traffic.</li> <li>• Locked-enabled,maintenance-The port is out-of-service for maintenance. Alarm reporting is suppressed, but traffic is carried and loopbacks are allowed.</li> </ul>
AINS Soak	Sets the automatic in-service soak period.	<ul style="list-style-type: none"> <li>• Duration of valid input signal, in hh.mm format, after which the card becomes Unlocked-enabled automatically</li> <li>• 0 to 48 hours, 15-minute increments</li> </ul>

Table 20-7 describes the values on the Provisioning > Line Thresholds tab for the E3-12 cards. Only near-end line threshold options are supported for this card.

**Table 20-7: Line Threshold Options for E3-12 Cards**

Parameter	Description
Port	(Display only) Port number; 1 to 12.
CV	Coding violations.
ES	Errored seconds.
SES	Severely errored seconds.
LOSS	Loss of signal seconds; number of one-second intervals containing one or more LOS defects.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

Table 20-8 describes the values on the Provisioning > Elect Path Thresholds tab for the E3-12 cards.

**Table 20-8: Electrical Path Threshold Options for E3-12 Cards**

Parameter	Description
Port	(Display only) E-3 ports; 1 to 12.
ES	Errored seconds.
SES	Severely errored seconds.
UAS	Unavailable seconds.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

Table 20 describes the values on the Provisioning > SDH Thresholds tab for the E3-12 cards.

**Table 20-9: SDH Threshold Options for E3-12 Cards**

Parameter	Description
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Port	(Display only) E-3 ports; 1 to 12.
ES	Errored seconds.
SES	Severely errored seconds.
EB	Errored blocks.
UAS	Unavailable seconds.
BBE	Background block errors.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

**Note:** The threshold value appears after the circuit is created.

7. Return to your originating procedure (NTP).

### DLP-D341 Change Line and Threshold Settings for the DS3i-N-12 Cards

<b>Purpose</b>	This task changes the line and threshold settings for the DS3i-N-12 cards.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** For the default values and domains of user-provisionable card settings, refer to the "Network Element Defaults" appendix in the *Cisco ONS 15454 SDH Reference Manual*.

1. In node view, double-click the DS3i-N-12 card where you want to change the line or threshold settings.
2. Click the **Provisioning** tab.
3. Depending on the setting you need to modify, click the **Line**, **Line Thresholds**, **Elect Path Thresholds**, or **SDH Thresholds** subtab.
  - Note:** See [Manage Alarms](#) for information about the Alarm Profiles tab.
  - Note:** If you want to modify a threshold setting, it might be necessary to click on the available directional, type, and interval (15 Min, 1 Day) radio buttons and then click **Refresh**. This will display the desired threshold setting.
4. Modify any of the settings found under these subtabs by clicking in the field you want to modify. In some fields you can choose an option from a drop-down list; in others you can type a value or select or deselect a check box.
5. Click **Apply**.
6. Repeat Steps 3 through 5 for each subtab that has parameters you want to provision.
  - For definitions of the line settings, see [Table 20-10](#). For definitions of the line threshold settings, see [Table 20-11](#). For definitions of the electrical path threshold settings, see [Table 20-12](#). For definitions of the SDH threshold settings, see [Table 20-13](#).
  - [Table 20-10](#) describes the values on the Provisioning > Line tab for the DS3i-N-12 cards.

**Table 20-10: Line Options for the DS3i-N-12 Card**

Parameter	Description	Options
Port		1 to 12

Table 20-9: SDH Threshold Options for E3-12 Cards

	(Display only) Displays the port number.	
Port Name	Sets the port name.	User-defined, up to 32 alphanumeric/special characters. Blank by default.  See the " <a href="#">DLP-D314 Assign a Name to a Port</a> " task.
SF BER	Sets the signal fail bit error rate.	<ul style="list-style-type: none"> <li>• 1E-3</li> <li>• 1E-4</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</li> <li>• 1E-8</li> <li>• 1E-9</li> </ul>
Line Type	Defines the line framing type.	<ul style="list-style-type: none"> <li>• Unframed</li> <li>• M13</li> <li>• C Bit</li> <li>• Auto Provisioned</li> </ul>
Detected Line Type	(Display only) Displays the detected line type.	<ul style="list-style-type: none"> <li>• Unframed</li> <li>• M13</li> <li>• C Bit</li> <li>• Auto Provisioned</li> </ul>
Line Coding	(Display only) Defines the DS3E transmission coding type.	B3ZS
Line Length	Defines the distance (in feet) from backplane connection to the next termination point.	<ul style="list-style-type: none"> <li>• 0 - 225 (Default)</li> <li>• 226 - 450The o</li> </ul>
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, refer to the "Administrative and Service States" appendix of the <i>Cisco ONS 15454 SDH Reference Manual</i> .	<ul style="list-style-type: none"> <li>• Unlocked-Puts the port in service. The port service state changes to Unlocked-enabled.</li> <li>• Unlocked,automaticInService-Puts the port in automatic in-service. The port service state changes to Unlocked-disabled,automaticInService.</li> <li>• Locked,disabled-Removes the port from service and disables it. The port service state changes to Locked-enabled,disabled.</li> <li>• Locked,maintenance-Removes the port from service for maintenance. The port service state changes to Locked-enabled,maintenance.</li> </ul> <p><b>Note:</b> CTC will not allow you to change a port service state from Unlocked-enabled to Locked-enabled,disabled. You must first change a port to the Locked-enabled,maintenance service state before putting it in the Locked-enabled,disabled service state.</p>
Service State	(Display only) Identifies the autonomously generated state that	

Table 20-10: Line Options for the DS3i-N-12 Card

	gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, refer to the "Administrative and Service States" appendix of the <i>Cisco ONS 15454 SDH Reference Manual</i> .	<ul style="list-style-type: none"> <li>• Unlocked-enabled-The port is fully operational and performing as provisioned.</li> <li>• Unlocked-disabled,automaticInService- The port is out-of-service, but traffic is carried. Alarm reporting is suppressed. The ONS node monitors the ports for an error-free signal. After an error-free signal is detected, the port stays in the Unlocked-disabled,automaticInService state for the duration of the soak period. After the soak period ends, the port service state changes to Unlocked-enabled.</li> <li>• Locked-enabled,disabled-The port is out-of-service and unable to carry traffic.</li> <li>• Locked-enabled,maintenance-The port is out-of-service for maintenance. Alarm reporting is suppressed, but traffic is carried and loopbacks are allowed.</li> </ul>
AINS Soak	Sets the automatic in-service soak period.	<ul style="list-style-type: none"> <li>• Duration of valid input signal, in hh.mm format, after which the card becomes in Unlocked-enabled automatically</li> <li>• 0 to 48 hours, 15-minute increments</li> </ul>

Table 20-11 describes the values on the Provisioning > Line Thresholds tab for the DS3i-N-12 cards. Only near-end line threshold options are supported for this card.

**Table 20-11: Line Threshold Options for the DS3i-N-12 Cards**

Parameter	Description
Port	(Display only) Port number; 1 to 12.
CV	Coding violations.
ES	Errored seconds.
SES	Severely errored seconds.
LOSS	Loss of signal seconds; number of one-second intervals containing one or more LOS defects.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

Table 20-12 describes the parameters on the Provisioning > Elect Path Thresholds tab for the DS3i-N-12 cards.

**Table 20-12: Electrical Path Options for the DS3i-N-12 Cards**

Parameter	Description
Port	(Display only) Port number; Port 1 to 12.
CVP	Coding violations - path. Available for DS3 Pbit, Near End only; and for DS3 CPbit, Near End and Far End.
ESP	

	Errored seconds - path. Available for DS3 Pbit, Near End only; and for DS3 CPbit, Near End and Far End.
SESP	Severely errored seconds - path. Available for DS3 Pbit, Near End only; and for DS3 CPbit, Near End and Far End.
SASP	Severely errored frame/alarm indication signal - path. Available for DS3 Pbit, Near End only; and for DS3 CPbit, Near End and Far End.
UASP	Unavailable seconds - path. Available for DS3 Pbit, Near End only; and for DS3 CPbit, Near End and Far End.
AISSP	Alarm indication signal seconds - path. Available for DS3 Pbit, Near End only; and for DS3 CPbit, Near End and Far End.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

Table 20-13 describes the values on the Provisioning > SDH Thresholds tab for the DS3i-N-12 cards.

**Table 20-13: SDH Threshold Options for DS3i-N-12 Cards**

Parameter	Description
Port	(Display only) Port number; 1 to 12.
ES	Errored seconds. Available for Near End and Far End, VC LO or VC4.
SES	Severely errored seconds. Available for Near End and Far End, VC LO or VC4.
EB	Errored blocks. Available for Near End and Far End, VC LO or VC4.
UAS	Unavailable seconds. Available for Near End and Far End, VC LO or VC4.
BBE	Background block errors. Available for Near End and Far End, VC LO or VC4.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

**Note:** The threshold value appears after the circuit is created.

7. Return to your originating procedure (NTP).

## DLP-D342 Change Line and Threshold Settings for the STM1E-12 Card

<b>Purpose</b>	This task changes the line and threshold settings for the STM1E-12 card.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** For the default values and domains of user-provisionable card settings, refer to the "Network Element Defaults" appendix in the *Cisco ONS 15454 SDH Reference Manual*.

1. In node view, double-click the STM1E-12 card where you want to change the line or threshold settings.

2. Click the **Provisioning** tab.
3. Depending on the setting you need to modify, click the **Line, Port, SDH Thresholds**, or **VC4** subtab.

**Note:** See [Manage Alarms](#) for information about the Alarm Profiles tab.

**Note:** If you want to modify a threshold setting, it might be necessary to click on the available directional, type, and interval (15 Min, 1 Day) radio buttons and then click **Refresh**. This will display the desired threshold setting.

4. Modify any of the settings found under these subtabs by clicking in the field you want to modify. In some fields you can choose an option from a drop-down list; in others you can type a value or select or deselect a check box.
5. Click **Apply**.
6. Repeat Steps 3 through 5 for each subtab that has parameters you want to provision.
7. For definitions of the line settings, see [Table 20-14](#). For definitions of the port settings, see [Table 20-15](#). For definitions of the threshold settings, see [Table 20-16](#). For definitions of the VC4 settings, see [Table 20-17](#).

[Table 20-14](#) describes the values on the Provisioning > Line tab for the STM1E-12 cards.

**Table 20-14: Line Options for the STM1E-12 Card**

Parameter	Description	Options
Port	(Display only) Port number.	1 to 12
Port Name	(Optional) Sets the name assigned to the port.	User-defined, up to 32 alphanumeric/special characters. Blank by default.  See the " <a href="#">DLP-D314 Assign a Name to a Port</a> " task.
SF Ber Level	Sets the signal fail bit error rate for the configured VC12 or VC4 circuit.	<ul style="list-style-type: none"> <li>• 1E-3</li> <li>• 1E-4</li> <li>• 1E-5</li> </ul>
SD Ber Level	Sets the signal degrade bit error rate for the configured VC12 or VC4 circuit.	<ul style="list-style-type: none"> <li>• 1E-5</li> <li>• 1E-6</li> <li>• 1E-7</li> <li>• 1E-8</li> <li>• 1E-9</li> </ul>
Admin State (Status)	Sets the port service state unless network conditions prevent the change. For more information about administrative states, refer to the "Administrative and Service States" appendix of the <i>Cisco ONS 15454 SDH Reference Manual</i> .	<ul style="list-style-type: none"> <li>• Unlocked-Puts the port in service. The port service state changes to Unlocked-enabled.</li> <li>• Unlocked,automaticInService-Puts the port in automatic in-service. The port service state changes to Unlocked-disabled,automaticInService.*</li> <li>• Locked,disabled-Removes the port from service and disables it. The port service state changes to Locked-enabled,disabled.</li> <li>• Locked,maintenance-Removes the port from service for maintenance. The port service state changes to Locked-enabled,maintenance.</li> </ul> <p><b>Note:</b> CTC will not allow you to change a port service state from Unlocked-enabled to Locked-enabled,disabled. You must first change a port to the</p>

		Locked-enabled,maintenance service state before putting it in the Locked-enabled,disabled service state.
PJVC4Mon#	Sets the VC4 that will be used for pointer justification. If set to Off, no VC4 is monitored. Only one VC4 can be monitored on each STM-N port.	<ul style="list-style-type: none"> <li>• Off</li> <li>• 1</li> </ul>
AINS Soak	Sets the automatic in-service soak period.	<ul style="list-style-type: none"> <li>• Duration of valid input signal, in hh.mm format, after which the card becomes Unlocked-enabled automatically</li> <li>• 0 to 48 hours, 15-minute increments</li> </ul>

Table 20-15 describes the values on the Provisioning > Port tab for the STM1E-12 cards.

**Table 20-15: Port Options for the STM1E-12 Card**

Parameter	Description	Options
Port	(Display only) Port number	1 to 12
Interface	Interface type	<ul style="list-style-type: none"> <li>• STM1 (display only for Ports 1 through 8, selectable for Ports 9 through 12)</li> </ul>

Table 20-16 describes the values on the Provisioning > SDH Thresholds tab for the STM1E-12 cards.

**Table 20-16: Threshold Options for the STM1E-12 Card**

Parameter	Description
Port	(Display only) Port number; 1 to 12.
ES	Errored seconds.
SES	Severely errored seconds.
BBE	Background block errors.
UAS	Unavailable seconds.
EB	Errored blocks.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

Table 20-17 describes the values on the Provisioning > VC4 tab for the STM1E-12 cards.

**Table 20-17: VC4 Options for the STM1E-12 Card**

Parameter	Description	Options
VC4 #	(Display only) VC4 container number.	1 to 12
Enable IPPM	Sets intermediate path performance monitoring (IPPM).  <b>Note:</b> To provision IPPM, circuits must be provisioned on the STM1E-12 card. For circuit creation procedures, go to <a href="#">Create Circuits and Low-Order Tunnels</a> . To	-

	provision IPPM, go to the " <a href="#">DLP-D121 Enable Pointer Justification Count Performance Monitoring</a> " task.	
SF Ber Level	Sets the signal fail bit error rate for the configured VC12 or VC4 circuit.	<ul style="list-style-type: none"> <li>• 1E-3</li> <li>• 1E-4</li> <li>• 1E-5</li> </ul>
SD Ber Level	Sets the signal degrade bit error rate for the configured VC12 or VC4 circuit.	<ul style="list-style-type: none"> <li>• 1E-5</li> <li>• 1E-6</li> <li>• 1E-7</li> <li>• 1E-8</li> <li>• 1E-9</li> </ul>

8. Return to your originating procedure (NTP).

### DLP-D343 Change SDH Threshold Settings for STM-N Cards

<b>Purpose</b>	This task changes threshold settings for STM-N cards.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** For the default values and domains of user-provisionable card settings, refer to the "Network Element Defaults" appendix in the *Cisco ONS 15454 SDH Reference Manual*.

1. In node view, double-click the STM-N card where you want to change the SDH threshold settings.
2. Click the **Provisioning > SDH Thresholds** tabs.
 

**Note:** If you want to modify a threshold setting, it might be necessary to click on the available directional, type, and interval (15 Min, 1 Day) radio buttons and then click **Refresh**. This will display the desired threshold setting.
3. Modify any of the settings listed in [Table 20-18](#) by clicking in the field you want to modify. In some fields you can choose an option from a drop-down list; in others you can type a value or select or deselect a check box.
4. Click **Apply**.

**Table 20-18: STM-N Threshold Options**

Parameter	Description
Port	(Display only) Port number. <ul style="list-style-type: none"> <li>• 1 (STM-4, STM-16, STM-64)</li> <li>• 1 to 4 (OC3 IR 4/STM1 SH 1310, OC12 IR/STM4 SH 1310-4)</li> <li>• 1 to 8 (OC3IR/STM1SH 1310-8)</li> <li>• 1 to 12: PPM-1 (MRC-12)</li> </ul>
EB	Errored blocks. Available for Near End and Far End, VC LO or VC4.
ES	Errored seconds. Available for Line, Section, or Path; Near End and Far End.
SES	Severely errored seconds. Available for Line, Section, or Path; Near End and Far End.
BBE	Background block errors. Available for Near End and Far End, VC LO or VC4.
UAS	Unavailable seconds. Available for Line or Path; Near End and Far End.



PPJC-PDET	Positive Pointer Justification Count, STS Path Detected. Available for Line; Near End and Far End.
NPJC-PDET	Negative Pointer Justification Count, STS Path Detected. Available for Line; Near End and Far End.
PPJC-PGEN	Positive Pointer Justification Count, STS Path Generated. Available for Line; Near End and Far End.
NPJC-PGEN	Negative Pointer Justification Count, STS Path Generated. Available for Line; Near End and Far End.
PSC	Protection Switching Count (Line). Available for Line; Near End and Far End.
PSD	Protection Switch Duration (Line). Available for Line; Near End and Far End.
PSC-W	Protection Switching Count-Working Line. Available for Line; Near End and Far End. <b>Note:</b> MS-SPRing is not supported on the STM-1 card; therefore, the PSC-W performance monitoring (PM) parameter does not increment.
PSD-W	Protection Switching Duration-Working Line. Available for Line; Near End and Far End. <b>Note:</b> MS-SPRing is not supported on the STM-1 card; therefore, the PSD-WPM parameter does not increment.
PSC-S	Protection Switching Count-Span. Available for Line; Near End and Far End. <b>Note:</b> MS-SPRing is not supported on the STM-1 card; therefore, the PSC-S PM parameter does not increment.
PSD-S	Protection Switching Duration-Span. Available for Line; Near End and Far End. <b>Note:</b> MS-SPRing is not supported on the STM-1 card; therefore, the PSD-S PM parameter does not increment.
PSC-R	Protection Switching Count-Ring. Available for Line; Near End and Far End. <b>Note:</b> MS-SPRing is not supported on the STM-1 card; therefore, the PSC-R PM parameter does not increment.
PSD-R	Protection Switching Duration-Ring. Available for Line; Near End and Far End. <b>Note:</b> MS-SPRing is not supported on the STM-1 card; therefore, the PSD-R PM parameter does not increment.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

5. Return to your originating procedure (NTP).

### DLP-D348 View ML-Series Ether Ports PM Parameters

<b>Purpose</b>	This task enables you to view ML-Series Ethernet port PM counts at selected time intervals to detect possible performance problems.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote

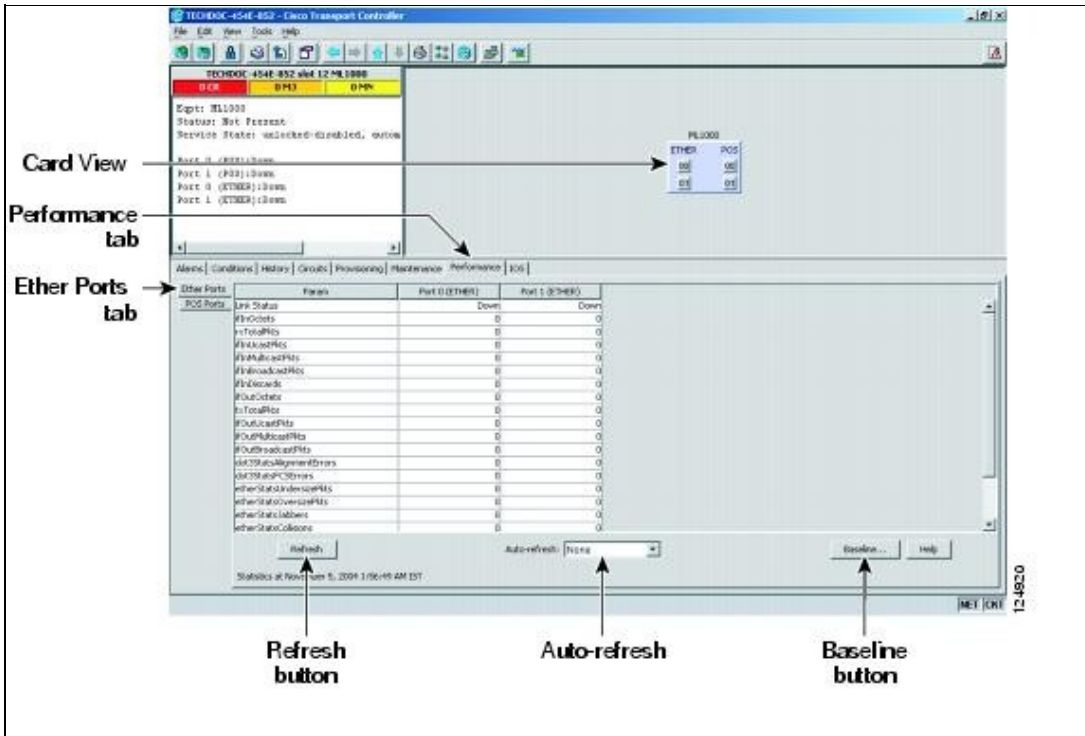
Table 20-18: STM-N Threshold Options

<b>Security Level</b>	Retrieve or higher
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**Note:** For ML-Series card provisioning, refer to the *Cisco ONS 15454 and Cisco ONS 15454 SDH Ethernet Card Software Feature and Configuration Guide*.

1. In node view, double-click the ML-Series Ethernet card where you want to view PM counts. The card view appears.
2. Click the **Performance > Ether Ports** tabs (Figure 20-11).

**Figure 20-11: Ether Ports on the Card View Performance Window**



3. Click **Refresh**. PM statistics for each port on the card appear.
4. View the PM parameter names that appear in the Param column. The PM parameter values appear in the Port # columns. For PM parameter definitions, refer to the "Performance Monitoring" chapter in the *Cisco ONS 15454 SDH Reference Manual*.

**Note:** To refresh, reset, or clear PM counts, see the [NTP-D257 Change the PM Display](#).

5. Return to your originating procedure (NTP).

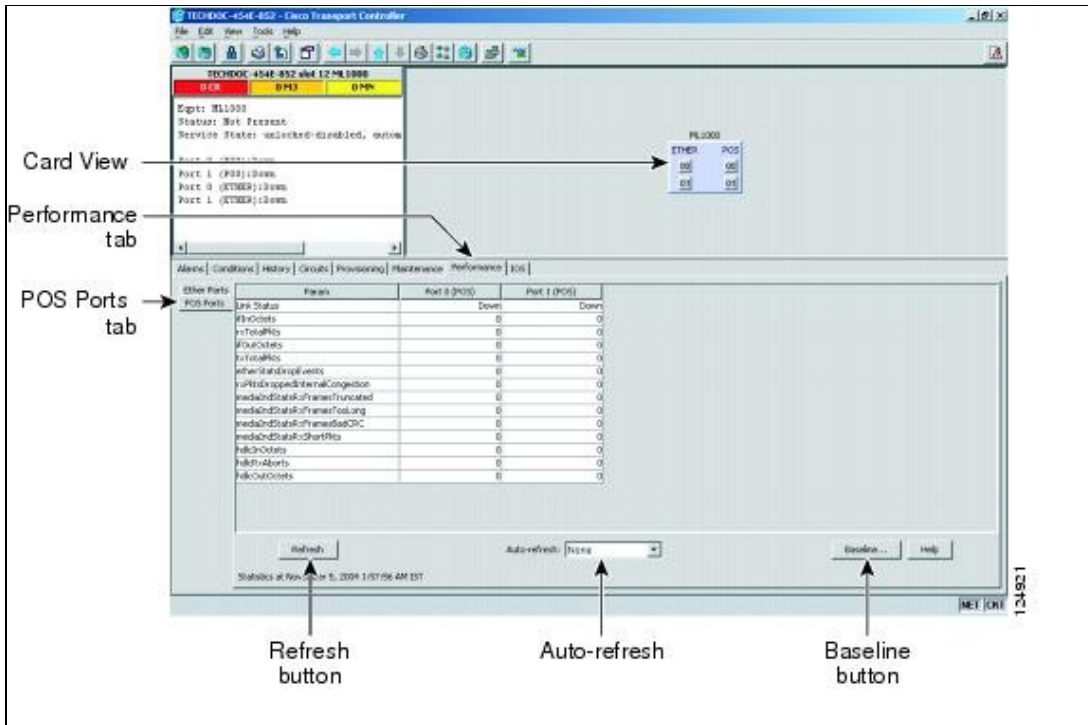
### DLP-D349 View ML-Series POS Ports PM Parameters

<b>Purpose</b>	This task enables you to view packet-over-SDH (POS) port PM counts at selected time intervals on an ML-Series Ethernet card and port to detect possible performance problems.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher

**Note:** For ML-Series card provisioning, refer to the *Cisco ONS 15454 and Cisco ONS 15454 SDH Ethernet Card Software Feature and Configuration Guide*.

1. In node view, double-click the ML-Series Ethernet card where you want to view PM counts. The card view appears.
2. Click the **Performance > POS Ports** tabs (Figure 20-12).

**Figure 20-12: POS Ports on the Card View Performance Window**



3. Click **Refresh**. Performance monitoring statistics for each port on the card appear.
4. View the PM parameter names that appear in the Param column. The PM parameter values appear in the Port # columns. For PM parameter definitions, refer to the "Performance Monitoring" chapter in the *Cisco ONS 15454 SDH Reference Manual*.

**Note:** To refresh, reset, or clear PM counts, see the NTP-D257 Change the PM Display.

5. Return to your originating procedure (NTP).

### DLP-D353 Provision G-Series Flow Control Watermarks

<b>Purpose</b>	This task provisions the buffer memory levels for flow control on G-Series Ethernet ports.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. In node view, double-click the G-Series card graphic to open the card.
2. Click the **Provisioning > Port** tabs.

3. In the Water Marks column, click the cell in the row for the appropriate port.
4. To provision the Low Latency flow control watermark:
  1. Choose **Low Latency** from the drop-down list.  
The Flow Ctrl Lo and Flow Ctrl Hi values change.
  2. Click **Apply**.
5. To provision a Custom flow control watermark:
  1. Choose **Custom** from the drop-down list.
  2. In the Flow Ctrl Lo column, click the cell in the row for the appropriate port.
  3. Enter a value in the cell. The Flow Ctrl Lo value has a valid range from 1 to 510 and must be lower than the Flow Ctrl Hi value.  
This value sets the flow control threshold for sending the signal to the attached Ethernet device to resume transmission.
  4. In the Flow Ctrl Hi column, click the cell in the row for the appropriate port.
  5. Enter a value in the cell. The Flow Ctrl Hi value has a valid range from 2 to 511 and must be higher than the Flow Ctrl Lo value.  
This value sets the flow control threshold for sending the signal to the attached Ethernet device to pause transmission.
  6. Click **Apply**.  
**Note:** Low watermarks are optimum for low latency subrate applications, such as voice-over-IP (VoIP). High watermarks are optimum when the attached Ethernet device has insufficient buffering, best effort traffic, or long access line lengths.
6. Return to your originating procedure (NTP).

### DLP-D354 Change General Port Settings for the FC\_MR-4 Card

<b>Purpose</b>	This task changes the general port settings for FC_MR-4 cards.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. In node view, double-click the FC\_MR-4 card where you want to change the port settings.
2. Click the **Provisioning > Port > General** tabs.
3. Modify any of the settings described in [Table 20-19](#).

**Table 20-19: FC\_MR-4 Card General Port Settings**

Parameter	Description	Options
Port	(Display only) Displays the port number.	1 through 4
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.  See the " <a href="#">DLP-D314 Assign a Name to a Port</a> " task.  <b>Note:</b> If this port's Fibre Channel or FICON link will be discovered by the Cisco MDS Fabric Manager for use with a Cisco MDS 9000 switch, you must

		provision the Fiber Channel/FICON port name to the following string: FC: switch> interface> Where switch> is the DNS name or IPv4/v6 address of the Cisco MDS 9000 switch, and interface> is the card slot/port of the FC_MR-4 port you are assigning a name. Example: FC: 10.0.0.1 fc2/4
Admin State	Changes the port service state unless network conditions prevent the change.	<ul style="list-style-type: none"> <li>• Unlocked-Puts the port in service. The port service state changes to Unlocked-enabled.</li> <li>• Locked,disabled-Removes the port from service and disables it. The port service state changes to Locked-enabled,disabled.</li> <li>• Locked,maintenance-Removes the port from service for maintenance. The port service state changes to Locked-enabled,maintenance.</li> </ul> <p><b>Note:</b> CTC will not allow you to change a port service state from Unlocked-enabled to Locked-enabled,disabled. You must first change a port to the Locked-enabled,maintenance service state before putting it in the Locked-enabled,disabled service state.</p>
Service State	Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State.	<ul style="list-style-type: none"> <li>• Unlocked-enabled-The port is fully operational and performing as provisioned.</li> <li>• Locked-enabled,disabled-The port is out-of-service and unable to carry traffic.</li> <li>• Locked-enabled,maintenance-The port is out-of-service for maintenance. Alarm reporting is suppressed, but traffic is carried and loopbacks are allowed.</li> </ul>
Port Rate	Selects the Fibre Channel interface.	<ul style="list-style-type: none"> <li>• 1 Gbps</li> <li>• 2 Gbps</li> </ul>
Link Rate	Displays the actual rate of the port.	-
Max GBIC Rate	Displays the maximum GBIC rate. Cisco supports two GBICs for the FC_MR-4 card (ONS-GX-2FC-SML and ONS-GX-2FC-MMI). If used with another GBIC, the field shows "Contact GBIC vendor."	-
Link Recovery	Enables or disables link recovery if a local port is inoperable. If enabled, a link reset	-

Table 20-19: FC\_MR-4 Card General Port Settings

	occurs when there is a loss of transport from a cross-connect switch, protection switch, or an upgrade.	
Media Type	Sets the proper payload value for the Transparent Generic Framing Protocol (GFP-T) frames.	<ul style="list-style-type: none"> <li>• Fibre Channel - 1 Gbps</li> <li>• Fibre Channel - 2 Gbps</li> <li>• FICON 1 Gbps</li> <li>• FICON 2 Gbps</li> <li>• Unknown</li> </ul>

4. Click **Apply**.
5. Return to your originating procedure (NTP).

### DLP-D355 Change Distance Extension Port Settings for the FC\_MR-4 Card

<b>Purpose</b>	This task changes the distance extension parameters for FC_MR-4 ports.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** For the default values and domains of user-provisionable card settings, refer to the "Network Element Defaults" appendix in the *Cisco ONS 15454 SDH Reference Manual*.

1. In node view, double-click the FC\_MR-4 card where you want to change the port settings.
2. Click the **Provisioning > Port > Distance Extension** tabs.
3. Modify any of the settings described in [Table 20-20](#) by clicking in the field you want to modify. In some fields you can choose an option from a drop-down list; in others you can type a value or select or deselect a check box.

**Table 20-20: FC\_MR-4 Card Distance Extension Port Settings**

Parameter	Description	Options
Port	(Display only) The card port number.	1 through 4
Enable Distance Extension	If checked, allows additional distance by providing a GFP-T based flow control scheme. It enables the node to be a part of a Storage Area Network (SAN) with long-distance, remote nodes. If left unchecked, the remaining options are not available for editing. If Distance Extension is enabled, set the connected Fibre Channel switches to Interop or Open Fabric mode, depending on the Fibre Channel switch. By default, the FC_MR-4 card will interoperate with the Cisco MDS storage products.	-
Auto Detect Credits	If checked, enables the node to detect the transmit credits from a remote node. Credits are used for link flow control and for Extended Link Protocol (ELP) login frames between Fibre Channel/fiber connectivity (FICON) Switch E ports.	-
Credits Available	Sets the number of credits if an ELP login frame setting is missing or if the ELP login frame cannot be detected. Credits Available is editable only if	Numeric. 2 through 256,

	Auto Detect Credits is unchecked.  <b>Note:</b> Longer distances between connected devices need more credits to compensate for the latency introduced by the long-distance link. The value should never be greater than the number of credits supported by the Fibre Channel/FICON port.	multiples of 2 only
Autoadjust GFP Buffer Threshold	If checked, guarantees the best utilization of the SONET/SDH transport in terms of bandwidth and latency.	-
GFP Buffers Available	Sets the GFP buffer depth. GFP Buffers Available is editable if Autoadjust GFP Buffer Threshold is unchecked. For shorter SONET transport distances, Cisco recommends lower values to decrease latency. For longer SONET transport distances, Cisco recommends higher values to provide higher bandwidth.	Numeric. 16 through 1200, multiples of 16 only

4. Click **Apply**.
5. Return to your originating procedure (NTP).

### DLP-D356 Change Enhanced FC/FICON Port Settings for the FC\_MR-4 Card

<b>Purpose</b>	This task changes the enhanced FC/FICON parameters for FC_MR-4 ports.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** For the default values and domains of user-provisionable card settings, refer to the "Network Element Defaults" appendix in the *Cisco ONS 15454 SDH Reference Manual*.

1. In node view, double-click the FC\_MR-4 card where you want to change the port settings.
2. Click the **Provisioning > Port > Enhanced FC/FICON** tabs.
3. Modify any of the settings described in [Table 20-21](#) by clicking in the field you want to modify. In some fields you can choose an option from a drop-down list; in others you can type a value or select or deselect a check box.

**Table 20-21: FC\_MR-4 Card Distance Extension Port Settings**

Parameter	Description	Options
<b>Port</b>	(Display only) The card port number.	1 through 4
Ingress Idle Filtering	If checked, prevents removal of excess Fibre Channel/FICON IDLE codes from SONET transport. IDLEs are 8b10b control words that are sent between frames when there is no data to send. Ingress idle filtering applies only to SONET circuit bandwidth sizes that allow full line rate Fibre Channel/FICON transport. It can be used for interoperability with remote Fibre Channel/FICON over third-party SONET equipment.	-
Maximum Frame Size	Sets the maximum size of a valid frame. This setting prevents oversized performance monitoring accumulation for frame sizes that are above the Fibre Channel maximum. This can occur for Fibre Channel frames with added virtual SAN (VSAN) tags that are generated by the Cisco MDS 9000 switches.	Numeric. 2148 through 2172

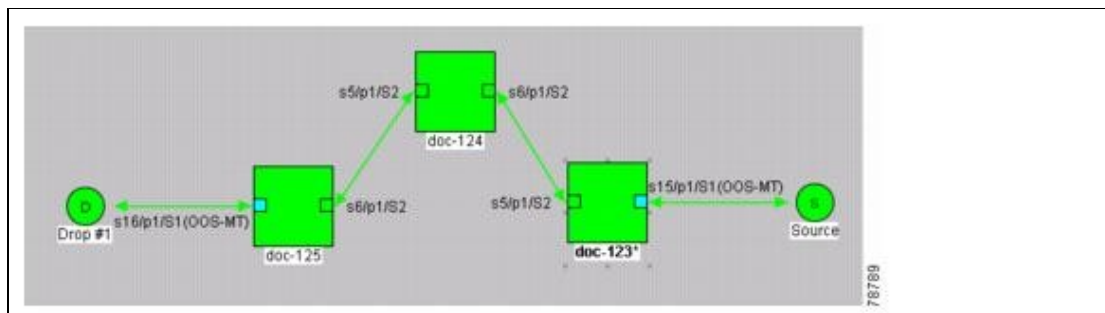
4. Click **Apply**.
5. Return to your originating procedure (NTP).

### DLP-D357 Verify Pass-Through Circuits

<b>Purpose</b>	This task verifies that circuits passing through a node that will be removed enter and exit the node on the same VC4 and/or VC3, VC11, or VC12.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. In the CTC Circuits window, choose a circuit that passes through the node that will be removed and click **Edit**.
2. In the Edit Circuits window, check **Show Detailed Map**.
3. Verify that the circuits have the same east and west port VC4, VC3, VC11, and VC12 mapping. For example, if the circuit west port mapping is s5/p1/V1 (Slot 5, Port 1, VC4 1), verify that the east port is also VC4 1. If the circuit has different east/west VC4s and/or VC3, VC11, or VC12s, record the name of the circuit. Figure 20-13 shows a circuit passing through a node (doc-124) on the same VC4 (VC4 2).

Figure 20-13: Verifying Pass-Through VC4s



4. Repeat Steps 1 to 3 for each circuit that appears in the Circuits tab.
5. Delete and recreate each circuit recorded in Step 3. To delete the circuit, see the NTP-D27 Delete Circuits. To create the circuit, see Create Circuits and Low-Order Tunnels.
6. Return to your originating procedure (NTP).

### DLP-D358 Change a Multiplex-Section DCC Termination

<b>Purpose</b>	This task modifies a multiplex-section data communications channel (MS-DCC). You can also enable or disable Open Shortest Path First (OSPF) and enable or disable the foreign node setting.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<u>DLP-D60 Log into CTC</u>
<b>Required/As Needed</b>	As needed



<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. Click the **Provisioning > Comm Channels > MS-DCC** tabs.
2. Click the MS-DCC that you want to change.
3. Click **Edit**.
4. In the MS-DCC Termination Editor dialog box, complete the following as necessary:
  - ◆ Disable OSPF on MS-DCC Link-If checked, OSPF is disabled on the link. OSPF should be disabled only when the slot and port connect to third-party equipment that does not support OSPF.
  - ◆ Far End is Foreign-Check this box to specify that the MS-DCC termination is a non-ONS node.
  - ◆ Far end IP-If you checked the Far End is Foreign check box, type the IP address of the far-end node or leave the 0.0.0.0 default. An IP address of 0.0.0.0 means that any address can be used by the far end.
5. Click **OK**.
6. Return to your origination procedure (NTP).

### DLP-D359 Change a Regenerator-Section DCC Termination

<b>Purpose</b>	This task modifies a regenerator-section DCC (RS-DCC). You can also enable or disable OSPF and enable or disable the foreign node setting.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. Click the **Provisioning > Comm Channels > RS-DCC** tabs.
2. Click the RS-DCC that you want to change.
3. Click **Edit**.
4. In the RS-DCC Termination Editor dialog box, complete the following as necessary:
  - ◆ Disable OSPF on RS-DCC Link-If checked, OSPF is disabled on the link. OSPF should be disabled only when the slot and port connect to third-party equipment that does not support OSPF.
  - ◆ Far End is Foreign-Check this box to specify that the RS-DCC termination is a non-ONS node.
  - ◆ Far End IP-If you checked the Far End is Foreign check box, type the IP address of the far-end node or leave the 0.0.0.0 default. An IP address of 0.0.0.0 means that any address can be used by the far end.
5. Click **OK**.
6. Return to your origination procedure (NTP).

### DLP-D360 Delete a Regenerator-Section DCC Termination

<b>Purpose</b>	This task deletes an SDH RS-DCC termination on the ONS 15454 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</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 DCC termination can cause you to lose visibility to nodes that do not have other DCCs or network connections to the CTC computer.

1. In node view, click the **Provisioning > Comm Channels > RS-DCC** tabs.
2. Click the RS-DCC termination and click **Delete**. The Delete RS-DCC Termination dialog box appears.
3. Click **Yes** in the confirmation dialog box.
4. Return to your originating procedure (NTP).

## DLP-D361 Create a DCC Tunnel

<b>Purpose</b>	This task creates a DCC tunnel to transport traffic from third-party SDH equipment across ONS 15454 SDH networks. Tunnels can be created on the RS-DCC channel (D1-D3) (if not used by the ONS 15454 SDH as a terminated DCC), or any MS-DCC channel (D4-D6, D7-D9, or D10-D12).
<b>Tools/Equipment</b>	STM-N cards must be installed.
<b>Prerequisite Procedures</b>	<a href="#">NTP-D127 Verify Network Turn-Up</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** Cisco recommends a maximum of 84 DCC tunnel connections. Terminated RS-DCCs used by the ONS 15454 SDH cannot be used as DCC tunnel endpoints, and an RS-DCC that is used as a DCC tunnel endpoint cannot be terminated. All DCC tunnel connections are bidirectional.

1. In network view, click the **Provisioning > Overhead Circuits** tabs.
2. Click **Create**.
3. In the Overhead Circuit Creation dialog box, complete the following in the Circuit Attributes area:
  - ◆ Name-Type the tunnel name.
  - ◆ Circuit Type-Choose one:
    - ◇ **DCC Tunnel-D1-D3**-Allows you to choose either the RS-DCC (D1-D3) or an MS-DCC (D4-D6, D7-D9, or D10-D12) as the source or destination endpoints.
    - ◇ **DCC Tunnel-D4-D12**-Provisions the full MS-DCC as a tunnel.
4. Click **Next**.
5. In the Circuit Source area, complete the following:
  - ◆ Node-Choose the source node.
  - ◆ Slot-Choose the source slot.
  - ◆ Port-If displayed, choose the source port.
  - ◆ Channel-These options appear if you chose DCC Tunnel-D1-D3 as the tunnel type. Choose one of the following:
    - ◇ **DCC1 (D1-D3)**-This is the RS-DCC.
    - ◇ **DCC2 (D4-D6)**-This is MS-DCC 1.
    - ◇ **DCC3 (D7-D9)**-This is MS-DCC 2.
    - ◇ **DCC4 (D10-D12)**-This is MS-DCC 3.
 DCC options do not appear if they are used by the ONS 15454 SDH (DCC1) or other tunnels.
6. Click **Next**.
7. In the Circuit Destination area, complete the following:
  - ◆ Node-Choose the destination node.
  - ◆ Slot-Choose the destination slot.

- ◆ Port-If displayed, choose the destination port.
- ◆ Channel-These options appear if you chose DCC Tunnel-D1-D3 as the tunnel type. Choose one of the following:
  - ◇ **DCC1 (D1-D3)**-This is the RS-DCC.
  - ◇ **DCC2 (D4-D6)**-This is MS-DCC 1.
  - ◇ **DCC3 (D7-D9)**-This is MS-DCC 2.
  - ◇ **DCC4 (D10-D12)**-This is MS-DCC 3.

DCC options do not appear if they are used by the ONS 15454 SDH (DCC1) or other tunnels.

8. Click **Finish**.
9. Put the ports that are hosting the DCC tunnel in service. See the "[DLP-D214 Change the Service State for a Port](#)" task for instructions.
10. Return to your originating procedure (NTP).

## DLP-D362 Delete a Multiplex-Section DCC Termination

<b>Purpose</b>	This task deletes an SDH MS-DCC termination on the ONS 15454 SDH.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Caution!** Deleting a DCC termination can cause you to lose visibility of nodes that do not have other DCCs or network connections to the CTC computer.

1. In node view, click the **Provisioning > Comm Channel > MS-DCC** tabs.
2. Click the MS-DCC termination to be deleted and click **Delete**. The Delete MS-DCC Termination dialog box appears.
3. Click **Yes** in the confirmation dialog box. Confirm that the changes appear; if not, repeat the task.
4. Return to your originating procedure (NTP).

## DLP-D363 Provision Regenerator-Section DCC Terminations

<b>Purpose</b>	This task creates the SDH RS-DCC terminations required for alarms, administration data, signal control information, and messages. In this task, you can also set up the node so that it has direct IP access to a far-end non-ONS node over the DCC network. In addition, this task can create an OSI subnetwork point of attachment on the DCC to allow the node to be networked with third-party network elements (NEs) that are based on the OSI protocol stack.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Caution!** If the ONS 15454 SDH is configured as an OSI IS Level 1 or IS Level 1/Level 2 node and you are provisioning an OSI-only (LAP-D) RS-DCC to a third party NE, verify that the maximum area routing parameter on the vender NE is set to 3 before you start this task.

**Note:** When RS-DCC is provisioned, an MS-DCC termination is allowed on the same port, but is not recommended. Use RS-DCC and MS-DCC on the same port only during a software upgrade when the software version does not support MS-DCC. You can provision RS-DCCs and MS-DCCs on different ports in the same node.

1. In node view, click the **Provisioning > Comm Channels > RS-DCC** tabs.
2. Click **Create**.
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 15454 SDH DCC terminations. The SDH multiplex-section DCCs and the regenerator-section DCC (when not used as a DCC termination by the ONS 15454 SDH) can be provisioned as DCC tunnels. See the "[DLP-D361 Create a DCC Tunnel](#)" task.
4. In the Port Admin State area, click the **Set to 'unlocked'** radio button.
5. Verify that the Disable OSPF on DCC Link check box is unchecked.
6. If the RS-DCC termination is to include a non-ONS node, check the **Far End is Foreign** check box. This automatically sets the far-end node IP address to 0.0.0.0, which means that any address can be specified by the far end. To change the default to a specific the IP address, see the "[DLP-D359 Change a Regenerator-Section DCC Termination](#)" task.
7. In the Layer 3 box, perform one of the following:
  - ◆ Check the IP box only-if the RS-DCC is between the ONS 15454 SDH and another ONS node and only ONS nodes reside on the network. The RS-DCC will use Point-to-Point Protocol (PPP).
  - ◆ Check the IP and OSI boxes-if the RS-DCC is between the ONS 15454 SDH and another ONS node and third party NEs that use the OSI protocol stack are on the same network. The RS-DCC will use PPP.
  - ◆ Check OSI box only-if the RS-DCC is between an ONS node and a third party NE that uses the OSI protocol stack. The RS-DCC will use the LAP-D protocol.
 

**Note:** If OSI is checked and IP is not checked (LAP-D), no network connections will appear in network view.
8. If you checked OSI, complete the following steps. If you checked IP only, continue with Step 9.
  1. Click **Next**.
  2. Provision the following fields:
    - ◇ Router-Choose the OSI router.
    - ◇ ESH-Sets the End System Hello (ESH) propagation frequency. End system NEs transmit ESHs to inform other ESs and ISs about the NSAPs it serves. The default is 10 seconds. The range is 10 to 1000 seconds.
    - ◇ ISH-Sets the Intermediate System Hello (ISH) protocol data unit (PDU) propagation frequency. Intermediate system NEs send ISHs to other ESs and ISs to inform them about the IS NETs it serves. The default is 10 seconds. The range is 10 to 1000 seconds.
    - ◇ IIH-Sets the Intermediate System to Intermediate System Hello (IIH) PDU propagation frequency. The IS-IS Hello PDUs establish and maintain adjacencies between ISs. The default is 3 seconds. The range is 1 to 600 seconds.
    - ◇ Metric-Sets the cost for sending packets on the LAN subnet. The IS-IS protocol uses the cost to calculate the shortest routing path. The default metric cost for LAN subnets is 20. It normally should not be changed.
  3. If the OSI and IP boxes are checked, continue with Step 9. If only the OSI is checked, click **Next** and provision the following fields:
    - ◇ Mode-Choose one of the following:
      - **AITs**-(Default) Acknowledged Information Transfer Service. Does not exchange data until a logical connection between two LAP-D

users is established. This service provides reliable data transfer, flow control, and error control mechanisms.

- **UITS**-Unacknowledged Information Transfer Service. Transfers frames containing user data with no acknowledgement. The service does not guarantee that the data presented by one user will be delivered to another user, nor does it inform the user if the delivery attempt fails. It does not provide any flow control or error control mechanisms.

- ◇ Role-Set to the opposite of the mode of the NE at the other end of the RS-DCC.
- ◇ MTU-Maximum transmission unit. Sets the maximum number of octets in a LAP-D information frame. The range is 512 to 1500 octets. The default is 512. You normally should not change it.
- ◇ T200-Sets the time between Set Asynchronous Balanced Mode (SABME) frame retransmissions. The default is 0.2 seconds. The range is 0.2 to 20 seconds.
- ◇ T203-Provisions the maximum time between frame exchanges, that is, the trigger for transmission of the LAP-D "keep-alive" Receive Ready (RR) frames. The default is 10 seconds. The range is 4 to 120 seconds.

9. Click **Finish**.

**Note:** DCC Termination Failure (EOC) and LOS alarms appear until you create all network DCC terminations and put the DCC termination STM-N ports in service.

10. Return to your originating procedure (NTP).

## DLP-D364 Provision Multiplex-Section DCC Terminations

<b>Purpose</b>	This task creates the SDH MS-DCC terminations required for alarms, administration data, signal control information, and messages. MS-DCCs are three times larger than RS-DCCs. In this task, you can also set up the node so that it has direct IP access to a far-end non-ONS node over the DCC network. In addition, you can set up the node so that it has direct IP access to a far-end non-ONS node over the DCC network. In addition, this task can create an OSI subnetwork point of attachment on the DCC to allow the node to be networked with third party NEs that are based on the OSI protocol stack.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** When MS-DCC is provisioned, an RS-DCC termination is allowed on the same port, but is not recommended. Use RS-DCC and MS-DCC on the same port only during a software upgrade if the software version does not support MS-DCC. You can provision RS-DCCs and MS-DCCs on different ports in the same node.

1. In node view, click the **Provisioning > Comm Channels > MS-DCC** tabs.
2. Click **Create**.
3. In the Create MS-DCC Terminations dialog box, click the ports where you want to create the

MS-DCC termination. To select more than one port, press the Shift key or the Ctrl key.

**Note:** MS-DCC refers to the multiplex-section DCC, which is used for ONS 15454 SDH DCC terminations. The SDH multiplex-section DCCs and the regenerator-section DCC (when not used as a DCC termination by the ONS 15454 SDH) can be provisioned as DCC tunnels. See the "[DLP-D361 Create a DCC Tunnel](#)" task.

4. In the Port Admin State area, click the **Set to IS** radio button.
5. Verify that the Disable OSPF on DCC Link check box is unchecked.
6. If the RS-DCC termination is to include a non-ONS node, check the **Far End is Foreign** check box. This automatically sets the far-end node IP address to 0.0.0.0, which means that any address can be specified by the far end. To change the default to a specific the IP address, see the "[DLP-D359 Change a Regenerator-Section DCC Termination](#)" task.
7. In the Layer 3 box, perform one of the following:
  - ◆ Check the IP box only-if the MS-DCC is between the ONS 15454 SDH and another ONS node and only ONS nodes reside on the network. The MS-DCC will use PPP.
  - ◆ Check the IP and OSI boxes-if the MS-DCC is between the ONS 15454 SDH and another ONS node and third party NEs that use the OSI protocol stack are on the same network. The MS-DCC will use PPP.

**Note:** OSI-only (LAP-D) is not available for MS-DCCs.
8. If you checked OSI, complete the following steps. If you checked IP only, continue with Step 9.
  1. Click **Next**.
  2. Provision the following fields:
    - ◇ Router-Choose the OSI router.
    - ◇ ESH-Sets the ESH propagation frequency. End system NEs transmit ESHs to inform other ESs and ISs about the NSAPs it serves. The default is 10 seconds. The range is 10 to 1000 seconds.
    - ◇ ISH-Sets the ISH PDU propagation frequency. Intermediate system NEs send ISHs to other ESs and ISs to inform them about the IS NETs it serves. The default is 10 seconds. The range is 10 to 1000 seconds.
    - ◇ IIH-Sets the IIH PDU propagation frequency. The IS-IS Hello PDUs establish and maintain adjacencies between ISs. The default is 3 seconds. The range is 1 to 600 seconds.
    - ◇ Metric-Sets the cost for sending packets on the LAN subnet. The IS-IS protocol uses the cost to calculate the shortest routing path. The default metric cost for LAN subnets is 20. It normally should not be changed.
9. Click **Finish**.
 

**Note:** Multiplex-Section DCC Termination Failure (MS-EOC) and LOS alarms appear until you create all network DCC terminations and put the DCC termination STM-N ports in service.
10. Return to your originating procedure (NTP).

## DLP-D365 Change Line and Threshold Settings for E1-42 Cards

<b>Purpose</b>	This task changes the line and threshold settings for the E1-42 (E-1) cards.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

**Note:** For the default values and domains of user-provisionable card settings, refer to the "Network Element Defaults" appendix in the *Cisco ONS 15454 SDH Reference Manual*.

1. In node view, double-click the E1-42 card where you want to change the line or threshold settings.
2. Click the **Provisioning** tab.
3. Depending on the setting you need to modify, click the **Line, Line Thresholds, Elect Path Thresholds**, or **SDH Thresholds** tab.

**Note:** See [Manage Alarms](#) for information about the Alarm Profiles tab.

**Note:** If you want to modify a threshold setting, it might be necessary to click on the available directional, type, and interval (15 Min, 1 Day) radio buttons and then click **Refresh**. This will display the desired threshold setting.

4. Modify any of the settings found under these subtabs by clicking in the field you want to modify. In some fields you can choose an option from a drop-down list; in others you can type a value or select or deselect a check box.
5. Click **Apply**.
6. Repeat Steps 3 through 5 for each subtab that has parameters you want to provision.

For definitions of the line settings, see [Table 20-22](#). For definitions of the line threshold settings, see [Table 20-23](#). For definitions of the electrical path threshold settings, see [Table 20-24](#). For definitions of the SDH threshold settings, see [Table 20-25](#).

[Table 20-22](#) describes the values on the Provisioning > Line tab for the E-1 cards.

**Table 20-22: Line Options for E1-42 Cards**

Parameter	Description	Options
Port	(Display only) Port number.	<ul style="list-style-type: none"> <li>• 1 to 42 (E1-42 card)</li> </ul>
Port Name	Port name.	User-defined, up to 32 alphanumeric/special characters. Blank by default.  See the " <a href="#">DLP-D314 Assign a Name to a Port</a> " task.
SF BER	Sets the signal fail bit error rate.	<ul style="list-style-type: none"> <li>• 1E-3</li> <li>• 1E-4</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</li> <li>• 1E-8</li> <li>• 1E-9</li> </ul>
Line Type	Defines the line framing type.	<ul style="list-style-type: none"> <li>• E1_MF</li> <li>• E1_CRCMF</li> <li>• E1_UNFRAMED</li> </ul>
Line Coding	(Display only) Defines the E-1 transmission coding type.	HDB3 - High density bipolar - 3 Zero Substitution
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, refer to the "Administrative and Service States" appendix of the <i>Cisco ONS 15454 SDH Reference Manual</i> .	<ul style="list-style-type: none"> <li>• Unlocked-Puts the port in service. The port service state changes to Unlocked-enabled.</li> <li>• Unlocked,automaticInService-Puts the port in automatic in-service. The port service state changes to Unlocked-disabled,automaticInService.</li> <li>• Locked,disabled-Removes the port from service and disables it. The port service state changes to</li> </ul>

		<p>Locked-enabled,disabled.</p> <ul style="list-style-type: none"> <li>• Locked,maintenance-Removes the port from service for maintenance. The port service state changes to Locked-enabled,maintenance.</li> </ul> <p><b>Note:</b> CTC will not allow you to change a port service state from Unlocked-enabled to Locked-enabled,disabled. You must first change a port to the Locked-enabled,maintenance service state before putting it in the Locked-enabled,disabled service state.</p>
Service State	(Display only) Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, refer to the "Administrative and Service States" appendix of the <i>Cisco ONS 15454 SDH Reference Manual</i> .	<ul style="list-style-type: none"> <li>• Unlocked-enabled-The port is fully operational and performing as provisioned.</li> <li>• Unlocked-disabled,automaticInService-The port is out-of-service, but traffic is carried. Alarm reporting is suppressed. The ONS node monitors the ports for an error-free signal. After an error-free signal is detected, the port stays in the Unlocked-disabled,automaticInService state for the duration of the soak period. After the soak period ends, the port service state changes to Unlocked-enabled.</li> <li>• Locked-enabled,disabled-The port is out-of-service and unable to carry traffic.</li> <li>• Locked-enabled,maintenance-The port is out-of-service for maintenance. Alarm reporting is suppressed, but traffic is carried and loopbacks are allowed.</li> </ul>
AINS Soak	Sets the automatic in-service soak period.	<ul style="list-style-type: none"> <li>• Duration of valid input signal, in hh.mm format, after which the card becomes Unlocked-enabled automatically</li> <li>• 0 to 48 hours, 15-minute increments</li> </ul>

Table 20-23 describes the values on the Provisioning > Line Thresholds tab for the E-1 cards.

**Table 20-23: Line Thresholds Options for E1-42 Cards**

Parameter	Description
Port	(Display only) Port number <ul style="list-style-type: none"> <li>• 1 to 42 (E1-42 card)</li> </ul>
CV	Coding violations
ES	Errored seconds
SES	Severely errored seconds
LOSS	The number of one-second intervals containing one or more loss of signal (LOS) defects.
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.



Table 20-24 describes the values on the Provisioning > Elect Path Thresholds tab for the E-1 cards.

**Table 20-24: Electrical Path Threshold Options for E1-42 Cards**

Parameter	Description
Port	(Display only) Port number <ul style="list-style-type: none"> <li>• 1 to 42 (E1-42 card)</li> </ul>
EB	Errored blocks
BBE	Background block errors
ES	Errored seconds
SES	Severely errored seconds
UAS	Unavailable seconds
AISS	Alarm indication signal
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

Table 20-25 describes the values on the Provisioning > SDH Thresholds tab for the E-1 cards.

**Table 20-25: SDH Threshold Options for E1-42 Cards**

Parameter	Description
Port	(Display only) E-1 port <ul style="list-style-type: none"> <li>• 1 to 42 (E1-42 card)</li> </ul>
ES	Errored seconds
SES	Severely errored seconds
EB	Errored blocks
UAS	Unavailable seconds
BBE	Background block errors
VC LO	Virtual circuit (low-order)
VC4	Virtual circuit 4
15 Min radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 15-minute intervals.
1 Day radio button	Clicking this radio button and then clicking Refresh will cause the threshold values on this tab to display for 1-day intervals.

**Note:** The threshold value appears after the circuit is created.

7. Return to your originating procedure (NTP).

### DLP-D366 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 15454 SDH MS-SPRing through third-party equipment. This task is unnecessary for most users.
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<b>Tools/Equipment</b>	STM-16, STM-64, or MRC-2.5G-12 cards must be installed on the MS-SPRing span that you will remap.
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<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 each side of the span.

1. In node view, double-click the STM-16 card that connects to the third-party equipment.
2. Click the **Provisioning > Line** tabs.
3. Click **MS-SPRing Ext Byte** and choose the alternate byte: Z2, E2, or F1.
4. Click **Apply**.
5. (Four-fiber MS-SPRing only) Repeat Steps 2 through 4 for each protect card.
6. Repeat this task at the node and card on the other end of the MS-SPRing span.  
**Note:** The extension byte chosen in Step 3 should match at both ends of the span.
7. Return to your originating procedure (NTP).

### DLP-D367 Provision a J2 Path Trace on Circuit Source and Destination Ports

<b>Purpose</b>	This task creates a J2 path trace on VC12 circuit source ports and destination ports.
<b>Tools/Equipment</b>	ONS 15454 SDH cards capable of transmitting and/or receiving path trace must be installed at the circuit source and destination ports. See <a href="#">Table 20-26</a> for a list of cards.
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

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

1. From the View menu, choose **Go to Network View**.
2. Click the **Circuits** tab.
3. For the VC12 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 20-26](#) for a list of cards.

**Table 20-26: ONS 15454 SDH Cards Capable of J2 Path Trace**

J2 Function	Cards
Transmit and Receive	E1-42
Receive Only	STM1E-12

**Note:** If neither port is on a transmit/receive card, you cannot complete this procedure.

4. Choose the VC12 circuit you want to trace, then double-click it (or click **Edit**).
5. In 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 appears.
6. Provision the circuit source transmit string:

1. 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 J2 Path Trace (port)** from the shortcut menu.
  2. Click the **16 byte** button.
  3. 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 J2 transmits a string of null characters.
  4. Click **Apply**, then click **Close**.
7. Provision the circuit destination transmit string:
1. On the detailed circuit map, right-click the circuit destination port and choose **Edit Path Trace** from the shortcut menu.
  2. 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 J2 transmits a string of null characters.
  3. Click **Apply**.
8. Provision the circuit destination expected string:
1. In the Circuit Path Trace window, enable the path trace expected string by choosing **Auto** or **Manual** from the Path Trace Mode drop-down list:
    - **Auto**-The first string received from the source port is 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 Current Expected String is the baseline. An alarm is raised when a string that differs from the Current Expected String is received.
  2. If you set Path Trace Mode 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.
  3. Click the **Disable AIS and RDI on J2 TIM** check box if you want to suppress the AIS and remote defect indication (RDI) when the Low-Order Path Trace Identifier Mismatch (LP-TIM) alarm appears. Refer to the *Cisco ONS 15454 SDH Troubleshooting Guide* for descriptions of alarms and conditions.
  4. Click the **Disable AIS on LO SLM** check box if you want to suppress the AIS when the Low-Order Signal Label Mismatch (LO SLM) alarm appears. Refer to the *Cisco ONS 15454 SDH Troubleshooting Guide* for descriptions of alarms and conditions.
  5. (Check box visibility depends on card selection) Click the **Disable AIS on C2 Mis-Match** check box if you want to suppress the AIS when a C2 mismatch occurs.
  6. Click **Apply**, then click **Close**.
 

**Note:** It is not necessary to set the format (16 or 64 bytes) for the circuit destination expected string; the path trace process automatically determines the format.
9. Provision the circuit source expected string:
1. In the Edit Circuit window (with Show Detailed Map chosen), right-click the circuit source port and choose **Edit Path Trace** from the shortcut menu.
  2. In the Circuit Path Trace window, enable the path trace expected string by choosing **Auto** or **Manual** from the Path Trace Mode drop-down list:
    - **Auto**-Uses the first string received from port at the other end as the current expected 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.

3. 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 the Path Trace Mode field to Auto, skip this step.
4. Click the **Disable AIS and RDI on J2 TIM** check box if you want to suppress the AIS and RDI when the LP-TIM alarm appears. Refer to the *Cisco ONS 15454 SDH Troubleshooting Guide* for descriptions of alarms and conditions.
5. Click the **Disable AIS on LO SLM** check box if you want to suppress the alarm indication signal when the LO SLM alarm appears. Refer to the *Cisco ONS 15454 SDH Troubleshooting Guide* for descriptions of alarms and conditions.
6. (Check box visibility depends on card selection) Click the **Disable AIS on C2 Mis-Match** check box if you want to suppress the AIS when a C2 mismatch occurs.
7. Click **Apply**.
 

**Note:** It is not necessary to set the format (16 or 64 bytes) for the circuit source expected string; the path trace process automatically determines the format.
10. After you set up the path trace, the received string appears in the Received field on the path trace setup window. The following options are available:
  - Click **Hex Mode** to display path trace in hexadecimal format. The button name changes to ASCII Mode. Click it to return the path trace to ASCII format.
  - Click **Reset** 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 generates alarms if the port on the other end is provisioned with a different string.

The Expect and Receive strings are updated every few seconds whether the Path Trace Mode field is set to Auto or Manual.
11. Click **Close**.
 

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

## DLP-D368 Manual or Force Switch the Node Timing Reference

<b>Purpose</b>	This task commands the NE to switch to the timing reference you have selected, as long as the new reference is valid. With a Manual switch, the synchronization status message (SSM) quality of the reference must not be lower than the current timing reference.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Maintenance or higher

1. In node view, click the **Maintenance > Timing > Source** tabs.
2. From the Reference drop-down list for the desired Clock, choose the desired reference.
3. From the Operation drop-down list for the desired Clock, choose one of the following options:
  - ◆ **Manual**-This operation commands the node to switch to the reference you have selected if the SSM quality of the reference is not lower than the current timing reference.
  - ◆ **Force**-This operation commands the node to switch to the reference you have selected, regardless of the SSM quality (if the reference is valid).

For information about the Clear option, see the "[DLP-D369 Clear a Manual or Force Switched Node Timing Reference](#)" task.

4. Click **Apply** next to the timing source.
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.
6. If the selected timing reference is invalid, a warning dialog appears. Click **OK**; the node does not revert to the normal timing reference.
7. Return to your originating procedure (NTP).

## DLP-D369 Clear a Manual or Force Switched Node Timing Reference

<b>Purpose</b>	This task clears a Manual or Force 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-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Maintenance or higher

1. In node view, click the **Maintenance > Timing > Source** tabs.
2. Find the Clock reference that is currently set to Manual or Force in the Operation list.
3. From the Operation drop-down list choose **Clear**.
4. Click **Apply**.
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.
6. If the normal timing reference is invalid or has failed, a warning message appears. Click **OK**; the timing reference does not revert.
7. Return to your originating procedure (NTP).

## DLP-D370 View Circuit Information

<b>Purpose</b>	This task provides information about ONS 15454 SDH circuits.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher

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.
2. Click the **Circuits** tab. The Circuits tab shows the following information:

- ◆ Circuit Name-Name of the circuit. The circuit name can be manually assigned or automatically generated.
- ◆ Type-Circuit types are: HOP (high-order path circuit), LOP (low-order path circuit), VCT (VC low-order tunnel), VCA (VC low-order aggregation point), OCHNC (DWDM optical channel network connection), HOP\_v (VCAT high-order circuit), and LOP\_v (VCAT low-order circuit).
- ◆ Size-Circuit size. High-order circuit sizes are VC4, VC4-2c, VC4-3c, VC4-4c, VC4-8c, VC4-12c, VC4-16c, and VC4-64c. Low-order circuits are VC11, VC12, and VC3. Optical channel network connection (OCHNC) sizes are Equipped not specific, Multi-rate, 2.5 Gbps No FEC (forward error correction), 2.5 Gbps FEC, 10 Gbps No FEC, and 10 Gbps FEC. High-order VCAT circuits are VC4-*nv* and VC4-4c-*nv* and low-order VCAT circuits are VC3-*nv*, where *n* is the number of members.
- ◆ OCHNC Wlen-(DWDM only) Refer to the *Cisco ONS 15454 DWDM Procedure Guide* for further information.
- ◆ Direction-The circuit direction, either two-way or one-way.
- ◆ OCHNC Dir-For OCHNCs, the direction of the optical channel network connection, either East to West or West to East. Refer to the *Cisco ONS 15454 DWDM Procedure Guide* for further information.
- ◆ Protection-The type of circuit protection. See [Table 20-27](#) for a list of protection types.

**Table 20-27: Circuit Protection Types**

Protection Type	Description
1+1	The circuit is protected by a 1+1 protection group.
2F MS-SPRing	The circuit is protected by a two-fiber MS-SPRing.
4F MS-SPRing	The circuit is protected by a four-fiber MS-SPRing.
2F-PCA	The circuit is routed on a protection channel access (PCA) path on a two-fiber MS-SPRing; PCA circuits are unprotected.
4F-PCA	The circuit is routed on a PCA path on a four-fiber MS-SPRing; PCA circuits are unprotected.
MS-SPRing	The circuit is protected by both a two-fiber and a four-fiber MS-SPRing.
N/A	A circuit with connections on the same node is not protected.
Protected	The circuit is protected by diverse SDH topologies, for example, an MS-SPRing and an SNCP, or an SNCP and a 1+1 protection group.
PCA	The circuit is routed on a PCA path on both two-fiber and four-fiber MS-SPRings; PCA circuits are unprotected.
SNCP	The circuit is protected by an SNCP.
SNCP-DRI	The circuit is protected by an SNCP DRI.
SPLITTER	The circuit is protected by the protect transponder (TXPP_MR_2.5G) splitter protection.
Unknown	A circuit has a source and destination on different nodes and communication is down between the nodes. This protection type appears if not all circuit components are known.
Unprot (black)	A circuit with a source and destination on different nodes is not protected.
Unprot (red)	A circuit created as a fully protected circuit is no longer protected due to a system change, such as removal of a MS-SPRing or 1+1 protection group.
Y-Cable	The circuit is protected by a transponder or muxponder card Y-cable protection group.

◇ Status-The circuit status. [Table 20-28](#) lists the circuit statuses that might appear.

**Table 20-28: Cisco ONS 15454 SDH Circuit Status**

Status	Definition/Activity
CREATING	CTC is creating a circuit.
DISCOVERED	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.
PARTIAL	<p>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.)</p> <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 PARTIAL. However, a PARTIAL status does not necessarily mean a circuit traffic failure has occurred, because 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 are shown as green lines, and down spans are shown 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 DISCOVERED during the current CTC session, but they will appear as PARTIAL to users who log in after the span failure.</p>
DISCOVERED_TL1	A TL1-created circuit or a TL1-like CTC-created circuit is complete. A complete path from source to destination(s) exists.
PARTIAL_TL1	A TL1-created circuit or a TL1-like CTC-created circuit is missing a cross-connect, and a complete path from source to destination(s) does not exist.
CONVERSION_PENDING	An existing circuit in a topology upgrade is set to this state. The circuit returns to the DISCOVERED state once the topology upgrade is complete. For more information about topology upgrades, see the "SDH Topologies and Upgrades" chapter in the <i>Cisco ONS 15454 SDH Reference Manual</i> .
PENDING_MERGE	Any new circuits created to represent an alternate path in a topology upgrade are set to this status to indicate that it is a temporary circuit. These circuits can be deleted if a topology upgrade fails. For more information about topology upgrades, see the "SDH Topologies and Upgrades" chapter in the <i>Cisco ONS 15454 SDH Reference Manual</i> .
DROP_PENDING	A circuit is set to this status when a new circuit drop is being added.

◇ Source-The circuit source in the format: *node/slot/port "port name" virtual\_container/tributary\_unit\_group/tributary\_unit\_group/virtual\_container*. (The port name appears in quotes.) Node and slot always appear; *port "port name"/virtual\_container/tributary\_unit\_group/tributary\_unit\_group/virtual\_container* might appear, depending on the source card, circuit type, and whether a name is assigned to the port. For the STM64-XFP and MRC-12 cards, the port appears as *port pluggable module*

(PPM)-port. If the circuit is a concatenated size (VC4-2c, VC4-4c, VC4-8c, etc.) VCs used in the circuit are indicated by an ellipsis, for example, "VC4-7.9" (VCs 7, 8, and 9) or VC4-10..12 (VC 10, 11, and 12).

- ◇ Destination-The circuit destination in same format (*node/slot/port "port name" virtual\_container/tributary\_unit\_group/tributary\_unit\_group/virtual\_container*) as the circuit source.
- ◇ # of VLANS-The number of VLANs used by an Ethernet circuit with end points on E-Series Ethernet cards in single card or multicard mode.
- ◇ # of Spans-The number of internode links that compose the circuit. Right-clicking the column shows a shortcut menu from which you can choose Span Details to show or hide circuit span detail.
- ◇ State-The circuit service state, which is an aggregate of its cross-connects. The service states are Unlocked, Locked, or Locked-partial. For more information about circuit service states, refer to the "Administrative and Service States" appendix of the *Cisco ONS 15454 SDH Reference Manual*.
  - Unlocked-All cross-connects are in service and operational.
  - Locked-All cross-connects are Locked-enabled,maintenance or Locked-enabled,disabled.
  - Locked-partial-At least one cross-connect is Unlocked-enabled and others are in the Locked-enabled,maintenance and/or Locked-enabled,disabled service states.

3. Return to your originating procedure (NTP).

### DLP-D371 View the MS-SPRing Squelch Table

<b>Purpose</b>	This task allows you to view the MS-SPRing squelch table for an ONS 15454 SDH MS-SPRing node. Squelching replaces traffic by the appropriate path AIS; it prevents traffic misconnections when a working channel service contends for access to a protection channel time slot carrying extra traffic. The table shows VC4s in the MS-SPRing squelched for every isolated node.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher

1. In node view, click the **Provisioning > MS-SPR** tabs.
2. Click **Squelch Table**. In the MS-SPR Squelch Table window, you can view the following information:
  - ◆ VC4 Number-Shows the MS-SPRing VC4 numbers.
  - ◆ West-Source-If traffic is received by the node on its west span, the MS-SPRING node ID of the source appears. (To view the MS-SPRING node IDs for all nodes in the ring, click **Ring Map**.)
  - ◆ West-Dest-If traffic is sent on the node's west span, the MS-SPRING node ID of the destination appears.
  - ◆ East-Source-If traffic is received by the node on its east span, the MS-SPRING node ID of the source appears.
  - ◆ East-Dest-If traffic is sent on the node's east span, the MS-SPRING node ID of the destination appears.



**Note:** MS-SPRing squelching is performed on VC4s that carry high-order circuits only. VC4s carrying low-order or stitched Ethernet circuits do not have entries in the squelch table.

3. Return to your originating procedure (NTP).

## DLP-D372 Import a Cisco TransportPlanner Configuration File

<b>Purpose</b>	This task imports a Cisco TransportPlanner configuration file into the node to configure the node automatically.
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	A CiscoTransportPlanner network configuration file must be located on an available local or network drive.  <a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Superuser only

1. Export the Installation Parameters for your node from Cisco TransportPlanner. If the parameters file has been exported, continue with Step 2.
  1. In Cisco TransportPlanner, right-click the node icon and choose **Site Installation > Assisted Conf Setup**.
  2. In the dialog box, choose a location to save the Cisco TransportPlanner installation file.
2. In CTC node view, click the **Provisioning > WDS-ANS > NE Update** tabs.
3. Click **Import**.
4. In the Import Defaults From File dialog box, enter the path to the configuration file, or click **Browse** and navigate to the configuration file using the Open dialog box.
5. Click **OK**.
6. Click **Apply**.
7. Return to your originating procedure (NTP).

## DLP-D388 Verify MS-SPRing Extension Byte Mapping

<b>Purpose</b>	This task verifies that the extension byte mapping is the same on MS-SPRing trunk cards that will be connected after a node is removed from an MS-SPRing.
<b>Tools/Equipment</b>	OC48 LR/STM16 LH AS 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-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Provisioning or higher

1. In network view, double-click a MS-SPRing node with OC48 LR/STM16 LH AS trunk cards that will be reconnected after a MS-SPRing node removal.
2. Double-click one OC48 LS/STM16 LH AS MS-SPRing trunk card.
3. Click the **Provisioning > Line** tab.
4. Record on paper the byte that appears in the MS-SPR Ext Byte column.
5. Repeat Steps 2 through 4 for the second OC48 LS/STM16 LH AS trunk card.

6. If the node at the other end of the new span contains OC48 LS/STM16 LH AS trunk cards, repeat Steps 1 through 5 at the node. If it does not have OC48 LS/STM16 LH AS cards, their trunk cards are mapped to the K3 extension byte. Continue with Step 7.
7. If the trunk cards on each end of the new span are mapped to the same MS-SPRing extension byte, continue with Step 8. If they are not the same, remap the extension byte of the trunk cards at one of the nodes. See the "[DLP-D366 Remap the K3 Byte](#)" task.
8. Return to your originating procedure (NTP).

## DLP-D393 Switch Between TDM and DWDM Network Views

<b>Purpose</b>	This task switches the CTC view between time-division multiplexing (TDM) and DWDM network views. To provision DWDM networks, refer to the <i>Cisco ONS 15454 DWDM Procedure Guide</i> .
<b>Tools/Equipment</b>	None
<b>Prerequisite Procedures</b>	<a href="#">DLP-D60 Log into CTC</a>
<b>Required/As Needed</b>	As needed
<b>Onsite/Remote</b>	Onsite or remote
<b>Security Level</b>	Retrieve or higher

1. From the View menu, choose **Go to Network View**.
2. From the Network Scope drop-down list, choose one of the following:
  - ◆ **All**-Displays both TDM and DWDM nodes.
  - ◆ **TDM**-Displays only ONS 15454 SDH nodes with SDH cards including the transponder (TXP) and muxponder (MXP) cards.
  - ◆ **DWDM**-Displays only ONS 15454 SDH nodes with DWDM cards, including the TXP and MXP cards.

**Note:** For information about DWDM, TXP, and MXP cards, refer to the *Cisco ONS 15454 DWDM Reference Manual*.
3. Return to your originating procedure (NTP).