CTC Operations

This chapter covers Cisco Transport Controller (CTC) operations of the ML-Series card. All operations described in the chapter take place at the card-level view of CTC. CTC shows provisioning information and statistics for both the Ethernet and packet-over-SONET/SDH (POS) ports of the ML-Series card. For the ML-Series cards, CTC manages SONET/SDH alarms and provisions STS/STM circuits in the same manner as other ONS 15454 SONET/SDH traffic cards.

Use CTC to load a Cisco IOS configuration file or to open a Cisco IOS command-line interface (CLI) session. See Chapter 3, "Initial Configuration."

This chapter contains the following major sections:

- Displaying ML-Series POS And Ethernet Statistics on CTC, page 2-1
- Displaying ML-Series Ethernet Ports Provisioning Information on CTC, page 2-2
- Displaying ML-Series POS Ports Provisioning Information on CTC, page 2-4
- Provisioning Framing Mode, page 2-5
- Managing SONET/SDH Alarms, page 2-6
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- Provisioning SONET/SDH Circuits, page 2-8
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Displaying ML-Series POS And Ethernet Statistics on CTC

The POS statistics window lists POS port-level statistics (Figure 2-1). Display the CTC card view for the ML-Series card and click the **Performance > POS Ports** tabs to display the window.

The Ethernet statistics window lists Ethernet port-level statistics. It is similar in appearance to the POS statistics window. The ML-Series Ethernet ports are zero based. Display the CTC card view for the ML-Series card and click the **Performance > Ether Ports** tabs to display the window. Table 2-1 describes the buttons in the POS Ports and Ether Ports window.

A different set of statistics appears for the ML-Series card depending on whether the card is using HDLC or GFP-F framing. For definitions of ML-Series card statistics, refer to the "Performance Monitoring" chapter of the *Cisco ONS 15454 SONET and DWDM Troubleshooting Guide* or the *Cisco ONS 15454 SDH Troubleshooting Guide*.

Table 2-1   *ML-Series POS and Ethernet Statistics Fields and Buttons*

Button	Description
Refresh	Manually refreshes the statistics.
Baseline	Resets the software counters (in that particular CTC client only) temporarily to zero without affecting the actual statistics on the card. From that point on, only counters displaying the change from the temporary baseline are displayed by this CTC client. These new baselined counters are shown only as long as the user displays the Performance window. If the user navigates to another CTC window and comes back to the Performance window, the true actual statistics retained by the card are shown.
Auto-Refresh	Sets a time interval for the automatic refresh of statistics.

Figure 2-1   *Displaying ML-Series POS Statistics*
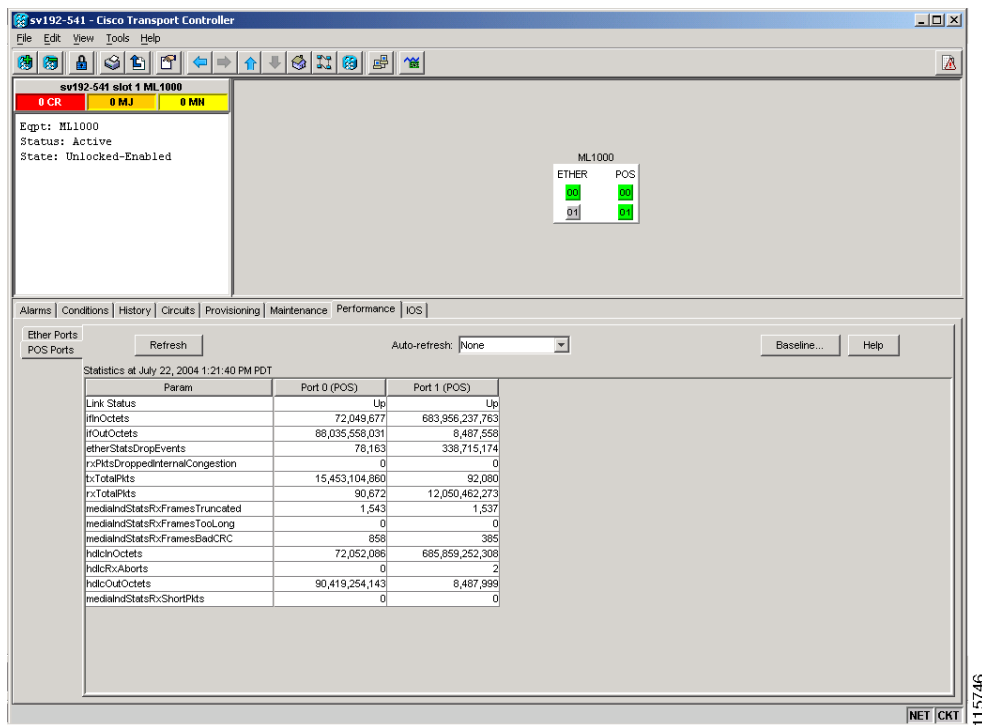
Displaying ML-Series Ethernet Ports Provisioning Information on CTC

The Ethernet port provisioning window displays the provisioning status of the Ethernet ports (Figure 2-2). Click the **Provisioning > Ether Ports** tabs to display this window. For ML-Series cards, only the Port Name field can be provisioned from CTC. The user must configure ML-Series ports using the Cisco IOS CLI.

Figure 2-2   Displaying ML-Series Ethernet Port Provisioning Information

The Provisioning > Ether Ports tab displays the following information:

- Port —The fixed number identifier for the specific port.

- Port Name—Configurable 12-character alphanumeric identifier for the port.

- Admin State—Configured port state, which is administratively active or inactive. Possible values are UP and DOWN.

- Link State—Status between signaling points at port and attached device. Possible values are UP and DOWN.

- MTU—(maximum transfer unit) Largest acceptable packet size configured for that port. Default value is 1500.

- Speed—ML1000-2 possible values are Auto or 1 Gbps. ML100T-12 possible values are Auto, 10Mbps, or 100Mbps.

- Duplex—Setting of the port. ML1000-2 possible values are Auto or Full. ML100T-12 possible values are Auto, Full, or Half.

- Flow Control—Negotiated flow control mode. ML1000-2 possible values are Asymmetrical, Symmetrical or None. ML100T-12 possible values are Symmetrical or None.

- Optics—Small form-factor pluggable (SFP) physical media type. Possible values are Unplugged, 1000 SX, or 1000 LX. (This information does not apply to the ML100T-12 card.)

Note   Auto indicates the port is set to autonegotiate capabilities with the attached link partner.

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Note   The port name field configured in CTC and the port name configured in Cisco IOS are independent of each other. The name for the same port under Cisco IOS and CTC does not match, unless the same name is used to configure the port name in both CTC and Cisco IOS.

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Note   When set to autonegotiate, the ML1000-2 might show Auto in the speed and duplex columns of the Ether ports provisioning screen. This indicates that the ML1000-2 is set to autonegotiate flow control with the link partner. It does not mean the speed or duplex mode of the card will vary from the 1-Gbps, full duplex characteristics of Gigabit Ethernet.

Displaying ML-Series POS Ports Provisioning Information on CTC

The POS ports provisioning window displays the provisioning status of the card's POS ports (Figure 2-3). Click the **Provisioning > POS Ports** tabs to display this window. For ML-Series cards, only the POS Port Name field can be provisioned from CTC. The user must configure ML-Series ports through the Cisco IOS CLI.

Figure 2-3   Displaying POS Port Provisioning Information
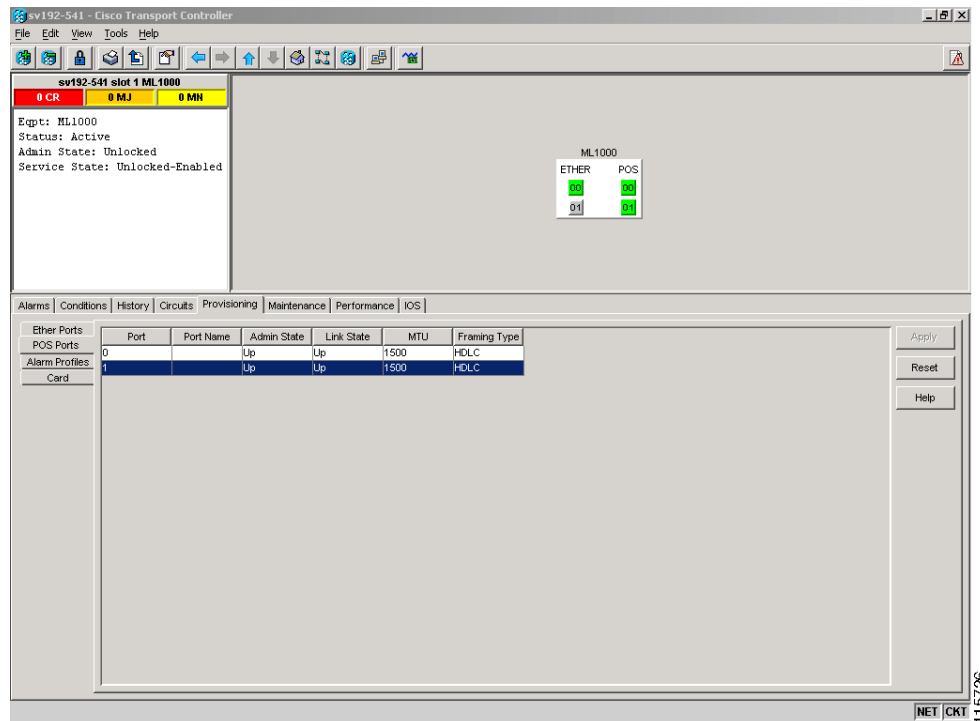
The **Provisioning > POS** Ports tab displays the following information:

- Port —Fixed number identifier for the specific port.
- Port Name—Configurable 12-character alphanumeric identifier for the port.

- Admin State—Configured administrative port state, which is active or inactive. Possible values are UP and DOWN. For the UP value to appear, a POS port must be both administratively active and have a SONET/SDH circuit provisioned.

- Link State—Status between signaling points at the port and an attached device. Possible values are UP and DOWN.

- MTU—The maximum transfer unit, which is the largest acceptable packet size configured for that port. The maximum setting is 9000. The default size is 1500 for the G-Series card compatible encapsulation (LEX) and 4470 for Cisco HDLC and Point-to-Point Protocol/Bridging Control Protocol (PPP/BCP) encapsulation.

- Framing Type—HDLC or frame-mapped generic framing procedure (GFP-F) framing type shows the POS framing mechanism being employed on the port.

Note   The port name field configured in CTC and the port name configured in Cisco IOS are independent of each other. The name for the same port under Cisco IOS and CTC does not match, unless the same name is used to configure the port name in both CTC and Cisco IOS.

Provisioning Framing Mode

The card mode provisioning window shows the framing mode employed by the ML-Series card and allows the user to change the framing mechanism to either HDLC or GFP-F. Click the **Provisioning > Card** tabs to display this window (Figure 2-4). HDLC is the default framing mode for the ONS 15454 or ONS 15454 SDH ML-Series card. For more information on framing mechanisms, see the "POS on ONS Ethernet Cards" chapter.

The user may also pre-provision the framing mode of an ML-Series card before the card is physically installed. The ML-Series card will then boot up into the pre-provisioned framing mode.

A connected POS port must match the framing mechanism of its peer port. You must delete all the existing STS/STM circuits on the ML-Series cards before changing the framing mode.
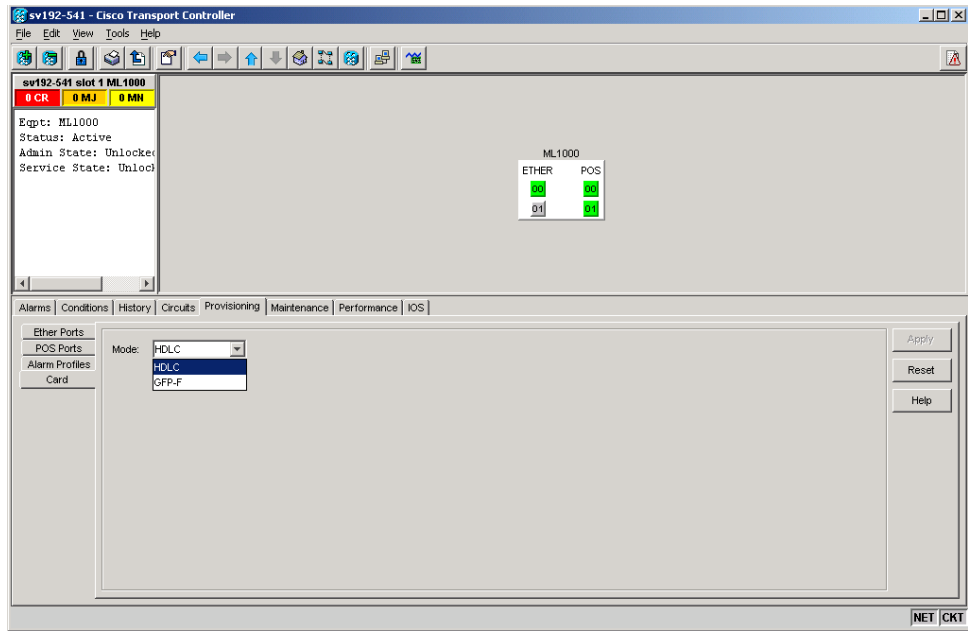
Caution   The ML-Series card reboots after the framing mode is changed.

Click the **Provisioning > Card** tabs to display this window. Use the **Mode** drop-down list and click **Apply** to provision the framing mode type. Click **Yes** at the Reset Card dialog box that appears.

Figure 2-4   Displaying Framing Mode



Managing SONET/SDH Alarms

CTC manages the ML-Series SONET/SDH alarm behavior in the same manner as it manages alarm behavior for other ONS 15454 SONET/SDH cards. Refer to the "Manage Alarms" chapter of the *Cisco ONS 15454 Procedure Guide* or the *Cisco ONS 15454 SDH Procedure Guide* for detailed information. For information on specific alarms, refer to the "Alarm Troubleshooting" chapter of the *Cisco ONS 15454 Troubleshooting Guide* or *Cisco ONS 15454 SDH Troubleshooting Guide* for detailed information.

To view the window, click the **Provisioning > Alarm Profiles** tabs for the Ethernet and POS port alarm profile information. Figure 2-5 shows the alarm profile pane.

Figure 2-5 *Managing ML-Series SONET/SDH Alarms*
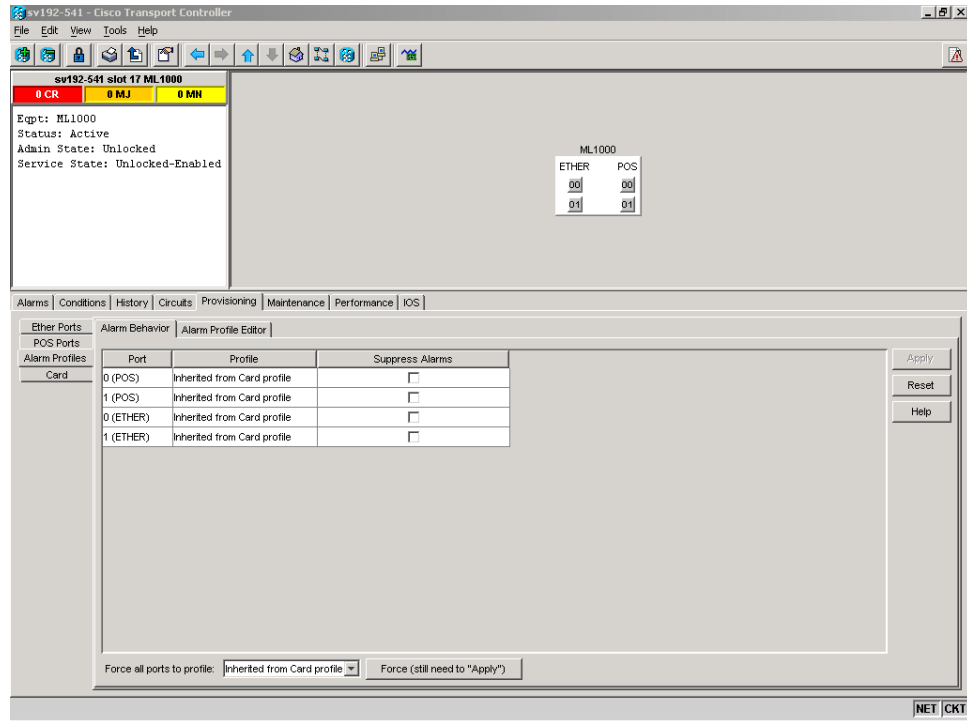
Displaying Maintenance Information

The maintenance information window displays the ML-Series card's field programmable gate array (FPGA) version (Figure 2-6). Click the **Maintenance > Info** tabs to display this window.

The FPGA on the ML100T-12 and ML1000-2 provides the interface and buffering between the card's network processor and the SONET/SDH cross-connect. There are two different FPGA images. FPGA Image Version 3.x supports HDLC framing, and FPGA Image Version 4.x supports GFP-F Framing. Both images support virtual concatenation (VCAT). In Release 5.0 and later, the correct FPGA is automatically loaded when the framing mode is changed by the user.
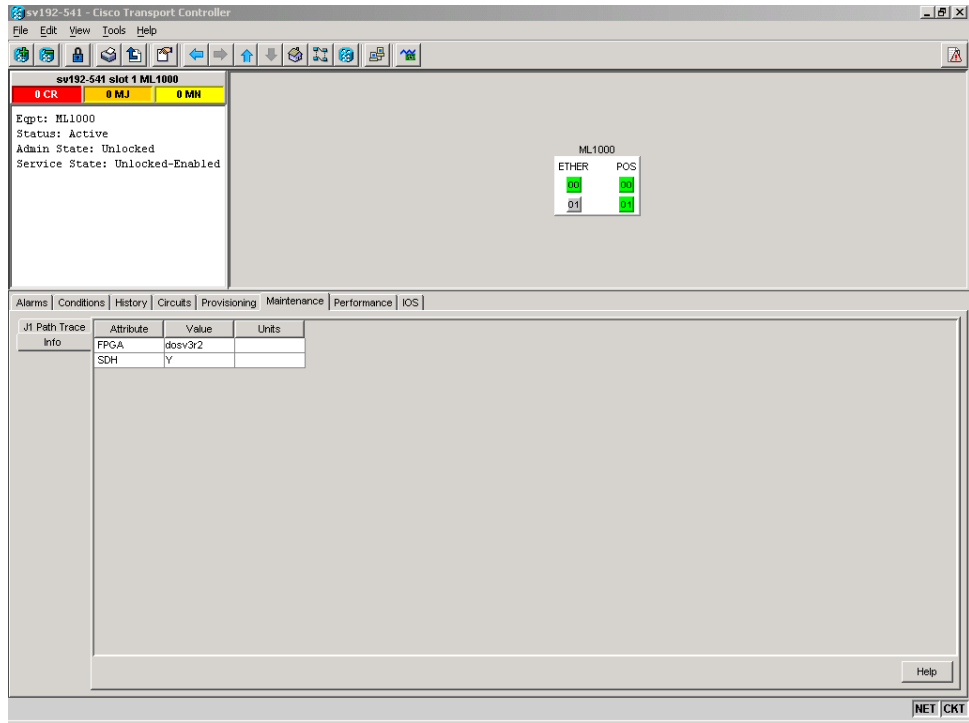
Note ML-Series cards manufactured prior to Software Release 4.6 need an updated version of the FPGA to support VCAT.

Caution Do not attempt to use Release 5.0 FPGA images with an earlier CTC software release.

Figure 2-6   Displaying Maintenance Information

Provisioning SONET/SDH Circuits

CTC provisions and edits STS/STM level circuits for the two virtual SONET/SDH ports of the ML-Series card in the same manner as it provisions other ONS 15454 SONET/SDH OC-N cards. The ONS 15454 ML-Series card supports both contiguous concatenation (CCAT) and virtual concatenation (VCAT) circuits.

For step-by-step instructions to configure an ML-Series card SONET CCAT or VCAT circuit, refer to the "Create Circuits and VT Tunnels" chapter of the *Cisco ONS 15454 Procedure Guide.* For step-by-step instructions to configure an ML-Series card SDH CCAT or VCAT circuit, refer to the "Create Circuits and Tunnels" chapter of the *Cisco ONS 15454 SDH Procedure Guide.* For more general information on VCAT circuits, refer to the "Circuits and Tunnels" chapter of the *Cisco ONS 15454 Reference Manual* or the *Cisco ONS 15454 SDH Reference Manual.*

J1 Path Trace

The J1 Path Trace is a repeated, fixed-length string comprised of 64 consecutive J1 bytes. You can use the string to monitor interruptions or changes to SONET/SDH circuit traffic. For information on J1 Path Trace, refer to the *Cisco ONS 15454 Reference Manual* or the *Cisco ONS 15454 SDH Reference Manual.*