



## CTC Operations

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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 Ethernet Statistics on CTC, page 2-1](#)
- [Displaying ML-Series POS Statistics on CTC, page 2-3](#)
- [Displaying ML-Series Ethernet Ports Provisioning Information on CTC, page 2-5](#)
- [Displaying ML-Series POS Ports Provisioning Information on CTC, page 2-7](#)
- [Managing SONET/SDH Alarms, page 2-8](#)
- [Displaying Maintenance Information, page 2-9](#)
- [Provisioning SONET/SDH Circuits, page 2-9](#)
- [Provisioning VCAT Circuits, page 2-9](#)

## Displaying ML-Series Ethernet Statistics on CTC

The Ethernet statistics window ([Figure 2-1 on page 2-2](#)) lists Ethernet port-level statistics. 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.

Figure 2-1 Displaying ML-Series Ethernet Statistics

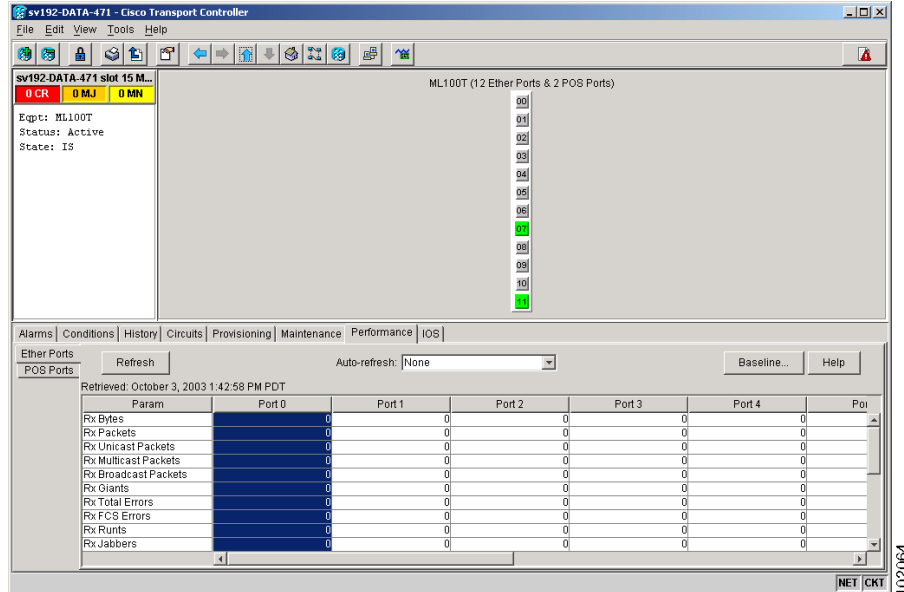


Table 2-1 describes the buttons in the EtherPorts window.

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

Button or Field	Description
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 appear 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.
Refresh	Queries the current values from the card and updates the CTC display.
Auto-Refresh	Sets a time interval for the automatic refresh of statistics.

Table 2-2 lists the ONS 15454 SONET/SDH Ethernet parameters.

Table 2-2 Ethernet Parameters

Parameter	Meaning
Rx Bytes	Number of bytes received since the last counter reset
Rx Packets	Number of packets received since the last counter reset
Rx Unicast Packets	Number of unicast packets received
Rx Multicast Packets	Number of multicast packets received
Rx Broadcast Packets	Number of broadcast packets received
Rx Giants	Number of packets received that are greater than 1530 bytes in length
Rx Total Errors	Total number of receive errors

**Table 2-2 Ethernet Parameters (continued)**

Parameter	Meaning
Rx FCS Errors	Number of packets with a frame check sequence (FCS) error
Rx Runts	Total number of frames received that are less than 64 bytes in length and have a cyclic redundancy check (CRC) error
Rx Jabbers	Total number of frames received that exceed the maximum 1548 bytes and contain CRC errors
Rx Align Errors	Number of received packets with alignment errors
Tx Bytes	Number of bytes transmitted since the last counter reset
Tx Packets	Number of packets transmitted since the last counter reset
Tx Unicast Packets	Number of unicast packets transmitted
Tx Multicast Packets	Number of multicast packets transmitted
Tx Broadcast Packets	Number of broadcast packets transmitted
Tx Giants	Number of packets transmitted that are greater than 1548 bytes in length
Tx Collisions	Number of transmitted packets that collided
Port Drop Counts	Number of received frames dropped at the port level
Rx Pause Frames	Number of received pause frames (applies only to the ML1000-2 Ethernet ports)
Rx Threshold Oversizes	Number of received packets larger than the ML-Series remote monitoring (RMON) threshold (applies only to the ML1000-2 Ethernet ports)
Rx GMAC Drop Counts	Number of received frames dropped by MAC module (applies only to the ML1000-2 Ethernet ports)
Tx Pause Frames	Number of transmitted pause frames (applies only to the ML1000-2 Ethernet ports)

## Displaying ML-Series POS Statistics on CTC

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

Figure 2-2 Displaying ML-Series POS Statistics

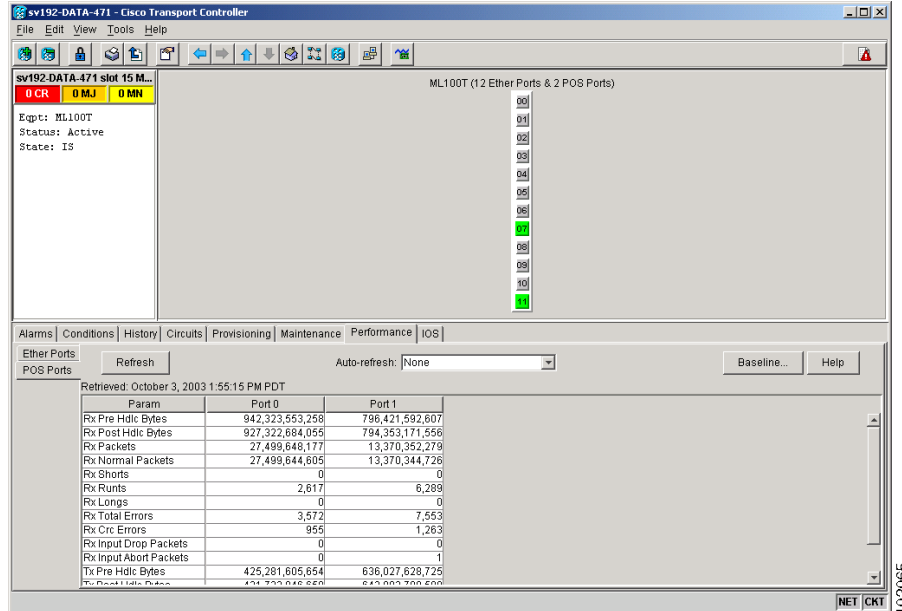


Table 2-3 describes the buttons in the POS Ports window.

Table 2-3 ML-Series POS Statistics Fields and Buttons

Button or Field	Description
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.
Refresh	Manually refreshes the statistics.
Auto-Refresh	Sets a time interval for the automatic refresh of statistics.

Table 2-4 lists the ONS 15454 SONET/SDH POS parameters.

Table 2-4 POS Parameters

Parameter	Meaning
Rx Pre Hdcl Bytes	Number of bytes received prior to the bytes undergoing high-level data link control (HDLC) encapsulation by the policy engine
Rx Post Hdcl Bytes	Number of bytes received after the bytes undergoing HDLC encapsulation by the policy engine
Rx Packets	Total number of packets received since the last counter reset
Rx Normal Packets	Number of packets between the minimum and maximum packet size received
Rx Shorts	Number of packets below the minimum packet size received

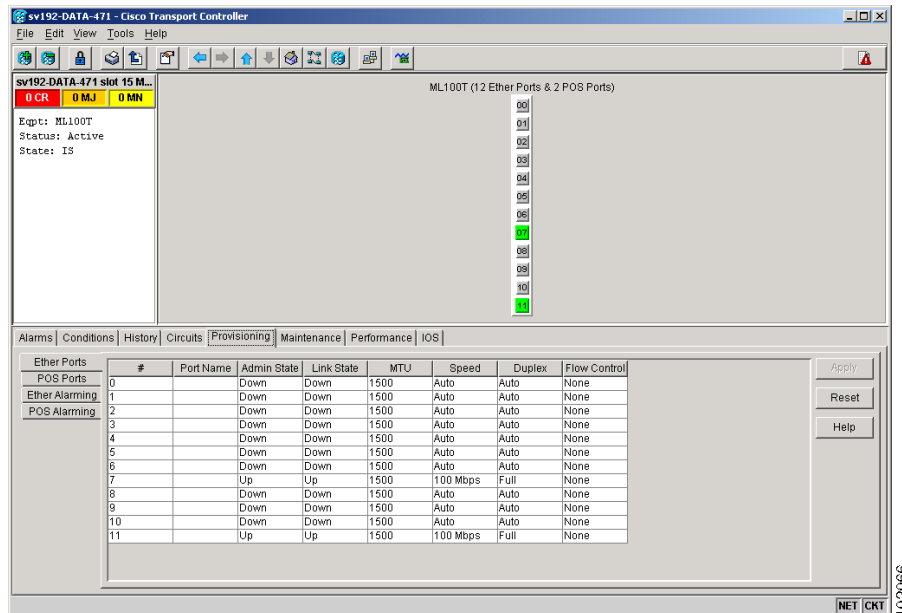
Table 2-4 POS Parameters (continued)

Parameter	Meaning
Rx Runts	Total number of frames received that are less than 64 bytes in length and have a CRC error
Rx Longs	Counter for the number of received frames that exceed the maximum valid packet length of 1518 bytes
Rx Total Errors	Total number of receive errors
Rx Crc Errors	Number of packets with a CRC error
Rx Input Drop Packets	Number of received packets dropped on input
Rx Input Abort Packets	Number of received packets aborted on input
Tx Pre Hdlc Bytes	Number of bytes transmitted prior to the bytes undergoing HDLC encapsulation by the policy engine
Tx Post Hdlc Bytes	Number of bytes transmitted after the bytes undergoing HDLC encapsulation by the policy engine
Tx Packets	Number of packets transmitted since the last counter reset
Port Drop Counts	Number of received frames dropped at the port level

## Displaying ML-Series Ethernet Ports Provisioning Information on CTC

The Ethernet port provisioning window displays the provisioning status of the Ethernet ports (Figure 2-3). 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 2-3 Displaying ML-Series Ethernet Port Provisioning Information



The Provisioning > Ether Ports tab displays the following information:

- Port Name—Configurable 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. Possible values are None, Symmetrical, or Asymmetrical.
- 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.

**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.

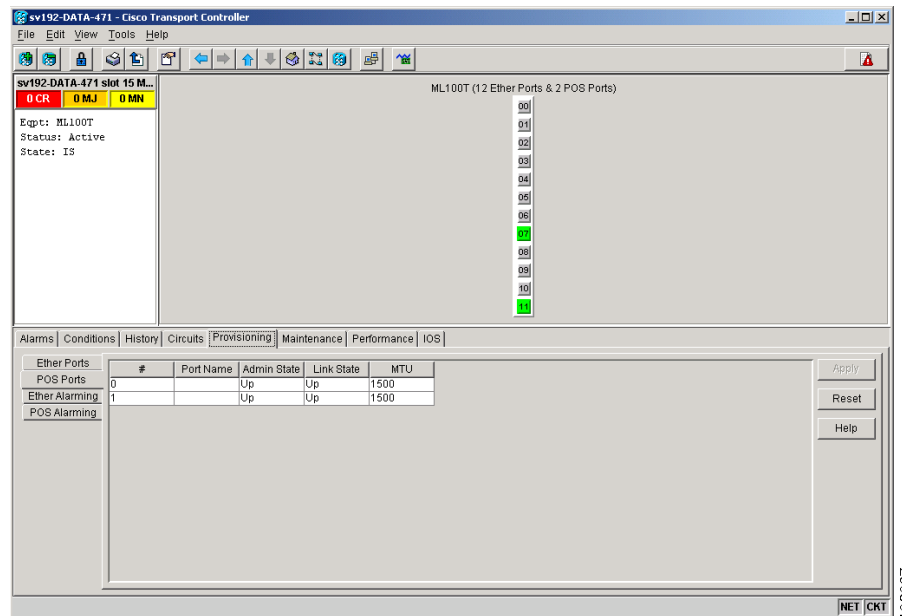
**Note**

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 2-4). 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 2-4** Displaying POS Port Provisioning Information



The Provisioning > POS Ports tab displays the following information:

- **Port Name**—Configurable identifier for the port.
- **Admin State**—Configured administrative port state, which is active or inactive. Possible values are UP and DOWN.
- **Link State**—Status between signaling points at the port and an attached device. Possible values are UP and DOWN.
- **MTU**—(maximum transfer unit) Largest acceptable packet size configured for that port. Maximum setting is 9000 and 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. The MTU value is 0 until the POS port is used in creating a circuit.

**Note**

POS interfaces are first created when a CTC STS/STM circuit is provisioned.

**Note**

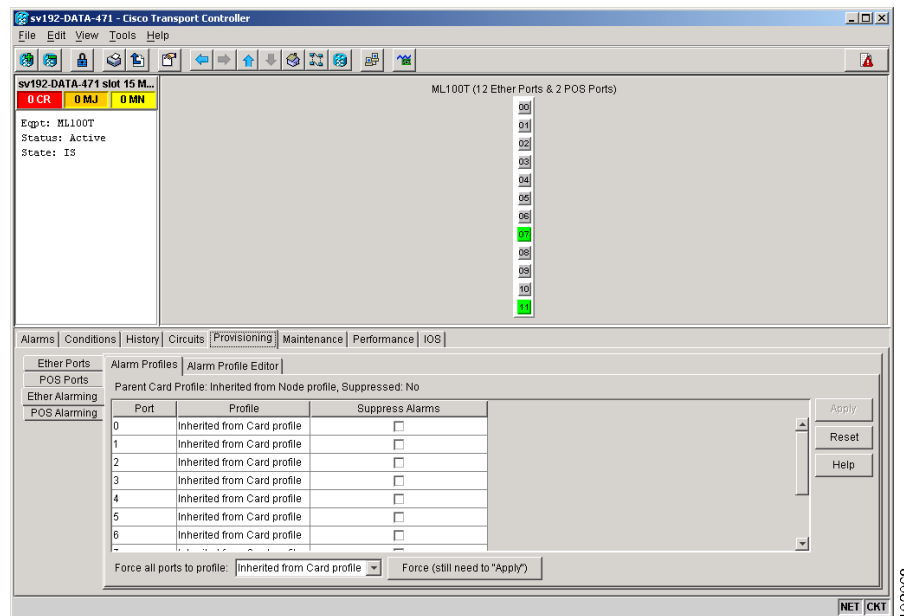
The port name field configured in CTC and the port name configured in Cisco IOS are independent of each other. The name for the same port under Cisco IOS and CTC does not match, unless the same name is used to configure the port name in both CTC and Cisco IOS.

## 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 **Ether Alarming** > **Provisioning** tabs for the Ethernet ports or **POS Alarming** > **Provisioning** tabs for the POS ports. Figure 2-5 shows the Ethernet ports alarming pane.

Figure 2-5 Managing ML-Series SONET/SDH Alarms



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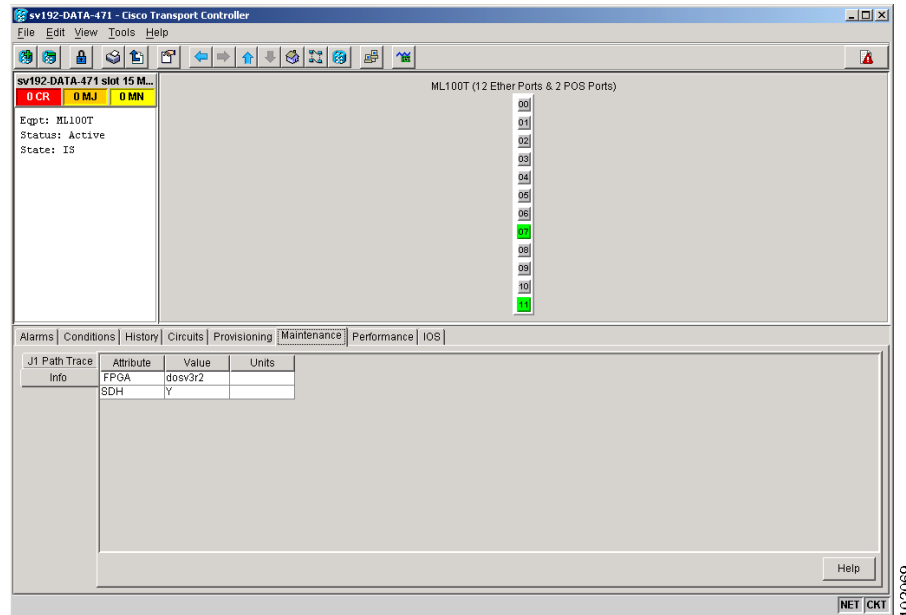


## Displaying Maintenance Information

The maintenance information window displays the ML-Series card's field programmable gate array (FPGA) version (Figure 2-6). It also displays whether the card is installed in a SONET or SDH shelf. Click the **Maintenance > Info** tabs to display this window.

ML-Series card manufactured prior to Software Release 4.6 need an updated version of the FPGA to support virtual concatenation (VCAT).

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. For the ONS 15454 SONET, refer to the “Create Circuits and VT Tunnels” chapter of the *Cisco ONS 15454 Procedure Guide* to create ML-Series STS circuits. For the ONS 15454 SDH, refer to the “Create Circuits and Low-Order Tunnels” chapter of the *Cisco ONS 15454 SDH Procedure Guide* to create ML-Series SDH circuits.

## Provisioning VCAT Circuits

CTC provisions VCAT circuits for the two virtual SONET/SDH ports of the ML-Series card in the same manner as it provisions VCAT circuits for other cards. For step-by-step instructions on configuring an ML-Series card SONET VCAT circuit, refer to the “Create Circuits and VT Tunnels” chapter of the *Cisco ONS 15454 Procedure Guide*. For step-by-step instructions on configuring an ML-Series card SDH 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 Guide* or the *Cisco ONS 15454 SDH Reference Guide*. For a summary of the ML-Series card VCAT capabilities, refer to the “VCAT” section on page 1-8. For a summary of the SW-LCAS feature on the ML-Series card, refer to the “SW-LCAS” section on page 1-7.

## 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 “Circuits and Tunnels” chapter of the *Cisco ONS 15454 Reference Guide* or the *Cisco ONS 15454 SDH Reference Guide*.