Chapter 25

Configuring POS

This chapter describes how to configure packet over SONET (POS) on the OCx/STMx POS module. This chapter contains the following sections:

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Overview

Packet over SONET (synchronous optical network)/SDH (synchronous digital hierarchy) is the serial transmission of data over SONET frames through the use of a protocol such as Point-to-Point Protocol (PPP).

POS is an ideal feature for networks that are built to provide IP data. It provides superior bandwidth utilization and efficiency compared with other transport methods. For expensive WAN links, POS can provide as much as 25 to 30 percent higher throughput than Asynchronous Transfer Mode (ATM)-based networks. By transporting frames directly into the SONET payload, you eliminate the overhead required in an ATM cell header for IP over ATM encapsulation.

E-series routers support PPP over SONET/SDH.

Features

POS supports the following features:

- Payload scrambling
- Clock source configuration
- Maximum transmission unit (MTU) size configuration
- Maximum receive unit (MRU) size configuration
- POS framing
- CRC checking
- Loopback configuration

SONET/SDH

SONET is an ANSI standard for transmitting bits over fiber-optic cable. SDH is the international standard defined by the ITU (International Telecommunication Union). SONET/SDH is the physical infrastructure of choice for carrier ATM networks operating at speeds above 50 Mbps.

SONET allows carriers to build high-speed international links without requiring conversion from one transmission protocol to another (for example, T1 to T3 or T1 to E3 conversion).

SONET transmission speeds start at 51.84 Mbps and are referred to as OC1. All other speeds are simply multiples of this base number.

Table 77 shows the speeds of the most common SONET/SDH implementations. The NMC-RX application supports OC3, OC3-POS, OC12-POS, and OC48-POS modules.

Table 77: Most Common SONET/SDH Implementations

SONET	SDH	Transmission Speed
OC1	n/a	51.84 Mbps
OC3	STM-1	155.52 Mbps
OC12	STM-4	622.08 Mbps
OC48	STM-16	2.40 Gbps

References

For more information about POS, see *JUNOSe Link Layer Configuration Guide, Chapter 5, Configuring Packet over SONET*.

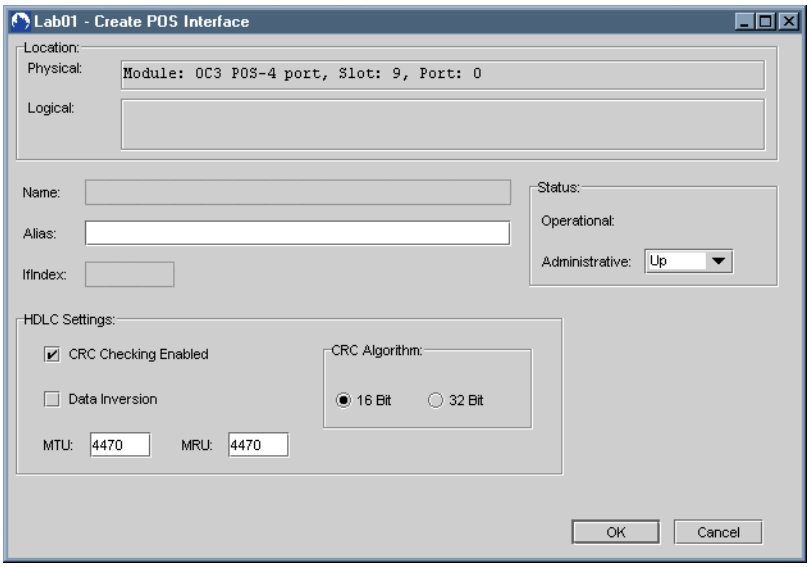
Creating POS Interfaces

In the NMC-RX application, you need to navigate to the module's line interface level to create a POS interface for the module.

To create a POS interface:

1. In the Instance Explorer, select the module on which to create a POS interface.
2. Select the line interface, right-click, select Create, and click POS Interface.

   The Create POS Interface dialog box appears.



3. Set the POS interface parameters (Table 78).

Table 78: POS Interface Parameters

Parameter	Description
Name	Identifies the interface; generated automatically
Alias	Description of the interface; 0–15 characters; default: blank
IfIndex	Identifies the interface on the particular line interface; generated automatically
Operational	Current operational status of the interface
Administrative	Desired status of the interface: Up/Down; default: Up
HDLC Settings	
CRC Checking Enabled	Cyclical redundancy check (CRC); an error-checking technique in which the frame recipient calculates a remainder by dividing frame contents by a prime binary divisor and compares the calculated remainder to a value stored in the frame by the sending node
Data Inversion	Enables inversion of binary 0s and 1s. The purpose of data inversion is to provide *ones density*, a method for inserting 1s in the data stream. If you enable data inversion on your device, be sure it is also enabled on the destination device.
MTU	Maximum transmission unit; largest size allowed for a data packet transmitted over a transmission line; range 4–32763; default 1600
MRU	Maximum receive unit; largest size allowed for a data packet received over a transmission line; range 4–32763; default 1600
CRC Algorithm	Cyclical redundancy check (CRC); can be set to 16 bit or 32 bit; default 16 bit

4. Click OK to save the settings.

   A Cisco HDLC, Frame Relay, or PPP interface can now be created on the new POS interface.