

Troubleshooting

This chapter provides troubleshooting procedures to perform if alarms or operational faults occur.

Troubleshooting Guidelines

The LightStream 100 ATM switch requires only minimal routine maintenance tasks. Table 6-1 provides a checkpoint list for external inspection, cable and connection inspection, and cleaning tips.

Table 6-1 **Routine Maintenance Tasks**

Task	Action
External inspection	Check if the alarm LED is on. ¹ Check for irregular noise. Check for shape distortion in the chassis. Check for loose screws.
Cable and connector inspection	Check for disconnected cables or loose connectors. Check if the cables are excessively bent. Check if the blind panel is installed in each open slot.

Error Messages

Task	Action
Cleaning system	Wipe the main unit with a damp, tightly wrung, cloth. Ensure that water does not seep inside the main unit. Ensure that cloth does not get caught on connectors. Do not use a chemically treated cloth because it damages the paint. Keep foreign objects from entering the main unit.

1. If an alarm LED is on, use the **show alarm** command on the console terminal to determine the state of alarms.

Error Messages

Table 6-2 provides error messages that may occur when the switch boots, when commands are entered incorrectly, or when the system cannot execute certain functions because of hardware errors, table overflow, or not installed/already installed conditions. This table also provides corrective actions.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

Table 6-2 General Error Messages

Message	Action
Access violation.	Bootfile or load module access privilege violation.
BCI Hunt Error.	Memory for multicast connection is exhausted. New allocation is not allowed.
Bootfile is illegal.	The format for the boot file is illegal.
Bootfile is missing.	The switch cannot find the specified bootfile on the tftp server. Check the server and configuration.

Error Messages

Message	Action
Command name is illegal.	Specified command is not defined. Reenter the command.
Connection is already established on this line.	Because the pvc command established the connection, the line interface cannot be changed. Clear connection before using this command.
Flash memory is crashed.	A bad memory chip has been identified. If known, the chip number is provided (<i>n</i>). If unknown, a question mark (?) is issued.
Hardware error has been detected on specified line/Switch.	Hardware failure occurred. Use the show alarm command to locate the fault source. Then clear alarm.
ICI Hunt Error.	Memory for point-to-point connection is exhausted. New allocation is not allowed.
Invalid CRC. Network boot failed.	The format of XXX load module is illegal.
Load module <XXXX> is illegal.	The format of XXXX load module is illegal.
Load module is missing.	The switch cannot find the load modules specified in the bootfile. Check the server.
Mismatch - password unchanged.	Password differs from registered password. Reenter the command.
No response.	This error might occur for one of the following reasons: 1) The switch did not receive an ARP reply before the timer expired. Check that a default router address is specified 2) The switch did not receive a TFTP packet before the timer expired. Make sure that TFTP on the server is activated. If the default router address is specified and the TFTP on the server is activated and this error still occurs, call the Technical Assistance Center (TAC).
No such connection	Specified connection does not exist.
Not ready.	The switch received the TFTP packets out of order.
Number of parameter is illegal.	Parameter(s) not required. Reenter the command without specifying parameter. Specified too many or not enough parameters. Reenter the command.

Error Messages

Message	Action
Out of disk or memory.	The file is too big (the maximum file size is 0x770000), the path name to the boot file or to the load modules is over 45 characters, or more than two files are being accessed simultaneously.
PVC Table Overflow	Memory for PVC table is exhausted.
Routing Table Overflow.	Memory for routing table is exhausted.
Some error occurred.	This error indicates one of the following conditions: 1) File close process failed. 2) Socket creation failed. 3) BIND creation failed. 4) Undefined error occurred. 5) Illegal transmission ID is specified. 6) File exists. 7) User is not defined.
Specified ACCESS privilege is out of range.	Specified value is not 0 or 1. Reenter the command.
Specified Base is out of range.	Specified test base option is invalid. Reenter the generate command using a test bast option of seg for segment loopback or end for end-to-end loopback.
Specified Configuration server is out of range.	The LECS address entered is invalid.
Specified COMMUNITY NAME is out of range.	Specified escape sequence as community name. Reenter the command.
Specified connection is bi-direction.	Bidirectional connection type not accepted when establishing unidirectional connection. Reenter the command specifying unidirectional connection type.
Specified connection is uni/bi-direction.	Unidirectional or bidirectional connection type not accepted when establishing multicast connection. Reenter the command specifying multicast connection type.
Specified COOP parameter is out of range.	Specified COOP UPC cell loss parameter is not 0 or 1. Reenter the command.
Specified count is out of range.	Specified retry count (Fifth parameter of the generate command) is invalid. Reenter the command specifying a number from 1 to 16.
Specified Forum/ITU parameter is out of range.	Specified value is not 0 or 1. Reenter the command.

Error Messages

Message	Action
Specified HOST NAME is out of range.	Specified escape sequence as host name. Reenter the command.
Specified Index in the address table is not empty.	The index to the LECS address table is not empty. Delete the LECS address, then reenter the command.
Specified Index is invalid.	The index to the LECS address table is invalid. Reenter the index to the LECS address in the range from 0 to 3.
Specified ilmi path is non-existing.	A virtual path identifier number has not be defined for the specified line card.
Specified IP ADDRESS is out of range.	Dot notation (four decimal values separated by dots) does not specify IP address, or entered decimal value more than 256. Reenter the command.
Specified line is invalid.	Specified line cannot be used. Use the show alarm command to check error status, or use the show interface command to check installation status of the LINF card.
Specified MASK is out of range.	Dot notation (four decimal values separated by dots) does not specify mask, or entered decimal value more than 256. Reenter the command.
Specified Memory block is non-existing.	When softvpv command is issued, the software tries to get a memory block from the memory pool. When the software fails to get the memory block because the memory pool is temporarily exhausted, this message is displayed. Reenter the command.
Specified NMS Number is out of range.	Specified NMS number is not 0 to 3. Reenter the command.
Specified OAM is out of range.	One of the parameters for the generate command is illegal.
Specified parameter is invalid.	Specified parameter is not allowed. Check the command format, and reenter the command.
Specified parameter is out of range.	Parameter value is out of allowable range. Reenter the command.
Specified PASSWORD is not alphanumeric.	Password includes symbol(s). Reenter the command.
Specified PASSWORD is out of range.	Password is more than eight characters long. Reenter the command.
Specified Routing Table is non-existing.	Specified routing table does not exist.

Error Messages

Message	Action
Specified sysContact is out of range.	Number of characters specified is greater than 32. Reenter the command.
Specified sysLocation is out of range.	Number of characters specified is greater than 32. Reenter the command.
Specified Time is out of range.	Parameter value is out or allowable range. Reenter the command.
Specified timer is out of range.	The timer value entered is invalid. Reenter the command with a timer value from 1to511.
Specified UNI/NNI is out of range.	Specified value is not 0 or 1. Reenter the command.
Specified UPVP parameter is out of range.	Specified UPVP UPC window size is not 0 to 512. Reenter the command.
Specified VALID VCI is out of range.	Specified value is less than 6 or greater than 16. Reenter the command.
Specified VALID VPI is out of range.	Specified value is greater than 12. Reenter the command.
Specified VALID VPI+VALID VCI is out of range.	Sum of VPI and VCI values are greater than 12. Reenter the command.
Specified VCI is out of range.	Specified VCI value is not 0 to 4095. Reenter the command.
Specified VPI is out of range.	Specified VPI value is not 0 to 4095. Reenter the command.
Specified VPI+VCI is out of range.	Specified VPI+VCI is inconsistent with value set by the set interface command. Use the set interface command to check parameters.
Sub command name is illegal.	Specified subcommand is not defined. Reenter the command.

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To verify operation, confirm that no error messages occurred while setting configuration data. This section describes how to verify system operation after completing the installation.

Displaying Alarms

The system automatically detects alarms within the following areas:

- Cooling fan
- Control (CTL) functional block (PROC card)
- Expandable ATM Output-buffer Modular Switch (XATOMSW) functional block
- LINF cards
- GWPAD card

Enter the following command to display alarms:

```
LS100> show alarm
```

Ensure only the prompt is displayed on the console terminal screen. An output message is displayed only if an alarm is detected.

Testing the Line Interface Alarm Status of the Installed LINF Cards

The **show line** command displays the line interface alarm status of the installed LINF cards.

Enter the following command to display line interface alarms:

```
LS100> show line
```

Confirm that “GOOD” displays for each installed LINF card; “NA” (not applicable) displays for an uninstalled line.

Reading the LEDs

When a failure occurs in the LightStream 100 switch, the hardware sends failure information to the software. The alarm controller of the software collects this information and registers it in an alarm control table. When an alarm occurs or is recovered, the software reports the information to the console terminal and NMS.

The LightStream 100 switch has seven functioning LED types that provide color-coded visual indication of the system status. Table 6-3 provides LED descriptive information. See Figure 2-1 for the LightStream 100 switch LED locations.

Table 6-3 LightStream 100 ATM Switch LED Descriptions

Led	Color	Status
OPE	Green	Operation State On while line is in use Flashes when fault occurs
Power	Green	Power State Remains on while power is on
Ready	Green	Ready State On to indicate ready status
Alarm	Red	Alarm State Goes on when alarm occurs
Fail	Red	Failure State Goes on for less than 1 second after system reset Remains on when hardware fault occurs
Stat	Yellow	Status State Goes on to indicate ready status after installation completes
Run	Green	Run State Goes on when software accesses memory

Diagnostics

The diagnostic program automatically activates when the system is reset. Any of the following actions activates the diagnostic program:

- Power-on switch reset.
- Reset command from NMS.
- Press the Reset button on the LightStream 100 front panel.

Diagnostic results display sequentially on the console terminal. The diagnostic program performs a diagnostic on each of the following items:

- LINF card [Input/Output (I/O) access]
- GWPAD card
- XATOMSW (I/O access)
- Bus Converter (BCONV) card (I/O access)
- Processor (PROC) card (memory read/write)

Alarms

The Alarm LED goes on when the system detects an alarm. If the red alarm LED goes on during operation, perform the following procedure:

- Step 1** At the console terminal, enter **show alarm** to display all alarms occurring in the LightStream 100 switch.
- Step 2** Use the displayed output to locate the source of the fault. Table 6-4 provides a list of alarm messages, the affected area, and actions and remarks to clear the alarms.
- Step 3** After correcting the fault, press the Reset button on the LightStream 100 front panel.

Note The Alarm LED remains on, even after the alarm is cleared, until the Reset button is pressed.

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Table 6-4 Alarm Messages

Affected Area	Message	Action/Remarks
Fan	Hardware Alarm - FAN	Fan malfunctioned; although not immediate emergency, system reliability is not ensured. Replace chassis.
CTL	Hardware Alarm - Processor DRAM Parity Error	Central processor unit (CPU) dynamic read-only memory (DRAM) parity error. System does not operate. Contact technical support.
	Hardware Alarm - Processor VMEbus SYS FAIL Alarm	CPU DRAM parity error. System does not operate. Contact technical support.
	Hardware Alarm - Processor VMEbus AC FAIL Alarm	CPU DRAM parity error. System does not operate. Contact technical support.
XATOMSW	Hardware Alarm - Atom Switch Line - Sel CLK Alarm	Line reference clock down. No problem if the LightStream 100 switch is standalone or set up as master. If set up as slave, continued switching function reliability is not guaranteed. Replace chassis.
	Hardware Alarm - Atom Switch Master PLO CLK Alarm	Master Phase-Locked Oscillator (PLO) clock down; continued switching function reliability is not guaranteed. Replace chassis.
	Hardware Alarm - Atom Switch Slave PLO CLK Alarm	Slave PLO clock down; continued switching function reliability is not guaranteed. Replace chassis.
	Hardware Alarm - Atom Switch ATOM-CTL-V2 LSI Alarm: Cell Sync-Sig Alarm	Failure in cell synchronization signal; switching function is disabled. Replace chassis.
	Hardware Alarm - Atom Switch ATOM-CTL-V2 LSI Alarm: ATOM-BUF#x LSI Parity	ATOM buffer parity error; switching capability of line represented by buffer number is not ensured. Replace chassis. ¹
	Hardware Alarm - Atom Switch ATOM-CTL-V2 LSI Alarm: Bents Parity Error	Bit-map Table (BMT) #0 or #1; multicast function is not ensured. Replace chassis.
	Hardware Alarm - Atom Switch MUXi LSI Alarm : Memory Parity Error	Multiplexer (MUX) memory parity error; line switching capability represented by MUX number is not ensured. Replace chassis. ²

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Affected Area	Message	Action/Remarks
LINF (Hardware Device)³	Hardware Alarm - Line # 100M TAXI: CLK Alarm	Clock error; switching capability of corresponding line is not ensured. Replace the corresponding line interface (LINF) card.
	Hardware Alarm - Line # SDH: UNIC SYS CLK Alarm	User network interface controller (UNIC) system clock error; fault appears in STS-3c/STM-1 only. Switching capability of corresponding line is not ensured. Replace corresponding LINF card.
	Hardware Alarm - Line # SDH: INF sendFIFO Alarm	First-In, First-Out (FIFO) overflow; switching capability of corresponding line is not ensured. Replace corresponding LINF card.
	Hardware Alarm - Line # 100M TAXI HT-i HEC.SW-CTL Parity	Header table (HT) header error check (HEC) or switch control parity error; switching capability of corresponding line is not ensured. Replace corresponding LINF card.
	Hardware Alarm - Line # 100M TAXI HT-o HEC.SW-CTL Parity	HT HEC or switch control parity error; switching capability of corresponding line is not ensured.
	Hardware Alarm - Line # 100M TAXI HT-i HT-Table MEM Parity	HT table reference memory parity error; switching capability of corresponding line is not ensured.
	Hardware Alarm - Line # 100M TAXI HT-o HT-Table MEM Parity	HT table reference memory parity error; switching capability of corresponding line is not ensured.
	Hardware Alarm - Line # SDH HT-i HEC.SW-CTL Parity	HT HEC or switch control parity error; switching capability of corresponding line is not ensured.
	Hardware Alarm - Line # SDH HT-o HEC.SW-CTL Parity	HT HEC or switch control parity error; switching capability of corresponding line is not ensured. Replace the corresponding line.
	Hardware Alarm - Line # SDH HT-i HT-Table MEM Parity	HT table reference memory parity error; switching capability of corresponding line is not ensured. Replace the corresponding component.
	Hardware Alarm - Line # SDH HT-o HT-Table MEM Parity	HT table reference memory parity error; switching capability of corresponding line is not ensured. Replace the corresponding LINF card.

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Affected Area	Message	Action/Remarks
GWPAD (Hardware Device)	Hardware Alarm - GWPAD: CLK Alarm	Clock error; cannot guarantee reliable switching operation. Replace the chassis.
	Hardware Alarm - GWPAD: MEM Parity Alarm	Memory parity error; cannot guarantee reliable switching operation. Replace the chassis.
	Hardware Alarm - GWPAD SARA-S Register Alarm: Control MEM Parity Alarm	Control memory parity error; device cannot transmit data. Replace the chassis.
	Hardware Alarm - GWPAD SARA-S Register Alarm: Packet MEM Parity Alarm	Packet parity error; device cannot transmit data. Replace the chassis.
	Hardware Alarm - GWPAD SARA-S Register Alarm: CBR data MEM Parity Alarm	Constant bit rate (CBR) data parity error; device cannot transmit data. Replace the chassis.
	Hardware Alarm - GWPAD SARA-S Register Alarm: Reassembly Resource Exhausted	Reassembly resource error; device cannot transmit data. Replace the chassis.
	Hardware Alarm - GWPAD SARA-R Register Alarm Control Mem Parity Alarm	Control memory parity error; device cannot receive data. Replace the chassis.
LINF (Line Interface)³	Line Interface Alarm - Line # Loss of Signal	Signal line disconnected error. Follow the procedure in Figure 6-1.
	Line Interface Alarm - Line # Loss of Frame	Loss of frame error. Follow the procedure in Figure 6-1.
	Line Interface Alarm - Line # Loss of Cell Delineation	Loss of cell delineation error. Follow the procedure in Figure 6-1.
	Line Interface Alarm - Line # AIS-Section	Alarm indication signal (AIS) section error. Follow the procedure in Figure 6-1.
	Line Interface Alarm - Line # AIS-Path	AIS path error. Follow the procedure in Figure 6-1.

Affected Area	Message	Action/Remarks
LINF (Line Interface) ³	Line Interface Alarm - Line # Yellow-Section	Remote device section error. Follow the procedure in Figure 6-1.
	Line Interface Alarm - Line # Yellow-Path	Remote device path error. Follow the procedure in Figure 6-1.

1. BUF#x refers to buffer number 0 through number 7. One buffer takes two neighboring slots.
2. MUXi refers to the MUX memory number MUX 0 through MUX 7. One MUX takes two neighboring slots. The relation between MUX memory number and slot number is the same as in buffer number.
3. Line # refers to the line slot 0 through slot 15.

On the LightStream 100, two slots share a buffer. Table 6-5 lists the buffer number and corresponding slot numbers.

Table 6-5 Buffer Numbering

Buffer Number	Slot Number
0	0, 1
1	2, 3
2	4, 5
7	14, 15

Operational Faults

The LightStream 100 switch has 16 Operation (OPE) LEDs on its front panel that correspond to the 16 line interfaces. The OPE LED stays ON while the line is in use. The OPE LED flashes when the system detects a fault. If the green OPE LED flashes during the LightStream 100 operation, perform the following procedure:

- Step 1** At the console terminal, enter the **show line** command to display the line interface alarm status.
- Step 2** Use the displayed output to locate the source of the fault.
- Step 3** Follow the flowchart procedure in Figure 6-1 to correct the fault.
- Step 4** After correcting the fault, press the Reset button on the LightStream 100 front panel.

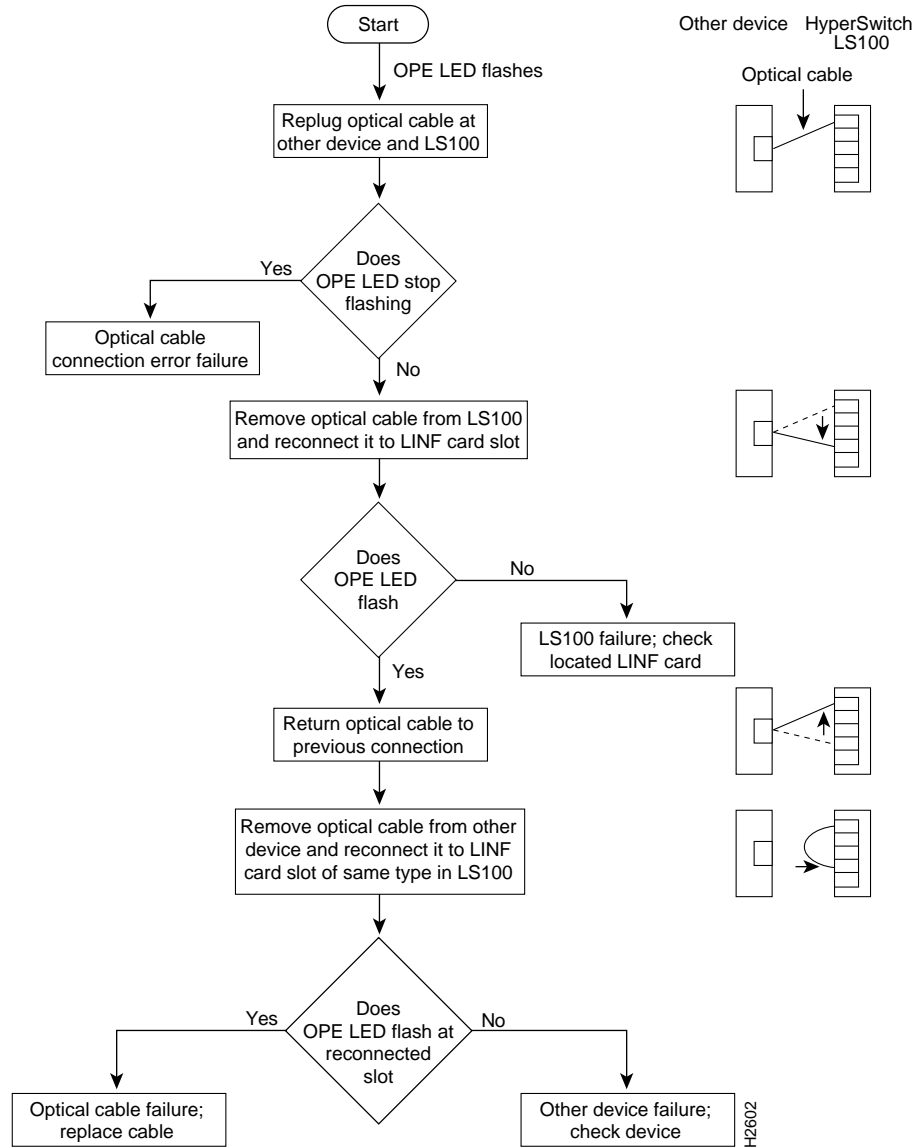
The OPE LED goes OFF when the source of the alarm is removed.

If the system timer fails and the clock battery needs replacing, contact technical support.



Warning If the battery is incorrectly replaced, it may explode. Only replace the battery with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Figure 6-1 OPE LED Fault Procedure Flowchart



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