CHAPTER 1

Operations and Management

This chapter provides a list of activities you should complete before you attempt to operate your network of LightStream 2020 multiservice ATM switches (LS2020 switches).

This chapter also lists the operations and management activities that you can perform on a network of LS2020 ATM switches. It describes the tools and methods that you can use to manage your network, depending on your hardware and software configuration.

Where to Begin

Before you attempt to operate your network, each LS2020 switch should be fully installed, powered on, and configured. The following checklist specifies the tasks that should be complete before you begin operating and managing your network. For information on these tasks, see the *LightStream 2020 Installation Guide* and the *LightStream 2020 Configuration Guide,* or check with your network administrator. See the appropriate setup procedures described in the *LightStream 2020 Installation Guide*. Depending on how you choose to set up your network, you may not need to perform all of the setup procedures.

Things to Do Before Operating Your LS2020 Network

1. Read the *LightStream 2020 System Overview* and become familiar with the LS2020 documentation set.
2. Make sure that the installation is complete, the network is powered up, and basic configuration information has been entered.
3. Make sure that the appropriate setup procedures have been completed.
4. Become familiar with the CLI and any other network management tools available to you.

Network Operation Tasks

You can perform a wide variety of tasks on your LS2020 network. You will perform some tasks every day and others only occasionally. This section lists the many different types of tasks that you will perform.

Monitoring Tasks

- Display the status of hardware (chassis, cards, ports, and circuits)
- Display the operating parameters for the modem interface
- Display the status of system processes (such as the CLI, SNMP, the collector, global information distribution, neighborhood discovery)
- Display the temperature or voltage of a particular card
- Display the physical topology of the network
- View per port and per circuit statistics
- Monitor MIB object values
- Display traps and alarms

Control Tasks

- Configure a switch
- Change the existing network configuration
- Define and assign bridge, IP, and IPX filters
- Write command line interface (CLI) scripts
- Perform an orderly shutdown
- Isolate port problems
- Collect statistics
- Activate and deactivate cards, ports, and circuits
- Load diagnostics (to diagnose network problems)
- Verify the software installation
- Customize traps
- Change MIB attribute values
- Force a switch card to become the primary or secondary TCS hub

Administrative Tasks

- Create new user accounts
- Set or change account passwords
- Set or change the SNMP community
- Change the default modem password and init string
- Create a backup of the network configuration on floppy disks
- Copy files between switches
- Change the default trap delivery addresses

Management Tools

You can use the following methods to manage an LS2020 network:

- LS2020 network management. Use the LS2020 StreamView network management application to perform most management functions. You can, however, use the CLI on one of the network processors (NPs) or on a Sun SPARCstation to perform some management tasks, if the configurator or network management system (NMS) is unavailable. The CLI is also a monitoring tool, but it is not graphical.
- Network management system. Use an external, SNMP-compatible NMS.

StreamView

The LS2020 self-management tools include the StreamView network management applications. These applications provide configuration, monitoring, and topology mapping of the LS2020 network. The following sections give a brief description of these tools.

LS2020 Configurator

The LS2020 configurator is a user-friendly graphical interface that reduces configuration tasks to the simple click of a mouse button. As network administrator you can use the LS2020 configurator to manage a network of LS2020 multiservice ATM switches. For more information on the configurator, see the *LightStream 2020 Configuration Guide*. If the configurator is unavailable to you, you can use the CLI commands in this document to perform many management tasks.

LS2020 Monitor

The LS2020 monitor provides graphical displays of individual LS2020 systems, cards, and ports. In most instances you will want to use it to monitor the network. However, if the monitor is unavailable to you, you can use the CLI commands in this document to perform many monitoring tasks. For more information on the LS2020 monitor, see the Monitoring a LightStream 2020 Switch chapter.

LS2020 Topology Map

The LS2020 topology map provides a graphical display of the physical topology of an LS2020 network. You can modify the LS2020 map by moving nodes, changing node or trunk labels, grouping nodes into submaps, or deleting nodes or trunks. For more information on the LS2020 topology manager, see the Monitoring a LightStream 2020 Switch chapter.

Command Line Interface

The CLI is a simple, line-based interface that runs on an LS2020 switch or a Sun SPARCstation. You can access the CLI by connecting a terminal to the console port on the console/modem assembly on an LS2020 switch, by using Telnet to access the NP, or by running the CLI on a Sun SPARCstation.

You can use the CLI to change and display the settings of configuration attributes on a local switch. It also enables you to make those changes in the NP's run-time memory only or to run-time memory and the switch's hard disk. For more information on the CLI, see the Command Line Interface chapter.

SNMP-Compatible Network Management Tools

You can use any industry standard SNMP-compatible NMS to monitor an LS2020 network. The NMS can be connected to the LS2020 switch through the Ethernet interface on the NP or through the Ethernet or FDDI interface on the packet line card (PLC).

The following three systems can be used with the LS2020 switch:

- OpenView, Release 3.0 from Hewlett-Packard
- SunNet Manager, Release 2.0 from SunConnect
- NetDirector Enterprise Network Management software from Ungermann-Bass

You cannot configure an LS2020 network using an NMS alone. LS2020 switches and networks are configured with the LS2020 configurator. For information on the LS2020 configurator, see the *LightStream 2020 Configuration Guide*.

You can manage an LS2020 network with StreamView or with an external SNMP-compatible NMS. Regardless of which system you use, the management software communicates with the managed devices using SNMP.

The LS2020 documentation set does not provide instructions on how to use an NMS. See the product documentation for your NMS for specific instructions.

Network Management Scenarios

You can manage your network in a number of different ways, depending on your hardware and software and whether you want traps to be interleaved with, or separated from, your general monitoring and control functions. Table 1-1 lists the different network scenarios that you may consider using to monitor and control the network.

The preferred method of network configuration, monitoring and control is with the LS2020 configurator and the LS2020 monitor running on a Sun SPARCstation as described in the first scenario listed in Table 1-1. The user-friendly features of these programs reduce many tasks to the click of a mouse button.

If you choose the last four scenarios listed in Table 1-1, you must configure the network using the LS2020 configurator on a Sun SPARCstation *before* you can perform routine monitoring and control tasks on any or all of the systems. LS2020 documentation and customer support provide only limited support for the last three scenarios.

Note You can access traps from a single instance of CLI running on an NP or from one instance of a third-party trap monitoring tool running on a workstation. If you attempt to display traps on a second instance of either program running on another single processor (the NP or workstation), a message displays indicating that traps have been intercepted by another user.

Table 1-1 Network Management Scenarios

Scenario	Description
Manage network from a Sun SPARCstation using the LS2020 configurator, monitor, and the CLI.	Configure, monitor, and control the network on a Sun SPARCstation using StreamView. If you cannot access the SPARCstation, you can use the CLI on an NP to perform management tasks. (Optionally, other SNMP-compatible network management software can be used.) The configurator, the monitor, and the CLI run and display on the SPARCstation running SunOS 4.1.x. HP OpenView is optional. This scenario is the preferred method for network management tasks.
Manage network from VT 100 terminal using the CLI.[1]	Monitor and control the network from the VT100 terminal. However, if you must add or move hardware or add ports or VCs, you *must* use the Sun SPARCstation to run the configurator. The CLI runs on an LS2020 network processor (NP) and displays on the VT100.
Manage network from a Sun SPARCstation using the CLI and a third-party trap monitoring tool.[1]	Monitor and control the network from the Sun SPARCstation using the CLI and a third-party NMS. The configurator, the CLI, and the third-party NMS trap monitoring tool run and display on the SPARCstation.
Manage network from a non-Sun workstation using the CLI only.[1]	Monitor and control the network from the non-Sun workstation using the CLI. However, if you must add or move hardware or add ports or VCs, you *must* use the Sun SPARCstation to run the configurator to complete these tasks. By way of a Telnet connection, the CLI runs on an LS2020 NP and displays on the workstation.
Manage network from a non-Sun workstation using the CLI and a third-party trap monitoring tool.[1]	Monitor and control the network from the non-Sun workstation using the CLI and a third-party trap monitoring tool. However, if you must add or move hardware or add ports or VCs, you *must* access the Sun SPARCstation to run the configurator to complete these tasks. By way of a Telnet connection, the CLI runs on an LS2020 NP and displays on the workstation. The third-party NMS trap monitoring tool runs and displays on the workstation.

1. Before you can follow this scenario, you need to configure the network using the LS2020 configurator on a Sun SPARCstation.