Release Notes
for LS2020 Software Release 2.1.01

These release notes describe special considerations and software upgrade procedures for software Release 2.1.01 of the LightStream® 2020 (LS2020) enterprise ATM switch.

Software release 2.1.01 is a restricted release that meets a specific customer requirement: remedy of an FDDI problem.

Introduction

These release notes are organized as follows:

- LS2020 Overview

  Briefly describes the capacities and applicability of the LS2020 product.

- Flash Memory Image Checksum Values

  Lists checksum values for flash memory on cards for this release.

- Special Considerations

  Describes special considerations and caveats for Release 2.1.01 of the LS2020 product.

- Software Upgrade Procedures

  Describes how to determine the software release presently installed on the system hard disk. Describes how to upgrade your software to Release 2.1.01. Discusses disk utilization.

- Resolved Problems

  Lists problems of Release 2.1 that have been resolved in Release 2.1.01.

LS2020 Overview

The LS2020 is a multi-service asynchronous transfer mode (ATM) switch designed for campus backbone, wide area network (WAN), and public edge switch deployment. It is well suited for business-critical applications requiring data, voice, and video, by supporting Ethernet, Fiber Distributed Data Interface (FDDI), ATM, frame relay, and circuit emulation interfaces. It provides the connectivity, flexibility, and performance required by the most demanding networks, and its redundant power supplies, switching fabrics, and network processors help to assure high reliability.

For customers who see ATM technology as the foundation of networks of the future, but are concerned about preserving investments in existing network infrastructures, the LS2020 provides Ethernet and FDDI switching that can easily be migrated to ATM at any time.

The advanced traffic and buffer management of the LS2020 node provides complete control over bandwidth allocation, Quality-of-Service (QoS), and congestion avoidance for networks in service today, while providing a growth path as networks scale in size and complexity.

Flash Memory Image Checksum Values

Every time you install a card in a slot of the system, you must verify that it has the correct flash memory checksum, and upgrade flash if necessary. The procedure for doing this is given in the *LightStream 2020 Hardware and Troubleshooting Reference Guide*. Use the bash command **sysver -a** to display flash checksums. The checksums for this new release are as follows:

If the flash checksum is 0x64A2 for an SC2 switch card, or 0x5D00 for an SC1 switch card, then the specified switch card already has the latest flash image.

```
Network Processor:      Flash Image Checksum:   0xC1DE
Switch Card 1:          Flash Image Checksum:   0x5D00
Switch Card 2:          Flash Image Checksum:   0x64A2
Low Speed Card:         Flash Image Checksum:   0x181C
Medium Speed Card:      Flash Image Checksum:   0xA7FC
Packet Line Card:       Flash Image Checksum:   0x0339
Cell Line Card:         Flash Image Checksum:   0xE782
```

Note The label Switch Card 1 denotes release 1 of the switch card (SC1), and the label Switch Card 2 denotes release 2 of the switch card (SC2).

Special Considerations

This section describes special considerations and caveats that apply to this release of the LS2020 enterprise ATM switch. These special considerations are drawn from reports of hands-on experience with the product by LS2020 beta customers and Cisco Systems engineers.

Most of the special considerations here are provided with an LS2020 case number. If you contact Cisco Systems about a special consideration, please refer to it by its case number.

Changes From Release 2.1

LSCIe02973 CEMAC Port Reconfiguration Problem

Release 2.1 CEMAC Problem Description

This issue pertains only to networks utilizing CEMAC Constant Bit Rate (CBR) Permanent Virtual Circuits (PVC). When multiple CEMAC CBR circuits are configured, if one of the CBR circuits is disabled or reconfigured, data transfers for all CBR circuits on that CEMAC card are interrupted. All CBR circuits on that card remain in an interrupted state until one of the circuits is reestablished by manually resetting the CBR port or by other means. Once a circuit has been reestablished, all of the remaining CBR circuits on that card automatically recover and CBR data transfers resumes.

Only CBR circuits related to that CEMAC card are affected by this problem. No other circuits within the network are affected.

Problem Resolution

This resolution pertains only to networks utilizing CEMAC Constant Bit Rate (CBR) Permanent Virtual Circuits (PVC). All CEMAC nodes running Release 2.1 software must incorporate the 2.1.01 patch files. The 2.1.01 software patch uses a different CBR circuit creation mechanism to ensure that CBR circuits are built properly. CBR circuits between nodes running Release 2.1.01 software patch will not be interrupted by operations on other CBR ports.

Software Incompatibility

The Release 2.1.01 CEMAC software patch is not compatible with Release 2.1 CEMAC software because the new software creates CBR circuits in a different way. Therefore, make sure that no CBR circuits are set up between nodes running without this patch and nodes running with it. This incompatibility may interrupt or corrupt CBR circuits, whether they were created with the Release 2.1.01 patch or without it.

Changes From Release 2.0

Setting and Detecting Baud Rate on the Console or Modem Ports

The TCS HUB for Release 2 switch cards no longer uses the BREAK detection mechanism (also known as the auto-baud or pseudo-auto-baud mechanism) to select the baud rate on either the console or modem ports.

Note Setting and detecting the baud rate only applies to the Release 2 switch card.

The **set** and **show** commands of the Release 2 switch card TCS HUB are now used to select and display the baud rate. These commands manipulate and interpret the contents of certain fields in the midplane EEPROM that are used by the Release 2 switch card TCS HUB to initialize the console and modem port baud rates.

The midplane EEPROM locations used to maintain the console and modem baud rates were previously reserved. When the new Release 2 switch card TCS HUB code is installed in a Release 2 switch card in a system that has never had those reserved midplane EEPROM locations initialized, the new code detects that these locations are uninitialized and initializes them with default values (9600 baud for the console port, and 2400 baud for the modem port).

The syntax of the **set** command of the Release 2 switch card (Release 2 switch card) TCS HUB is as follows:

```
set {sa | sb} {console | modem} baudrate rate
```

The arguments of the command are as follows:

{ **sa** | **sb** }   Specify switch card A or switch card B.

{**console** | **modem**}   Specify that the baud rate is for the console port or the modem port.

baudrate *rate*	Specify the rate as follows:		
	Console Port	300	
		1200	
		2400	
		4800	
		9600	(default)
		19200	
		38400	
	Modem Port	2400	(default)
		9600	

The syntax of the **show** command of the Release 2 switch card TCS HUB is as follows:

```
show {sa | sb} {console | modem} baudrate
```

The arguments of the command are as follows:

{ **sa** | **sb** }	Specify switch card A or switch card B.
{**console** | **modem**}	Specify that the display is for the console port or the modem port.
baudrate	Specify that the baud rate is to be displayed.

You can change the baud rate at any time. It takes effect on power-up or board reset, or (for the modem port) when the modem port is reinitialized with the TCS HUB **init** command. The syntax of the **init** command is as follows:

```
init {sa | sb} modem
```

How to Match Console Terminal and Port Baud Rates

There are currently three ways to match console terminal and console port baud rates if the console port is initialized with a baud rate other than the one to which the console terminal is set:

- If the console terminal does *not* support one or more of the baud rates described in the **set** command description (above), use the following method to try all the baud rates that the console terminal does support:

  Change the console terminal baud rate (if possible) until the Release 2 switch card TCS HUB prompt is displayed when you press the **[Return]** key. There are seven possible console baud rates. Starting with the default rate, set up the console terminal to run with each one until a match has been found.

- If the above method fails and you have a modem and the ability to dial in to the LightStream 2020 switch, do this:

  Dial into the LightStream 2020 switch. Use the command **set** {**sa** \| **sb**} **console baudrate** *rate* to change the console port baud rate to the console terminal baud rate, specifying the switch whose baud rate you wish to set.

  Reset the Release 2 switch card by entering the following TCS HUB **reset** command:

  reset {sa | sb}

  This breaks the modem connection and reinitializes the console port to the selected baud rate.

- If the above methods fail and you have redundant Release 2 cards, one of which is already accessible through the console or modem port, do this:

  Use the console attached to the fully operational switch, or dial in to the switch through the modem port. From this switch, use the command **set** {**sa** | **sb**} **console baudrate** *rate* to change the console port baud rate to the console terminal baud rate, specifying the other switch.

If none of the above works, contact Cisco Systems, Inc.

How to Change the Modem Baud Rate if a Connection Cannot Be Established

If the modem port is initialized with a baud rate other than the one with which the modem can operate, you can change the modem port baud rate in either of two ways:

- If you have access to the local console, use the command **set** {**sa** | **sb**} **modem baudrate** {**2400|9600**} to change the modem port baud rate through the local console.

- If you do not have access to the local console, then use the modem port on the redundant switch. This method requires redundant Release 2 switch cards and redundant modems and the ability to dial in to the LightStream 2020 chassis, using the other Release 2 switch card and modem.

  Dial in to the LightStream 2020 chassis and determine the address of this switch card (the one to which the modem is attached).

  Type the following commands at the TCS HUB prompt:

  ```
  set {sa | sb} modem baudrate {2400|9600}
  init {sa | sb} modem
  ```

  Use the address of the other switch. That is, if you are connected to Switch Card A, specify **sb** in these commands, and if you are connected to Switch Card B, specify **sa** in these commands. Specify the baud rate to which the modem is set.

LSCIe02937 Cell Payload Scrambling Must be Enabled for OC-3 Interfaces

Cell payload scrambling was a configurable parameter for OC-3 interfaces in Release 2.0, and it should not have been. In Release 2.1 it may only be enabled.

During the upgrade of a network to Release 2.1, there may at some point be a mixture of Release 2.1 and Release 2.0 nodes running in the network. If there is an OC-3 trunk connecting a Release 2.1 node to a Release 2.0 node, and either the Admin value or the Oper value for cell payload scrambling is set to disabled on the OC-3 trunk port of the Release 2.0 node, the trunk does not come up operationally.

Workaround

For each OC-3 trunk connection, set the Admin value for cell payload scrambling to enabled on the OC-3 trunk port of the Release 2.0 node, and make sure that the Oper value also gets set to enabled.

To check these values, use SNMP commands in the CLI. For example, if your Release 2.0 trunk port is on card 3, port 0, use the **getsnmp** command as follows:

```
cli>getsnmp clc1InfoAdminScramble.3000
Name: clc1InfoAdminScramble.3000 Value: 1
cli>getsnmpclc1InfoOperScramble.3000
Name: clc1InfoOperScramble.3000 Value: 1
```

If either of these values is anything except 1, enter the following commands in protected mode:

```
*cli>set config lock                        (open the database for writing)
*cli>set port 3.0 inactive                  (deactivate the port)
*cli>setsnmp clc1InfoAdminScramble.3000 1   (set to enabled)
*cli>set port 3.0 active                     (activate the port)
*cli>set config unlock                      (release the database)
```

Activating the port triggers the application of the Admin value to the Oper setting. The trunk should come up operationally.

If any OC-3 edge ports are configured with cell payload scrambling disabled, they should also be reconfigured as above.

LSCIe02186 The trunkmon Tool Has Been Withdrawn From Release 2.1

The **trunkmon** tool is no longer supported in Release 2.1.

LSCIe02935 The set port testing Command Has No Effect

The CLI **set port testing** command has no effect on the specified port. Use of this command is discouraged. Support for this command will be removed in a future release.

Network Management Caveats: The StreamView CFG Tool

LSCIe01393 - Aggregate Circuit Bandwidth Not Compared to Port Bandwidth

Due to a limitation in the StreamView Configuration tool, the aggregate allocated bandwidth of the circuits configured through a port is not compared to the raw bandwidth or allocated bandwidth available through the port. Configuring circuits with aggregate allocated bandwidth greater than the port bandwidth will result in a failure to establish some of the configured circuits when the configuration is downloaded to the switch.

Workaround

To help ensure that all circuits configured through a port are set up, you must ensure that the aggregate bandwidth of the circuits does not exceed the capacity of the port.

LSCIe01401 Creating an Instance of a Second Network Processor Card

The StreamView Configuration tool does not permit execution of the Copy operation on a Network Processor (NP) card in order to create a second instance of the card.

Workaround

To create a second Network Processor card instance, select the Empty tag for the second slot and create the new card using the Add function.

LSCIe02679 Use Leading Zeros when Specifying MAC Addresses

Under some circumstances, the StreamView CFG tool requires Media Access Control (MAC) addresses to be specified with leading zeros, so that, for example, a MAC address such as the following is not accepted:

```
1:2:3:4:5:6
```

Workaround

When using the CFG tool, specify a leading zero in any MAC address field whose value is in the range 0x00 - 0x0F, as in the following example:

```
01:02:03:04:05:06
```

LSCIe02684 Modifying Line Card MIB Objects While the Card is Down

It is not possible to use the Send All operation of the CFG tool to change the administrative status of a card from down to up while simultaneously changing other MIB variables associated with the card.

While the administrative status of a line card is down, no Line Card Control (LCC) process is associated with that card. As a result, certain MIB objects defined for the card are not available to the SNMP agent. When the Send All operation is used to update the configuration of a line card, the SNMP agent rejects some of the SNMP set operations normally forwarded to the LCC process associated with the card. Such rejections cause the overall Send All operation to fail, and the administrative status of the card remains down.

Workaround

Step 1 Enable the card by setting the administrative status to active. (Use either the CFG tool or the CLI command **set card** *card#* **active**.) Ensure that this is the only card parameter that is changed at this time.

Step 2 Download the change in administrative status via the "Send Changes Only" operation.

Step 3 Wait for the card to come up. You may monitor the status of the card via the CLI or via the Configure "Verify/Discard" operation.

Step 4 Continue the configuration operation once the card has come up.

LSCIe02686 Value in Chassis Name Field May be Inaccurate

Under certain circumstances, the value displayed in the Chassis Name field of the StreamView CFG tool may be inaccurate.

For example, this may happen if a switch icon has been renamed using OpenView facilities, and is then selected in the StreamView Topology Map, and the Configuration tool is started from the Topology Map tool (in order to configure the selected switch).

Workaround

Use StreamView rather than HP OpenView to rename icons.

Start the Configuration tool and select the chassis you wish to configure from the list of switches shown rather than from the topology map.

Network Management Caveats: The StreamView PVC and VLI Tools

LSCIe00956 StreamView PVC Tool Has No Save As File Menu Item

The PVC and VLI configuration tools do not support a Save As function.

Workaround

To create copies of the database, use the Save As option of CFG. Do not copy the .dir and .pag files with UNIX shell commands.

LSCIe02872 Use Update: Send All to Update VLI Information

In the StreamView VLI tool, the Update: Send Changes Only operation does not work. The button has been deactivated.

Workaround

To update the VLI configuration of a switch, use the Update: Send All operation. This is the only active option.

LSCIe00962 Deleted DLCIs May Not Be Reused Prior to Configuration Download

In the Release 2.1 PVC tool, under certain circumstances it is not possible to reuse the data link connection identifier (DLCI) previously assigned to a deleted Frame Relay circuit, even though the modified configuration has been successfully downloaded to the switch.

Workaround

Flush the current in-memory database image maintained by the PVC tool by selecting the Read DB button, then add the new circuit using the deleted DLCI.

LSCIe02919 Verify May Report Changes in Default Secondary Scale Value

Following a Verify operation, the StreamView PVC tool may report a difference in the value of the secondary scale factor associated with a PVC, when in fact it is unchanged from the default value. The chassis reports the actual (default) percentage of the maximum rate, but the database reports the internal value as "default".

Workaround

If the secondary scale has not been modified, ignore the reported difference. The chassis value is written to the database when you apply the change.

LSCIe02924 Number of Virtual Circuits (VCs) Not Compared to Configured Card Maximum

The StreamView PVC tool does not verify that the number of circuits configured on a port falls within the configured number of circuits maxVCs that may be configured on the port. Configuring a greater number of circuits than the allowed value results in a failure to establish some of the configured circuits when the configuration is downloaded to the switch. The same is true for frame relay circuits and the per-port Max Supported VCs value.

Workaround

To help ensure that all circuits configured through a port are set up, the number of circuits configured must not exceed the number of VCs allowed through the card or port.

- For a port operating in Frame Relay service, the maximum number of circuits which may be configured on a port is set by the value of the frDlcmiMaxSupportedPVCs management information base (MIB) object, which corresponds to the CFG port field Max Supported VCs.

- For a port operating in UNI service, the maximum number of circuits which may be configured on a port is set by the value of the cardMaxVCs MIB object, or the expert mode field Max VCs.

- The aggregate number of circuits on all ports on a card may not exceed the value of the cardMaxVCs MIB object in all service cases.

LSCIe02941 StreamView PVC Tool sendupdate Causes Sun Crash

If you run StreamView on a Sun workstation using SunOS 4.1.4 (as opposed to 4.1.3), the workstation issues a panic message when you perform a SendUpdate function with more than 15 PVCs on a single port, using the PVC StreamView Tool. The message refers to the file ufs_lockf.c.

Workaround

Obtain patch #102264-02 from Sun and install it, as follows:

Step 1 Connect by ftp to sunsolve1.Sun.com.

Step 2 Log in using the anonymous userid.

Step 3 When prompted, use your login ID as a password.

Step 4 Change directory to the patch directory, using the following command:

```
cd pub/patches
```

Step 5 Enter the command **binary** to make the transfer in binary mode.

Step 6 Enter the command **get 102264-02.tar.Z** to copy the needed patch file.

Step 7 Enter the command **ascii** to make a file transfer in ASCII mode.

Step 8 Enter the command get 102264.readme to copy the readme file for the patch.

Step 9 Follow the instructions in the readme file to rebuild the Sun kernel.

Step 10 Reboot the workstation.

LSCIe02947 Cancelling a Verify Operation and Executing a Save Operation May Cause PVC to Exit

Under certain circumstances, if you perform the following sequence of actions with the StreamView PVC tool, it may report an internal error and then exit:

1 Start a Verify operation against two switches.

2 Cancel the running Verify operation with the Cancel button.

3 Schedule a download to a switch.

4 Initiate the download by executing the Save operation.

Workaround

Avoid cancelling a running Verify operation. If you have cancelled a Verify operation and want to download a configuration next, execute the Read DB operation before starting the download.

Network Management Caveats: The Command Line Interface (CLI)

LSCIe01068 Rate Statistics for Ports are Inaccurate

The Rate information produced by the CLI when displaying port statistics is not accurate.

Workaround

Increasing the interval between displays of the statistics increases the rate accuracy. Very short intervals have a small baseline, so that the brief delay between request and retrieval of statistics can significantly skew results. By waiting 10-20 seconds between display requests, the baseline increases, the delays become less significant (a smaller percentage of the baseline), and the rates become much more accurate.

LSCIe01625 Use the CLI to Set IP Addresses to 0.0.0.0

In certain operational circumstances it may be desirable to set one or more of the IP addresses associated with the chassis and the Network Processor to a value of 0.0.0.0. Logically, this changes the status of the specified IP address to "not set". In Release 2.1, the StreamView CFG tool does not allow you to assign a value of 0.0.0.0 to an IP address.

Workaround

Use the CLI to set a chassis or network processor IP address to a value of 0.0.0.0.

LSCIe02390 Turning Off tty Output Paging

By default, the LS2020 CLI uses a functional equivalent of the UNIX **more** command to paginate multi-line terminal output. In some circumstances this may not be desired.

Workaround

You may disable **more**-style output pagination by specifying the **-nomore** switch on the command line when you start the CLI, as follows:

```
LSNode:2# cli -nomore
...
```

LSCIe02634 The CLI May Falsely Report No Filters Defined or No Multicast Groups Defined

Under certain circumstances, such as when a high SNMP processing load is placed on the LS2020 SNMP agent, the LS2020 CLI **show bflt**, **show ipflt**, and **show ipxflt** commands may report that no filters exist, or the **show mcast** command may report that no multicast groups exist. This is due to the CLI failing to receive a response to an SNMP request associated with the command.

Workaround

Usually, failure to receive a response to an SNMP request is indicated by a message saying "No response - try again", or "Request timed out". When such a message appears in conjunction with a message that no filters or multicast groups exist, disregard the messages and repeat the **show** command.

LSCIe02658 Multicast Groups: Non-LAN Ports are Accepted as Destination Endpoints by CLI

The Release 2.1 CLI tool permits you to define a multicast group containing one or more destination endpoints which are not local area network (LAN) service (for example, Ethernet or FDDI) ports.

Workaround

While it is possible to define a multicast group containing non-LAN ports, the LS2020 signalling and ATM management facilities does not establish a multicast connection branch terminating at a destination port other than a LAN service port. Therefore there is no danger that multicast LAN traffic will be accidentally delivered to a device attached to a Frame Relay, Frame Forwarding, ATM UNI, or circuit emulation edge interface.

LSCIe02661 CLI May Fail to Identify MIB Version If Started Too Soon

If, during the course of a node reboot, the CLI is started prematurely, such that certain MIB objects are not yet available because the processes that have registered for them have not yet completely booted up, then it is likely that the CLI will display the following error message at start-up time:

```
Unable to determine MIB version...
```

If this is the case, exit from the CLI and wait until a self-directed ping responds with success before restarting the CLI.

LSCIe02921 The show card Command Does not Differentiate Between T3 and E3 Access Cards

The CLI **show card** display does not distinguish between T3 and E3 rate access cards. The display identifies E3 access cards and ports as T3 cards and ports. The correct port type is displayed by the CLI **show port** command.

Workaround

To resolve the ambiguity, use the CLI **show port** command to display the status of a port thought to be an E3-rate port.

LSCIe02922 Setting Port Peak Cell Rate

The syntax of the command **set card** *cardno* **peak-cell-rate** *cell-rate* may suggest that one is setting the aggregate rate for all ports on the specified card. In fact, this command sets the per-port peak cell rate for each port on the specified card.

The syntax of this command will be made unambiguous in a future release.

LSCIe02952 Delete Filter Operation May Report "Invalid Filter"

Under unusual circumstances, the CLI may report that a filter being deleted is invalid, even though the filter is deleted successfully.

Workaround

Use the **show bflt**, **show ipflt**, or **show ipxflt** command to verify that a filter exists and is valid before you delete it. After you delete the filter, use the same command to verify that it has been deleted.

Network Management Caveats: The LightStream Topology Map

LSCIe02044 Adding Switches to an Existing Topology Map Domain

The StreamView Topology Map tool may not allow you to add a LS2020 switch to an existing LS2020 domain.

Workaround

To include a switch in a domain, you must recreate the domain. Delete the original domain, then select all icons desired for the domain (including the switch that is to be added), and recreate the domain.

LSCIe02657 LS2020 Domain Icon May be Hard to Find

A group of LS2020 switches and interconnecting trunks are grouped together to form a Topology Map domain, and the domain icon is placed in the HP OpenView New Object Holding Area. If the Holding Area contains many new objects, not all objects may be completely visible on the display. As a result, it may seem that the domain icon has disappeared.

Workaround

In this situation, check the entire New Objects Holding Area for the iconified domain. Reduce the height of the window. This scales all objects smaller. The domain icon should be visible at the end of the New Objects Holding Area.

LSCIe02890 Termination Following a Close while Synchronizing

Under certain unusual circumstances, closing the StreamView Topology Map while it is in the synchronizing state may cause the program to terminate and generate a core file. This typically happens if the StreamView Topology Map (LTM) tool is terminated before initialization has completed.

Workaround

Wait for the StreamView Topology Map (LTM) tool to become fully operational before exiting.

Other Network Management Caveats

LSCle01141/LSCle01540 Stopping an Unwanted Download

No function is currently provided to stop a long download.

Workaround

It is possible to abort downloads with the LynxOS **kill** command. Log in as root to the network management system (NMS) station and use the command **ps ax** to find the process ID (PID) of each cfg_a process. Do not kill the cfg_a process with the lowest PID, it is the parent cfg_a process. Any cfg_a process with a higher PID is a child process, which you may kill. If more than one download is in process, they can be distinguished only by remembering the order in which the downloads were invoked (one with a lower PID was invoked earlier, and one with a higher PID was invoked later). However, even when the correct process is killed the results can be unpredictable, because some part of the configuration might have been downloaded and some not. It may be better to wait for a download to terminate normally.

LSCle01083 Use HP OpenView Release 3.3 or Later

Use HP OpenView Release 3.3 or later to manage your LS2020 network.

If you are using HP OpenView to manage your LS2020 network, it is strongly recommended that you use Version 3.3 or greater in order to avoid certain problems with the tool which may have an adverse effect on LS2020 simple network management protocol (SNMP) agent and system performance. Before Release 3.3, HP OpenView formats SNMP requests into a single buffer which can exceed the SNMP maximum of 484 bytes if a data collection has more than 20 variables.

Workaround

If you have HPOV Release 3.2 or earlier, when you set up data collection using HP OpenView, limit the size of collections to less than 20 variables.

LSCle01355 Specify Valid UNIX File Names With File Operations

Under certain circumstances while using the StreamView Save As operation, it may be possible to specify strings containing white space and nonprintable characters as file names.

While such file name strings may be accepted by the tools, they do not form valid UNIX file names. Creation of files so named may fail, or files so named may be difficult to manipulate later using standard UNIX mechanisms.

Workaround

When working with the StreamView tool set, do not use white space characters, non-printing characters, or control characters in file names.

LSCIe02020 Avoid Concurrent Modifications to a Single Database

The StreamView configurator (CFG), permanent virtual circuit (PVC), and virtual LAN internetworking (VLI) tools should not be used concurrently on the same database. When one StreamView tool is directed to use or modify a database that is already being used or modified by another tool, it issues an alert that the database is currently in use and is locked. However, it is possible to dismiss this alert and continue concurrent modification of the database.

Caution   Doing so may cause loss of updates to the database from either or both tools.

Workaround

Avoid simultaneous modification of a single database using the CFG, PVC, and VLI tools. If you find yourself in the position of editing a single database with two tools concurrently, complete your edits with the second tool invoked, save, and exit. Then reopen the database file with the remaining tool before editing the file.

LSCIe02025 Prompt to Save Changes Displayed Prior to Exit

Under certain circumstances, after you have asked to exit the StreamView Configuration tool, it displays a dialog box inquiring whether you wish to save changes to the database, even when no changes have been made to the database since the last save.

Workaround

If you are certain that no changes have been made since the last save operation, you may provide a negative response to the prompt. However, saving the database again is harmless.

LSCIe02483 Avoid Storing Database Files in the /tmp Directory

Under certain circumstances a database file cannot be saved in the /tmp directory.

Workaround

When using the Configuration tool Save As function, avoid specifying the /tmp directory as the directory in which the database should be saved.

LSCIe02620 Verify and Save of Many Nodes May Cause System to Exceed Available Memory

An attempt to save the configurations of many switches (more than 8) which have been acquired by the Verify operation may fail.

Workaround

When you use the Verify operation to acquire node configurations, save after verifying every eight nodes.

LSCIe02715 Network Management Station May be Attached to a PLC Port

Network operations on the LS2020 NP are available from three connection sources:

- The test and control system (TCS) modem and console ports

- The NP Ethernet port

- A port on a packet line card (PLC)

Connections through TCS and the NP Ethernet port are well described in the documentation for this release. Connection through a PLC port is not.

An NMS connected to a port on a PLC is able to connect to an NP in the network if two configuration tasks are performed:

Step 1   Configure the IP address of the NM workstation.

Step 2   Enable the NP Traffic Filter on that port to forward connection requests to the NP.

The IP address of the NMS must be configured with a unique host number on the same network as the LS2020 Chassis IP network. For instance, if the Chassis IP address in an LS2020 network is configured as network address 123.45.6.0, the NMS must also have 123.45.6.0 as the network portion of its IP address. Secondly, if host addresses 1-10 are configured for Primary and Secondary NP Chassis IP addresses in the LS2020 network, the NMS must be configured with a host address other than in the range 1-10, i.e. 123.45.6.11.

The default configuration of each PLC port in this release is to block all traffic intended for an NP. The LS2020 private MIB variable that defines the action (forward or block) for PLC port traffic with an NP as its destination is lsLanPortNpTrafficFilter. The values to which this variable can be set are 1 (forward) and 2 (block). This release provides two ways of setting lsLanPortNpTrafficFilter:

- By using the CLI **set port** *c*.*p* **npdeliver** command

- By configuring and downloading the port attribute "forward" from StreamView

Use the following CLI commands to set port 1 of Ethernet card 6 to forward received traffic destined for an NP in the network:

```
cli> set config lock
cli> set port 6.1 np-deliver forward
cli> set config unlock
```

Use the following CLI commands to set that port to block the same traffic:

```
cli> set config lock
cli> set port 6.1 np-deliver block
cli> set config unlock
```

The StreamView **cfg** program can also be used to control whether a PLC port forwards or blocks traffic destined for an NP. In the Port Configuration window, configure the NP Traffic parameter by selecting either the Forward or Block button, and then saving the configuration.

LSCIe02769 No ifPhysAddress Object from ifTable Entry for NP Interfaces

The instance of the ifTable for the Network Processor (NP) does not provide an instance of the ifPhysAddress object.

LSCle02855 The Clear Button Does Not Terminate an Update

A user selects the option to update a node with new information from the database as follows:

1   Enter the appropriate parameters in the 'SendUpdate...Update Time' Menubar pulldown menu.

2   Select 'Save' from the 'File' pulldown menu.

Once the user does this, the process of updating the local node database becomes essentially irrevocable, unless the PVC StreamView process and the currently running cfg_a child process are both terminated.

- The PVC StreamView process can be terminated in the normal manner by selecting 'Exit' from the 'File' pulldown menu.

- The "cfg_a" child process, which is the independent process that actually performs the node update, can be terminated by using the Unix **ps** command to determine its Process ID number (PID), followed by a Unix **kill** command on that PID number. For more information on how to terminate this process, see the LSCle0111r1/LSCle01540 workaround in the "Other Network Management Caveats" section.

Do *not* misconstrue the Clear button on the Update Time Screen as an alternative method by which you can abort a pending node update. The Clear button has no bearing on the process of updating a node configuration from the global database. It is simply used to clear an entry from the scrollable list box of user-defined chassis-pair entries on the 'SendUpdate...Update Time' screen.

LSCle02857 Default Parameter Values Represented as "Unconfigured"

When a node is updated with a new PVC (particularly a virtual channel identifier (VCI) PVC), with most of the PVC values left blank, accepting default values, subsequent Verify operations may show something like the following:

```
Attribute Differences - Database  /  Switch
-----------------------------------------------
Circuit chicago7.4.0,1-chicago7.4.1,1
Source IR/TD            unconfigured  109
Source Insured Burst    unconfigured  128
Source MR/MD            unconfigured  96000
Source Max. Burst       unconfigured  128
Dest. IR/TD             unconfigured  109
Dest. Insured Burst     unconfigured  128
Dest MR/MD              unconfigured  96000
Dest Max. Burst         unconfigured  128
```

The "unconfigured" value under the "Database" column is a reminder that these values were left blank, when the PVC was sent to the node during a SendUpdate operation.

LSCle02880 Card Parameters Not Resent When Card Reboots

During the course of some configuration activities, a card may reboot (intentionally) during a SendUpdate process. This occurs, for example, when the card type is changed from Trunk to Edge. Because the card reboots, parameters that are sensitive to whether or not a card is configured as a Trunk or Edge do not get set on the target node unless a second SendUpdate process is applied after the first.

To analyze a specific example, consider a card that is initially in Edge mode, where Peak (Port) Cell Rate, a Trunk-only parameter, does not apply. When the card is re-configured to Trunk mode, and a new Peak Cell Rate is entered for the card as well, the first invocation of the SendUpdate process only sends Edge card parameters, because that is the initial state of the card, and Trunk parameters

do not apply. The card function is not known until the first configured port is set to Trunk (clc1InfoAdminProtocol = 1). The first Sendupdate sets the Peak Cell Rate to 0 rather than the configured value.

Workaround

Once the card has rebooted and switched to Trunk mode, a second SendUpdate process must be invoked to send the newly configured Peak Cell Rate.

LSCIe02927 StreamView CFG: Deleted Filter Assignments may not be Reassigned

Under highly unusual circumstances, if a filter assignment or a PVC has been deleted from a port, but a download operation has not been performed, it may not be possible to reassign a filter to that port using the same filter ID, or a PVC using the same PVC identifier (DLCI or VCI number).

Workaround

In general, there is no need to delete a filter assignment and then reassign the filter. If you wish to modify a filter assignment, you may do so using the filter assignment Edit operation. However, if you do encounter this problem, perform a download after deleting the filter assignment. This allows the filter to be reassigned.

If you must reuse the identifier of a deleted filter assignment or PVC, download the switch configuration before you assign the identifier to a new object of the same type.

LSCIe02943 E3 Framing Cannot be Changed from G.804

Attempts to change framing type for E3 ports from G.804 to PLCP appear to succeed, but in fact the framing type is not changed.

Hardware and Diagnostics Caveats

LSCIe01539 MS1-CP and E3-PLCP Cards Wrongly Report Receive Error Rate

MS1-CP and E3-PLCP cards report a receive error rate of about 1/second when there are no errors. This is only a problem with the E3-PLCP card. It is not a problem with T3 or E3-G.804 card.

Workaround

A hardware solution is in process; contact Cisco customer support.

LSCIe01956 DS3 UNI Rate Enforcement is Not Precise

The hardware and algorithms used to limit incoming data at an ATM UNI edge can allow more data than configured. The deviation is usually less than 1%, but can be greater for very high enforcement rates (e.g. greater than 1/2 of a T3).

Workaround

Allow for this deviation when configuring ATM-UNI edge ports.

LSCIe02440 8-Port T3 Card Does Not Report Loss of Signal (LOS)

The hardware is unable to report LOS because of the line interface unit (LIU) chip used in the 8T3 front end circuitry. The LIU chip has a very sensitive receiver capable of detecting signals down to 35mV. This allows the card to detect signals over long distances or very poor grade coax.

Because of this receiver sensitivity, the LIU picks up noise when there is no signal on the line, and continuously resets the LOS detection circuit, with the result that LOS status is never reliably set.

A newer version of the LIU device will be available in the November timeframe. Until then when the hardware detects a loss of frame (LOF) condition, a LOS condition will also be reported.

LSCIe02703 FDDI Card May Fail to Come Up at System Boot Time

When an LS2020 containing an FDDI card is booted the card may not come up completely. As far as we know, this is a very rare occurrence. The one time it occurred, the CLI **show port <port> statistics** command showed very large deltas for the Octets Rcvd and Normal Packets Sent statistics.

Workaround

If, on booting a node, an FDDI card fails to come up to the point that it passes data, disable and then re-enable the card. This should clear the problem.

LSCIe02741 Diagnostics May Fail Test 70 on a Medium-Speed Line Card

The diagnostics software does not set the card up properly for this test, and it fails intermittently.

Workaround

Either deselect test 70 when running the diagnostics on a medium-speed line card, or ignore failures of test 70.

LS2020 Congestion Avoidance Caveats

Congestion Avoidance (CA) Not Enforced for Point-to-Multipoint Circuits

Traffic entering the network on point to multipoint circuits is not throttled at entry ports when congestion starts to build within the network. A consequence of this is that CA more severely throttles unicast traffic at entry ports. The effect is to give multicast traffic priority over the unicast traffic.

Switch Bandwidth is Not Taken Into Account for Call Admission

Switch bandwidth is not taken into account in call admission decisions.

Each line card has a 200 Mbs path (called its switch path) into the node switch. The cards are designed so that all port cards can run at line rate without overrunning the card switch path when all circuits through the ports are unicast circuits. Prior to the introduction of the Release 2.1 multicast feature it was unnecessary to take switch bandwidth into account in making call admission decisions because it was not possible to overcommit the card switch path.

When a multicast circuit branches at a node, incoming data is replicated for each branch at the card's switch path. Because Release 2.1 call admission does not take card switch path bandwidth into account, the following abnormal behavior is possible:

- A multicast circuit can be established that cannot possibly carry the requested bandwidth. Consider, for example, a 40 Mbs guaranteed circuit over an FDDI LAN interface branching to 5 other FDDI LAN interfaces (requiring 240 Mbs to the switch). This circuit would drop cells at the card switch path when attempting to carry sustained traffic at the allocated rate.

- The 200 Mbs switch path can become a congestion point if its bandwidth is overallocated; that is, if each individual circuit fits but they all do not fit together. Unlike trunks and exit ports, the card switch path is not protected by the CA mechanism. Therefore, the onset of congestion on the switch path does not force drops at the entry edges to eliminate the congestion. As a result, individual cells from packets would be dropped at the congested card switch path.

- When there is congestion on a card switch path, there is no mechanism to drop best effort traffic ahead of insured traffic. The cell CLP bit, the XCLP bit, and cell transfer priority are all ignored in the identification of cells to drop. This affects Unicast insured traffic as well as multicast insured traffic. No impact is likely on guaranteed traffic and higher priority traffic (such as CBR) in an operational setting.

These limitations will be addressed in a future release.

LSCIe02064 LAN Packet Flooding Performance

An LS2020 node can flood between 70-100 packets per second (depending on the node and network configuration) by means of its general purpose flooding mechanism. If higher packet flooding performance is required, configure a multicast group for the flooding. With adequate network capacity the LS2020 multicast feature can support flooding at up to LAN port rates.

LS2020 Trap Caveats

LSCIe02530 - No Trap for Invalid Receive Clock

The 8T3 card does not send traps to report that it has an invalid receive clock.

Workaround

None.

LSCIe02638 Trap nptmm_2010 Reported When Line Card Removed or Reset

Whenever a board is removed or reset the following benign INFO trap may be reported:

```
(INFO) NPTMM_2010 at <local date time> (<GMT date time>)
    ERROR: Slot <n> TCS Action Register 23
    Read Error (UNIX error 15: Address fault detected)
```

Workaround

This trap can safely be ignored.

LSCIe02913 Trap Indicates Possible Card Malfunction

An LC_2000 vector 30 INFO trap like the following means that a parity error occurred on the specified line card:

```
(INFO) LC_card# at 8/12/95 12:24:22 EDT (8/12/95 16:24:22 GMT) Slot port#: Reason:
    CP_CRASHED -- vector 30, pri 0x0, pc 0x002043fc
```

Workaround

If this trap appears, monitor the card carefully for additional parity errors and other signs of malfunction. Consider replacing the card if additional parity error crashes occur.

LS2020 Resource Allocation Caveats

LSCIe01369, LSCIe01791 Restrict MIB Variable Polling to 20 per Second or Less

The rate at which the LS2020 SNMP agent processes SNMP requests is currently limited to approximately 20 requests per second. For optimum system and SNMP monitoring performance, you should seek to limit the rate at which SNMP requests are delivered to the agent to 20 requests per second or less.

Note that SNMP requests may be originated by an external NMS (such as HP OpenView), the StreamView tool set, the LS2020 CLI, and the LS2020 Collector utility.

The NP software does not throttle excess traffic from external SNMP devices. This can consume CPU resources and can cause spanning tree timeouts and other timeouts, degrading system performance. When this happens, you must reduce the SNMP traffic from the external device.

Workaround

To reduce the SNMP request rate, you might reduce the number of variables being tracked, increase the polling interval, reduce the number of concurrent network management processes that are requesting data, or delete unused collections defined and running on the switch.

LSCIe01701 PVC Setup can Deadlock when Resources Do Not Allow Creation of All Configured PVCs

In Release 2.1, PVCs are implemented as two unidirectional circuits, rather than as a single bi-directional circuit. The LS2020 at each end of the circuit establishes the transmit circuit for the PVC from its end.

In a situation where there is insufficient bandwidth between two nodes it is possible for several PVCs to get stuck in a half-open state. For example, suppose there is sufficient bandwidth between LS2020 A and LS2020 B to support one PVC (PVC 1 or PVC 2, but not both). It could happen that PVC 1 between A and B has its A-to-B circuit established, but not its B-to-A circuit, and that PVC 2 has its B-to-A circuit established, but not its A-to-B circuit. PVC 1 and 2 will stay in this state indefinitely because there is insufficient bandwidth between A and B to support the additional unidirectional circuits required to fully establish PVC 1 and PVC 2.

This does not occur in a network with sufficient capacity to support the PVCs configured for it. However, it could become a problem if trunks fail, so that existing PVCs need to be re-routed, and there is insufficient trunk bandwidth in the trunk-reduced network to support all of the PVCs.

Workaround

To recover from this state to the point that the trunk-reduced network supports the PVCs capacity permits (as opposed to far fewer, due bandwidth wasted by half-open circuits), do the following: make a priority list of PVCs, and temporarily disable low-priority PVCs. After the high-priority PVCs have been re-established, re-enable the low priority PVCs. When the failed trunks are restored and lost network capacity is recovered, the LS2020s will reestablish the remaining low-priority PVCs.

LSCIe01936 Number of Circuits Supported on the LS2020

The number of circuits that can be created on an LS2020 is limited by the amount of memory on the NP.

Workaround

Users should take extreme care when over-riding the default limit of the number of VCs allowed on each card. The total number of VCs should not exceed a chassis-wide total of 4000.

LSCIe02399 - Cell Packing Factor and LAN Traffic Profile Bandwidth Settings

The bandwidth parameters of a traffic profile are for managing network bandwidth. When a LAN frame arrives at an LS2020 port, the software appends an 8-byte AAL5 trailer and segments the result into 48-byte cells for transmission into the ATM network. The last cell is usually partly empty (unless the result of adding the AAL5 trailer to the frame is a multiple of 48 bytes long). For example, a 64-byte Ethernet frame is segmented into two cells, with only 16 data bytes (and the 8-byte trailer) in the second cell.

Traffic Profile rate enforcement applies no factor to account for cell packing when determining the number of cells worth of bandwidth to allow on the network. Therefore, the rate is divided by 384 bits per cell and that number of cells are allowed on the network. All other LAN flows are allowed a 20% overage to cover the inefficiencies of packing frames into cells.

The following example shows how to take into account segmentation overhead—the empty portion of the last cell—when you determine the circuit bandwidth required to support the desired throughput:

Suppose an application generates 64-byte Ethernet frames, and you want to allocate enough network resource to support 10,000 packets per second. (A 10Mb Ethernet connection can support 14,880 64-byte packets per second.) The network bandwidth required to support 10,000 packets per second is calculated as follows:

> (desired packets per second) * (cells per packet) * (bytes per cell) * (bits per byte)
> = 10000 * 2 * 48 * 8
> = 7.68 Mbs

Compare this with the bandwidth required to support 10,000 packets per second if there were no segmentation overhead:

> (desired packets per second) * (packet size in bytes) * (bits per byte)
> = 10000 * 64* 8
> = 5.12 Mbs

The difference is due to what is termed a *cell packing factor*, in this case a factor of 1.5.

- With no traffic profile specified, the software uses a cell packing factor of 1.2.

- With a specified traffic profile, the software uses a cell packing factor of 1.0.

This means that you must take segmentation overhead into account when specifying the bandwidth parameters of a traffic profile.

Before establishing a circuit, the connection management software checks the available bandwidth of each segment of the circuit, including the entry port and the exit port. In order to take segmentation overhead into account, the software calculates the capacity of a LAN port as follows:

(LAN capacity) * 1.2

Due to rounding in the conversions between cells per second and bits per second, the maximum bandwidth request that can succeed is 11,999,999 bps for Ethernet (rather than 12 Mbs), and 119,999,999 bps for FDDI (rather than 120Mbs).

LSCIe02757 No More than 512 Traffic Filters Supported

If you attempt to configure more than 512 traffic filters on a given switch, the 513th filter is not configured, the switch's SNMP agent (MMA) ceases to respond to SNMP requests, and subsequent attempts to boot the switch may fail.

Workaround

Do not configure more than 512 traffic filters per switch.

LSCIe02864 LCC Process May Exit if there is Insufficient Memory

An LCC process requires enough memory for the circuits configured for its line card. If there is insufficient memory for an LCC process, it exits during its startup sequence.

When this occurs the following sequence of traps may appear in the MMA trap log (in /usr/tmp/mma/mma.traplog) repeatedly:

```
(INFO) NPTMM_2020 at 08/03/95 20:02:43 EDT (08/04/95 00:02:43 GMT)
      Slot 5 State Changed From DOWN To UP
(OPER) NDD_7 at 08/03/95 20:02:45 EDT (08/04/95 00:02:45 GMT)
      Line Card Control Process for lstb5:5 exited unexpectedly (status -1).
(OPER) NDD_5 at 08/03/95 20:02:46 EDT (08/04/95 00:02:46 GMT)
      Line Card lstb5:5 (8T3E3-EDGE) down (ERMP failure 0x4).
(INFO) NPTMM_2020 at 08/03/95 20:02:47 EDT (08/04/95 00:02:47 GMT)
      Slot 5 State Changed From UP To DOWN
```
Concurrently, the following sequence of lines appears repeatedly in /usr/tmp/apps.log:

```
PROGRAM: lcc: (ls_main) compiled Jul 19 1995 @ 02:53:47 [pid:71]
      LCC [PID 71  EIA lstb5:5]|
TRAP (FATAL) 4005: PID.71:
      LCC slot 5 error 60 initializing LCC-ATM interface
ERROR [ndd.55]: Line Card Control Process for lstb5:5
      exited unexpectedly (status -1).
```

Workaround

Make sure that there are not too many circuits configured for the chassis, and that the sum of the cardMaxVCs parameters for the cards is not too large. The chassis maximum is 4000 circuits. Reduce the number of concurrent instances of the CLI running on the chassis. The first CLI consumes about 1.5 MB and each additional CLI consumes an additional 0.77 MB.

LSCIe02860 Limitation of Size of Multicast Groups

For R2.1, the size of a multicast group is limited as follows.

The number of ports plus the number of trunk links required to build a tree for a point to multipoint circuit for a multicast group must be less than 100. That is:

#ports + # trunk links < 100.

When this limit is exceeded, messages appear of the following form:

```
GIDD.58: ERROR (gid_pmap.c line 1979): Link_Add: Link
    table(100) too small for path(100).
    Failure of ir_generate_path for <chassis_id:slot>:
    IR error 10: Insufficient memory
(INFO) ATMM_2090 PID=71 (<chassis_id:slot>)
```

Workaround

If you build a circuit with a large number of endpoints, make sure that the sum of endpoints plus trunks in the multicast group topology is fewer than 100.

LS2020 Installation, Upgrade, and Initial Configuration Caveats

LSCIe00645 The ckswinstall Utility Can Give False Errors

When the ckswinstall utility is applied to update distributions, it may give false error messages.

- The **ckswinstall** utility reports false permission mismatches on directories under /usr/app.

- When using **ckswinstall** to verify an update distribution (for instance 2.0.8), **ckswinstall** only verifies the software in the update. On a system running an update, most of the software in use is from the original release, so **ckswinstall** should also be run on that original release (for example, 2.0.7). When running **ckswinstall** on the underlying release, false errors are reported against software that was upgraded as part of the update.

Workaround

Ignore these messages.

LSCIe00710 Procedure for Checking Software on the Standby NP

When verifying a software installation using the **ckswinstall** utility on a redundant-NP system, the software installation on each of the two NPs must be checked explicitly.

Step 1 Run **ckswinstall** on the current primary NP.

Step 2 Run **ckswinstall** on the current backup NP.

```
LSnode:2#  rsh other-np ckswinstall ...
```

LSCle01015 Fallback from swchgver Does Not Copy Configuration Files Back

LS2020 configuration information is stored on disk as part of a specific release. When a new release is installed, configuration information from an old release is copied forward to the new release as part of the installation process. Configuration information, however, is not automatically copied between releases when **swchgver** is used to change the current release.

For instance, if a node is upgraded to run new software, configuration changes are made, and then the node is downgraded to a previous release, the node is running with the configuration information that was cached at the time of the upgrade, which does not include the subsequent changes.

Workaround

After falling back to an old version, download the current configuration to the node from the NMS.

Alternatively, before falling back to an old version, copy the files in /usr/app/base-*newrel*/config to /usr/app/base-*oldrel*/config before the fallback (replace *newrel* and *oldrel* with the appropriate release numbers, such as 2.1.0 and 2.0.8).

LSCle02646 swinstall Needs Free Memory

The **swinstall** program can fail due to lack of free memory if extra processes are running.

Workaround

Make sure processes which are not needed during the installation, such as CLI, are not running.

LSCle02863 The setsnmpconfig Script May Fail if Configuration Database is Locked

When a switch is booted, if it detects that the minimum required configuration information is missing, it runs the **setsnmpconfig** script and prompts you for configuration information. If you supply the minimum node configuration information, and later discover that this information is not in the configuration database, it may be because the configuration database lock was set when **setsnmpconfig** was started.

Workaround

While logged in as root, use the following commands to delete the configuration database lock and run **setsnmpconfig** manually:

```
LSNode:1# rm /usr/app/base/config/configure.netdb.lock
LSNode:1# setsnmpconfig
```

LSCle02874 Running the trunkconfig.cli CLI Script

The node runs the **setsnmpconfig** script at boot time to collect configuration information if the node detects that the minimum required configuration information is missing. If you configure trunks it creates a CLI script named **trunkconfig.cli** and instructs you to have the CLI run it to complete configuration of the trunks. However, before you run the **trunkconfig.cli** script, you must wait for all the trunk cards which you have configured to come up.

Workaround

Use the CLI **show card** command to determine when each trunk card is up.

LSCIe02869   Cannot Execute swinstall After it Fails Once Due to Disk Read Error

The **swinstall** utility fails if the /mnt mount is in use. This may come about because of a disk read error in a previous invocation of **swinstall**. For example, due to a media error.

Workaround

Unmount the floppy drive with the command **umount /mnt**, and then run swinstall again.

LSCIe02871 "Executable file in use" Failure of the swchgver Utility on Dual NP Systems

On dual-NP systems the **swchgver** utility may fail with the following error message:

```
bash# swchgver
swchgver: checking backup NP /dev/sd0b disk space for
       <Release name> (/usr/app)
/bin/rsh: Executable file in use
swchgver: Error: attempt to contact other-np failed.
bash#
```
This failure (reporting that the executable file is in use) is due to interference between **swchgver** and the mechanism that keeps critical files on the two NPs in synch. It is of low probability.

Workaround

Wait a moment and then invoke **swchgver** a second time.

Other LS2020 Software Caveats

Loss of Carriage Return or Echo

A terminal may lose carriage return or echo functionality.

Workaround

Execute the bash **tset** command to restore the lost property. Do this by entering the **tset** command at the bash prompt and pressing Return. Note that when you enter the command, the text does not appear on the screen.

Changing Primary Switch Causes Chassis to Reboot

On systems with at least one release 1 switch card (SC1), changing which switch is primary with the CLI command **set chassis primaryswitch** causes the chassis to reboot.

Workaround

If you change which switch is primary, wait for the chassis to reboot.

Out of Range Bit Rates Permitted on Low-Speed Card

With the **set port** $c.p$ **dte-bitrate** command, values as high as 6,000,000 bps are available, but values over 3,840,000 bps are not supported on low-speed cards.

Workaround

Do not set rates higher than 3.84 Mbits/sec per port on low-speed cards. With the **set port** *c.p* **dce-bitrate** command, the values 4000 and 5376 (Kbits) are available but not supported. Rates higher than 3.84 Mbits/sec per port may work for large packets.

Internal Looping of a Frame Relay User-Network Interface (UNI) Port

Looping of a Frame Relay UNI interface provides no useful diagnostic information because the UNI protocol is asymmetric.

Workaround

LS2020 supports internal looping of such a port by first converting it to an NNI interface. A successful loop sets the administrative state of the port to testing and the operational state to up.

Looping of FDDI and Ethernet Ports Not Supported

In release 2.1.0, FDDI and Ethernet ports cannot be looped.

Workaround

Do not attempt to loop FDDI and Ethernet ports.

No Error Checking with setsnmp

The CLI **setsnmp** command allows you to directly modify variables in the MIB. However, this command does not validate its arguments and does not prevent you from setting a MIB variable to an inappropriate value.

Workaround

The preferred approach is to use high-level CLI **set** commands to change MIB variables and avoid **setsnmp** unless specifically instructed otherwise. These commands give the CLI enough context to validate the new value for the variable before changing the MIB.

LIGle00038 Defective Floppy May Cause tar Process to Hang

When attempting a **tar** operation to the floppy drive (for example **tar xvf /dev/sd1**) when the floppy disk has media errors, the software process using the device may hang, preventing future access to the floppy or to the terminal where the **tar** command was being run.

Workaround

If the process hangs, reboot the network processor.

LSCle00404 FDDI PATH Configuration Table is Not Supported

The RFC 1512 fddimibPATHConfigTable MIB object is not implemented.

LSCIe00711 Periodic rdist to the Secondary NP Does not Check for Available Disk Space

On a redundant NP system, an automatic mechanism updates software and configuration information from the current primary NP to the current secondary NP. If the current secondary NP runs out of disk space, the secondary NP is not kept consistent with the primary NP. Furthermore, no error is reported.

Workaround

Establish a regular maintenance procedure of checking disk space availability on both NPs.

LSCIe00720 FDDI PathTestFeature is Not Supported

The command **set port** *c.p* **fddi smt station path test** has no effect.

LSCIe00961 Cannot Connect to Backup NP in Diagnostic Mode

You cannot load NP diagnostics and then connect to the backup NP.

Workaround

Use the CLI **test** command to run network processor (NP) diagnostics. The **test** command may be used on any card except the active NP. (The command **test -m** is not supported on the backup NP.)

LSCIe01044 STP - External Bridge Loops and LS2020 VLI Functionality

The presence of external bridge loops may result in loss of LS2020 VLI functionality.

Workaround

When configuring LS2020 switches with external topology loops, configure the bridge priority for the switches such that one of them will become the spanning tree root.

LSCIe01096 An ATM UNI or Frame Forwarding Port Reports Operationally Up When Disconnected

Currently the frame forwarding and ATM-UNI interfaces use no protocol to provide a link-level reliability indication such as the LMI for FR or Trunk-Up-Down (TUD) for LS2020 trunks. The Operational Status on these ports reflects the Administrative Status of the port. The operational status does not indicate physical layer or data link layer status.

Workaround

None.

LSCIe01318 OC-3 Card Continuously Bounced When Connected to SONET MUX

When an OC-3c port was connected to a SONET multiplexor with internal clocking the connection continuously bounced.

Workaround

When connecting an OC-3c port configured for internal clocking to a SONET multiplexor, a clocking type of external for the LS2020 port should normally be used (rather than the default of internal). Use of internal clocking may prevent the port from operating correctly.

LSCIe01560 Console Messages Regarding NP Ethernet Port

When the node NP OS kernel detects errors on the NP's Ethernet port, it may output one of the following messages:

```
oblan: ethernet transmit error (status=0xnumber): string
oblan: receive error (0xnumber): string
```

In the transmit error message, if *string* is "lost carrier", the Ethernet cable may be disconnected from the NP's Ethernet port; if it is "late collision", there is a network problem, such as noise, poor connectors, or a broken station. In the receive error message, the *string* "missed packet" may occur under extreme load. The *number* in these messages represents hardware information which may be useful to Cisco Support.

These errors appear on the console only if they occur before starting the ATM switching software on the NP (for example, while the system is being installed or during system startup). After the ATM switching software has started, these errors go only to the traplog, where they appear as KERN_2001 traps.

Workaround

Verify connectivity to the NP's Ethernet port.

LSCIe01874 Long Term PVC Statistics Lost when PVC Re-established

Whenever it is necessary to re-establish a PVC (either because of re-routing due to network service disruptions, such as a trunk failing, or because of changes to PVC parameters by an operator) the statistics for that PVC are cleared and all previous statistics for that PVC are lost.

Workaround

If maintaining long-term counts is important, poll these variables and save them externally to reduce the effect that the loss of counter values has on your data.

LSCIe02174 - Loopback - ATM-UNI Status Wrongly Reported Up

When set to remote loopback, the correct operational status for an ATM UNI port should be DOWN, but the reported status is UP. This is because the operational status of the ATM UNI interface does not take into account the physical layer indications.

LSCIe02211 DSX1 Statistics Tables Not Implemented

The current, interval, and total tables of the DSX1 MIB (RFC 1406) are not supported for CEMAC cards in Release 2.1.

LSCIe02228 - Old cardMaxVCs Value is Retained After Card Swap

The cardMaxVCs parameter applies to the card slot. As a result, when a card of one type replaces a card of another type, the value of cardMaxVCs set for the first card may be inappropriate for its replacement.

Workaround

When you replace a card with a card of another type, verify that the value set in cardMaxVCs is appropriate for the new card type, and change it if necessary. From the CFG tool, delete the original card type and add the new type. Use the Sendupdate Changes only operation to send the new configuration to the chassis.

LSCIe02656 IP Filtering Not Supported for 802.3 (SNAP) Encapsulated IP Frames

Custom filters do not work for 802.3 encapsulated IP frames.

Workaround

Do not attempt to filter 802.3 (SNAP) encapsulated IP frames.

LSCIe02709 dot1dStpPortEnable Not Set When LAN Port is Down

When a LAN port is operationally down (unplugged), attempts to set the dot1dStpPortEnable object for the port appear to succeed but in fact have no affect.

Workaround

Do not attempt to set the dot1dStpPortEnable object when a LAN port is operationally down.

Software Upgrade Procedures

This section provides information about upgrading the LS2020 enterprise ATM switch to release 2.1.01 of LS2020 software.

> **Note** The following procedures are for upgrades, not for new installations. If you are installing a network processor (NP) with an uninitialized disk, use the installation procedures given in the *LightStream 2020 Installation Guide*. Use the upgrade procedures described here only if you are upgrading software on an LS2020 node that has already been installed and is running.
>
> The following procedure for software installation of Release 2.1.01 causes flash memory to be reloaded. The flash reload time depends on your system configuration. Also, you must explicitly reload flash memory in the Switch Card according to the installation procedure.

Requirements for Upgrade

For release 2.1.01 to be installed, the network processor must have 32 Mb of memory.

For release 2.1.01 to be installed successfully, you must currently be running base Release 2.1 node software.

You must have a modem in each node in which the software upgrade is to be made remotely. Please refer to the section entitled "Modem Recommendations" in the *LightStream 2020 Site Planning and Cabling Guide*.

Caution   The LS2020 NP is a special-purpose communications processor. It should not be used as a general-purpose UNIX host. If any files have been copied or placed on the disk (especially in the root partition), they should be removed before upgrading to release 2.1.01. If the names of any Cisco-provided files have been changed, the original file names should be restored.

Distribution Media

Below is a list of the LS2020 release 2.1.01 node software distribution diskettes.

LS2020 Release 2.1.01 Distribution Diskettes	Version Listed on Diskette Label
Boot Disk	2.1.01
System Disk 1	2.1.01
System Disk 2	2.1.01
System Disk 3	2.1.01
Application Disk 1	2.1.01
Application Disk 2	2.1.01
Application Disk 3	2.1.01
Application Disk 4	2.1.01
Application Disk 5	2.1.01
Application Disk 6	2.1.01
Application Disk 7	2.1.01
Diagnostic Disk 1	2.1.01
Diagnostic Disk 2	2.1.01
Firmware Disk 1	2.1.01
Firmware Disk 2	2.1.01

Outline of Upgrade Procedures

The following procedures are used to upgrade a network to Release 2.1.01 software:

- Procedure 1, Copy New Software to the Distribution Node

  Use the **swinstall** command to copy the new software from the installation diskettes to the node being used as the software distribution node. (If **swinstall** reports insufficient disk space, you will be directed to perform Special Procedure A, Freeing Up Disk Space.)

- Procedure 2, Copy New Software to Remote Nodes

  Use the **swremoteinstall** command to copy the new software from the distribution node to other nodes in the LS2020 network. (If **swremoteinstall** reports not enough disk space, you will be directed to perform Special Procedure A, Freeing Up Disk Space.)

- Procedure 3, Change the Running Software Version

  Use the **swchgver** command to change the version of software running on each node after copying the new software to the node.

Outline of Special Procedures

These procedures are not normally needed. It is possible that one of the upgrade steps might send you to perform one or more of these procedures.

- Special Procedure A, Freeing Up Disk Space

  If the **swinstall** command or the **swremoteinstall** command reports that you do not have enough disk space, delete files for obsolete releases of software.

- Special Procedure B, Falling Back to the Prior Version

  You have the option of falling back to the prior version of software if you wish to for any reason.

- Special Procedure C, Verifying Connection to Backup NP

  If the **swchgver** command fails to contact the backup NP on a redundant system, this section describes some of the common causes and how to fix them.

- Special Procedure D, Getting rsh to Work Successfully on a Remote Node

  If the **swremoteinstall** command (which uses the **rsh** command) reports that it does not have permission to copy the files to the remote node, this section describes some of the common causes and how to correct them.

- Special Procedure E, Backing Up the Distribution Diskettes

  Some users may wish to back up the distribution diskettes.

Procedure 1, Copy New Software to the Distribution Node

With this procedure you will copy the new software to a local LS2020 node from the distribution disk set. This local node will be referred to as the distribution node. In Procedure 2, Copy New Software to Remote Nodes, you will use the distribution node as the source from which you will copy the software to other nodes in the network.

Note If for any reason you discontinue installation of this release after you have started loading software, you should delete this release using Special Procedure A, Freeing Up Disk Space. This will minimize the impact of the interrupted installation on future installations. When you resume installation of this release, you must restart at the beginning of this procedure.

Overview

You will perform the following steps to upgrade the distribution node (or any local node) to release 2.1.01 node software:

1 Connect to the Primary NP.

2 Copy Release 2.1.01 Software From Floppies to Hard Disk.

To perform this procedure, use a terminal connected to the console port of the distribution node. The system should be running with no one else logged on the system.

Connect to the Primary NP

Step 1 Enter **'.** (backquote plus dot, that is, left single quote plus period).

Step 2 At the TCS HUB prompt, use the **connect** command to connect to the NP in slot 1, as follows:

TCS HUB <<A>> **connect 1**

You may need to press **[Return]** a second time in order to get a prompt from the NP.

A prompt should appear asking for a user login name, as follows:

```
user name:
```

Note This is the typical state of the machine, but if someone using the machine before you has not logged out, then your prompt may be different. If this occurs, log out and log back in as root.

Step 3 Log in as root. The bash prompt appears (with # indicating a root login).

```
user name: root
password:
bash#
```

If your system has only one NP, go to Step 6 now.

Step 4 On a system with redundant NPs, verify that you are connected to the primary NP (the active NP), as follows:

- At the bash prompt, enter the **cli** command to start the CLI.

  ```
  bash# cli
  ```

- At the CLI prompt, enter the **show chassis** command.

- Determine whether the entries for Slot of Primary NP and Slot of This NP identify the same NP number or not.

- Use the **exit** or **quit** command to exit from the CLI.

If the two entries identify the same NP number, then you are connected to the primary NP (the active NP). Since you connected to slot 1 in Step 1, above, the following is true:

```
primary= 1
backup= 2
```

Make a note of this. You will use the value 1 where you see the parameter name "primary" in later procedures. Skip now to Step 6.

If the two entries do not identify the same NP number, then you are connected to the backup NP. Since you connected to slot 1 in Step 1 above, the following is true:

```
primary = 2
backup = 1
```

Make a note of this. You will use the value 2 where you see the parameter name "primary" in Step 5, below, and in other procedures.

Step 5 If you are connected to the backup NP, disconnect from it and connect to the primary NP (the active NP) as follows:

- Enter '**.** (backquote plus dot, that is, left single quote plus period) to return to the TCS HUB.

- Connect to the slot of the primary NP by typing the following command:

  ```
  TCS HUB<<A>> connect primary
  ```

- If necessary, log in to the NP as root.

Copy Release 2.1.01 Software From Floppies to Hard Disk

Step 6 Determine which floppy disk drive is appropriate to use for the upgrade. NP slot 1 is connected with the bottom disk drive, and NP slot 2 is connected with the top disk drive.

The boot disk is not used in this upgrade procedure. You will run the **swinstall** utility once for each diskette set, in the following order:

If you are currently running version:	Install the diskette sets in this order
2.0.5 through 2.1.0a1	system, application, diagnostics, firmware

Step 7 Enter the **swinstall** command at the bash prompt:

```
bash# swinstall
```

If the swinstall program reports that there is insufficient disk space for the installation, carry out Special Procedure A, Freeing Up Disk Space, before continuing.

When the program prompts you for a diskette, insert the first diskette (of the diskette set that you are currently installing) into the appropriate drive and press **[Return]**. Repeat as the program prompts you for more diskettes in the current set.

Step 8 Repeat Step 7 for each diskette set, following the order given under Step 6.

Procedure 2, Copy New Software to Remote Nodes

With this procedure you distribute new software from the distribution node to other LS2020 nodes. Carry out this procedure for each remote node in turn. Then carry out Procedure 3, Change the Running Software Version, for each remote node in turn. After all other nodes have the new software and are running it, carry out Procedure 3, Change the Running Software Version, on the distribution node.

Note It is also possible to upgrade software directly from the distribution diskettes on each node in your LS2020 network. To do this, carry out Procedure 1, Copy New Software to the Distribution Node, and Procedure 3, Change the Running Software Version, on each node in the network.

Requirements to Perform the Procedure

The following connectivity requirements apply:

Distribution Node	Remote Node
• You should be logged in to the distribution node. • No other user should be logged in. • The distribution node must be running LS2020 application software.	• You need not be physically located at the remote node site. However, you must be able to establish an rsh connection and a modem connection to each remote site. • The remote node must be running LS2020 application software.

Overview

Carry out this procedure for each node in your LS2020 network in turn. It has the following parts:

1 Verify Remote Command Execution

2 Distribute Release 2.1.01 to the Remote Node

Verify Remote Command Execution

Verify that it is possible to execute commands on the remote node from the distribution node.

Step 1 On *distribution-node*, execute the following command:

```
bash# rsh remote-node hostname
```

Enter the name of the remote node in place of *remote-node*.

If the command succeeds, it prints the name of remote-node. Continue to Step 2.

If the command fails, it prints one of the following messages:

```
hostname: unknown host
hostname: Connection timed out
Permission denied.
```

Refer to the Special Procedures, Special Procedure D, Getting rsh to Work Successfully on a Remote Node.

Note If this is the first time you have upgraded, then this step is likely to fail.

Distribute Release 2.1.01 to the Remote Node

Step 2   Copy release 2.1.01 files to *remote-node*. In a window running a login on *distribution-node*, execute the following command:

```
bash# swremoteinstall -h remote-node 2.1.01
```

Enter the name of the remote node in place of *remote-node*.

The **swremoteinstall** process checks disk space and copies release 2.1.01 to *remote-node*. It should take 5 to 10 minutes, depending upon bandwidth between the nodes.

If the **swremoteinstall** *program reports that there is not enough disk space for the installation, connect to the remote node through a modem port or telnet connection and follow Special Procedure A, Freeing Up Disk Space on the remote node. Then repeat Step 2.*

Procedure 3, Change the Running Software Version

With this procedure you activate the software that has been copied to the node, and the node begins running the new LS2020 application software.

Overview

Carry out this procedure for each node in your LS2020 network in turn. It has the following parts:

1   Connect to the Primary NP

2   Change the Running Software Version

Connect to the Primary NP

Step 1   Connect to the TCS hub on the node. Use a console terminal if you are on site. Use a dial-in modem to connect to a remote node.

Caution   Do not use a network connection such as telnet to connect to the node for purposes of changing the running software version. During the procedure, a card may be reset, breaking your telnet connection and interrupting the change process.

Step 2   Enter **'.** (backquote plus dot, that is, left single quote plus period).

Step 3   At the TCS HUB prompt, use the **connect** command to connect to the NP in slot 1, as follows:

```
TCS HUB <<A>> connect 1
```

The user name: prompt should appear. Log in as root. The bash prompt appears (with # indicating a root login).

```
user name: root
password:
bash#
```

Note that you may need to enter a second **[Return]** after typing the **connect** command in order to get a prompt from the NP.

This is the typical state of the machine, but if someone using the machine before you has not logged out of their session, then your prompt may be different. Attempt to get back to a bash prompt and log out.

If your system has only one NP, skip Step 4 and Step 5 and go to Step 6 now.

Step 4 On a system with redundant NPs, verify that you are connected to the primary NP, as follows:

- At the bash prompt, enter the **cli** command to start the CLI.

  ```
  bash# cli
  ```

- At the CLI prompt, enter the **show chassis** command and examine the entries for "Slot of Primary NP" and "Slot of This NP".

If the two entries identify the same NP number, then you are connected to the primary NP (the active NP). Since you connected to slot 1 in Step 3 above, the following is true:

```
primary= 1
backup= 2
```

Make a note of this. You will use the value 1 where you see the parameter name "primary" in later procedures.

If the two entries do not identify the same NP number, then you are connected to the backup NP. Since you connected to slot 1 in Step 3 above, the following is true:

```
primary = 2
backup = 1
```

Make a note of this. You will use the value 2 where you see the parameter name "primary" in Step 5, below, and in other procedures.

- Use the **exit** or **quit** command to exit from the CLI.

Step 5 If the two entries identify the same NP number, then you are connected to the primary If you are connected to the backup NP, disconnect from it and connect to the primary NP as follows:

- Enter '**.** (backquote plus dot, that is, left single quote plus period) to return to the TCS HUB.

- Connect to the slot of the primary NP (the active NP) by typing the following command:

  ```
  TCS HUB<<A>> connect primary
  ```

  Substitute 1 or 2 in place of *primary*, using the value that you determined at the end of Step 4, above.

- If necessary, log in to the NP as root.

Change the Running Software Version

Note The **swchgver** program ordinarily takes about a minute to run. However, it can take as much as two and a half hours if it loads program images into flash memory on all the cards (about 15 minutes per card for 10 cards). A card's fault light comes on and stays on for the duration of loading of flash on that card.

Step 6   Use the **swchgver** program to run the software that you have just installed, as follows:

```
bash# swchgver
```

The **swchgver** program produces the following results:

- Flash memory is reloaded (if appropriate).

- The newly installed software is made the active version (on both NPs in a redundant system).

- The network processor (NP) is rebooted, so that the above changes take effect (both NPs in a redundant system).

- The line cards reload their software images.

Caution   Do not interrupt the loading of flash memory, particularly on an NP. A card with partially loaded flash will not be able to complete its boot sequence until flash is reloaded. If you create this situation, call Cisco Customer Support at 1-800-553-NETS (6387) or 1-800-553-2447.

Step 7   On a redundant NP system, the **swchgver** program automatically copies the new software from the primary NP (the currently active NP) to the backup NP. This copy may fail—for example, if the other NP is not currently running application software. If the copy fails, the **swchgver** program may print out one of these diagnostic message and return to the bash prompt.

One error message is as follows:

```
WARNING: This is a dual NP system where the current NP is
unable to contact the backup NP".
Thus, swchgver run on this NP will not interact with the
backup NP in the expected way to ensure that each NP is
running a consistent software release.
To run swchgver anyway, you must explicitly specify all desired
swchgver options. Typical choices might be
   swchgver <#ver> -force -nordist
or
   swchgver <#ver> -force -nordist -nolinecardreset -noflashupdate

Failed to execute "rsh other-np /bin/true".
This is possibly due to an invalid /.rhosts file on the backup
NP.  Please check the /.rhosts file on the backup NP and make
sure it contains the line "other-np root".
```

If this occurs, refer to Special Procedure C, Verifying Connection to Backup NP

Another error message that might be seen is:

```
  bash# swchgver
  swchgver: checking backup NP /dev/sd0b disk space for 2.1.0
        (/usr/app)
  /bin/rsh: Executable file in use
  swchgver: Error: attempt to contact other-np failed.
  bash#
```

This failure ("/bin/rsh: Executable file in use") is due interference between swchgver and the mechanism that keeps critical files on the two NPs in synch. It is relatively low probability. Should the failure occur, you can recover from it by waiting a moment and then invoking swchgver a second time.

If everything fails then someone physically at the node site must later install software on the other NP as though it were a new NP/disk addition. Refer to Appendix A, Software Recovery of the LightStream 2020 Network Operations Guide.

Example Ouput From a Successful Upgrade

The following is an example of output seen when this upgrade procedure is carried out with the console trap level set to info:

```
bash# swchgver
Checking and downloading FLASH memory for all function cards
Checking and downloading files for standby network processor.
Rebooting standby network processor.
....
Forcing reset of line cards

==> (OPER) NDD_5 at 10/20/94 18:11:24 EDT (10/20/94 22:11:24 GMT)
      Line Card lsnode8:3 (LS-EDGE) down (ERMP failure 0x401).

==> (GENERIC) at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
Link Down Trap at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
      Port 3002

==> (GENERIC) at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
Link Down Trap at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
       Port 3003

==> (GENERIC) at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
Link Down Trap at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
       Port 3004
==> (GENERIC) at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
Link Down Trap at 10/20/94 18:11:28 EDT (10/20/94 22:11:28 GMT)
      Port 3005

Rebooting the network processor

NP040 POST Version 0.225 Feb 21, 1995
4Meg Bit value = 1
Configuring Main Memory for 32 Megabytes
Clearing memory (32 Megabytes)...

booting: drive:0, partition:0, kernel:"lynx.os", flags:0x4308
Resetting SCSI bus
Kernel linked for 0xea010000
LOAD AT 0x10000
        483328+49152+262504[+62736+51815]
TOTAL SIZE: 909536 at 0x1001c
START AT 0x10020
NP memory size: 32 MB
ILACC: EEPROM enet addr:8:0:8:0:14:6f, Silicon Rev:0x5, IB:0xea1dfce0
Old-style NP detected
virtual console: IB: 0xea1dfe68
NCR 53C710: Chip Revision: 0x2, IB: 0xec18e000

LynxOS/68040-MVME167 Version 2.1.0
Copyright 1992 Lynx Real-Time Systems Inc.
All rights reserved.
```

```
LynxOS release 2.1.0, level 1: NP-LynxOS #107: compiled Apr 17 1995 14:50:57

LynxOS Startup: ma
fsck /dev/sd0a
(all sizes and block numbers in decimal)
(file system creation time is Mon Apr 11 08:57:19 1994)
checking used files
recovering orphaned files
making free block list
making free inode list
40518 free blocks 3314 free inodes
fsck /dev/sd0b
(all sizes and block numbers in decimal)
(file system creation time is Mon Apr 11 08:57:52 1994)
checking used files
recovering orphaned files
making free block list
making free inode list
17838 free blocks 3426 free inodes

fsck /dev/sd0c
(all sizes and block numbers in decimal)
(file system creation time is Mon Apr 11 08:58:25 1994)
checking used files
recovering orphaned files
making free block list
making free inode list
8645 free blocks 3534 free inodes

fsck /dev/sd0d
(all sizes and block numbers in decimal)
(file system creation time is Mon Apr 11 08:58:58 1994)
checking used files
recovering orphaned files
making free block list
making free inode list
26597 free blocks 3601 free inodes

Mounting all filesystems
Starting VM system ... Virtual Memory Engaged!
inetd started
Starting crond ...
Initializing the switch hardware interface ...
Using switch A, cards are NOT synchronized, fast cutover is supported
PCP version: 0x410, CMP version: 0x12, FSU version 0x109
Starting the switch software
LightStream 2020 Version 2.1.01
Copyright 1993 LightStream Corp.  All rights reserved.
Portions copyright 1992 by Lynx Real-Time Systems Inc., 1983 by the Regents
of the University of California, 1988 and 1990 by Paul Vixie, and 1991 by
SNMP Research Inc.

This software contains unpublished proprietary and trade secret information
of LightStream Corp.

LightStream 2020 Software provided to the U.S. Government is subject to the
notices on the software and on the LightStream user documentation copyright
page.
PROGRAM: cbuf: (ls2_0) compiled Apr 26 1995 @ 21:49:18 [pid:48]

user name:
```

Special Procedures

Special Procedure A, Freeing Up Disk Space

Use this procedure if **swinstall** or **swremoteinstall** reports that there is insufficient disk space.

Identify Files to Delete

Step 1   Log in on the target node as root.

Step 2   Identify the software to remove. To do this, enter the command **swdelete** with no argument, as in the following example:

```
bash# swdelete
Usage: swdelete version -f
            version:      version of software to delete (e.g. 2.0.0)
               -f:            remove even if currently running version
                              WARNING: deleting currently running version also
                                       deletes current configuration data
Description:
  Deletes the indicated release, first checking to make sure
  that the release is not currently in use.
  (For an update release, both the update and the underlying
   major release are in use.)
    VERSIONS ON DISK
                          2.0.7
                          2.0.8
                          2.1.0
CURRENTLY RUNNING VERSIONS:
                          2.1.0
bash#
```

If you do attempt to delete the running version of software, the following message appears:

```
swdelete: Will not remove current running system (2.1.0) and
          configuration data.
```

Delete Obsolete Version Files

Step 3   Use the **swdelete** command to delete obsolete version files, as follows:

```
bash# swdelete 2.0.7
Deleting version 2.0.7
bash#
```

Caution   Do not delete the currently running software versions (2.1.0 in the example shown in Step 2, above).

Return to the section that referred you to this procedure.

Special Procedure B, Falling Back to the Prior Version

Use this procedure if you wish to revert to the prior version of software. The steps are as follows:

Step 1 Log into the LS2020 node as root if you have not already done so.

Step 2 Use Procedure 3, Change the Running Software Version, to revert to the prior version, giving the earlier version number as the argument of the **swchgver** command. For example, if the prior version is 2.0.8, enter the command as follows:

```
LSnode:1# swchgver 2.0.8
```

Note LS2020 configuration information, when downloaded from the NMS, is stored with the current release. When you upgrade to a new release, that configuration information is copied forward to initialize the new release's configuration. When falling back to a previous release, the configuration will match the last time that software release was operational, which may not reflect the current configuration.

The fallback procedure does not reload old flash versions in cards.

Return to the section that referred you here.

Special Procedure C, Verifying Connection to Backup NP

Use this procedure to verify that the primary NP can communicate with the other NP.

To perform this procedure, it is assumed you are using a terminal connected to the console port of a chassis with redundant NPs.

Note This procedure assumes that the other NP is not in the process of rebooting. During reboot, the other NP will not be accessible for a period of several minutes.

Step 1 If you are not already connected to the slot of the primary NP, connect to the primary NP. Do this by typing **'.** (backquote plus dot, that is, left single quote plus period) to connect to the TCS hub, and entering the following command (substituting the slot number of the primary NP for *primary*):

```
TCS HUB<<A>> connect primary
```

Step 2 If you are not already logged in to the primary NP as root, log in to the primary NP as root.

Step 3 If there is a redundant NP in this chassis, verify that the other NP is functioning as backup. Enter the following command:

```
bash# rsh other-np /bin/true
```

The following results are possible:

- No error message

```
bash# rsh other-np /bin/true
```

```
bash#
```

This result indicates success. The other NP is up and accessible. Return to the section that referred you to this Special Procedure.

- Connection timed out (the timeout takes about 75 seconds)

```
bash# rsh other-np /bin/true
other-np: connection timed out
bash#
```

This result indicates that the backup NP is not up. Go to Step 4.

- Permission denied

```
bash# rsh other-np /bin/true
Permission denied.
bash#
```

This result indicates that the backup NP is up, but not accessible due to a permissions mismatch. Go to Step 4.

Step 4   If the following error message was generated (after about 75 seconds),

```
other-np: connection timed out
```

reset the other NP as follows:

- Return to the TCS by typing '. (backquote plus dot, that is, left single quote plus period).
- Reset the backup NP by typing the following (substituting the slot number of the backup NP for *backup*):

  TCS HUB<<A>>**reset** *backup*
- Connect to the backup NP by typing the following (substituting the slot number of the backup NP for *backup*):

  TCS HUB<<A>>**connect** *backup*
- Monitor the reboot, looking for the following two trap messages:

```
==> (OPER) NDD_2 at mm/dd/yy/ hh:mm:ss <time-zone> (mm/dd/yy hh:mm:ss GMT)
     Network Processor <node_name:slot> becoming backup np

==> (GENERIC) at mm/dd/yy/ hh:mm:ss <time-zone> (mm/dd/yy hh:mm:ss GMT)
     Cold Start Trap at mm/dd/yy hh:mm:ss <time-zone> (mm/dd/yy hh:mm:ss GMT)
```

Note   You may have to wait about 5 minutes for these traps to appear.

- Reconnect to the primary NP. Repeat Step 3. If the same failure occurs, call Cisco Customer Support at 1-800-553-NETS (6387) or 1-800-553-2447.

Step 5   If the following error message was generated,

```
Permission denied.
```

the rsh permissions on the backup NP are incorrect.

- Log in to the backup NP as root using rsh.

```
bash# rsh other-np
login root vt100
password:
.
.
.
bash#
```

- Verify that the file "/.rhosts" contains the line "other-np root". If this line is missing, add it with the following command:

```
bash# cp /.rhosts /.rhosts.bak
bash# echo "other-np root" >>/.rhosts
```

Note Be sure you enter the redirect operator twice, with no space (>>), because if you enter it once (>) you will overwrite the existing file rather than appending to it. If you make a mistake, enter the command **cp /.rhosts.bak /.rhosts** to recover the original file.

- Log out of the backup NP. That will leave you connected to the primary NP again. Repeat Step 3. If the same failure occurs, call Cisco Customer Support at 1-800-553-NETS (6387) or 1-800-553-2447.

Special Procedure D, Getting rsh to Work Successfully on a Remote Node

Use this procedure if the **rsh** command reports an error message.

Step 1 On the distribution node, examine the file /etc/hosts to verify that there is an entry for *remote-node* in it. You can use the **grep** command for this, as follows:

```
bash# grep remote-node /usr/etc/hosts
```

Step 2 If there is no entry for *remote-node,* create a backup copy of the /usr/etc/hosts file and then create an entry for *remote-node* in /usr/etc/hosts as follows:

```
bash# cp /usr/etc/hosts /usr/etc/hosts.bak
bash# echo "Primary_IP_address remote-node" >> /usr/etc/hosts
```

Enter the name of the remote node in place of *remote-node*, and enter the IP address of the remote node in place of *Primary_IP_address*. You may also use the vi editor in place of the **echo** command, if you wish. See the *LightStream 2020 NP O/S Reference Manual* for information about the vi editor.

Note Be sure you enter the redirect operator twice, with no space (>>), because if you enter it once (>) you will overwrite the existing file rather than appending to it. If you make a mistake, enter the command **cp /usr/etc/hosts.bak /usr/etc/hosts** to recover the original file.

Step 3   Repeat Step 1.

If you see the error message "Connection Timed Out," the remote node or a link to it is down. Refer to the chapter entitled "Troubleshooting Procedures" in the LightStream 2020 Network Administration Guide. *When the problem is corrected, repeat Step 1.*

If you see the error message "Permission Denied" or any other message, continue to the end of this procedure.

Step 4   Make a telnet connection to *remotenode* and log in.

Step 5   Verify that the .rhosts file is a read-only file for group and world, as follows:

```
bash# ls -l /.rhosts
-rw-r--r--   1 root          71 Aug  1 14:54 /.rhosts
```

If any value other than -rw-r--r-- appears at the beginning of the **ls** output, enter the following command:

```
bash# chmod 644 /.rhosts
```

Step 6   Examine the file /.rhosts to see if it includes an entry for *distribution-node*. Use the following command (enter the name of the distribution node in place of *distribution-node*):

```
bash# grep distribution-node /.rhosts
```

Step 7   If the entry for *distribution-node* is not displayed, edit the file /.rhosts, adding to it a line consisting of the name of the distribution node followed by the word root (enter the name of the distribution node in place of *distribution-node*):

```
bash# cp /.rhosts /.rhosts.bak
bash# echo "distribution-node root" >> /.rhosts
```

You may also use the vi editor in place of the **echo** command, if you wish. See the *LightStream 2020 NP O/S Reference Manual* for information about the vi editor.

Note   Be sure you enter the redirect operator twice, with no space (>>), because if you enter it once (>) you will overwrite the existing file rather than appending to it. If you make a mistake, enter the command **cp /.rhosts.bak /.rhosts** to recover the original file.

Step 8   On the remote node, examine the file /usr/etc/hosts to verify that there is an entry for *distribution-node* in it. You can use the **grep** command for this, as follows (enter the name of the distribution node in place of *distribution-node*):

```
bash# grep distribution-node /usr/etc/hosts
```

Step 9   If there is no entry for *distribution-node*, create one as follows:

```
bash# cp /usr/etc/hosts /usr/etc/hosts.bak
bash# echo "Primary_IP_address distribution-node" >> /usr/etc/hosts
```

Enter the IP address of the distribution node in place of *Primary_IP_address*, and the name of the distribution node in place of *distribution-node*. You may also use the vi editor in place of the **echo** command, if you wish. See the *LightStream 2020 NP O/S Reference Manual* for information about the vi editor.

Note Be sure you enter the redirect operator twice, with no space (>>), because if you enter it once (>) you will overwrite the existing file rather than appending to it. If you make a mistake, enter the command **cp /usr/etc/hosts.bak /usr/etc/hosts** to recover the original file.

Step 10 Log out of the remote node and repeat Step 1.

If the test in fails again, contact Cisco Customer Support at 1-800-553-NETS (6387) or 1-800-553-2447.

Special Procedure E, Backing Up the Distribution Diskettes

If you are concerned about how carefully your diskettes may be handled and stored, you may wish to back up the software distribution diskettes before proceeding with the upgrade.

Requirements for the Procedure

In this procedure, we assume you have access to a PC running DOS 5.0 and supporting at least one 1.44 Mb floppy disk drive. We also assume that you have a supply of at least 15 blank, DOS-formatted 1.44 Mb diskettes.

Note With the **/v** option, the **diskcopy** command verifies that the copy is correct. If you wish to use the **diskcomp** command redundantly to verify that the copy is correct, refer to your DOS documentation for that command.

Do not use the **dir** command to verify the contents of the diskette. There is no FAT (the DOS file allocation table) on LS2020 distribution diskettes, so there can be none on your backup diskettes. Consequently, if you enter **dir a:** or **dir b:**, you see a read error message issued by DOS.

If Your PC Has Two 1.44 Mb Floppy Disk Drives

For each LS2020 software distribution diskette, do the following:

Step 1 Insert the distribution diskette in the floppy disk drive. In the examples shown here, we assume this is disk drive A.

Step 2 Insert the blank, formatted diskette in the second 1.44 Mb disk drive. In the examples shown here, we assume this is disk drive B.

Step 3 Enter the following command at the DOS prompt:

```
C:\> diskcopy a: b: /v
```

Step 4 The program copies the data from the distribution diskette in drive A to the backup diskette in drive B.

If Your PC Has Just One 1.44 Mb Floppy Disk Drive

For each LS2020 software distribution diskette, do the following:

Step 1 Insert the distribution diskette in the floppy disk drive. In the example shown here, we assume this is disk drive A.

Step 2   Enter the following command at the DOS prompt:

```
C:\> diskcopy a: a: /v
```

Step 3   The program reads a portion of the disk contents into memory. When it prompts you to do so, remove the distribution diskette and insert a blank, formatted diskette into the floppy disk drive.

Step 4   The program copies the data from memory onto the diskette. When it prompts you to do so, remove the backup diskette and insert the distribution diskette into the floppy disk drive.

Step 5   Alternate Step 3 and Step 4 in response to program prompts until the disk copy is complete.

Resolved Problems

This section summarizes problems found in the LS2020 ATM product that have been fixed in Release 2.1.01:

LSCle01801   Network Processor intermittently loses its name, IP addresses, and IP routing information.

LSCle02666   LS2020 FDDI drops some packets from rings with isolated JK symbols.

LSCle02973   Interrupting data flow on one CEMAC port causes all other ports on that card to stream 1s.

LSCle02987   4/8T3AC data loopback tests fail intermittently.

The following problems were fixed in Release 2.1:

LSCle01197   Intermittent failure of MS1 diagnostic tests 72 and 80 with SC2 in chassis.

LSCle01197   Intermittent failure of NP1 diagnostic test 91 with SC2 in chassis.

LSCle01259   Intermittent error code 2 failure of PLC1 diagnostic test 24.07.

LSCle01469   StreamView download fails because it sends cardMaxVCs value for an NP1.

LSCle01470   The CLI **show port** command for PLC1 ports fails with error "request rejected by MMA".

LSCle01472   The **swremoteinstall** utility fails because NP O/S lost+found special files consume too much disk space.

LSCle01474   CLI commands display the chassis ID number instead of the host name for a remote chassis.

LSCle01487   The CLI **show port** command should label "port unused capacity" instead of "port available capacity".

LSCle01524   Intermittent failure of PLC1 download with error message "initialization timed out".

LSCle01613   The CLI Collector uses an invalid start and end time.

LSCle01620   The *Installation & Troubleshooting Guide* does not describe how to prepare slot 2 for use as a line card.

LSCle01649   PLC1 cards reset (reboot) when a port receives packets with length field set to 0.

LSCle01651   StreamView "send only changed attributes" does not send LS1 port DTE Bit Rate.

LSCle01657   StreamView LS1 Port configuration window displays default values whenever reopened.

LSCle01670   StreamView **cfg** and **pvc** programs fail after 200 unique port-pair PVCs are created.

LSCle01691   Plugging a modem cable into the Secondary TCS HUB modem port causes SC2 clock status of SYNC_ERR.

LSCle01707   LS1 remote loopback causes receive errors if the physical interface is DTE.

LSCle01709   Page 6-10 of the R2.0 *Operations Guide* incorrectly specifies the format of the LS2020 Private MIB variable **ifInOctets** when used in a CLI **set collection** command.

LSCle01711   StreamView incorrectly allows Card Swap functions even though the destination PVCs have not been deleted.

LSCle01716   The NP process **vifm** has an infinite loop problem which causes an NP to reboot.

LSCle01720   The CLI **set tcs {sa|sb} reset** command fails with error message "fcload: slot out of range".

LSCle01729   The CLI hangs when using the **connect** command to a line card if an SC2 is in the chassis.

LSCle01730   Intermittent failure of LS1 Power-On Self Test (POST) during power up.

LSCle01760   The StreamView **cfg** program does not display the title menu for LS Trunk, E3 Edge, MS1 Edge, and OC3 Trunk cards Port Configuration.

LSCle01785   CLI status of LS1 ports in remote loop should be "remote".

LSCle01817   PLC1 fails when it receives an unknown protocol.

LSCle01822   StreamView LS1 Port configuration downloads ls1InfoAdminRcvBaudRate = 0.

LSCle01858   The CLI **set chassis traplog {on|off}** command does not open or close the file mma.traplog.

LSCle01874   Statistics erroneously indicate that "Best Effort Plus" cells are delivered with the CLP bit equal to 0.

LSCle01932   StreamView **cfg** program sometimes downloads all attributes when *Send Only Changed Attributes* is selected.

LSCle02008   sysDescr.0 displays LS2010 instead of LS2020.

LSCle02030   The CLI does not support the **test** command for PLC1 cards.

LSCle02032   The StreamView **cfg_a** error message "LC_SendSetSnmp returned bad objIdx 0" is not helpful.

LSCle02053	A chassis with redundant SC2 cards is capable of having both the A and B *TCS SEL* LEDs illuminated.
LSCle02094	Bridge Filters and Workgroup IDs are lost when the Backup NP becomes the Primary NP.
LSCle02122	The TCS HUB **set** command writes 0x3f into EEPROM if a question mark (**?**) is entered into the value field.
LSCle02131	After a command parsing failure, the TCS HUB **?** command causes switch fabric resets, NP1 reboots, SC2 hangs, or illuminated SEL LEDs on both SC2s in a redundant SC2 chassis.
LSCle02165	The CLI does not prevent the command **set tcs** *slot #* **reset** from operating on Primary NPs.
LSCle02205	The NP **gid** process can fail after exhausting system memory.
LSCle02226	Intermittent error code 3 failure of NP1 diagnostic test 26.
LSCle02246	Resetting the Primary TCS HUB on a redundant SC2 chassis intermittently causes SYNC_ERR clock status in the SC2.
LSCle02345	The StreamView **cfg** program hangs when the Cards button is selected without first selecting a chassis.
LSCle02379	Frame Forwarding PVCs are not deleted from the local chassis database.
LSCle02386	An LS1 Trunk port goes into a link up/down loop and eventually recovers.
LSCle02410	StreamView **vli** allows multiple concurrent Verify operations.
LSCle02412	StreamView **cfg** and **pvc** programs fail after 450 unique port-pair PVCs are created.
LSCle02426	Intermittent failure of CLC1 (G02) OC3 diagnostic tests 48.05 and 48.06.
LSCle02455	The CLI **ping** command incorrectly formats the display of packet loss percentage.
LSCle02520	StreamView **cfg_a** displays error message "sendCfgMsg: message is too long 1584" when more than 20 unique port-pair update requests are scheduled at one time.
LSCle02618	FDDI line card software does not send a trap when the A port or B port is decabled.
LSCle02690	The CLI **set chassis primaryswitch** command does not always cause the NP to cut over to the new primary switch.
LSCle02745	The R2.0 Release Notes do not adequately stress the importance of having a modem connection to the chassis during software upgrade procedures.
LSCle02746	The R2.0 Release Notes are confusing when the Primary NP is referred to as the active slot.
LSCle02747	The R2.0 Release Notes do not adequately specify that an iteration of **swinstall** is required for some installation upgrades.
LSCle02748	The R2.0 Release Notes incorrectly specify the format of the /etc/hosts file.

LSCle02751   Basic configuration of IP addresses during chassis installation set all IP addresses to 0.0.0.0 after the node was rebooted.

LSCle02752   The R2.0 Release Notes do not need to contain a chassis power-off procedure after Switch Card flash upgrade.

LSCle02756   CLC1 flash file loads have intermittent failures of ACTION_FLASH=0x65 and mem_cmd failure 0x28.