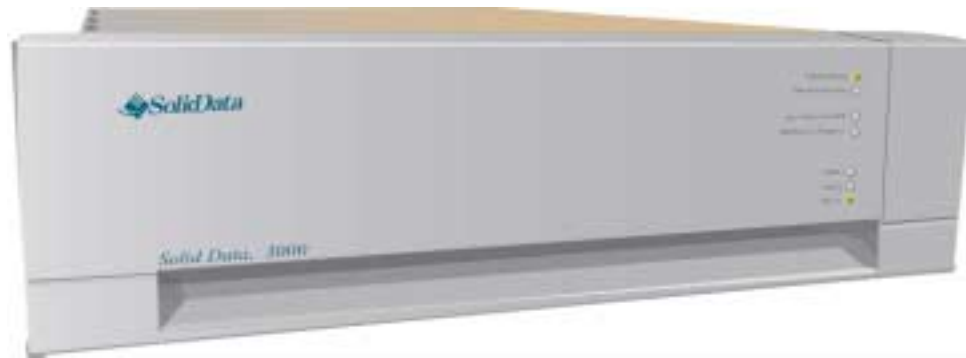


# Solid Data™ 3000



## Fibre Version Installation and Operation User Manual



# Solid Data 3000

Fibre Version

## Installation and Operation User Manual

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To prevent catastrophic damage to the system and/or personal injury, proper electrostatic discharge (ESD) protection must be followed.

## About This Book

Special information regarding cautions and helpful hints that require attention are indicated by the following symbols:



The caution symbol warns you of situations that could hurt you or damage the product. Information following the caution symbol must be adhered to in order to prevent system damage or personal injury.



### NOTE

The note symbol directs your attention to helpful information about the installation, operation, service and maintenance of the product.

## Electrostatic Discharge Precautions

In order to prevent catastrophic damage to this product, proper electrostatic discharge (ESD) protection procedures must be followed:

- Prior to removal of this product from any ESD protective packaging, ensure that the person handling the product is securely attached to an ESD wrist strap and the strap is attached to earth ground.
- Prior to removal of any electrical parts from a Solid Data Systems device an ESD wrist strap must be attached as described above.
- Handling unprotected product can cause immediate part failure or severely shorten the life of the product and void the warranty.
- Any defective parts removed from the device must be secured in a closed ESD protective container. ESD bags may be reused if not torn or punctured.



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# Introduction

Chapter 1 provides a general overview of the Solid Data model 3000 Fibre product, including charts outlining the technical specifications of the model 3000 and a brief description of the system's individual components and how they work together.

For information on how to install and configure the system refer to Chapter 2, "Installation."



Figure 1-1. Solid Data Model 3000

## 1.1 Solid-State File-Caching

The Solid Data™ model 3000 file cache (figure 1-1) is a high-performance, nonvolatile file cache - based on SDRAM memory technology - that provides up to 48 Gbytes of data storage in a 3U rack-mount package. It delivers block data reads and writes at high data rates, without the multi-millisecond latencies imposed by mechanical disk storage.

The model 3000 introduces the next generation of Solid Data's Zero Latency Transfer (ZLT™) architecture using data-handling processes in hardware, thus minimizing microprocessor overhead. The ZLT architecture delivers extremely fast response times for transaction and messaging applications. At the same time the high-bandwidth data paths and dual Fibre Channel connections support resource sharing at high speed in server clusters and storage networks.

The model 3000 combines the speed of main memory with the persistence of disk storage, incorporating a built-in data retention system that protects the data in the absence of line power. The system includes an on-board UPS battery back-up system and an embedded disk drive for data recovery, along with intelligent backup control logic.

### Maintainability Features

The model 3000 incorporates a number of advanced manageability and maintainability features that meet the needs of enterprise data centers and networks, including:

- Extensive Internal Monitoring
- Dual Hot-Swappable Power Supplies
- SNMP Traps Notifications
- Predictive Failure Notification (Email or SNMP)
- Web Browser System Administration Interface

## 1.2 Technical Specifications

The following tables describe the features of the model 3000.

<b>Capacity</b>	
Unformatted Capacity	4 GB to 48 GB
Maximum Memory Board Slots	6
Maximum RAM per Board	8 GB
<b>Interface</b>	
Host Ports	2 Fibre Channel

Table 1-1. Model 3000 Capacity Characteristics

<b>Data Protection</b>	
Onboard UPS	Yes
Onboard Data Retention Drive	Yes, Hot-Swappable
Automatic Data Retention	Yes
Battery Operation	2 Hours
Data Retention/Restore Rate	1.86 GB/Minute
Error Correction (bits corrected per 512 byte sector)	64
Power Supplies	Dual, Hot-Swappable
# Fans in Chassis	4, Hot-Swappable
# Fans/Power Supply	2

Table 1-2. Model 3000 Data Protection Characteristics

<b>Remote Monitoring and Reporting</b>	
Password Protected	Yes
Automatic Predictive Health Notification	Yes
Monitored Parameters	94
SNMP Alerts	56
Maximum IP Alert Addresses	10
Alerts via WEB Browser	Yes
System Configuration via SNMP	Yes
<b>Power Requirements</b>	
Maximum Power Consumption	250 watts
Voltage (VAC, Autoranging)	90-132 / 180-264
Frequency (Hz, Single Phase)	50/60
Power connector (Each Power Supply)	NEMA 5-15
<b>Physical Characteristics</b>	
Width (in/mm)	19.0 / 482.6
Height	
Rack Units	3U
Measure (in/mm)	5.25 / 133.3
Max Depth (in/mm)	27.2 / 692.1
Max Weight (lbs/kg)	90 / 40.8
<b>Environment</b>	
Ambient Temperature (F/C)	32-105 / 0-40
Relative Humidity	0-90%
Altitude	
Operating (feet/meters)	10,000 / 3048
Non-Operating (feet/meters)	40,000 / 12192

Table 1-3. Model 3000 Physical and Remote Monitoring Characteristics

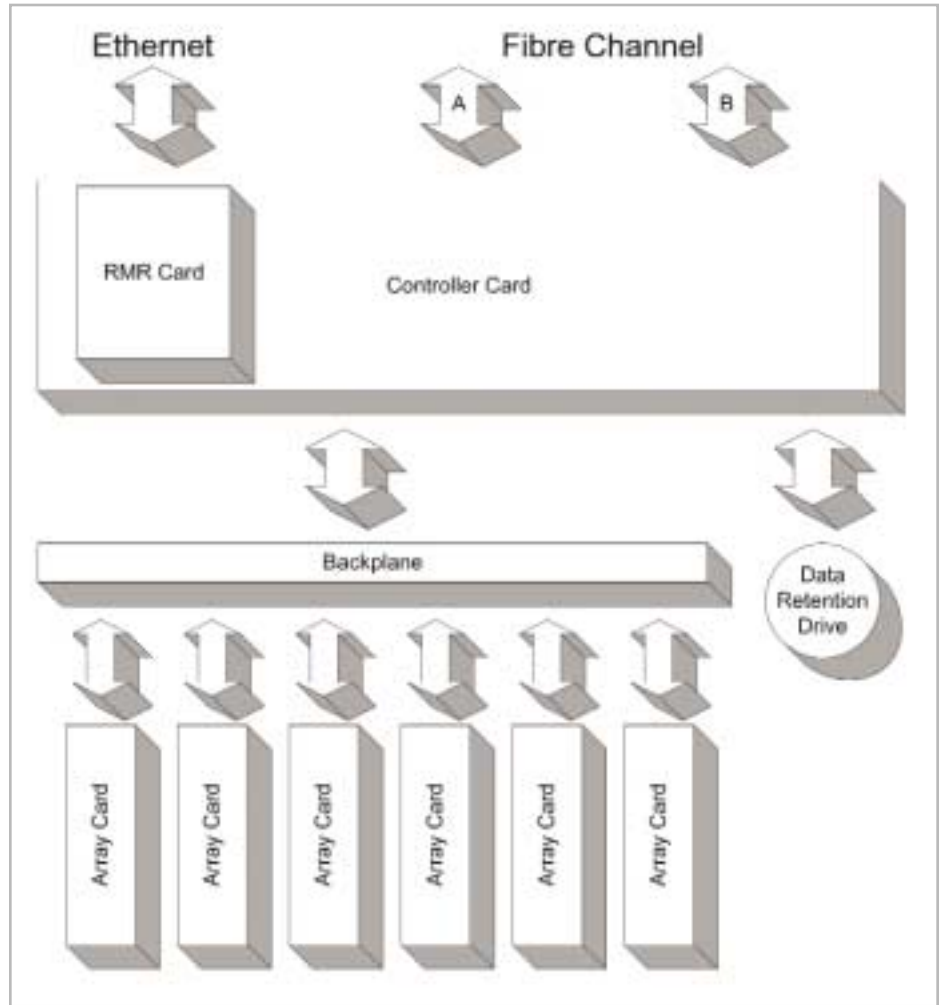


Figure 1-2. Model 3000 System Block Diagram

### 1.3 Component Specifications

The model 3000 system components include a Controller Card, a Remote Monitoring and Reporting Card, one or more Array Cards, a Backplane and a Data Retention Drive. See figure 1-2, “Model 3000 System Block Diagram” for system layout and component locations.

### 1.3.1 Controller Card

At the heart of the system is the Controller Card. This circuit card controls all data movement within the system, including all Fibre Channel, Array Card and Data Retention operations.

Fibre Channel commands to move data are received via the fiber optic connectors, and are decoded and executed as quickly as possible. The Controller has on-the-fly Error Detection and Correction circuitry to ensure data integrity throughout the system without affecting performance. This card also moves all user data to the Data Retention Drive for non-volatile storage when power loss is imminent.

The Controller is located at the rear of the chassis above the power supplies. It provides all external connections other than the AC line cords.

### 1.3.2 Remote Monitoring and Reporting Circuit Card

The Remote Monitoring and Reporting (RMR™) circuit card plays several roles in the system:

#### 1. Controls Power Sources

The RMR card controls the hot-swappable power supplies and batteries to ensure that the system never loses power unexpectedly.

#### 2. Monitors System Critical Functions

The RMR card continuously monitors all critical aspects of the system including voltages, temperature, and fan speeds. The RMR card stays aware of the insertion or extraction of any removable module, presenting this information to the user through several interfaces including web, email, network management (SNMP) and serial terminal.

#### 3. Maintains Diagnostic and Configuration Functions

Several diagnostic and configuration mechanisms are available. Through a web interface you can set system configurations including email (SMTP), IP, SNMP and Fibre Channel settings, test SNMP traps and download the current MIB file.

The RMR card is attached to the Controller Card.



Figure 1-3. Model 3000



### 1.3.3 Array Cards

The system can hold one to six Array Cards. Each card consists of four to eight gigabytes of Synchronous DRAM and a logical interface.

The maximum capacity of the model 3000 system with six 8 GB cards is 48 gigabytes. Synchronous DRAM is used to provide the highest possible throughput and lowest latency access to user data.

The Array Cards are located at the front of the chassis and are plugged into the Backplane.

### 1.3.4 Backplane

The Backplane brings all of the system components together. It distributes power from the power supplies and allows data to pass between the Controller and the Array Cards.

The Backplane is located in the middle of the chassis.

### 1.3.5 Data Retention Drive

The Data Retention Drive provides non-volatile storage of user data in the event of a power loss.

It is the nature of the Synchronous DRAM on the Array Cards that it cannot store data without power. To mitigate this, the model 3000 System includes redundant batteries and uninterruptible power supplies. When power to the AC line cords is lost for more than a few minutes, the RMR will instruct the Controller to move all user data from the Array Cards to the Data Retention Drive for permanent storage. Upon restoration of power through the AC line cords, the reverse process occurs.

The Data Retention Drive is located near the front of the chassis next to the Array Cards.

## 1.4 SNMP Traps

The following elements cause SNMP traps for the model 3000:

### 1.4.1 General System Events

- Startup/Shutdown Status
- Online/Offline Status
- System Ready
- Backup In Progress/Complete
- Restore in Progress/Complete
- Backup Drive Status
- Predictive Memory Failure
- Uncorrectable Memory Failure

### 1.4.2 System Hardware Events

- 27.5 VDC, 12 VDC, 5 VDC, 3.3 VDC Status
- Chassis Temperature
- Battery Voltage

### 1.4.3 Power Supply Events

- Power On/Off Status
- Power Supply Installed Status
- AC Line Status
- 28 VDC, 12.4 VDC, 5.4 VDC, 3.7 VDC Status
- Power Supply Fan Status
- Power Supply Temperature Status

### 1.4.4 Fan Carrier Events

- Fan Carrier Installed
- Fan Tach Status

### 1.4.5 RAM Card Events

- RAM Card Installed/Removed
- RAM Card Temperature Status

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# 2

## Installation

Chapter 2 provides information on the installation and initial configuration of the model 3000 system, including how to install the unit in the rack and how to set up power, Fibre port, serial port and Ethernet connections.

To configure maintenance and administrative settings refer to Chapter 3, "Operation."

## 2.1 Rack Mounting Procedure

To install the model 3000 in standard ANSI/EIA cabinets, complete the following steps:

### 2.1.1 Visual Examination

Before applying power, remove the front panel and examine the memory arrays. The front panel is mounted on ball studs attached to the front of the chassis. Remove the front panel by pulling gently on the bottom front corners.

**Note:** a ribbon cable attaches the front panel to the backplane. Be careful not to damage the cable when removing the front panel.

Verify that all cards are fully seated in their sockets and that no mechanical damage has been sustained during transport. If there are indications that damage has occurred, immediately contact the shipping carrier to file a damage report. **Do not apply power or use the system.**

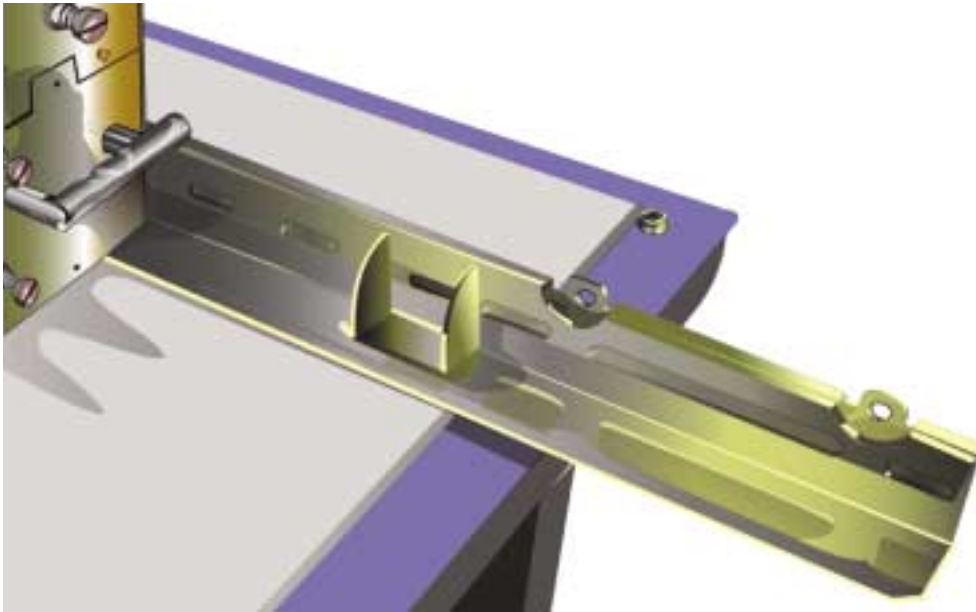


Figure 2-1. Angle Bracket With Spacer

### 2.1.2 Rack Installation

The model 3000 will mount in a Hewlett-Packard cabinet using angle brackets and the appropriate spacers as shown above in figure 2-1.

The chassis can be secured to the cabinet with screws installed behind the front panel into the cabinet rails. Notched cutouts behind the front panel align with ANSI defined hole locations.



#### CAUTION

If the unit sustained damage during transport do not apply power or use the system.



The front panel is attached to the backplane with a ribbon cable.

While removing the front panel be careful to not damage the ribbon cable.



#### CAUTION

The model 3000 can weigh up to 90 lbs (40.8 Kg) when fully configured. Two people are required when slide mounting these units.



Figure 2-2. Model 3000 Rear Panel

## 2.2 AC Power Connections

The model 3000 has dual redundant power supplies. Each power supply requires an AC connection to either 120 VAC or 230 VAC. The supplies are autoranging.

Connect the AC power cords from the AC power receptacles on the rear panel of the file cache to the appropriate power source.

Power Requirements	
Maximum Power Consumption	250 Watts
Voltage (Autoranging)	90-132 / 190-264
Frequency (Hz, Single Phase)	50/60 Hz
Power Connector	NEMA 5-15

Table 2-1. Model 3000 Power Requirements

## 2.3 Fibre Port Connections

The model 3000 has two fibre ports in order to provide redundant paths to user data. Each port may be connected to different host adapters or switches. Both ports can also be connected to separate host adapters on the same host system in a dynamic multi-pathing (DMP) configuration. Each port reports back a unique World Wide Port Name (WWPN) but a common World Wide Node Name (WWNN). The serial number reported back in the SCSI Inquiry page is the same for both ports.

The model 3000 is shipped with optical Fibre GBICs with SC-type connectors (1Gbit, multimode, 850nm, 100-M5-SN-I). Copper GBICs using DB-9 or HSSDC connectors can be substituted as necessary.

### 2.3.1 GBIC Installation

**NOTE:** GBICs are online swappable.

To install a GBIC, perform the following steps:

#### 1. Verify the GBIC

Remove the GBIC from its packaging and check the part number to verify it is the correct type for your network (100-M5-SN-I, 100-SM-LC-L, etc.).

#### 2. Insert the GBIC in the Slot

Holding the sides of the GBIC with your thumb and forefinger, insert it into one of the slots in the rear panel of the model 3000. **NOTE:** GBICs are keyed to prevent incorrect slot insertion.

#### 3. Lock the GBIC in the Slot

Slide the GBIC into the slot until you hear a click indicating the GBIC is locked in the slot.

**WARNING:** Laser radiation may be emitted from the aperture ports of fiber-optic modules when no cable is connected. **Avoid exposure and do not stare into open apertures.**

#### 4. Remove the Plugs and Attach Fiber-Optic Cable

Before attaching the fiber-optic cable, remove the plugs and save them for future use.



#### CAUTION

To prevent catastrophic damage to the system and/or personal injury, proper electrostatic discharge (ESD) protection must be followed.



#### CAUTION

Unnecessary removal or insertion of a GBIC could lead to premature failure of the GBIC. GBICs have a lifetime of 100 to 500 removals or insertions.



#### CAUTION

The plugs protect the GBIC optical bores and cable from contamination. Do not remove the plugs from the GBIC optical bores or the fiber-optic cable until you are ready to connect the cable.

## 2.4 Supported Fibre Configurations

The model 3000 supports the following Fibre connections:

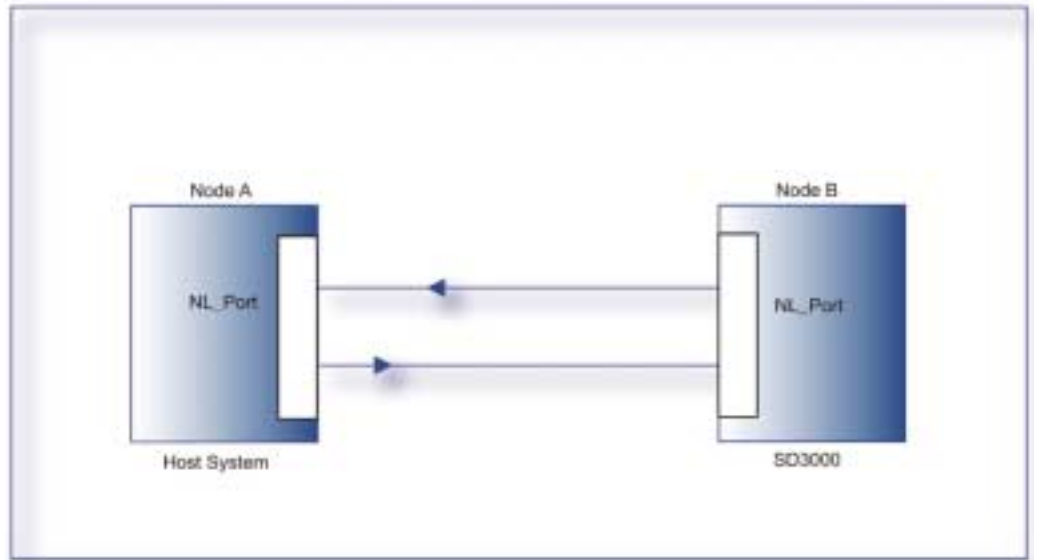


Figure 2-3. Arbitrated Loop - Direct Attached

### 2.4.1 Arbitrated Loop - Direct Attached

An Arbitrated Loop (also known as a Private Loop) consists of two NL\_Ports connected by a bi-directional link. The full bandwidth is used by the Direct Attached connection.

A Direct Attached arbitrated loop is a direct connection between an NL\_Port on the model 3000 and a Host Bus Adapter, as shown above in figure 2-3.

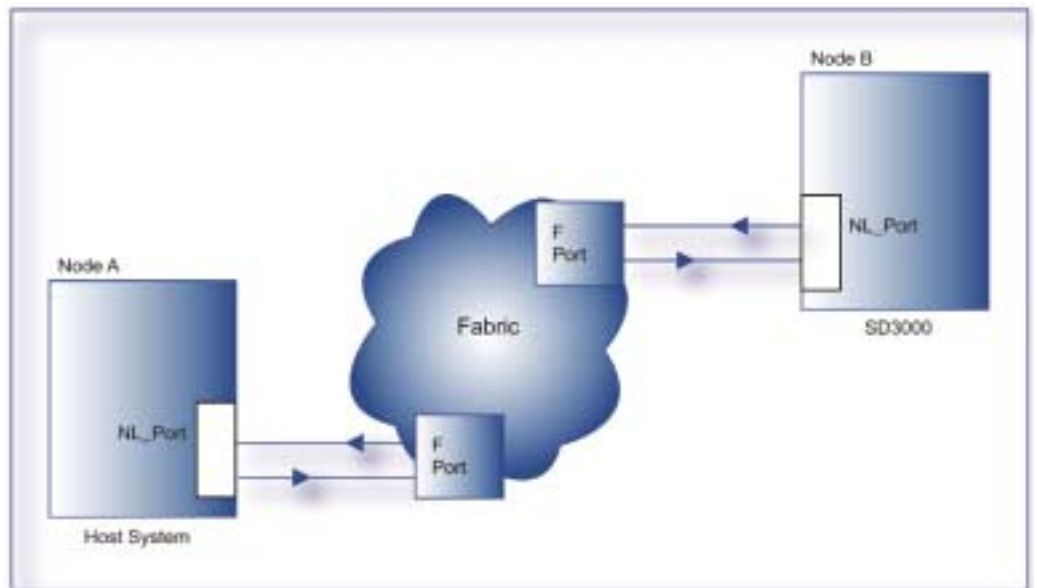


Figure 2-4. Switched Fabric (FC-SW)



### 2.4.2 Switched Fabric (FC-SW)

In this configuration the model 3000 NL\_Port connects to a F\_Port on a switch.

A Fibre Channel switch is used to implement the Switched Fabric topology. The switch can be connected to either NL\_Ports or N\_Ports. The Fibre Channel switch (not the individual ports) performs the routing of frames.

The bandwidth of individual Direct Attached or Point-to-Point connections is not affected by adding stations.

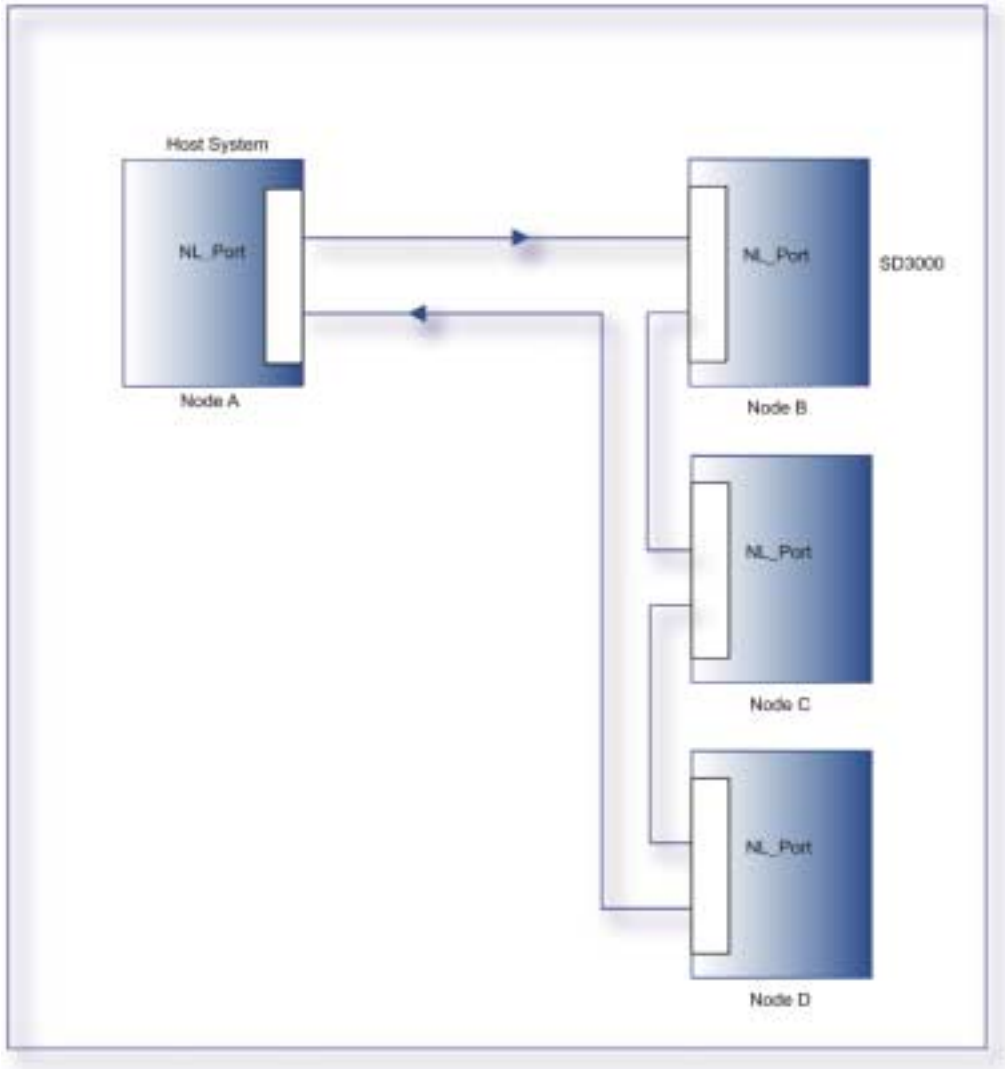


Figure 2-5. Arbitrated Loop - (FC-AL)

### 2.4.3 Arbitrated Loop - (FC-AL)

A Hub can be used to connect up to 127 NL\_Ports into an Arbitrated Loop configuration. Each node's L\_Port transmitter is connected to the L\_Port receiver of the next node.

Bandwidth is shared by all the devices. Because only one L\_Port-L\_Port connection can be active at a time, blocking is possible.

## 2.5 Serial Port Connections

### 2.5.1 Remote Monitor Configuration

Use this port to connect to the Remote Monitor. The Remote Monitor connection allows the setting, monitoring and operating parameters for the model 3000. Refer to Chapter 4, "Remote Monitoring," for connection details.

### 2.5.2 Controller Configuration

Use this port for controller board troubleshooting and reloading controller microcode. Refer to Chapter 4, "Remote Monitoring," for connection details.

Rear Panel RS-232 Connections	
Name	Function
RS-232 Port 1	Remote Monitor Config
RS-232 Port 2	Controller Config

Table 2-2. Rear Panel RS-232 Connections

## 2.6 Ethernet Connection

Connect the RJ45 connector of the rear panel to a network hub or switch using a standard category 5 UTP cable. Each time the model 3000 is powered on it will attempt to load an IP using DHCP.

Should the model 3000 fail to load an IP address using DHCP, you will be required to enter the IP address manually using the Remote Monitor RS-232 connection.

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# Operation

This chapter describes the operation of the model 3000. General operating parameters include:

- Switches and Indicators (Front Panel)
- Switches and Indicators (Rear Panel)
- Startup Procedure
- Shutdown Procedure
- Internal Hard Drive Diagnostics

The model 3000 includes a Web interface to configure and maintain the following features:

- Firmware and Bootloader Revisions
- Diagnostic Data (including power supply voltage, fan status, temperature and backup drive status)
- System Configuration
- Network Configuration
- Fibre Channel Configuration
- SNMP Configuration

## 3.1 Front Panel Switches and Indicators

### 3.1.1 Front Panel LEDs

The front panel has the following indicators:

LED	Color	Function
System Ready	Green	The 3000 is online. The restore from the Data Retention Drive has completed. The 3000 will respond to host commands.
Startup In Progress	Green	The 3000 is restoring memory contents from its internal Data Retention Drive. The 3000 is offline.
Shutdown Complete	Green	The 3000 is finished saving memory contents to its internal Data Retention Drive. The 3000 is offline.
Shutdown In Progress	Green	The 3000 is saving memory contents to internal Data Retention Drive. The 3000 is offline.
Power	Green	DC Power is being provided to the system.
Activity	Green	Host Read or Write activity. Also indicates backup or restore to the internal Data Retention Drive in progress.
Service	Orange	Internal failure condition requiring user intervention. Refer to Diagnostic Data for details.

Table 3-1. Front Panel LEDs

## 3.2 Rear Panel Switches and Indicators

### 3.2.1 Master DC Power Switch

Each of the two power supplies has a **Master DC Power** switch located on the rear panel. This switch controls the + 28, + 12, + 5 and + 3.3 volt power in each supply. Moving the **Master DC Power** switch to the **ON** position will cause the model 3000 to enter a **Power On Self Test (POST)** state. The chassis fans will start and the batteries will charge.



Figure 3-1. Model 3000 Master DC Power Switches

### 3.2.2 Power Supply LEDs

The power supply has the following indicator LEDs:

LED	Color	Function
Lock	Orange	Power supply solenoid lock engaged. When the <b>LOCK</b> is engaged, the power supply can't be removed from the chassis.
28V	Green	28V supply within limits
12V	Green	12V supply within limits
5V	Green	5V supply within limits
3.3V	Green	3.3V supply within limits

Table 3-2. Power Supply LEDs

### 3.2.3 Controller Module LEDs

The controller module has the following indicators:

LED	Color	Function
Port A/B ACT	Orange	Read/Write activity on associated port
Port A/B LIP	Green	Loop Initialization Primitive on associated port
Ethernet ACT	Orange	Read/Write activity on Ethernet port
Ethernet LNK	Green	Connection to Ethernet LAN

Table 3-3. Controller Module LEDs

### 3.3 Startup Procedure

Perform the following steps when bringing the model 3000 up from a power-off state:

#### 3.3.1 Cable Connections

After following the directions in Chapter 2 to install the model 3000, connect the RJ-45 Ethernet jack to a LAN. Connect the **Port A** and **Port B** Fibre ports to the appropriate host bus adapters or switches.

#### 3.3.2 Master DC Power Switches

Turn both rear panel **DC Power** switches to the **ON** position. The voltage LED indicators on both power supplies will light and the model 3000 will enter a **Power On Self Test (POST)** procedure and a **Built In Self Test (BIST)** procedure.

The **POST** and **BIST** take approximately 10 seconds to run.

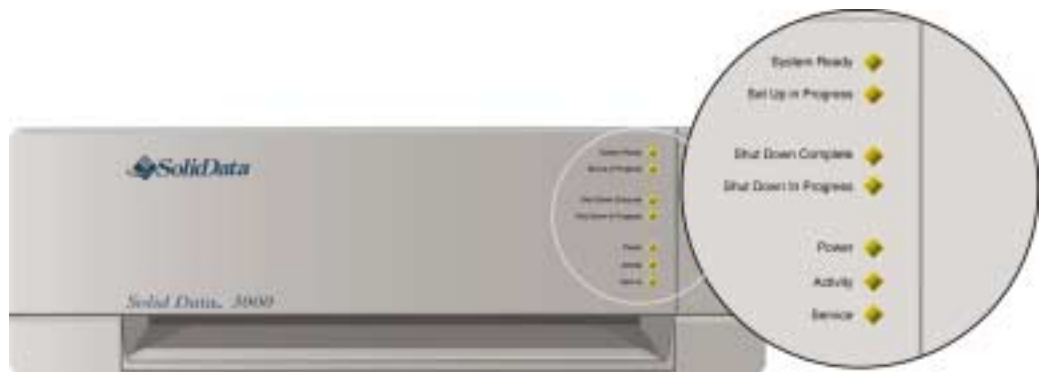


Figure 3-2. Model 3000 POST (Power On Self Test) State



### 3.3.3 Startup In Progress

When the **POST** and **BIST** complete, the **orange LOCK** LEDs on the power supplies will light. The model 3000 will transition to the **Startup In Progress** state. The internal Data Retention Drive will spin up and restore the contents of memory.

**Startup In Progress** will take approximately 45 seconds for each 1 gigabyte of installed memory. While the model 3000 is restoring, it is offline to the host system.

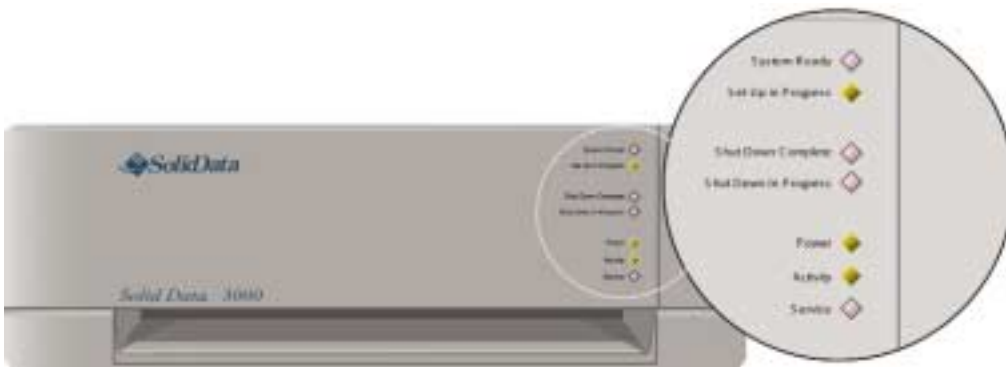


Figure 3-3. Model 3000 Startup in Progress

### 3.3.4 System Ready

At the completion of the Restore, the model 3000 enters the online state. In this state, the drive can be accessed from the host systems. The system **Activity** LED will flicker indicating host read or write access.



Figure 3-4. Model 3000 System Ready

### 3.4 Shutdown Procedure

To shut down the model 3000, perform the following steps in order according to your individual operating system/backup utility:

#### 3.4.1 Operating System Backup

Backup all data on the model 3000 to the operating system. This may take the form of database dumps or UNIX backup utilities such as dump or tar.

#### 3.4.2 Operation Dismount

Stop all database servers or other jobs using the model 3000. Dismount the model 3000 from the operating system, if it is mounted. This is done to force the buffer cache to flush.



Figure 3-5. Model 3000 Rear Panel

### 3.4.3 Power Off the System

Turn off the two rear panel **DC Power** switches. The **System Ready** LED lamp will extinguish, the **Shutdown in Progress** and **Activity** lamps will illuminate, and the model 3000 will start retaining data in the memory array(s) to the internal Data Retention Drive.

While the model 3000 is moving data to the Data Retention Drive, it is offline to the host system.



Figure 3-6. Model 3000 Shutdown in Progress

#### Note: Power Supply Removal

Turning off just one power supply will cause an informational SNMP trap to be sent to designated systems. The **LOCK** LED will go out and the power supply can be removed from the chassis. Retention of data to the internal Data Retention Drive will **not** be done, since the model 3000 is still powered on and is online.

When the **Shutdown** operation has completed, the **Shutdown Complete** LED will light momentarily. Following this transitional state, the model 3000 will power down.



Figure 3-7. Model 3000 Shutdown Complete

### 3.5 Internal Data Retention Drive Diagnostics (Service Lamp) & Replacement

The internal Data Retention Drive is used in case of power failure or system shutdown to save a copy of the memory contents. When the model 3000 is powered up, the contents of the Data Retention Drive are copied to memory and the drive is then powered down. Normal read and write activity is then supported by the memory array.

However, if a sustained power-failure condition is detected, the contents of the memory array are copied to the Data Retention Drive, after which the model 3000 is powered down.

#### 3.5.1 Automatic Diagnostic Tests

Under normal operation the internal Data Retention Drive remains powered off. At approximately 5-day intervals, a diagnostic test is run on the drive. This test spins up the drive, performs a basic diagnostic routine on the drive and then spins the drive down. If the drive fails to spin up, or fails the diagnostic test, then the front panel **Service** LED is illuminated.

In addition, an SNMP trap reflecting the internal Data Retention Drive failure is sent to designated hosts.



Figure 3-8. Automatic Diagnostic Tests

#### 3.5.2 Front Panel Service LED

The **Service** LED on the front panel illuminates under the following conditions:

##### Internal Data Retention Drive Failure

The **Service** LED indicates a failure in the internal Data Retention Drive diagnostic test. This test is run before restoring data from the drive to memory and before saving memory contents to the drive. The test is also run approximately every 5 days. A failed Data Retention Drive can be replaced online.

##### Over Temperature

The **Service** LED also indicates an Over Temperature condition in the model 3000 chassis. This condition will also result in an SNMP trap being sent to designated hosts.

For other conditions see the **Diagnostic Data** page later in this chapter.

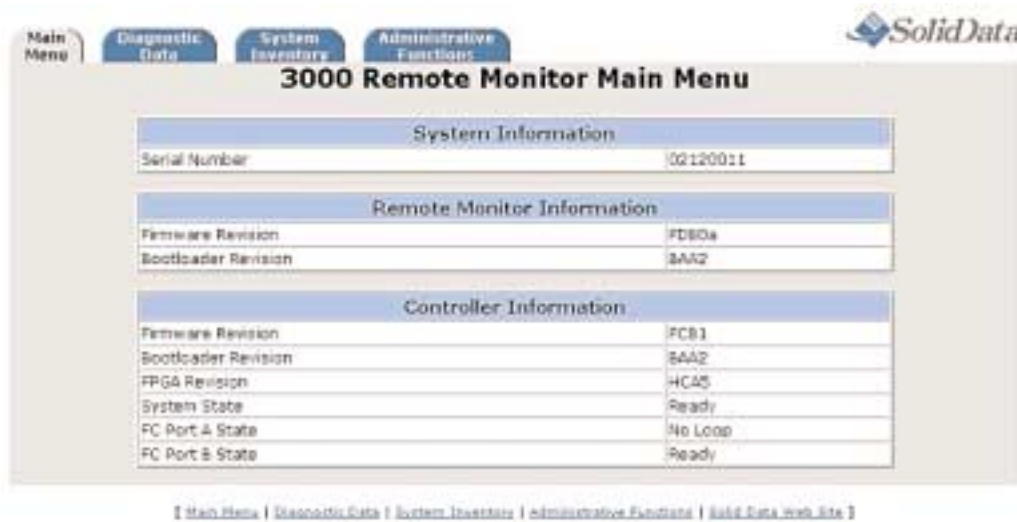


Figure 3-9. Model 3000 Remote Monitor Main Menu

## 3.6 Main Menu

The Main Menu gives you a selection of Diagnostic Data, System Inventory or Administrative functions, and lists Remote Monitoring and Controller information.

### 3.6.1 Remote Monitor Information

Firmware Revision: Firmware version installed on the Remote Monitoring card.  
 Bootloader Revision: Firmware version of the Bootloader.

### 3.6.2 Controller Information

Firmware Revision: Firmware version installed on the device controller.  
 Bootloader Revision: Firmware version of the Bootloader.  
 FPGA Revision: Hardware version of the embedded fibre controller.  
 System State: Status of the device (Online, Offline, Startup in Progress, Startup Complete, Shutdown in Progress, Shutdown Complete.)  
 FC Port A State: Status of Fibre Channel Port A.  
 FC Port B State: Status of Fibre Channel Port B.

3.7 Diagnostic Data

Use the **Diagnostic Data** page to monitor the status of the model 3000. Values that meet the pre-determined limits will appear **green**. Out-of-tolerance values will be highlighted in **red**. After downloading the **Diagnostic Data** page, click the **Refresh** button on your Web browser to view the current status of the system.

3.7.1 Predictive and Uncorrectable Errors

The predictive and uncorrectable error sections on the diagnostic data page will inform you of the type of errors that have occurred, the number of errors and the location of the error on the RAM board.

Top RAM Card (0)	
Predictive Errors	1
Chip Location of Last Predictive Error	A
Uncorrectable Errors	0
Chip Row of Last Uncorrectable Error	0
Temperature 1 (C) (0 to 45)	36
Temperature 2 (C) (0 to 45)	38

Figure 3-10. Predictive and Uncorrectable Errors



Figure 3-11. Sample Diagnostic Data Page

Parameter	Range
<b>Power Supplies</b>	
Temperature	0 to 45 Degrees C
+ 28 Volts	26.6 to 29.4
+ 12.4 Volts	11.2 to 13.6
+ 5.4 Volts	4.9 to 5.9
+ 3.7 Volts	3.3 to 4.1
Battery Charging Voltage	26.1 to 28.9
AC Power Line Status	Good / Bad
Fan Speed (Power Supply Fans)	4900 to 13000 rpm
<b>Chassis</b>	
Temperature (On Controller Card)	0 to 45 Degrees C
Fan 1 Speed	2625 to 4875 rpm
Fan 2 Speed	4550 to 8450 rpm
+ 27.5 Volts	26.8 to 28.2
+ 12 Volts	11.4 to 12.6
+ 5 Volts	4.8 to 5.2
+ 3.3 Volts	3.1 to 3.5
Chassis Battery Charging Voltage	26.1 to 28.9
<b>RAM Card</b>	
Temperature	0 to 45 Degrees C

Table 3-4. Model 3000 Diagnostic Values



## 3.8 System Inventory

Use the **System Inventory** page (figure 3-12, facing page) to view the status and serial number for each component installed in the chassis.

### 3.8.1 Power Supply

**On/Off switch** indicates whether the **Master DC Power** switch located on the power supply is in the on or off position, and is not an indication of whether the power supply has been turned off with the proper shutdown procedure.

**Locked in chassis** indicates whether the power supply is on and locked in the chassis. When the power supply is on it should always be locked to ensure it cannot be removed.

Main Menu

Diagnostic Data

System Inventory

Administrative Functions

SolidData

System Inventory

Bottom Power Supply (0)

Not installed

Top Power Supply (1)

On/Off switch

ON

Locked in chassis

YES

Serial number

N302070013

Top RAM Card (0)

Size

2048 MB

Serial number

E302070016

RAM Card (1)

Size

2048 MB

Serial number

E702020001

RAM Card (2)

Not installed

RAM Card (3)

Not installed

RAM Card (4)

Not installed

Bottom RAM Card (5)

Not installed

Other system hardware

Chassis battery carrier

Installed

Front fan carrier (0)

Installed

Rear fan carrier (1)

Installed

Controller board serial number

UF02100075

Backplane serial number

P302070011

RMR board serial number

R302100075

Main Menu

Diagnostic Data

System Inventory

Administrative Functions

SolidData Web Site

[ Main Menu | Diagnostic Data | System Inventory | Administrative Functions | SolidData Web Site ]

Figure 3-12. System Inventory Page

### 3.9 Administrative Menu

The **Administrative Menu** allows you to configure Fibre, IP address and SNMP parameters for the model 3000, test SNMP traps, download the MIB file and change administrative settings.



Figure 3-13. Model 3000 Administrative Menu

#### 3.9.1 Administrative Menu Access

To access the **Administrative Menu**, enter the user name **admin** and default password **carkey**. We recommend that you change the user name and password after entering the **Administrative Menu**.


 To access the Administrative menu, enter the user name **admin** and password **carkey**.



Figure 3-14. Administrative Menu Access

### 3.10 IP Configuration

The **IP Configuration** page allows you to manually set the Host Name, IP address, subnet mask, default gateway address and DNS server. The IP address initially displayed in this page is the address assigned to the model 3000 by the DHCP server.

### 3.10.1 Manual IP Address Entry

Check the IP address on this page and click on **Submit** to write the address to the EEPROM on the Remote Monitor card. This makes the IP address permanent. If you do not submit the **IP Configuration** form, the model 3000 will look for a new IP address each time it is powered on.

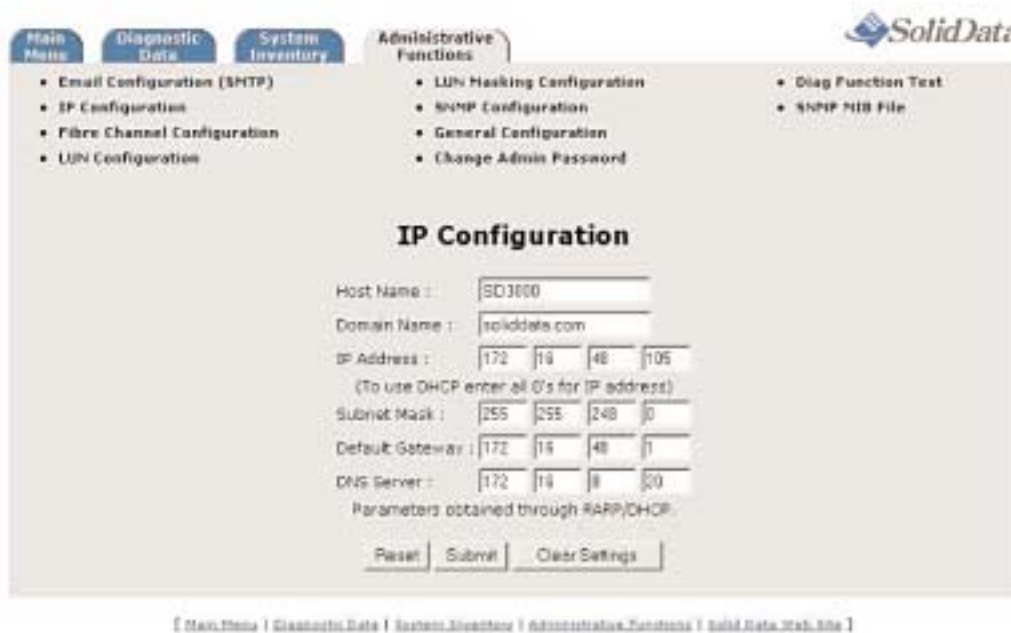


Figure 3-15. IP Configuration Page

### 3.10.2 DHCP IP Address Entry

If you used DHCP to connect to the network, do not set the IP address given by the DHCP server as your permanent IP address. If the DHCP address is set as permanent for the model 3000, the device will no longer request an address from the DHCP server or renew its IP address lease. The DHCP server may then reissue your IP address after a set period of time, causing two devices to have the same IP address.

To avoid this problem, perform the following steps for initial configuration:

1. Use the IP address from the DHCP server to initially log on to the **IP Configuration** page in the Remote Monitoring Web interface.
2. Enter a new IP address that is outside the range of the DHCP server.
3. Click **Submit** to assign the new IP address to the model 3000.

Performing these steps will eliminate the possibility of the DHCP server assigning your IP address to another device.

### 3.10.3 Reset and Clear Settings Function

The **Reset** button on the IP Configuration Web page will reset the page to the original Web settings and clear any changes you have made since logging on to the **IP Configuration** page.

The **Clear Settings** button will reset all the IP Configuration settings to the original system default parameters and look for an IP address again.

The screenshot displays the 'Fibre Channel Configuration' page in the SolidData web interface. At the top, there are four navigation tabs: 'Main Menu', 'Diagnostic Data', 'System Inventory', and 'Administrative Functions'. Below these tabs are three columns of links: 'Email Configuration (SMTP)', 'IP Configuration', 'Fibre Channel Configuration', and 'LUN Configuration' under the first tab; 'LUN Masking Configuration', 'SNMP Configuration', 'General Configuration', and 'Change Admin Password' under the second tab; and 'Diag Function Test' and 'SNMP MIB File' under the third tab. The main content area is titled 'Fibre Channel Configuration' and shows the 'World Wide Node Name' as 'Ox500029300009c00b'. It then details 'Port A (0)' and 'Port B (1)'. For each port, there are fields for 'Desired Loop ID' (a drop-down menu with 'XXX' selected), 'Actual Loop ID' (displaying 'Not assigned'), 'Actual Address' (displaying 'Not assigned'), and 'World Wide Port Name' (displaying 'Ox500029300109c00b' for Port A and 'Ox500029300209c00b' for Port B). At the bottom of the configuration area are three buttons: 'Reset', 'Submit', and 'Clear Settings'. A breadcrumb trail at the very bottom reads: 'Main Menu | Diagnostic Data | System Inventory | Administrative Functions | SolidData Web Site'.

Figure 3-16. Fibre Channel Configuration Page

### 3.11 Fibre Channel Configuration

The **Fibre Channel Configuration** page allows you to configure each Fibre Channel port independently. The ports will only use the Arbitrated Loop topology. If attached to a fabric through the loop, the port will perform a fabric login.

The **Actual Address** fields give the full Fibre Channel address (domain address, area address, and port address) that the port was given during loop initialization. The **Actual Loop ID** gives the Loop ID that the port was given during initialization. The **Desired Loop ID** drop-down box allows you to select the FC-AL Loop ID (port address) the port will attempt to obtain in the future. The "XXX" entry means there is no desired ID, so the port will obtain whatever address it can.

Click **Submit** or press <Enter> to save your Fibre Channel settings.

A port will not attempt to immediately use a newly submitted Loop ID. It will often be necessary for any connected hosts to be rebooted in order to use a different address. Whenever the desired Loop ID of either port is changed the system will send a notification (email message, SNMP trap, etc.) to this effect.

3.11.1 WWN Numbers

Each port of the model 3000 reports back a WWN (World Wide Name) number. The WWN number follows the format of the following table.

IEEE Registered Name (Format 5)

The WWN number reflects the OUI/Company ID for Solid Data Systems (0x000293), the serial number of the file cache.

Sample WWN number from a model 3000:

5000293001090006

Word	Bits 31-24		Bits 23:16	Bits 15-8	Bits 7-0	
0	NAA	OUI/Company_ID				VSID
	0x5	0x0	0x00	0x29	0x3	0x0
1	Vendor Specific Identifier - VSID					
	Reserved	Node/Port ID	Unit S/N			
	0x0	Node: 0x0 Port A: 0x1 Port B: 0x2	24-bit value based on unit S/N			

Table 3-5. WWN Number

### 3.12 LUN Configuration

The Model 3000 can be configured to divide the total addressable RAM space into up to 64 LUNs, and to define masks of accessible LUNs for up to 32 different initiators identified by World Wide Port NameCurrent LUNs

**Current LUNs** shows a list of configured LUNs. To delete a LUN click **Delete LUN**. To add a new LUN choose the appropriate size and click **Add LUN**.

LUNs always start at index 0, with each additional LUN being added at the next highest index. Up to 63 LUNs may be explicitly defined by the user, with the last LUN always spanning the remainder of the drive.

When a LUN is deleted that LUN and all LUNs above it (those with greater index) are removed from the LUN table and the memory they represented is returned to the "End of drive" LUN. Because the "End of drive" LUN always appears immediately after the last defined LUN it will take the index of the deleted LUN.

The size of each LUN can be any of the following values: 128 MB, 256 MB, 512 MB, 1 GB, 2 GB, 4 GB, 8 GB, 16 GB.

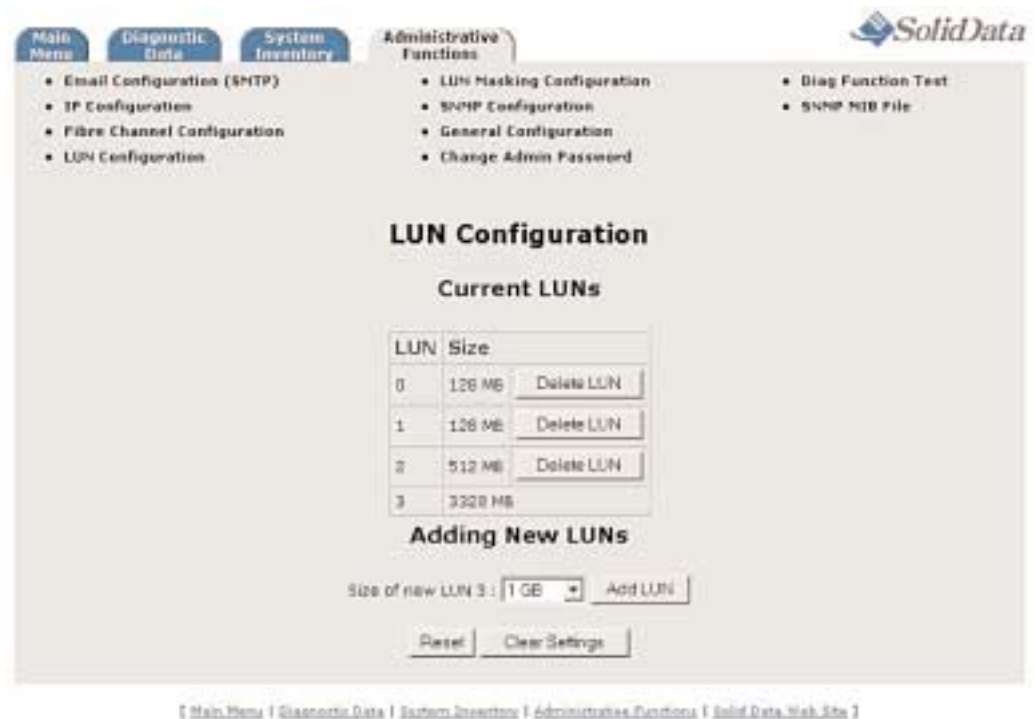


Figure 3-17. LUN Configuration Page

### 3.13 LUN Masking Configuration

After any desired LUNs are configured in the LUN table we recommend you configure the LUN masks to make the LUNs you choose available to the initiators you choose. For more information on LUN Masking see the following section, **"About LUN Masking."**

The **LUN Masking Configuration** page displays a list of the current LUN masks. From this page you can edit, delete or add new LUN masks.

To edit or delete a LUN mask choose from the **Accessible LUNs** list and click **Edit** or **Delete**. To add a new LUN mask click **Use current initiator** to choose from the list or click **Use custom initiator** and enter the initiator in the field provided. Choose the size from the list of accessible LUNs and click **Add**.

Clicking **Refresh Initiators** will force the controller to recommunicate the list of initiators.

**LUN Masking Configuration**

**Current LUN masks**

Initiator: All Unspecified

Accessible LUNs	Edit	Delete
0 - 128 MB		
1 - 128 MB		

Display printable LUN masks

**Add new LUN mask**

Initiator: ☒ Use current initiator: 0x200000E08B017AAB ☐ Use custom initiator:

Accessible LUNs	Add	Reset
0 - 128 MB		
1 - 128 MB		
2 - 3840 MB		

**Other LUN mask actions**

Refresh Initiators Clear Settings

Figure 3-18. LUN Masking Configuration Page

### 3.13.1 About LUN Masking

A LUN mask is a list of LUNs that an initiator can access. Having access to a LUN means that commands for that LUN are executed, whereas being denied access to a LUN means that any SCSI commands that are attempted specific to that LUN (Read, Write, Read Capacity, etc.) will be responded to with a check condition indicating a need for unit attention. LUN masks are defined on an initiator basis - they specify all the LUNs an initiator can access, not all the initiators that can access a LUN.

Initiators are specified by their World Wide Port Name, expressed as a 16-digit hexadecimal number. In addition to normal initiators, a special "All Unspecified" initiator code may be used to match all initiators that don't have their own entries in the LUN mask table. This means that when an initiator attempts to access a LUN the system must conceptually go through the following logic to determine if the initiator's command should be executed.

When a LUN is deleted that LUN is also deleted from the accessible LUN list of all initiators in the LUN mask table. This means that if the LUN table is cleared (or LUN 0 is deleted) then all LUN masks will be updated to remove access to all LUNs.



### 3.14 Email Configuration (SMTP)

System status notifications can be emailed. Enter the IP address for the email server, then enter up to 10 email addresses in the standard format, e.g.:  
admin@company.com.

Click **Submit** or press <Enter> to save changes.

All destination email addresses must be on the same network as the configured email server to provide the best chance of delivery. The model 3000 unit will only send the notification email messages to the configured server IP address - it will not attempt to contact an email server for any other domain.

The screenshot shows the SolidData web interface. At the top, there are four tabs: Main Menu, Diagnostic Data, System Inventory, and Administrative Functions. The Administrative Functions tab is selected. Below the tabs, there is a list of configuration options: Email Configuration (SMTP), IP Configuration, Fibre Channel Configuration, LUN Configuration, LUN Masking Configuration, SNMP Configuration, General Configuration, Change Admin Password, Diag Function Test, and SNMP MIB File. The Email Configuration (SMTP) option is highlighted. Below this, the 'Email Configuration (SMTP)' section is displayed. It contains a 'Server IP address' field with four numeric input boxes, and a 'Message destinations' text area with a scroll bar. Below the text area are three buttons: Reset, Submit, and Clear Settings.

Figure 3-19. Email Configuration



### 3.15 Network Management Configuration (SNMP)

System status notifications can be sent via the Simple Network Management Protocol (SNMP). Use the **SNMP Configuration** interface to set the system contact, system location, and up to ten trap destinations in the form of IP addresses (e.g., 202.34.3.132). Log on to the **Administrative Menu** and click on **SNMP Configuration**.

Click the **Submit** button or press <Enter> to save SNMP parameters.

The screenshot shows the SolidData web interface for SNMP Configuration. The top navigation bar includes 'Main Menu', 'Diagnostic Data', 'System Inventory', and 'Administrative Functions'. Under 'Administrative Functions', there are links for 'Email Configuration (SMTP)', 'IP Configuration', 'Fibre Channel Configuration', 'LUN Configuration', 'LUN Masking Configuration', 'SNMP Configuration', 'General Configuration', 'Change Admin Password', 'Diag Function Test', and 'SNMP MIB File'. The 'SNMP Configuration' section is active, showing fields for 'System Contact' and 'System Location', both with placeholder text 'Insert system contact/location here'. Below these is a text area for 'Trap destinations' with a note '(one IP address per line) (maximum of 10)'. At the bottom are 'Reset', 'Submit', and 'Clear Settings' buttons.

Figure 3-20. SNMP Configuration Page

### 3.16 General Configuration

The **General Configuration** page displays the current setting for the hardware error report timer. When a power or temperature measurement falls out of range, a notification is issued. The hardware error report timer is the amount of time to wait before repeating notifications for the same error.

If the error report time is “0” then a notification is sent only once, when the error occurs.



Figure 3-21. General Configuration Page

#### 3.16.1 Clear All User Settings Function

Clicking the **Clear All User Settings** button allows you to reset all settings stored in nonvolatile storage on the fly, without connecting to the Bootloader.

If you do not reconfigure your settings after clearing all the saved parameters, the system will use the out-of-the-box default settings the next time the unit is powered on. This is the same result as pressing the “Clear Settings” button on each Administrative Web page.

#### 3.16.2 Clear Memory Error Stats Function

Clicking the **Clear Memory Error Stats** button will clear the error counts and error location for each card.

### 3.17 Diag Function Test Page

You can use the **Diag Function Test** page to test your system notifications without inducing a hardware failure.

#### 3.17.1 Perform Drive Diagnostic Function

**Perform Drive Diagnostic** causes a diagnostic test to be run on the internal Data Retention Drive. If the pass/fail status changes, a trap is issued.

#### 3.17.2 Test All Email Notifications Function

**Test All Email Notifications** causes a sample message for each type of notification to be sent to all configured email addresses.



Figure 3-22. Diag Function Test Page

#### 3.17.3 Test All SNMP Traps Function

Clicking the **Test All SNMP Traps** button forces the model 3000 to send SNMP traps to all destination hosts with current values.

### 3.18 Change Administrative Password Page

To access the **Administrative Menu**, enter the user name **admin** and default password **carkey**. We recommend that you change the user name and password after entering the **Administrative Menu**.

Enter the new Admin password and click **Submit** or press <Enter> to save changes.

**SolidData**

**Main Menu** **Diagnostic Data** **System Inventory** **Administrative Functions**

- Email Configuration (SMTP)
- IP Configuration
- Fibre Channel Configuration
- LUN Configuration
- LUN Masking Configuration
- SNMP Configuration
- General Configuration
- Change Admin Password
- Diag Function Test
- SNMP MIB File

### Change Admin Password

Current Admin Password :

New Admin Password :

Retype New Admin Password :

[ Main Menu / Diagnostic Data / System Inventory / Administrative Functions / SolidData web Site ]

Figure 3-23. Change Admin Password

## Remote Monitoring

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# Remote Monitoring

Chapter 4 provides Remote Monitoring information including how to configure SNMP and email settings and how to navigate the bootloader and Remote Monitor command line interface.

Some of the information provided in this chapter is specific and assumes prior knowledge of SNMPv3 and MIBs.

## 4.1 Network Management (SNMP) Overview

**Note:** Topics described in the following sections assume prior knowledge of SNMPv3 and MIBs.

The model 3000 provides an SNMP agent for error and status notification through traps as well as information gathering through **GET-REQUEST** messages from SNMP management software. The SNMP agent supports SNMPv1, v2 and v3 interaction, but it will not use the security features from SNMPv3.

### 4.1.1 Parameter Setting Login

To provide the same degree of security in the SNMP interface as the Web interface, the model 3000 requires a user name and password (transmitted in plain text) before setting operating parameters. This feature is implemented by the **m3000AdminUsername**, **m3000AdminPassword** and **m3000AdminLoggedIn** MIB variables.

MIB variable values may always be read (through **GET-REQUEST** messages) but by default they may not be written (through **SET-REQUEST** messages). When an SNMP manager correctly sets the **m3000AdminUsername** and **m3000AdminPassword** (in either order but without trying to write the value of any other variable first) **m3000AdminLoggedIn** becomes true and read-write variables may be written. This situation persists until **m3000AdminUsername**, **m3000AdminPassword** or **m3000AdminLoggedIn** are written with any value (even if it is a correct value for username or password). This causes **m3000AdminLoggedIn** to become false and read-write variables may no longer be written.

The only variables that may be written to are **m3000HwReportInterval** and **m3000FcALPADesired**. Because SNMPv1 community strings are not relevant to SNMPv2 and v3, and the admin login procedure provides a stronger security mechanism, community strings in **GET-REQUEST** and **SET-REQUEST** messages are ignored. Incoming SNMP messages will not be rejected or filtered based on their community string.

## 4.2 SNMP Interface

Use the SNMP interface to set the system contact, system location and up to ten trap destinations. For more information on how to use the SNMP Configuration page, refer to the “SNMP Configuration” section in Chapter 3, “Operation.”

**SolidData**

**Administrative Functions**

- Email Configuration (SMTP)
- IP Configuration
- Fibre Channel Configuration
- LUN Configuration
- LUN Masking Configuration
- **SNMP Configuration**
- General Configuration
- Change Admin Password
- Diag Function Test
- SNMP MIB File

### SNMP Configuration

System Contact :

System Location :

Trap destinations :  
(one IP address per line)  
(maximum of 10)

[ [Main Menu](#) | [Diagnostic Data](#) | [System Inventory](#) | [Administrative Functions](#) | [SolidData Web Site](#) ]

Figure 4-1. SNMP Configuration Page



### 4.3 SNMP Traps

Every SNMP trap the model 3000 sends contains four to seven variable bindings. The first four variables are the same in every trap:

1. **m3000EventDescription**: A brief textual description of the event.
2. **m3000SysSerialNumber**: The system serial number.
3. **m3000CtrlFirmwareRevision**: The revision string for the firmware running on the controller board.
4. **m3000RmrFirmwareRevision**: The revision string for the firmware running on the RMR board.

Depending on the trap type there are three other variables that may appear. If an index is associated with the event (for example, which power supply the voltage warning is referring to) the **m3000EventIndex** variable will be present.

If the sub-assembly that the event pertains to has a serial number (e.g. controller card, power supplies and RAM cards) that serial number variable is included.

Finally, if there is a data value pertinent to the trap (e.g. temperature reading, block address of a memory error) the data value will be present.

All possible traps and the their trap-specific variables are shown below in table 4-1:

Name	Trap Number	Index Used	Serial Number	Data Value
m3000Heartbeat	100			
m3000StartupInProgress	101			
m3000SystemReady	102			
m3000StartupAborted	103			
m3000ShutdownInProgress	104			
m3000ShutdownComplete	105			
m3000ShutdownAborted	106			
m3000ControllerReset	107			
m3000RMRRReset	108			
m3000DataRetentionDriveGood	109			
m3000DataRetentionDriveBad	110			
m3000FcALPACChange	120	X		m3000FcALPADesired
m3000FcPortNoLoop	121	X		
m3000FcPortLoopUp	122	X		
m3000FcPortNotReady	123	X		
m3000FcPortReady	124	X		
m3000Ctrl27VOutOfRange	140		m3000CtrlSerialNumber	m3000Ctrl27V
m3000Ctrl12VOutOfRange	141		m3000CtrlSerialNumber	m3000Ctrl12V
m3000Ctrl5VOutOfRange	142		m3000CtrlSerialNumber	m3000Ctrl5V
m3000Ctrl3VOutOfRange	143		m3000CtrlSerialNumber	m3000Ctrl3V
m3000CtrlTempC1OutOfRange	144		m3000CtrlSerialNumber	m3000CtrlTempC1
m3000CtrlTempC2OutOfRange	145		m3000CtrlSerialNumber	m3000CtrlTempC2
m3000ChassisBatteryInstalled	146			
m3000ChassisBatteryRemoved	147			
m3000ChassisBatteryVoltageOutOfRange	148			m3000ChassisBatteryVoltage
m3000ChassisBatteryLevelLow	149			
m3000PsInstalled	160	X	m3000PsSerialNumber	
m3000PsRemoved	161	X	m3000PsSerialNumber	
m3000PsInstalledButOff	162	X	m3000PsSerialNumber	
m3000PsDeactivated	163	X	m3000PsSerialNumber	
m3000PsActivated	164	X	m3000PsSerialNumber	
m3000PsUserOff	165	X	m3000PsSerialNumber	
m3000PsUserOn	166	X	m3000PsSerialNumber	
m3000PsACLineFailure	167	X	m3000PsSerialNumber	
m3000PsACLineRestored	168	X	m3000PsSerialNumber	
m3000Ps28VOutOfRange	169	X	m3000PsSerialNumber	m3000Ps28V
m3000Ps12VOutOfRange	170	X	m3000PsSerialNumber	m3000Ps12V
m3000Ps5VOutOfRange	171	X	m3000PsSerialNumber	m3000Ps5V
m3000Ps3VOutOfRange	172	X	m3000PsSerialNumber	m3000Ps3V
m3000PsBatteryVoltageOutOfRange	173	X	m3000PsSerialNumber	m3000PsBatteryVoltage
m3000PsBatteryLevelLow	174	X	m3000PsSerialNumber	
m3000PsFanTach1OutOfRange	175	X	m3000PsSerialNumber	m3000PsFanTach1
m3000PsFanTach2OutOfRange	176	X	m3000PsSerialNumber	m3000PsFanTach2
m3000PsTempCOutOfRange	177	X	m3000PsSerialNumber	m3000PsTempC
m3000FanInstalled	180	X		
m3000FanRemoved	181	X		
m3000FanFanTach1OutOfRange	182	X		m3000FanFanTach1
m3000FanFanTach2OutOfRange	183	X		m3000FanFanTach2
m3000RamCardInstalled	200	X	m3000RamSerialNumber	
m3000RamCardRemoved	201	X	m3000RamSerialNumber	
m3000RamPredictiveMemoryError	202	X	m3000RamSerialNumber	m3000RamPredErrorLocation
m3000RamUncorrectableMemoryError	203	X	m3000RmrSerialNumber	m3000RamUncorrErrorLocation
m3000RamTempC1OutOfRange	204	X	m3000RamSerialNumber	m3000RamTempC1
m3000RamTempC2OutOfRange	205	X	m3000RamSerialNumber	m3000RamTempC2

Table 4-1. SNMP Traps and Trap Variables

## 4.4 SNMP MIB File

The MIB (Management Information Base) for the model 3000 can be downloaded from the Remote Monitoring Web page. This gives you convenient access to the current version of the MIB file.

After logging on to the **Administrative Menu** in the Remote Monitoring Web page, click on **SNMP MIB File**. The MIB can then be copied and loaded into your SNMP browser. The latest MIB should always be loaded from the Remote Monitoring Web page.

Appendix 5.1 includes a sample MIB for reference purposes only. **Do not** attempt to use the sample MIB provided in this manual. Always download the current MIB file from the Remote Monitoring Web page.



---

The current MIB should always be copied from the RMR Web page and loaded into your SNMP browser.

Do not attempt to load the sample MIB provided in this user manual.

---

## 4.5 Email

The model 3000 can send SMTP email messages to notify the user of errors and system events. Unlike the SNMP implementation, this SMTP interface does not provide information gathering or system configuration capability - only error/event notification.

### 4.5.1 SMTP Configuration

Please note that email messages are not sent directly to the destination machine(s). The system must be configured with the IP address of an SMTP server before it can send any notification emails. Each outgoing email message will be sent to this server, which is responsible for forwarding it to the appropriate destination email address (which is contained in the message).

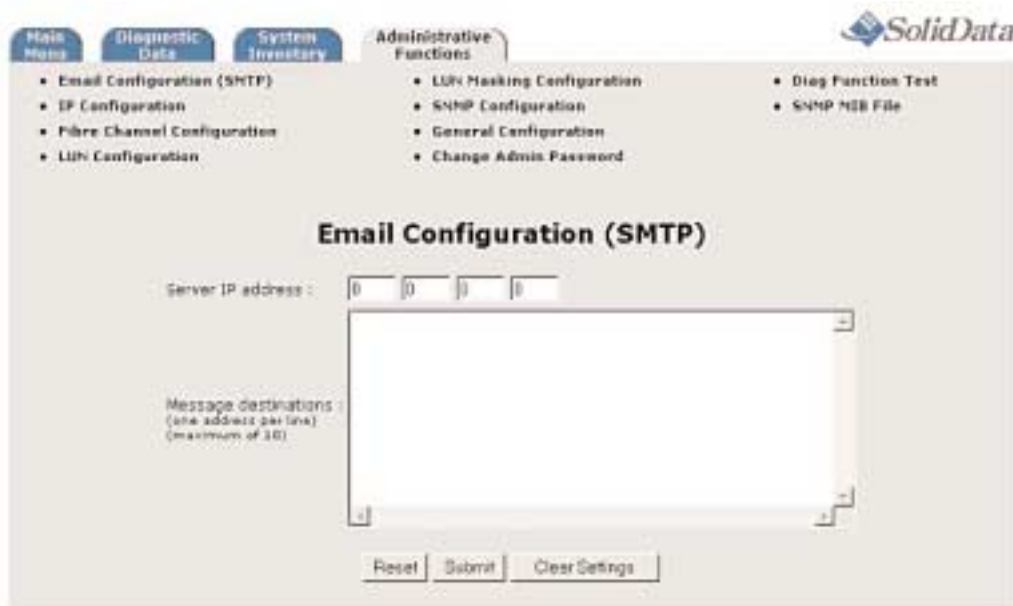
In addition to a server address the SMTP client must be given a list of email addresses to send notification messages to. This list can contain up to 10 destination addresses of the form user@domain. Note that many SMTP servers disable email relaying (the ability to forward a message send request to another SMTP server) by default, in which case the email address must be known and reachable by the configured server.

SMTP notification is configured using the **SMTP Configuration** Web page.

Connect to the model 3000 Web page and log on to the **Administrative Functions** section using the user name **admin** and password **carkey**.

The IP address for a valid SMTP server must be entered on this page. Then enter a maximum of 10 email addresses in the form of name@domain.com.

Click **Submit** to save the configuration to the Remote Monitor.



The screenshot shows the SolidData web interface. At the top, there are navigation tabs: Main Menu, Diagnostic Data, System Inventory, and Administrative Functions. The Administrative Functions tab is selected, showing a list of options: Email Configuration (SMTP), IP Configuration, Fibre Channel Configuration, LUN Configuration, LUN Masking Configuration, SNMP Configuration, General Configuration, Change Admin Password, Diag Function Test, and SNMP NBB File. The Email Configuration (SMTP) page is displayed, featuring a form with the following elements:

- Server IP address :** A text input field with a placeholder "0 0 0 0".
- Message destinations :** A large text area with a placeholder "(one address per line) (maximum of 10)".
- Buttons:** Reset, Submit, and Clear Settings.

Figure 4-2. SMTP Configuration



Email messages cannot be sent to the `admin@host_name.domain_name` address.

This address is only a placeholder to help identify the system sending the notification message.

## 4.5.2 SMTP Message Structure

Each email message has the same basic structure as the equivalent SNMP trap, except there are five standard information elements instead of four:

1. **Description:** A brief textual description of the event.
2. **Unit Serial Number:** The system serial number.
3. **Controller Firmware Revision:** The revision number for the firmware running on the controller board.
4. **RMR Firmware Revision:** The revision number for the firmware running on the RMR board.
5. **Current System Time:** How long the RMR has been running (of the form `#y#d#h#m#s`).

Each message may also contain up to the same three additional pieces of information as the equivalent SNMP trap.

The "From" clause in each email message's header will be of the form

**`admin@host_name.domain_name`**

where "**host\_name**" is the system host name and "**domain\_name**" is the system domain name, both taken from the network interface configuration parameters. **Note that email messages cannot be sent to this address.** It is merely a placeholder used to help identify the system sending the notification message.

The "**Subject**" clause in each email message will essentially be the same as the name of the equivalent SNMP trap, modified as follows:

- "m3000" is dropped from the start of the name

Initial device type abbreviations are expanded:

- "Fc" becomes "Fibre Channel"
- "Ctrl" becomes "Controller"
- "Ps" becomes "Power Supply"
- "Fan" becomes "Fan Carrier"
- "Ram" becomes "RAM Card"
- Spaces are inserted between words

For example, "m3000StartupInProgress" becomes "Startup in Progress" and "m3000FanFanTach1OutOfRange" becomes "Fan Carrier Fan Tach 1 Out of Range."

### 4.5.3 Email Notification Testing

Email notification can be tested by going to the **Diag Function Test** Web page and selecting **Test All Email Notifications**. This will cause sample emails for all traps to be sent to all configured email addresses.

The following is a sample email message for a "Chassis Battery Level Low" trap:

**Subj:** Chassis Battery Level Low

**Description:** The chassis battery level has dropped to less than 20% full.

**Unit serial number:** P302040006

**Controller firmware revision:** FCA1

**RMR firmware revision:** FDA1

**Current system time:** 35m33s

## 4.6 Remote Monitor Command Line Interface

Almost every informational and configuration function that is available to the user through the Web interface is also available through a command line interface that is accessed through the Remote Monitor configuration serial port, which is the left most DB-9 connector found on the back of the unit.

### 4.6.1 Serial Port Connection

A VT100 terminal emulation program with the following settings should be used to communicate through this serial port.

To use the monitor, connect the 9 pin female connector to a RS-232 terminal or to the COM port on a PC with an external cable wired as follows:

<u>Model 3000</u>		<u>COM Port</u>
Pin 2 (Tx)	to	Pin 2 (Rx)
Pin 3 (Rx)	to	Pin 3 (Tx)
Pin 5 (gnd)	to	Pin 5 (gnd)

Table 4-2. Serial Port Connection Wire Settings

When connected to a COM port on a PC, a terminal emulation program such as Hyperterminal can be used to communicate with the monitor.

Set the terminal emulation program as follows:

- Baud rate:  $\leq 115200$
- Data width: 8 bits
- Parity: none
- Stop bit: 1 bit
- Flow control: Xon/Xoff
- Local echo: Off
- Newline sequence (for transmit and receive): CR

#### 4.6.2 Power Up Sequence

When the model 3000 is first powered up, the Remote Monitor reports the following:

Messages from BootLoader:

- POST (Power On Self Test) Status
- BIST (Built In Self Test) Status
- Report Flash Bank Status

Messages from Remote Monitor application:

- Report BootLoader and Remote Monitor Versions
- Start TCP/IP Stack
- Obtain IP Address Using DHCP if Not Previously Set
- Report IPC Status
- Report Fan Status
- Report HTTP Server Status
- Start Restore from Internal Data Retention Drive



```

-----
SolidData Bootloader 3.00.c - 3000 RMR
Performing reset startup procedure.
Running Power-On Self-Tests:
    Bootloader ROM checksum test - passed.
    RAM 16-bit incrementing pattern test - passed.
    RAM alternating 0xAAAA/0x5555 pattern test - passed.
    RAM alternating 0x5555/0xAAAA pattern test - passed.
    RAM walking bit one test - passed.
    RAM walking bit zero test - passed.
Running Built-In Self-Tests:
    I2C critical component test - passed.
    I2C non-critical component test - passed.
    Ethernet chip test - passed.
    Non-volatile RAM test - passed.
    High RAM test - passed.
Checking active flash bank checksum...
Running binary firmware image in flash bank 0.
intMask(03fc): sp0(0) spl(1) i4(1) i3(1) i2(1) i1(1) i0(1) d1(1) d0(1) tmr(0)
3000 Remote Monitoring and Reporting
    Bootloader Version 3.00.c
    Firmware Version 0.03.e
Using primary non-volatile storage block values.
Retrieving trap hosts from persistent storage:
    172.16.8.99
TPS: Starting TCP/IP protocol stack
AMD961 00029300000b IR4 P200
System is not configured with an IP address
Attempting to obtain an IP address using DHCP
SPI: Starting SPI interface
IPC link up
FBC: Starting FBC interface
Obtained IP address 172.16.8.101 from DHCP.
WEB: Starting HTTP server
"Startup in Progress" event occurred
"System Ready" event occurred
"Fibre Channel Port Ready" event occurred
Pres <CR> to enter menu:
Are you sure you want to clear all SNMP settings? [Y/N] y
    1 - Reset a data structure
    2 - Perform a diagnostic test
    3 - Get command help
    4 - Set the specified value(s)
    5 - Show the specified information
Press key of desired selection, or Backspace for the previous menu:
-----

```

Figure 4-3. Bootloader Power Up Sequence

### 4.6.3 Bootloader Access/Firmware Upload

To access the bootloader, press <Ctrl><C> twice at the RMR command line. This will cause a watchdog timer reset on the RMR board.

While the Built In Self Tests are running, repeatedly press the <A> key until an interactive menu appears. The bootloader will wait for keyboard input for only a few seconds before starting the RMR firmware.

If the normal firmware starts up press <Ctrl><C> twice again to repeat the reset cycle.

From the bootloader menu it is possible to display the Ethernet MAC address, flash new firmware and switch the active flash bank (there are two 512KB banks of flash memory).

The BootLoader menu can be used to download new firmware for the Remote Monitor application.

```
SolidData Bootloader 3.00.c (3000 RMR) Menu:
```

```
Flash bank 0 is active.
```

- 0 - Download new firmware to flash via serial connection
- 1 - Run program in flash
- 2 - Calculate and display flash bank 0 xsum
- 3 - Calculate and display flash bank 1 xsum
- 4 - Calculate and display bootloader xsum
- 5 - Display ethernet MAC address
- 6 - Switch active flash bank
- 7 - Perform severe walking bit test on RAM

Figure 4-4. Bootloader Menu

# Appendices

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## Appendices

Appendices provided in this chapter are for your reference, including a sample MIB file, command line reference, event messages, the debug port interface, operating system configurations and supported SCSI commands.


The MIB file is only an example and should never be loaded into your SNMP browser. To load the current MIB visit the Remote Monitoring Web page and click on “SNMP MIB File.” The MIB can then be copied and pasted into your SNMP browser.

## 5.1 Sample MIB File

The following is a sample MIB file for the model 3000. **Do not cut and paste this MIB into your browser.** Always load the latest MIB from the Remote Monitoring Web page into your SNMP browser.

```
--/*****
--/*  Copyright (C) 2000,2001,Solid Data Systems      */
--/*  module   = Solid Data Systems 3000 MIB          */
--/*  date     = 01/13/03                            */
--/*  hist     = H. Metz                              */
--/*  version  = 2                                    */
--/*****
SOLIDDATA-rmr-MIB DEFINITIONS ::= BEGIN
IMPORTS
    enterprises
        FROM RFC1155-SMI
    OBJECT-GROUP, NOTIFICATION-GROUP
        FROM SNMPv2-CONF
    DisplayString
        FROM SNMPv2-TC
    NOTIFICATION-TYPE, OBJECT-TYPE, MODULE-IDENTITY, Integer32
        FROM SNMPv2-SMI;
soliddata OBJECT IDENTIFIER ::= { enterprises 6162 }
fcarmrmib MODULE-IDENTITY
    LAST-UPDATED
        "0301130000Z"
    ORGANIZATION
        "Solid Data Systems, Inc."
    CONTACT-INFO
        "Service and Support
        Solid Data Systems
        3542 Bassett St.
        Santa Clara, CA 95054
        Tel: 408-845-5497
        800-287-0373
        E-mail: support@soliddata.com"
    DESCRIPTION
        "The MIB module for management of the model 3000 FCA."
        ::= { soliddata 1 }
m3000 OBJECT IDENTIFIER ::= { fcarmrmib 3 }
m3000MibVersion OBJECT IDENTIFIER ::= { m3000 2 }

--/*****
--/*  Top level structure                                */
--/*****
m3000Conf OBJECT IDENTIFIER ::= { m3000MibVersion 1 }
m3000Groups OBJECT IDENTIFIER ::= { m3000Conf 1 }
m3000Compls OBJECT IDENTIFIER ::= { m3000Conf 2 }
m3000Objs OBJECT IDENTIFIER ::= { m3000MibVersion 2 }
m3000GeneralObjs OBJECT IDENTIFIER ::= { m3000Objs 1 }
m3000FibreChannelObjs OBJECT IDENTIFIER ::= { m3000Objs 2 }
m3000SystemHardwareObjs OBJECT IDENTIFIER ::= { m3000Objs 3 }
m3000PowerSupplyObjs OBJECT IDENTIFIER ::= { m3000Objs 4 }
m3000FanCarrierObjs OBJECT IDENTIFIER ::= { m3000Objs 5 }
m3000RAMCardObjs OBJECT IDENTIFIER ::= { m3000Objs 6 }
m3000ErrorObjs OBJECT IDENTIFIER ::= { m3000Objs 7 }
m3000Events OBJECT IDENTIFIER ::= { m3000MibVersion 3 }
m3000EventsV2 OBJECT IDENTIFIER ::= { m3000Events 0 }
--/*****
--/*  Managed objects                                */
--/*****
-----
-- General objects
-----
m3000EventDescription OBJECT-TYPE
```

 The current MIB should always be copied from the RMR Web page and loaded into your SNMP browser.

Do not attempt to load the sample MIB provided in this user manual.

Figure 5-1. Sample MIB File

```

SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This object is only used in conjunction with NOTIFICATION-TYPE or 'trap'
events to provide a text description of the event."
::= { m3000GeneralObjs 1 }
m3000EventIndex OBJECT-TYPE
SYNTAX      Integer32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This object is only used in conjunction with NOTIFICATION-TYPE or 'trap'
events to provide the proper row index for any event variables
that are elements of a table. All variables will be elements of the
same table in such circumstances."
::= { m3000GeneralObjs 2 }
m3000CtlFirmwareRevision OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the revision of the firmware on the system controller board."
::= { m3000GeneralObjs 3 }
m3000CtlBootloaderRevision OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the revision of the firmware for the EPROM-based boot loader on the
system controller board."
::= { m3000GeneralObjs 4 }
m3000CtlFPGAREvision OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the revision of the FPGA on the system controller."
::= { m3000GeneralObjs 5 }
m3000RmrFirmwareRevision OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the revision of the firmware on the system remote monitoring board."
::= { m3000GeneralObjs 6 }
m3000RmrBootloaderRevision OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the revision of the firmware for the EPROM-based boot loader on the
system remote monitoring board."
::= { m3000GeneralObjs 7 }
m3000SysSerialNumber OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the system serial number."
::= { m3000GeneralObjs 8 }
m3000SystemStatus OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the overall system status. It can be any one of the following
values:
    Initializing - Performing power-up initialization
    Startup in Progress - In the process of restoring data from the
                        internal hard drive
    Ready - Normal operating mode
    Not Ready - No actions are in progress but the system is not
responding to data read/write requests because of some extenuating circumstance

```

```

(e.g. system is over temperature) Shutdown in Progress - In the process of
saving data to the internal hard drive
        Powering Down - Performing final power-down housekeeping"
    ::= { m3000GeneralObjs 9 }
m3000DataRetentionDriveStatus OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
"This indicates if the internal hard drive is operating properly (TRUE) or not
(FALSE)."
```

```

    ::= { m3000GeneralObjs 10 }
m3000AdminUsername OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
"This is the administrator username, which is used in the login procedure
explained in the definition of m3000adminLoggedIn. The MAX-ACCESS
clause for this variable is 'read-write', but any GET request for this
variable value will return a blank string."
```

```

    ::= { m3000GeneralObjs 11 }
m3000AdminPassword OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
"This is the administrator password, which is used in the login procedure
explained in the definition of m3000adminLoggedIn. The MAX-ACCESS clause for
this variable is 'read-write', but any GET request for this variable value
will return a blank string."
```

```

    ::= { m3000GeneralObjs 12 }
m3000AdminLoggedIn OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
"This indicates if an administrator is currently logged in (TRUE) to the
system or not (FALSE). The system will reject any SET requests if no
administrator is logged in. To login set the m3000adminUsername and
m3000adminPassword variables to their appropriate values, at which time the
value of this variable will change from FALSE to TRUE to indicate a login has
occurred. The username and password variables must be set either in the same
SET request or in two consecutive SET requests with no other requests
intervening. To logout issue a SET request to this variable (the value to set
it to will be ignored)."
```

```

    ::= { m3000GeneralObjs 13 }
m3000HwReportInterval OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
"This is the number of seconds to wait between sending a repeat trap for a
persistent hardware error condition. When set to 0 only a single trap will be
generated by a hardware error."
```

```

    DEFVAL      { 0 }
    ::= { m3000GeneralObjs 14 }

-----
-- Fibre Channel objects
-----

m3000FcWorldWideNodeName OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
"This is a hexadecimal representation of the Fibre Channel World Wide
Node_Name for the system."
```

```

    ::= { m3000FibreChannelObjs 1 }
m3000FcMaxNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
"This is the maximum number of entries in the Fibre Channel interfaces table."
```

```

DEFVAL      { 2 }
::= { m3000FibreChannelObjs 2 }
m3000FcTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF M3000FcEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is the table of Fibre Channel interface information. The current and
        maximum number of entries is specified by m3000FcMaxNumber. The first entry
        (index 0) corresponds to Port A and the second entry (index 1) corresponds to
        Port B."
        ::= { m3000FibreChannelObjs 3 }
m3000FcEntry OBJECT-TYPE
    SYNTAX      M3000FcEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is an entry in the Fibre Channel interface information table. A row in
        this table cannot be created or deleted by SNMP operations on columns of the
        table."
        INDEX      { m3000FcIndex }
        ::= { m3000FcTable 1 }
M3000FcEntry ::= SEQUENCE {
    m3000FcIndex Integer32,
    m3000FcPortStatus DisplayString,
    m3000FcLoopIDDesired Integer32,
    m3000FcActualAddress Integer32,
    m3000FcWorldWidePortName DisplayString
}
m3000FcIndex OBJECT-TYPE
    SYNTAX      Integer32 (0..1)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the index of the entry within the Fibre Channel interface table. The
        row with index 0 corresponds to Port A and the row with index 1 corresponds to
        Port B."
        ::= { m3000FcEntry 1 }
m3000FcPortStatus OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the status of the Fibre Channel port. It can be any one of the
        following values:
            No Loop - Could not complete loop initialization
            Not Ready - LIP complete, handling all commands but reads and writes
            Ready - LIP complete, handling all commands"
        ::= { m3000FcEntry 2 }
m3000FcLoopIDDesired OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This is the Fibre Channel Loop ID that the unit will attempt to acquire for
        the port during the next loop initialization. It can be any integer between 0
        and 125 inclusive. Additionally, a value of 255 can be used to clear this
        setting and attempt to take the default Loop ID (0)."
        DEFVAL      { 255 }
        ::= { m3000FcEntry 3 }
m3000FcActualAddress OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the Fibre Channel address for the port that the unit was assigned
        during the last loop initialization."
        DEFVAL      { 0 }
        ::= { m3000FcEntry 4 }
m3000FcWorldWidePortName OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION

```



```

"This is a hexadecimal representation of the Fibre Channel World Wide
Port_Name for the port."
    ::= { m3000FcEntry 5 }
m3000FcLunCurNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the current number of entries in the LUN table."
    DEFVAL      { 1 }
    ::= { m3000FibreChannelObjs 4 }
m3000FcLunMaxNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the maximum number of entries in the LUN table."
    DEFVAL      { 64 }
    ::= { m3000FibreChannelObjs 5 }
m3000FcLunTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF M3000FcLunEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is the table of LUNs. The current number of entries is specified by
m3000FcLunCurNumber, and the maximum number of entries is specified by
m3000FcLunMaxNumber."
    ::= { m3000FibreChannelObjs 6 }
m3000FcLunEntry OBJECT-TYPE
    SYNTAX      M3000FcLunEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is an entry in the LUN table. A row in this table cannot be created or
deleted by SNMP operations on columns of the table."
    INDEX      { m3000FcLunIndex }
    ::= { m3000FcLunTable 1 }
M3000FcLunEntry ::= SEQUENCE {
    m3000FcLunIndex Integer32,
    m3000FcLunSize DisplayString}
m3000FcLunIndex OBJECT-TYPE
    SYNTAX      Integer32 (0..63)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the index of the entry within the LUN table."
    ::= { m3000FcLunEntry 1 }
m3000FcLunSize OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the size of the LUN."
    ::= { m3000FcLunEntry 2 }
m3000FcMaskCurNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the current number of entries in the LUN mask table."
    DEFVAL      { 1 }
    ::= { m3000FibreChannelObjs 7 }
m3000FcMaskMaxNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the maximum number of entries in the LUN mask table."
    DEFVAL      { 32 }
    ::= { m3000FibreChannelObjs 8 }
m3000FcMaskTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF M3000FcMaskEntry
    MAX-ACCESS  not-accessible
    STATUS      current

```

```

DESCRIPTION
"This is the table of LUN masks. The current number of entries is specified by
m3000FcMaskCurNumber, and the maximum number of entries is specified by
m3000FcMaskMaxNumber."
 ::= { m3000FibreChannelObjs 9 }
m3000FcMaskEntry OBJECT-TYPE
    SYNTAX      M3000FcMaskEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is an entry in the LUN mask table. A row in this table cannot be created
        or deleted by SNMP operations on columns of the table."
        INDEX      { m3000FcMaskIndex }
        ::= { m3000FcMaskTable 1 }
M3000FcMaskEntry ::= SEQUENCE {
    m3000FcMaskIndex Integer32,
    m3000FcMaskInitiator DisplayString,
    m3000FcMaskLunMask DisplayString}
m3000FcMaskIndex OBJECT-TYPE
    SYNTAX      Integer32 (0..31)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the index of the entry within the LUN mask table."
        ::= { m3000FcMaskEntry 1 }
m3000FcMaskInitiator OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is a hexadecimal representation of the Fibre Channel World Wide
        Port_Name for the initiator. It is also possible for this object to have the
        value 'All Unspecified', which means that this entry applies to any initiator
        that does not have its own entry in the LUN mask table."
        ::= { m3000FcMaskEntry 2 }
m3000FcMaskLunMask OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is a comma-separated list of all the LUNs that the initiator specified
        in this row of the LUN mask table can access (execute read and write
        commands)."
        ::= { m3000FcMaskEntry 3 }
m3000FcInitCurNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the current number of entries in the current initiator table."
        DEFVAL      { 0 }
        ::= { m3000FibreChannelObjs 10 }
m3000FcInitMaxNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the maximum number of entries in the current initiator table."
        DEFVAL      { 32 }
        ::= { m3000FibreChannelObjs 11 }
m3000FcInitTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF M3000FcInitEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is the table of current initiators. The current number of entries is
        specified by m3000FcInitCurNumber, and the maximum number of entries is
        specified by m3000FcInitMaxNumber."
        ::= { m3000FibreChannelObjs 12 }
m3000FcInitEntry OBJECT-TYPE
    SYNTAX      M3000FcInitEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION

```

"This is an entry in the current initiator table. A row in this table cannot be created or deleted by SNMP operations on columns of the table."

```
    INDEX      { m3000FcInitIndex }
    ::= { m3000FcInitTable 1 }
M3000FcInitEntry ::= SEQUENCE {
    m3000FcInitIndex Integer32,
    m3000FcInitWorldWidePortName DisplayString}
m3000FcInitIndex OBJECT-TYPE
    SYNTAX      Integer32 (0..31)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is the index of the entry within the current initiator table."
::= { m3000FcInitEntry 1 }

```
m3000FcInitWorldWidePortName OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is a hexadecimal representation of the Fibre Channel World Wide Port\_Name for the initiator."
::= { m3000FcInitEntry 2 }

-----
-- System hardware objects
-----

```
m3000Ctrl27V OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is the current 27.5V reading on the controller card (in V)."
DEFVAL { "0.0" }
::= { m3000SystemHardwareObjs 1 }

```
m3000Ctrl12V OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is the current 12V reading on the controller card (in V)."
DEFVAL { "0.0" }
::= { m3000SystemHardwareObjs 2 }

```
m3000Ctrl5V OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is the current 5V reading on the controller card (in V)."
DEFVAL { "0.0" }
::= { m3000SystemHardwareObjs 3 }

```
m3000Ctrl3V OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is the current 3.3V reading on the controller card (in V)."
DEFVAL { "0.0" }
::= { m3000SystemHardwareObjs 4 }

```
m3000CtrlTempC1 OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is the first temperature reading on the controller card (in degrees C)."
DEFVAL { 0 }
::= { m3000SystemHardwareObjs 5 }

```
m3000CtrlTempC2 OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

"This is the second temperature reading on the controller card (in degrees C)."
DEFVAL { 0 }
::= { m3000SystemHardwareObjs 6 }

## 5.1 Sample MIB File

```

m3000CtrlSerialNumber OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the controller card's serial number."
        ::= { m3000SystemHardwareObjs 7 }
m3000BckPlnSerialNumber OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the backplane's serial number."
        ::= { m3000SystemHardwareObjs 8 }
m3000RmrSerialNumber OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the RMR card's serial number."
        ::= { m3000SystemHardwareObjs 9 }
m3000ChassisBatteryPresent OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This indicates if the chassis battery is present (TRUE) in the system or not
        (FALSE)."
        DEFVAL { "FALSE" }
        ::= { m3000SystemHardwareObjs 10 }
m3000ChassisBatteryVoltage OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the chassis battery voltage reading (in V)."
        ::= { m3000SystemHardwareObjs 11 }
m3000ChassisBatteryLevel OBJECT-TYPE
    SYNTAX      Integer32 (-1..100)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the current chassis battery charge level (% of total capacity). A (-
        1) value means the battery is being used, so it's charge level cannot be
        determined."
        DEFVAL { 0 }
        ::= { m3000SystemHardwareObjs 12 }
-----
-- Power supply objects
-----
m3000PsMaxNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the maximum number of entries in the power supply table."
        DEFVAL { 2 }
        ::= { m3000PowerSupplyObjs 1 }
m3000PsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF M3000PsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is the table of power supply information. The current and maximum number
        of entries is specified by m3000PsMaxNumber. The first entry (index 0)
        corresponds to the bottom power supply in the chassis and the second entry
        (index 1) corresponds to the top power supply in the chassis. If the value of
        the m3000PsPresent column of a row is FALSE then no other columns of that row
        are relevant. If the value of the m3000PsOn column of a row is FALSE then the
        voltage, fan speed and temperature columns of that row are not relevant."
        ::= { m3000PowerSupplyObjs 2 }
m3000PsEntry OBJECT-TYPE
    SYNTAX      M3000PsEntry
    MAX-ACCESS  not-accessible

```

```

STATUS      current
DESCRIPTION
"This is an entry in the power supply information table. A row in this table
cannot be created or deleted by SNMP operations on columns of the table."
INDEX       { m3000PsIndex }
::= { m3000PsTable 1 }
m3000PsEntry ::= SEQUENCE {
    m3000PsIndex Integer32,
    m3000PsPresent DisplayString,
    m3000Ps28V DisplayString,
    m3000Ps12V DisplayString,
    m3000Ps5V DisplayString,
    m3000Ps3V DisplayString,
    m3000PsBatteryVoltage DisplayString,
    m3000PsBatteryLevel Integer32,
    m3000PsFanTach1 Integer32,
    m3000PsFanTach2 Integer32,
    m3000PsTempC Integer32,
    m3000PsOn DisplayString,
    m3000PsActive DisplayString,
    m3000PsACLineStatus DisplayString,
    m3000PsSerialNumber DisplayString}
m3000PsIndex OBJECT-TYPE
SYNTAX      Integer32 (0..1)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This is the index of the entry within the power supply table. The row with
index 0 corresponds to the bottom power supply in the chassis. The row with
index 1 corresponds to the top power supply in the chassis."
::= { m3000PsEntry 1 }
m3000PsPresent OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"This indicates if the power supply is present (TRUE) in the system or not
(FALSE)."
```

```

DEFVAL      { "FALSE" }
::= { m3000PsEntry 2 }
m3000Ps28V OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This is the current 28V reading (in V)."
```

```

DEFVAL      { "0.0" }
::= { m3000PsEntry 3 }
m3000Ps12V OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This is the current 12V reading (in V)."
```

```

DEFVAL      { "0.0" }
::= { m3000PsEntry 4 }
m3000Ps5V OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This is the current 5V reading (in V)."
```

```

DEFVAL      { "0.0" }
::= { m3000PsEntry 5 }
m3000Ps3V OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This is the current 3.3V reading (in V)."
```

```

DEFVAL      { "0.0" }
::= { m3000PsEntry 6 }
m3000PsBatteryVoltage OBJECT-TYPE
SYNTAX      DisplayString
```

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This is the current battery charging voltage reading (in V)."
```

DEFVAL { "0.0" }

::= { m3000PsEntry 7 }

m3000PsBatteryLevel OBJECT-TYPE

SYNTAX Integer32 (-1..100)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the current battery charge level (% of total capacity). A (-1) value means the battery is being used, so its charge level cannot be determined."

DEFVAL { 0 }

::= { m3000PsEntry 8 }

m3000PsFanTach1 OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the current fan 1 tachometer reading (in RPM)."

DEFVAL { 0 }

::= { m3000PsEntry 9 }

m3000PsFanTach2 OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the current fan 2 tachometer reading (in RPM)."

DEFVAL { 0 }

::= { m3000PsEntry 10 }

m3000PsTempC OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the current temperature reading (in degrees C)."

DEFVAL { 0 }

::= { m3000PsEntry 11 }

m3000PsOn OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This indicates if the power supply is switched on (TRUE) or not (FALSE)."

::= { m3000PsEntry 12 }

m3000PsActive OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This indicates if the power supply is activated and locked in the chassis (TRUE) or not (FALSE)."

::= { m3000PsEntry 13 }

m3000PsACLineStatus OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This indicates if the power supply's AC input line is supplying good power (TRUE) or not (FALSE)."

::= { m3000PsEntry 14 }

m3000PsSerialNumber OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the power supply's serial number."

::= { m3000PsEntry 15 }

-----

-- Fan carrier objects

-----

m3000FanMaxNumber OBJECT-TYPE

SYNTAX Integer32

```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "This is the maximum number of entries in the fan carrier table."
DEFVAL        { 2 }
::= { m3000FanCarrierObjs 1 }
m3000FanTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF M3000FanEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is the table of fan carrier information. The current and maximum number
        of entries is specified by m3000FanMaxNumber. The first entry (index 0)
        corresponds to the front fan carrier in the chassis and the second entry
        (index 1) corresponds to the rear fan carrier in the chassis. If the value of
        the m3000FanPresent column of a row is FALSE then no other columns of that row
        are relevant."
    ::= { m3000FanCarrierObjs 2 }
m3000FanEntry OBJECT-TYPE
    SYNTAX      M3000FanEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is an entry in the fan carrier information table. A row in this
        table cannot be created or deleted by SNMP operations on columns of the
        table."
    INDEX        { m3000FanIndex }
    ::= { m3000FanTable 1 }
M3000FanEntry ::= SEQUENCE {
    m3000FanIndex Integer32,
    m3000FanPresent DisplayString,
    m3000FanFanTach1 Integer32,
    m3000FanFanTach2 Integer32}
m3000FanIndex OBJECT-TYPE
    SYNTAX      Integer32 (0..1)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the index of the entry within the fan carrier table. The row with
        index 0 corresponds to the front fan carrier in the chassis. The row with
        index 1 corresponds to the rear fan carrier in the chassis."
    ::= { m3000FanEntry 1 }
m3000FanPresent OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This indicates if the fan carrier is present (TRUE) in the system or not
        (FALSE)."
```

```

    DEFVAL        { "FALSE" }
    ::= { m3000FanEntry 2 }
m3000FanFanTach1 OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the current fan 1 tachometer reading (in RPM)."
```

```

    DEFVAL        { 0 }
    ::= { m3000FanEntry 3 }
m3000FanFanTach2 OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the current fan 2 tachometer reading (in RPM)."
```

```

    DEFVAL        { 0 }
    ::= { m3000FanEntry 4 }

-----
-- RAM card objects
-----

m3000RamMaxNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current

```

```

DESCRIPTION
"This is the maximum number of entries in the RAM card table."
DEFVAL          { 6 }
::= { m3000RAMCardObjs 1 }
m3000RamTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF M3000RamEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is the table of RAM card information. The current and maximum number of
        entries is specified by m3000RamMaxNumber. The first entry (index 0)
        corresponds to the top RAM card in the chassis and the last entry (index 5)
        corresponds to the bottom RAM card in the chassis. If the value of the
        m3000RamPresent column of a row is FALSE then no other columns of that row are
        relevant."
        ::= { m3000RAMCardObjs 2 }
m3000RamEntry OBJECT-TYPE
    SYNTAX      M3000RamEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This is an entry in the RAM card information table. A row in this table
        cannot be created or deleted by SNMP operations on columns of the table."
        INDEX          { m3000RamIndex }
        ::= { m3000RamTable 1 }
M3000RamEntry ::= SEQUENCE {
    m3000RamIndex Integer32,
    m3000RamPresent DisplayString,
    m3000RamSize Integer32,
    m3000RamPredErrorCount Integer32,
    m3000RamPredErrorLocation DisplayString,
    m3000RamUncorrErrorCount Integer32,
    m3000RamUncorrErrorLocation DisplayString,
    m3000RamTempC1 Integer32,
    m3000RamTempC2 Integer32,
    m3000RamSerialNumber DisplayString}
m3000RamIndex OBJECT-TYPE
    SYNTAX      Integer32 (0..5)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the index of the entry within the RAM card table. This index value is
        the same as the card slot number, so the row with index 0 corresponds to the
        RAM card in the top slot, and the row with index 5 corresponds to the RAM card
        in the bottom slot."
        ::= { m3000RamEntry 1 }
m3000RamPresent OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This indicates if the RAM card is present (TRUE) in the system or not
        (FALSE)"
        DEFVAL          { "FALSE" }
        ::= { m3000RamEntry 2 }
m3000RamSize OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the amount of storage space on the RAM card (in MB)."
        DEFVAL          { 0 }
        ::= { m3000RamEntry 3 }
m3000RamPredErrorCount OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This is the number of soft (ECC correctable) memory errors encountered on the
        RAM card."
        ::= { m3000RamEntry 4 }
m3000RamPredErrorLocation OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only

```



```

        STATUS      current
        DESCRIPTION
        "This is the location (row and column) of the chip in the memory chip grid
        where the last predictive (ECC correctable) memory error encountered on the
        RAM card occurred."
        ::= { m3000RamEntry 5 }
m3000RamUncorrErrorCount OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
    "This is the number of uncorrectable (using ECC) memory errors encountered on
    the RAM card."
    ::= { m3000RamEntry 6 }
m3000RamUncorrErrorLocation OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
    "This is the location (column) of the chip in the memory chip grid where the
    last uncorrectable (using ECC) memory error encountered on the RAM card
    occurred."
    ::= { m3000RamEntry 7 }
m3000RamTempC1 OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
    "This is the first temperature reading on the RAM card (in degrees C)."
```

```

    DEFVAL      { 0 }
    ::= { m3000RamEntry 8 }
m3000RamTempC2 OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
    "This is the second temperature reading on the RAM card (in degrees
    C)."
```

```

    DEFVAL      { 0 }
    ::= { m3000RamEntry 9 }
m3000RamSerialNumber OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
    "This is the RAM card's serial number."
    ::= { m3000RamEntry 10 }
```

```

-----
-- System error objects
-----
m3000SystemErrorCode OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
    "This object is only used in conjunction with the m3000SystemError event to
    convey the type of system error. Contact technical support for further
    information on the meaning of a specific code."
    ::= { m3000ErrorObjs 1 }
m3000HardwareErrorCode OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
    "This object is only used in conjunction with the m3000HardwareError event to
    convey the specific device that failed. Contact technical support for further
    information on the meaning of a specific code."
    ::= { m3000ErrorObjs 2 }
```

```

--/*****
--/*  Notification events                                     */
--/*****
-----
-- General system events
-----
```

```

m3000Heartbeat NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
    "This trap is sent every hour to inform the configured managers that their
    link to this unit is functioning properly."
    ::= { m3000EventsV2 100 }
m3000StartupInProgress NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
    "This indicates that the unit has been powered on and is in the process of
    restoring data from its internal hard drive."
    ::= { m3000EventsV2 101 }
m3000SystemReady NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
    "This indicates that the unit has been powered on and has completed the
    process of restoring data from its internal hard drive."
    ::= { m3000EventsV2 102 }
m3000StartupAborted NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
    "This indicates that the power on process has been aborted and the unit is
    shutting down."
    ::= { m3000EventsV2 103 }
m3000ShutdownInProgress NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
    "This indicates that the unit is being powered off and is in the process of
    saving data to its internal hard drive."
    ::= { m3000EventsV2 104 }
m3000ShutdownComplete NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
    "This indicates that the unit has completed saving data to its internal hard
    drive and will power off in 5 seconds or idle in a Not Ready state, meaning it
    will not respond to read and write commands."
    ::= { m3000EventsV2 105 }
m3000ShutdownAborted NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
    "This indicates that the shutdown process has been aborted and the unit is
    returning to the Ready state, meaning it will respond to read and write
    commands."
    ::= { m3000EventsV2 106 }
m3000ControllerReset NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,

```

```

        m3000SysSerialNumber,
        m3000CtlFirmwareRevision,
        m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
"This indicates that an error occurred on the system controller, causing it to
reset unexpectedly."
    ::= { m3000EventsV2 107 }
m3000RMRReset NOTIFICATION-TYPE
    OBJECTS        { m3000EventDescription,
                      m3000SysSerialNumber,
                      m3000CtlFirmwareRevision,
                      m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
"This indicates that an error occurred on the RMR board, causing it to reset
unexpectedly."
    ::= { m3000EventsV2 108 }
m3000DataRetentionDriveGood NOTIFICATION-TYPE
    OBJECTS        { m3000EventDescription,
                      m3000SysSerialNumber,
                      m3000CtlFirmwareRevision,
                      m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
        "This indicates that the internal hard drive is operating properly,
        suggesting that it has been repaired after a problem."
    ::= { m3000EventsV2 109 }
m3000DataRetentionDriveBad NOTIFICATION-TYPE
    OBJECTS        { m3000EventDescription,
                      m3000SysSerialNumber,
                      m3000CtlFirmwareRevision,
                      m3000RmrFirmwareRevision }
    STATUS        current
    DESCRIPTION
        "This indicates that the internal hard drive is not operating
        properly, suggesting that it should be serviced or replaced."
    ::= { m3000EventsV2 110 }
-----
-- Fibre Channel events
-----
m3000FcLoopIDChange NOTIFICATION-TYPE
    OBJECTS        { m3000EventDescription,
                      m3000SysSerialNumber,
                      m3000CtlFirmwareRevision,
                      m3000RmrFirmwareRevision,
                      m3000EventIndex,
                      m3000FcLoopIDDesired }
    STATUS        current
    DESCRIPTION
"This indicates that the desired Fibre Channel LoopID has changed, but may not
take effect until the connected host is rebooted."
    ::= { m3000EventsV2 120 }
m3000FcPortNoLoop NOTIFICATION-TYPE
    OBJECTS        { m3000EventDescription,
                      m3000SysSerialNumber,
                      m3000CtlFirmwareRevision,
                      m3000RmrFirmwareRevision,
                      m3000EventIndex }
    STATUS        current
    DESCRIPTION
"This indicates that the Fibre Channel port could not complete loop
initialization or lost synchronization."
    ::= { m3000EventsV2 121 }
m3000FcPortLoopUp NOTIFICATION-TYPE
    OBJECTS        { m3000EventDescription,
                      m3000SysSerialNumber,
                      m3000CtlFirmwareRevision,
                      m3000RmrFirmwareRevision,
                      m3000EventIndex }
    STATUS        current
    DESCRIPTION
"This indicates that the Fibre Channel port completed loop initialization or
lost synchronization."

```

```

::= { m3000EventsV2 122 }
m3000FcPortNotReady NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex }

    STATUS      current
    DESCRIPTION
    "This indicates that the Fibre Channel port has completed loop initialization
    but it is not ready to move data -- it will respond to most commands but not
    read or write commands."
    ::= { m3000EventsV2 123 }
m3000FcPortReady NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex }

    STATUS      current
    DESCRIPTION
    "This indicates that the Fibre Channel port has completed loop initialization
    and it is ready to move data -- it will respond to all commands, including
    read and write commands."
    ::= { m3000EventsV2 124 }

-----
-- System hardware events
-----

m3000Ctrl27VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000CtrlSerialNumber,
                    m3000Ctrl27V }

    STATUS      current
    DESCRIPTION
    "This indicates that the 27.5V input to the controller board has dropped below
    26.8 volts or risen above 28.2 volts."
    ::= { m3000EventsV2 140 }
m3000Ctrl12VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000CtrlSerialNumber,
                    m3000Ctrl12V }

    STATUS      current
    DESCRIPTION
    "This indicates that the 12V input to the controller board has dropped below
    11.4 volts or risen above 12.6 volts."
    ::= { m3000EventsV2 141 }
m3000Ctrl5VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000CtrlSerialNumber,
                    m3000Ctrl12V }

    STATUS      current
    DESCRIPTION
    "This indicates that the 5V input to the controller board has dropped below
    4.8 volts or risen above 5.2 volts."
    ::= { m3000EventsV2 142 }
m3000Ctrl3VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000CtrlSerialNumber,
                    m3000Ctrl12V }

    STATUS      current
    DESCRIPTION
    "This indicates that the 3.3V input to the controller board has dropped below

```

```

3.1 volts or risen above 3.5 volts."
::= { m3000EventsV2 143 }
m3000CtrlTempC1OutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000CtrlSerialNumber,
                    m3000CtrlTempC1 }

    STATUS      current
    DESCRIPTION
        "This indicates that the chassis temperature (reading 1) has dropped
below 0 degrees Celsius or risen above 45 degrees Celsius."
        ::= { m3000EventsV2 144 }
m3000CtrlTempC2OutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000CtrlSerialNumber,
                    m3000CtrlTempC2 }

    STATUS      current
    DESCRIPTION
        "This indicates that the chassis temperature (reading 2) has dropped
below 0 degrees Celsius or risen above 45 degrees Celsius."
        ::= { m3000EventsV2 145 }
m3000ChassisBatteryInstalled NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision }

    STATUS      current
    DESCRIPTION
        "This indicates that the chassis battery has been installed in the chassis
when it previously was not present."
        ::= { m3000EventsV2 146 }
m3000ChassisBatteryRemoved NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision }

    STATUS      current
    DESCRIPTION
        "This indicates that the chassis battery was removed from the chassis."
        ::= { m3000EventsV2 147 }
m3000ChassisBatteryVoltageOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000ChassisBatteryVoltage }

    STATUS      current
    DESCRIPTION
        "This indicates that the chassis battery voltage has dropped below 26.1 volts
or risen above 28.9 volts."
        ::= { m3000EventsV2 148 }
m3000ChassisBatteryLevelLow NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision }

    STATUS      current
    DESCRIPTION
        "This indicates that the charge level of the chassis battery has dropped below
20% full."
        ::= { m3000EventsV2 149 }
-----
-- Power supply events
-----
m3000PsInstalled NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,

```

## 5.1 Sample MIB File

```

        m3000EventIndex,
        m3000PsSerialNumber }

    STATUS      current
    DESCRIPTION
    "This indicates that the power supply has been installed in the chassis when
    it previously was not present. The fifth object (m3000EventIndex) indicates
    which row of each columnar object in the power supply table contains the
    applicable values."
    ::= { m3000EventsV2 160 }
m3000PsRemoved NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }

    STATUS      current
    DESCRIPTION
    "This indicates that the power supply was removed from the chassis. The fifth
    object (m3000EventIndex) indicates which row of each columnar object in the
    power supply table contains the applicable values."
    ::= { m3000EventsV2 161 }
m3000PsInstalledButOff NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }

    STATUS      current
    DESCRIPTION
    "This indicates that the power supply is installed in the chassis but it has
    not been turned on for an extended period of time, either because it was not
    turned on after installation or it was powered down but never removed. The
    fifth object (m3000EventIndex) indicates which row of each columnar object in
    the power supply table contains the applicable
    values."
    ::= { m3000EventsV2 162 }
m3000PsDeactivated NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }

    STATUS      current
    DESCRIPTION
    "This indicates that the power supply was deactivated and is ready to be
    removed from the chassis. The fifth object (m3000EventIndex) indicates which
    row of each columnar object in the power supply table contains the applicable
    values."
    ::= { m3000EventsV2 163 }
m3000PsActivated NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }

    STATUS      current
    DESCRIPTION
    "This indicates that the power supply was activated and has been locked into
    the chassis. The fifth object (m3000EventIndex) indicates which row of each
    columnar object in the power supply table contains the applicable values."
    ::= { m3000EventsV2 164 }
m3000PsSwitchedOff NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }

    STATUS      current
    DESCRIPTION

```

```

        "This indicates that a user has flipped the power supply on/off switch
to off. The fifth object (m3000EventIndex) indicates which row of each columnar
object in the power supply table contains the applicable values."
        ::= { m3000EventsV2 165 }
m3000PsSwitchedOn NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }
    STATUS        current
    DESCRIPTION
        "This indicates that a user has flipped the power supply on/off switch to on.
The fifth object (m3000EventIndex) indicates which row of each columnar object
in the power supply table contains the applicable values."
        ::= { m3000EventsV2 166 }
m3000PsACLineFailure NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }
    STATUS        current
    DESCRIPTION
        "This indicates that m3000PsACLineStatus is 'bad', which suggests AC power into
the power supply has failed. The fifth object (m3000EventIndex) indicates which
row of each columnar object in the power supply table contains the applicable
values."
        ::= { m3000EventsV2 167 }
m3000PsACLineRestored NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber }
    STATUS        current
    DESCRIPTION
        "This indicates that the m3000PsACLineStatus is 'good', which suggests AC power
into the power supply has been restored after a failure. The fifth object
(m3000EventIndex) indicates which row of each columnar object in the power
supply table contains the applicable values."
        ::= { m3000EventsV2 168 }
m3000Ps28VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber,
                    m3000Ps28V }
    STATUS        current
    DESCRIPTION
        "This indicates that the 28V input from the power supply has dropped below
26.6 volts or risen above 29.4 volts. The fifth object (m3000EventIndex)
indicates which row of each columnar object in the power supply table contains
the applicable values."
        ::= { m3000EventsV2 169 }
m3000Ps12VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber,
                    m3000Ps12V }
    STATUS        current
    DESCRIPTION
        "This indicates that the 12.4V output from the power supply has dropped below
11.2 volts or risen above 13.6 volts. The fifth object (m3000EventIndex)
indicates which row of each columnar object in the power supply table contains

```

```

the applicable values."
    ::= { m3000EventsV2 170 }
m3000Ps5VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision,
                   m3000EventIndex,
                   m3000PsSerialNumber,
                   m3000Ps5V }
    STATUS       current
    DESCRIPTION
        "This indicates that the 5.4V output from the power supply has dropped below
        4.9 volts or risen above 5.9 volts. The fifth object (m3000EventIndex)
        indicates which row of each columnar object in the power supply table contains
        the applicable values."
        ::= { m3000EventsV2 171 }
m3000Ps3VOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision,
                   m3000EventIndex,
                   m3000PsSerialNumber,
                   m3000Ps3V }
    STATUS       current
    DESCRIPTION
        "This indicates that the 3.7V output from the power supply has dropped below
        3.3 volts or risen above 4.1 volts. The fifth object (m3000EventIndex)
        indicates which row of each columnar object in the power supply table contains
        the applicable values."
        ::= { m3000EventsV2 172 }
m3000PsBatteryVoltageOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision,
                   m3000EventIndex,
                   m3000PsSerialNumber,
                   m3000PsBatteryVoltage }
    STATUS       current
    DESCRIPTION
        "This indicates that the output voltage of the power supply battery has
        dropped below 26.1 volts or risen above 28.9 volts. The fifth object
        (m3000EventIndex) indicates which row of each columnar object in the power
        supply table contains the applicable values."
        ::= { m3000EventsV2 173 }
m3000PsBatteryLevelLow NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision,
                   m3000EventIndex,
                   m3000PsSerialNumber }
    STATUS       current
    DESCRIPTION
        "This indicates that the charge level of the power supply battery has
        dropped below 20% full. The fifth object (m3000EventIndex) indicates which row
        of each columnar object in the power supply table contains the applicable
        values."
        ::= { m3000EventsV2 174 }
m3000PsFanTach1OutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                   m3000SysSerialNumber,
                   m3000CtlFirmwareRevision,
                   m3000RmrFirmwareRevision,
                   m3000EventIndex,
                   m3000PsSerialNumber,
                   m3000PsFanTach1 }
    STATUS       current
    DESCRIPTION
        "This indicates that the speed of the power supply's first fan has
        dropped below 4900 RPM or risen above 13000 RPM. The fifth object
        (m3000EventIndex) indicates which row of each columnar object in the power

```



```

supply table contains the applicable values."
 ::= { m3000EventsV2 175 }
m3000PsFanTach2OutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber,
                    m3000PsFanTach2 }
    STATUS        current
    DESCRIPTION
    "This indicates that the speed of the power supply's fourth fan has dropped
    below 4900 RPM or risen above 13000 RPM. The fifth object (m3000EventIndex)
    indicates which row of each columnar object in the power supply table contains
    the applicable values."
    ::= { m3000EventsV2 176 }
m3000PsTempCOutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000PsSerialNumber,
                    m3000PsTempC }
    STATUS        current
    DESCRIPTION
    "This indicates that the power supply temperature has dropped below 0 degrees
    Celsius or risen above 45 degrees Celsius. The fifth object (m3000EventIndex)
    indicates which row of each columnar object in the power supply table contains
    the applicable values."
    ::= { m3000EventsV2 177 }
-----
-- Fan carrier events
-----
m3000FanInstalled NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex }
    STATUS        current
    DESCRIPTION
    "This indicates that the fan carrier has been installed in the chassis when it
    previously was not present. The fifth object (m3000EventIndex) indicates which
    row of each columnar object in the fan carrier table contains the applicable
    values."
    ::= { m3000EventsV2 180 }
m3000FanRemoved NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex }
    STATUS        current
    DESCRIPTION
    "This indicates that the fan carrier was removed from the chassis. The fifth
    object (m3000EventIndex) indicates which row of each columnar object in the fan
    carrier table contains the applicable values."
    ::= { m3000EventsV2 181 }
m3000FanFanTach1OutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000FanFanTach1 }
    STATUS        current
    DESCRIPTION
    "This indicates that the speed of the fan carrier's first fan has dropped
    below 2625 RPM or risen above 4875 RPM (front fan carrier), or dropped below
    4550 RPM or risen above 8450 RPM (rear fan carrier). The fifth object
    (m3000EventIndex) indicates which row of each columnar object in the fan
    carrier table contains the applicable values."

```

```

::= { m3000EventsV2 182 }
m3000FanFanTach2OutOfRange NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000FanFanTach2 }
    STATUS       current
    DESCRIPTION
    "This indicates that the speed of the fan carrier's second fan has dropped
    below 2625 RPM or risen above 4875 RPM (front fan carrier), or dropped below
    4550 RPM or risen above 8450 RPM (rear fan carrier). The fifth object
    (m3000EventIndex) indicates which row of each columnar object in the fan
    carrier table contains the applicable values."
    ::= { m3000EventsV2 183 }
-----
-- RAM card events
-----
m3000RamCardInstalled NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000RamSerialNumber }
    STATUS       current
    DESCRIPTION
    "This indicates that the RAM card has been installed in the chassis when it
    previously was not present. The fifth object (m3000EventIndex) indicates which
    row of each columnar object in the RAM card table contains the applicable
    values."
    ::= { m3000EventsV2 200 }
m3000RamCardRemoved NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000RamSerialNumber }
    STATUS       current
    DESCRIPTION
    "This indicates that the RAM card was removed from the chassis. The fifth
    object (m3000EventIndex) indicates which row of each columnar object in the
    RAM card table contains the applicable values."
    ::= { m3000EventsV2 201 }
m3000RamPredictiveMemoryError NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000RamSerialNumber,
                    m3000RamPredErrorLocation }
    STATUS       current
    DESCRIPTION
    "This indicates that 2 soft (ECC correctable) errors were encountered within
    24 hours of each other on the RAM card, which means it may be failing. The
    fifth object (m3000EventIndex) indicates which row of each columnar object in
    the RAM card table contains the applicable values."
    ::= { m3000EventsV2 202 }
m3000RamUncorrectableMemoryError NOTIFICATION-TYPE
    OBJECTS      { m3000EventDescription,
                    m3000SysSerialNumber,
                    m3000CtlFirmwareRevision,
                    m3000RmrFirmwareRevision,
                    m3000EventIndex,
                    m3000RamSerialNumber,
                    m3000RamUncorrErrorLocation }
    STATUS       current
    DESCRIPTION
    "This indicates that a memory error occurred that could NOT be corrected using
    ECC on the RAM card, which means it has failed. The fifth object
    (m3000EventIndex) indicates which row of each columnar object in the RAM card

```

```

table contains the applicable values."
 ::= { m3000EventsV2 203 }
m3000RamTempC1OutOfRange NOTIFICATION-TYPE
  OBJECTS      { m3000EventDescription,
                  m3000SysSerialNumber,
                  m3000CtlFirmwareRevision,
                  m3000RmrFirmwareRevision,
                  m3000EventIndex,
                  m3000RamSerialNumber,
                  m3000RamTempC1 }
  STATUS        current
  DESCRIPTION
    "This indicates that the first temperature on the RAM card has dropped below 0
    degrees Celsius or risen above 45 degrees Celsius. The fifth object
    (m3000EventIndex) indicates which row of each columnar object in the RAM card
    table contains the applicable values."
    ::= { m3000EventsV2 204 }
m3000RamTempC2OutOfRange NOTIFICATION-TYPE
  OBJECTS      { m3000EventDescription,
                  m3000SysSerialNumber,
                  m3000CtlFirmwareRevision,
                  m3000RmrFirmwareRevision,
                  m3000EventIndex,
                  m3000RamSerialNumber,
                  m3000RamTempC2 }
  STATUS        current
  DESCRIPTION
    "This indicates that the second temperature on the RAM card has dropped below
    0 degrees Celsius or risen above 45 degrees Celsius. The fifth object
    (m3000EventIndex) indicates which row of each columnar object in the RAM card
    table contains the applicable values."
    ::= { m3000EventsV2 205 }
-----
-- System error events
-----
m3000SystemError NOTIFICATION-TYPE
  OBJECTS      { m3000EventDescription,
                  m3000SysSerialNumber,
                  m3000CtlFirmwareRevision,
                  m3000RmrFirmwareRevision,
                  m3000SystemErrorCode }
  STATUS        current
  DESCRIPTION
    "This indicates that the system has entered an error state, meaning it
    requires user attention before it can complete its startup sequence. In this
    state it will not respond to read and write commands. Contact technical
    support for further information."
    ::= { m3000EventsV2 220 }
m3000HardwareError NOTIFICATION-TYPE
  OBJECTS      { m3000EventDescription,
                  m3000SysSerialNumber,
                  m3000CtlFirmwareRevision,
                  m3000RmrFirmwareRevision,
                  m3000EventIndex,
                  m3000HardwareErrorCode }
  STATUS        current
  DESCRIPTION
    "This indicates that the system has encountered a hardware error such as a
    chip failure. Contact technical support for further information."
    ::= { m3000EventsV2 221 }
--/*****
--/* Compliance statements */
--/*****
m3000GeneralObjsGroup OBJECT-GROUP
  OBJECTS      { m3000EventDescription,
                  m3000EventIndex,
                  m3000CtlFirmwareRevision,
                  m3000CtlBootloaderRevision,
                  m3000CtlFPGARevision,
                  m3000RmrFirmwareRevision,
                  m3000RmrBootloaderRevision,
                  m3000SysSerialNumber,
                  m3000SystemStatus,
                  m3000DataRetentionDriveStatus,

```

```

        m3000AdminUsername,
        m3000AdminPassword,
        m3000AdminLoggedIn,
        m3000HwReportInterval }

    STATUS          current
    DESCRIPTION
    "These objects are system related and independent of the particular peripheral
    hardware."
    ::= { m3000Groups 1 }
m3000FibreChannelObjsGroup OBJECT-GROUP
    OBJECTS          { m3000FcWorldWideNodeName,
                        m3000FcMaxNumber,
                        m3000FcIndex,
                        m3000FcPortStatus,
                        m3000FcLoopIDDesired,
                        m3000FcActualAddress,
                        m3000FcWorldWidePortName,
                        m3000FcLunCurNumber,
                        m3000FcLunMaxNumber,
                        m3000FcLunIndex,
                        m3000FcLunSize,
                        m3000FcMaskCurNumber,
                        m3000FcMaskMaxNumber,
                        m3000FcMaskIndex,
                        m3000FcMaskInitiator,
                        m3000FcMaskLunMask,
                        m3000FcInitCurNumber,
                        m3000FcInitMaxNumber,
                        m3000FcInitIndex,
                        m3000FcInitWorldWidePortName }

    STATUS          current
    DESCRIPTION
    "These objects are related to the Fibre Channel interface configuration."
    ::= { m3000Groups 2 }
m3000SystemHardwareObjsGroup OBJECT-GROUP
    OBJECTS          { m3000Ctrl127V,
                        m3000Ctrl112V,
                        m3000Ctrl15V,
                        m3000Ctrl13V,
                        m3000CtrlTempC1,
                        m3000CtrlTempC2,
                        m3000SysSerialNumber,
                        m3000CtrlSerialNumber,
                        m3000BckPlnSerialNumber,
                        m3000RmrSerialNumber,
                        m3000ChassisBatteryPresent,
                        m3000ChassisBatteryVoltage,
                        m3000ChassisBatteryLevel }

    STATUS          current
    DESCRIPTION
    "These objects are related to the system hardware."
    ::= { m3000Groups 3 }
m3000PowerSupplyObjsGroup OBJECT-GROUP
    OBJECTS          { m3000PsMaxNumber,
                        m3000PsIndex,
                        m3000PsPresent,
                        m3000Ps28V,
                        m3000Ps12V,
                        m3000Ps5V,
                        m3000Ps3V,
                        m3000PsBatteryVoltage,
                        m3000PsBatteryLevel,
                        m3000PsFanTach1,
                        m3000PsFanTach2,
                        m3000PsTempC,
                        m3000PsOn,
                        m3000PsActive,
                        m3000PsACLineStatus,
                        m3000PsSerialNumber }

    STATUS          current
    DESCRIPTION
    "These objects are related to the power supply."
    ::= { m3000Groups 4 }
m3000FanCarrierObjsGroup OBJECT-GROUP

```

```

OBJECTS      { m3000FanMaxNumber,
                m3000FanIndex,
                m3000FanPresent,
                m3000FanFanTach1,
                m3000FanFanTach2 }

STATUS       current
DESCRIPTION
"These objects are related to the fan carriers."
 ::= { m3000Groups 5 }
m3000RAMCardObjsGroup OBJECT-GROUP
OBJECTS      { m3000RamMaxNumber,
                m3000RamIndex,
                m3000RamPresent,
                m3000RamSize,
                m3000RamPredErrorCount,
                m3000RamPredErrorLocation,
                m3000RamUncorrErrorCount,
                m3000RamUncorrErrorLocation,
                m3000RamTempC1,
                m3000RamTempC2,
                m3000RamSerialNumber }

STATUS       current
DESCRIPTION
"These objects are related to the RAM cards."
 ::= { m3000Groups 6 }
m3000ErrorObjsGroup OBJECT-GROUP
OBJECTS      { m3000SystemErrorCode,
                m3000HardwareErrorCode }

STATUS       current
DESCRIPTION
"These objects are related to the system errors."
 ::= { m3000Groups 7 }
m3000GeneralEventsGroup NOTIFICATION-GROUP
NOTIFICATIONS { m3000Heartbeat,
                m3000StartupInProgress,
                m3000SystemReady,
                m3000StartupAborted,
                m3000ShutdownInProgress,
                m3000ShutdownComplete,
                m3000ShutdownAborted,
                m3000ControllerReset,
                m3000RMRReset,
                m3000DataRetentionDriveBad,
                m3000DataRetentionDriveGood }

STATUS       current
DESCRIPTION
"These events are system related and independent of the particular peripheral
hardware."
 ::= { m3000Groups 8 }
m3000FibreChannelEventsGroup NOTIFICATION-GROUP
NOTIFICATIONS { m3000FcLoopIDChange,
                m3000FcPortNoLoop,
                m3000FcPortLoopUp,
                m3000FcPortNotReady,
                m3000FcPortReady }

STATUS       current
DESCRIPTION
"These events are related to the Fibre Channel interface configuration."
 ::= { m3000Groups 9 }
m3000SystemHardwareEventsGroup NOTIFICATION-GROUP
NOTIFICATIONS { m3000Ctrl27VOutOfRange,
                m3000Ctrl12VOutOfRange,
                m3000Ctrl5VOutOfRange,
                m3000Ctrl3VOutOfRange,
                m3000CtrlTempC1OutOfRange,
                m3000CtrlTempC2OutOfRange,
                m3000ChassisBatteryInstalled,
                m3000ChassisBatteryRemoved,
                m3000ChassisBatteryVoltageOutOfRange,
                m3000ChassisBatteryLevelLow }

STATUS       current
DESCRIPTION
    "These events are related to the system hardware."
 ::= { m3000Groups 10 }

```

```

m3000PowerSupplyEventsGroup NOTIFICATION-GROUP
    NOTIFICATIONS    { m3000PsInstalled,
                        m3000PsRemoved,
                        m3000PsInstalledButOff,
                        m3000PsDeactivated,
                        m3000PsActivated,
                        m3000PsSwitchedOff,
                        m3000PsSwitchedOn,
                        m3000PsACLineFailure,
                        m3000PsACLineRestored,
                        m3000Ps28VOutOfRange,
                        m3000Ps12VOutOfRange,
                        m3000Ps5VOutOfRange,
                        m3000Ps3VOutOfRange,
                        m3000PsBatteryVoltageOutOfRange,
                        m3000PsBatteryLevelLow,
                        m3000PsFanTach1OutOfRange,
                        m3000PsFanTach2OutOfRange,
                        m3000PsTempCOutOfRange }

    STATUS            current
    DESCRIPTION
        "These events are related to the power supply."
    ::= { m3000Groups 11 }
m3000FanCarrierEventsGroup NOTIFICATION-GROUP
    NOTIFICATIONS    { m3000FanInstalled,
                        m3000FanRemoved,
                        m3000FanFanTach1OutOfRange,
                        m3000FanFanTach2OutOfRange }

    STATUS            current
    DESCRIPTION
        "These events are related to the fan carriers."
    ::= { m3000Groups 12 }
m3000RAMCardEventsGroup NOTIFICATION-GROUP
    NOTIFICATIONS    { m3000RamCardInstalled,
                        m3000RamCardRemoved,
                        m3000RamPredictiveMemoryError,
                        m3000RamUncorrectableMemoryError,
                        m3000RamTempC1OutOfRange,
                        m3000RamTempC2OutOfRange }

    STATUS            current
    DESCRIPTION
        "These events are related to the RAM cards."
    ::= { m3000Groups 13 }
m3000ErrorEventsGroup NOTIFICATION-GROUP
    NOTIFICATIONS    { m3000SystemError,
                        m3000HardwareError }

    STATUS            current
    DESCRIPTION
        "These events are related to system errors."
    ::= { m3000Groups 14 }
END
--/*****/
--/*   End of solidata.mib                               */
--/*****/

```

## 5.2 Command Line Reference

Almost all commands are entered on a single line and ended with the <Enter> key. To abort a command before it is issued (before <Enter> is pressed) use the <Esc> key. A single command is limited to 80 characters (including spaces and other white space).

### 5.2.1 "Clear" Commands

The "clear" commands are meant to reset.

#### **clear all**

**Syntax:** `clear all`

**Description:**

This command resets all user-configurable settings. It performs essentially the same actions as entering each of the individual "clear" commands described below. Giving this command (or selecting the **Clear All User Settings** button on the **General Configuration** administrative functions web page) effectively returns the system to its "out of the box" configuration.

**Arguments:** None

#### **clear email**

**Syntax:** `clear email`

**Description:**

This command resets all email-related settings. It is equivalent to selecting the **Clear Settings** button on the **Email Configuration** administrative functions web page.

**Arguments:** None

#### **clear fibre**

**Syntax:** `clear fibre`

**Description:**

This command resets all Fibre Channel-related settings, namely the desired AL\_PAs. It is equivalent to selecting the **Clear Settings** button on the **Fibre Channel Configuration** administrative functions web page.

**Arguments:** None

#### **clear general**

**Syntax:** `clear general`

**Description:**

This command resets all general configuration settings - those that don't fall under any of the other category-specific clear command. It is equivalent to selecting the **Clear Settings** button on the **General Configuration** administrative functions web page.

**Arguments:** None

#### **clear ip**

**Syntax:** `clear ip`

**Description:**

This command resets all protocol stack-related settings. It is equivalent to selecting the **Clear Settings** button on the **IP Configuration** administrative functions web page. Note that clearing the protocol stack settings includes the IP address, so the system will attempt to obtain a new IP address through DHCP.

**Arguments:** None

**clear memerr**

**Syntax:** `clear memerr`

**Description:**

This command resets all memory error (predictive and uncorrectable) statistics - the number of errors that have occurred, the location of the last error and the time the last predictive error occurred. It is equivalent to selecting the **Clear Memory Error Stats** button on the **General Configuration** administrative functions web page.

**Arguments:** None

**clear snmp**

**Syntax:** `clear snmp`

**Description:**

This command resets all SNMP-related settings. It is equivalent to selecting the **Clear Settings** button on the **SNMP Configuration** administrative functions web page.

**Arguments:** None

**5.2.2 "Diagnostic" Commands**

The "diagnostic" commands perform the same system tests as the various selections on the **Diag Function Test** administrative functions web page.

**diag drive**

**Syntax:** `diag drive`

**Description:**

This command forces the system to perform a drive diagnostic on the internal Data Retention Drive. It performs the same operation as the **Perform Drive Diagnostic** button. If the drive status is found to have changed then the appropriate SNMP trap will be sent (**m3000DataRetentionDriveGood** if status goes from bad to good, **m3000DataRetentionDriveBad** if status goes from good to bad). This function is useful if the system does not seem to recognize a new hard drive after the drive is replaced, which could happen if the drive being installed does not force a reset on the backup SCSI bus.

**Arguments:** None

**diag emails**

**Syntax:**

`diag emails`

**Description:**

This function sends all SMTP notification email messages to all configured destinations. It performs the same operation as the **Test All Email Notifications** button.



**Arguments:** None

### diag traps

#### Syntax:

```
diag traps
```

#### Description:

This function sends all SNMP traps to all configured trap hosts. It performs the same operation as the **Test All SNMP Traps** button.

**Arguments:** None

### 5.2.3 "Set" Commands

The "set" commands allow the user to perform the system configuration tasks available in the various administrative function web pages.

"Set" commands cause parameters to be saved in NVRAM as well as the RAM area used for current values.

### set fibre

#### Syntax:

```
set fibre LoopID0 LoopID1
```

#### Description:

This command sets the **Fibre Channel** interface parameters, namely the desired loop IDs for ports A (0) and B (1).

#### Arguments:

**LoopID0** - Desired loop ID for port A (0) (must be between 0 and 125, or 255)

**LoopID1** - Desired loop ID for port B (1) (must be between 0 and 125, or 255)

To keep the currently configured value for either port enter a '-' instead of an integer. In addition to the valid loop IDs, the value 0xFF (255) is used to clear the desired loop ID setting and take the default loop ID, 0 (which is equivalent to an AL\_PA of 0xEF, or 239), in the future.

#### Default Values:

On system startup the default desired loop IDs will both be set to 0xFF, meaning no desired loop ID is set.

#### Example:

```
set fibre - 4
```

This would keep the same desired loop ID for port A and set the desired loop ID for port B to 4.

### set interval

#### Syntax:

```
set interval seconds
```

#### Description:

This command sets the hardware error reporting interval - the amount of time to wait before sending a repeated error notification (emails and traps) when the error condition persists. This time can be anywhere from once up to 18 hours.

**Arguments:**

- **seconds** - Number of seconds between hardware error notifications, up to 64800 (18 hours). A value of 0 means only send the error notification once when first detected.

**Default Values:**

On system startup the default hardware error report interval will be 0 - notifications are only sent once when the condition is first detected.

**Example:**

```
set interval 60
```

This would set the hardware error reporting interval to 60 seconds, or 1 minute.

**set ip****Syntax:**

```
set ip host_name domain_name ip_address subnet_mask gateway_address dns_address
```

**Description:**

This command sets the TCP/IP network interface parameters.

**Arguments:**

- **host\_name** - The system host name.
- **domain** - The default domain name the system should use when querying a DNS server for name-to-address mapping for an unqualified host name.
- **ip\_address** - The system IP address (of the form ###.###.###.###). To have the interface parameters assigned by DHCP set this to "0.0.0.0."
- **subnet\_mask** - The mask identifying the system's subnet (of the form ###.###.###.###).
- **gateway** - The IP address of the system's default gateway (of the form ###.###.###.###).
- **dns** - The IP address of the domain name server the system should query when resolving names to addresses (of the form ###.###.###.###).

To keep the currently configured value for any entry enter a '-' instead of a new value.

**Default Values:**

On system startup the default system host name is "SD3000," the default domain is blank, and network interface parameters are obtained through DHCP.

**Example:**

```
set ip - soliddata.com - - 172.16.16.1 172.16.8.20
```

This would leave the host name and IP address unchanged, but set the default domain name to "soliddata.com," the default gateway to "172.16.16.1" and the primary DNS server to "172.16.8.20."

```
set ip - - 0.0.0.0 - - -
```

This would erase the network interface configuration and cause the system to get its interface parameters through DHCP.

**set lun add****Syntax:**

### Description:

This command adds a LUN to the LUN table. If no arguments are given then the user will be presented with a list of options to select the size of the LUN they wish to add. The new LUN will be added at the index of the current "End of drive" LUN, and the "End of drive" LUN will move to the next highest index and have its size updated to reflect the amount of the drive now allocated to the new LUN. For example, if there are currently 3 LUNs (LUN 0 and LUN 1 explicitly defined and LUN 2 spanning to the end of the drive) and a new LUN is added the new LUN is LUN 2 and the "End of drive" LUN is LUN 3.

### Arguments:

- **size** - Number of units in desired LUN size
- **units** - Units LUN size is specified in (MB or GB)

Valid LUN sizes are:

128 MB, 256 MB, 512 MB, 1 GB, 2 GB, 4 GB, 8 GB, 16 GB

The LUN added will be the smallest size possible that is greater than or equal to the specified size.

### Examples:

```
set lun add 256 MB
```

This would add a 256 MB LUN to the end of the current LUN configuration (assuming there is that much space remaining on the drive after considering all explicitly defined LUNs). Additionally, the "End of drive" LUN would move to the next slot (its index would increase by 1) and it would be 256 MB smaller since that space is now allocated to the new LUN.

```
set lun add
```

Select one of the following LUN sizes to add:

- 0 - 128 MB
- 1 - 256 MB

Your selection: 0

This would add a 128 MB LUN to the end of the current LUN configuration. In this scenario there are less than 512 MB of unallocated space remaining on the drive because of previously configured LUNs.

### set lun delete

#### Syntax:

```
set lun delete [index]
```

### Description:

This command deletes a LUN and all LUNs above it (those with greater index) from the LUN table. If no arguments are given then the user will be presented with a list of LUNs to delete. After the LUN has been deleted a LUN at that index will still exist but it will be the "End of drive" LUN. Whenever LUNs are deleted the LUN masking table is updated so all initiators are denied access to those LUNs that were deleted.

### Arguments:

- **index** - Index of first LUN to delete

It is not possible to delete the very last LUN, the "End of drive" LUN, as it is automatically placed after the last explicitly defined LUN to cover all unallocated space on the drive.

**Examples:**

```
set lun delete 7
```

This would remove LUN 7 and all LUNs above it (with greater index) from the current LUN configuration. The "End of drive" LUN would then appear at LUN 7. So, if LUN 8 and LUN 9 were also defined with LUN 10 being the "End of drive" LUN, the new table would have LUNs 0-6 unaltered and LUN 7 would be the "End of drive" LUN.

**set lun delete**

Select the LUN to delete:

```
0 - 2 GB
1 - 128 MB
2 - 128 MB
3 - 128 MB
4 - 128 MB
5 - 128 MB
6 - 128 MB
7 - 512 MB
8 - 512 MB
9 - 256 MB
10 - 4 GB
```

Your selection: 7

This would delete LUNs 7-9 (LUN 10 is the "End of drive" LUN and thus will be "shifted" instead of deleted) and make LUN 7 the "End of drive" LUN. In this scenario the drive has 8 GB of RAM, so the "End of drive" LUN would become 6912 MB after LUNs 7-9 are deleted.

**set mask add****Syntax:**

```
set mask add [WWPN/index [lun_mask]]
```

**Description:**

This command adds an initiator LUN mask to the LUN masking table. It is possible to specify the initiator and the LUN mask, just the initiator, or neither on the command line. The user will be presented with a series of options to select whichever arguments are not specified. If the initiator is already in the LUN mask table then its mask will be updated, otherwise a new entry will be added to the table provided there is an empty slot.

**Arguments:**

- **WWPN/index** - The initiator the LUN mask applies to, which may be a World Wide Port Name or an index in the current initiators list
- **lun\_mask** - Bit mask (specified as a 16-digit hexadecimal number) of accessible LUNs, where a set bit indicates the LUN at that index is accessible to the initiator (Bit 0 is the least significant bit and bit 63 is the most significant bit)

If the World Wide Port Name and/or the lun mask are specified as 16-digit hexadecimal numbers they **MUST** be preceded with '0x' and ALL 16 digits must be given (e.g. 0x1A4 will not be zero-padded to 0x00000000000001A4). The "All Unspecified" initiator may be specified as 0xFFFFFFFFFFFFFFFF.

If lun\_mask is specified as a 16-digit hexadecimal number then it is possible (although not recommended) to specify LUNs that do not exist accessible. If this is done then those LUNs will become accessible if they are ever created. Whenever a LUN is deleted then that LUN and all LUNs above it, including LUNs that haven't actually been defined yet, are removed from any configured LUN masks. These points are illustrated in the examples below.

**Examples:**

```
set mask add 0x200000E08B00DC63 0x0103000000000006
```

This would add an entry to the LUN mask table for initiator 0x200000E08B00DC63

(or, if there is already an entry for that initiator, replace the LUN mask for that entry) with access to LUNs 1, 2, 48, 49, and 56. If the "End of drive" LUN was LUN 46 when this command was executed then only LUNs 1 and 2 would immediately be made accessible since the other LUNs don't exist. However, if LUNs 46, 47, 48, and 49 are later defined (meaning LUN 50 is then the "End of drive" LUN) then LUNs 48 and 49 would be accessible to initiator 0x200000E08B00DC63 as soon as they are created. Later, if LUN 49 is deleted then LUNs 49 and 56 would be removed from this LUN mask.

```
set mask add
How would you like to enter the initiator WWPN?
 0 - Explicitly enter a custom initiator
 1 - Select a WWPN from the current initiators list
 2 - Select a WWPN from the initiators in the LUN mask table
Your choice: 2
Initiators in mask table:
 0 - 0x200000E08B00DC63
 1 - All Unspecified
 2 - 0x76001100403050F0
 3 - 0x300000A800001000
Enter number of desired initiator: 1
Available LUNs (X means LUN is accessible):
 0 [X] - 256 MB   1 [X] - 128 MB   2 [X] - 512 MB   3 [X] - 128 MB
 4 [X] - 128 MB   5 [X] - 1 GB     6 [ ] - 128 MB   7 [ ] - 2 GB
 8 [ ] - 3840 MB
Enter LUN(s) to toggle [Done]: 1 2 3 4 5
Available LUNs (X means LUN is accessible):
 0 [X] - 256 MB   1 [ ] - 128 MB   2 [ ] - 512 MB   3 [ ] - 128 MB
 4 [ ] - 128 MB   5 [ ] - 1 GB     6 [ ] - 128 MB   7 [ ] - 2 GB
 8 [ ] - 3840 MB
Enter LUN(s) to toggle [Done]:
Your selection: 9
```

This would add an entry to the LUN mask table for the "All Unspecified" initiator with access to only LUN 0. In this scenario the "All Unspecified" initiator actually already had an entry in the table with access to LUNs 0-5, so the LUN mask would be updated.

Note that when selecting LUNs to make accessible in the interactive menu multiple LUNs may be listed on a single line as long as they are separated by spaces (' '), commas (','), or semicolons(';'). The accessibility of each listed LUN is toggled, so if LUN 3 was accessible before it was entered at the prompt it will be made inaccessible when the command is completed. A blank line is entered to complete the command and update the LUN mask table.

## set mask delete

### Syntax:

```
set mask delete [WWPN/index]
```

### Description:

This command deletes a LUN mask from the LUN masking table. If no arguments are given then the user will be presented with a list of initiators corresponding to the LUN mask to select the mask to delete.

### Arguments:

- **WWPN/index** - The initiator the LUN mask to delete applies to, which may be a World Wide Port Name or an index in the current initiators list

If the World Wide Port Name and/or the lun mask are specified as 16-digit hexadecimal numbers they MUST be preceded with '0x' and ALL 16 digits must be given (e.g. 0x1A4 will not be zero-padded to 0x000000000000001A4). The "All Unspecified" initiator may be specified as 0xFFFFFFFFFFFFFFFF.

### Examples:

```
set mask delete 2
```

This would remove the LUN mask entry for the 3rd initiator (which is at index 2) in the current initiators list, assuming a mask for that initiator is defined.

```
set mask delete
Select the initiator of the LUN mask to delete:
  0 - 0x200000E08B00DC63
  1 - All Unspecified
  2 - 0x76001100403050F0
  3 - 0x300000A800001000
Your selection: 1
```

This would delete the "All Unspecified" entry from the LUN mask table.

## set password

### Syntax:

```
set password
```

### Description:

This command sets the admin password, which is used to restrict access to system configuration parameters in the Web and SNMP interfaces. Unlike most commands it is not a simple single-line command. After giving the "set password" command the system will prompt the user for the current admin password. Assuming this is given correctly the system will then prompt the user to enter the new password, and then confirm this new password. If the user's entries at any stage are unsatisfactory then a message to that effect is displayed and the command is aborted.

**Arguments:** None

### Default Values:

On system startup the default admin password is "carkey."

### Example:

```
set password
Enter current password: *****
Enter new password: *****
Confirm new password: *****
New password accepted
```

This sequence would successfully change the admin password. If any text other than "New password accepted" appears after confirming the new password then the password change failed.

## set email destination add

### Syntax:

```
set email destination add email_address
```

### Description:

This command adds an email address to the list of notification email destinations. There can be only 10 entries in this list.

### Arguments:

- email\_address - Email address (of the form name@domain.com) to add to the notification email destination list.

### Default Values:

On system startup the notification email destination list will be empty.

### Example:

```
set email destination add username@mail.soliddata.com
```

This would add the email address "username@mail.soliddata.com" to the notification email destination list.

### set email destination delete

#### Syntax:

```
set email destination delete email_address/index
```

#### Description:

This command deletes an email address from the list of notification email destinations. The given address must already be in the list or an error occurs.

#### Arguments:

- email\_address - Email address to delete from the notification email destination list (of the form name@domain.com); OR
- index - Index in the notification email destination list of the email address to delete.

#### Example:

```
set email destination delete username@soliddata.com
```

This would remove the email address "username@soliddata.com" from the notification email destination list.

```
set email destination delete 0
```

This would remove the first email address (which is at index 0) from the notification email destination list.

### set email server

#### Syntax:

```
set email server ip_address
```

#### Description:

This command sets the IP address of the SMTP server the system will use to forward all notification emails to the appropriate destination addresses.

#### Arguments:

- ip\_address - IP address of the SMTP server machine (of the form ###.###.###.###).

#### Default Values:

On system startup the default SMTP server address will be 0.0.0.0, meaning no server is configured.

#### Example:

```
set email server 172.16.16.20
```

This would make the IP address all SMTP email notification messages are sent to "172.16.16.20." This machine would then forward the message to the appropriate destination email address.

### set snmp contact

#### Syntax:

```
set snmp contact [text]
```

**Description:**

This command sets the SNMP system contact string. The string may be specified directly on the command line, in which case it should be enclosed in double quotes and it is subject to the command line length limit. Alternatively, no text may be given at the command line, in which case the user will be prompted to enter text free-form and press Ctrl-D when finished. In this case the string is limited to 256 characters.

**Arguments:**

- **text** - SNMP system contact string (may be left blank to enter string interactively).

**Default Values:**

On system startup the default system contact string will be "Insert system contact here."

**Example:**

```
set snmp contact "System Administrator"
```

This would set the SNMP system contact string to "System Administrator" (without the quotes).

```
set snmp contact
Type text (^D to finish, ESC to abort):
John Smith
Phone #: (800) 123-4567
Email: jsmith@company.com^D
```

This would set the SNMP system contact string to:

```
John Smith
Phone #: (800) 123-4567
Email: jsmith@company.com
```

**set snmp host add****Syntax:**

```
set snmp host add ip_address
```

**Description:**

This command adds an IP address to the list of SNMP trap hosts (those machines to which SNMP traps are sent). There can only be 10 entries in this list.

**Arguments:**

- **ip\_address** - IP address (of the form ###.###.###.###) to add to the trap host list.

**Default Values:**

On system startup the trap host list will be empty.

**Example:**

```
set snmp host add 172.16.8.10
```

This would add the IP address "172.16.8.10" to the trap host list.

**set snmp host delete****Syntax:**

```
set snmp host delete ip_address/index
```



**Description:**

This command deletes an IP address from the list of SNMP trap hosts (those machines to which SNMP traps are sent). The given address must already be in the list or an error occurs.

**Arguments:**

- **ip\_address** - IP address to delete from the trap host list (of the form ###.###.###.###); OR
- **index** - Index in the notification email destination list of the email address to delete.

**Example:**

```
set snmp host delete 172.16.48.100
```

This would remove the email address "172.16.48.100" from the trap host list.

```
set snmp host delete 2
```

This would remove the third IP address (which is at index 2) from the trap host list.

**set snmp location****Syntax:**

```
set snmp location [text]
```

**Description:**

This command sets the SNMP system location string. The string may be specified directly on the command line, in which case it should be enclosed in double quotes and it is subject to the command line length limit. Alternatively, no text may be given at the command line, in which case the user will be prompted to enter text free-form and press Ctrl-D when finished. In this case the string is limited to 256 characters.

**Arguments:**

- **text** - SNMP system location string (may be left blank to enter string interactively).

**Default Values:**

On system startup the default system location string will be "Insert system location here."

**Example:**

```
set snmp location "Room 171, Building C"
```

This would set the SNMP system location string to "Room 171, Building C" (without the quotes).

```
set snmp location
Type text (^D to finish, ESC to abort):
Solid Data Systems, Inc.
3542 Bassett St.
Santa Clara, CA 95054
USA^D
```

This would set the SNMP system location string to:

```
Solid Data Systems, Inc.
3542 Bassett St.
Santa Clara, CA 95054
USA
```

5.2.4 "Show" Commands

The "show" commands allow the user to display the current system configuration and diagnostic information that is available through the web interface. Each subcommand is roughly equivalent to the web page of the same basic name.

"Show" commands return current parameter values saved in RAM.

show diagnostics

Syntax:

show diagnostics

Description:

This command shows the readings available in the [Diagnostic Data](#) web page.

Arguments: None

Example:

```
show diagnostics
- Diagnostic Data -
  Bottom power supply (0):
    Temperature: 25 C      Good
    +28V: 28.0 V      Good
    +12.4V: 12.1 V      Good
    +5.4V: 5.1 V      Good
    +3.7V: 3.6 V      Good
    Battery voltage: 27.5 V      Good
    Battery charge level: 100 %      Good
    AC line status: Good      Good
    Fan 1 speed: 8333 RPM      Good
    Fan 2 speed: 8035 RPM      Good
  Top RAM array card (0):
    Predictive errors: 0      Good
    Uncorrectable errors: 0      Good
    Temperature 1: 23 C      Good
    Temperature 2: 23 C      Good
  Rear fan carrier (1):
    Fan 1 speed: 7105 RPM      Good
    Fan 2 speed: 7258 RPM      Good
  Chassis:
    Temperature 1: 24 C      Good
    Temperature 2: 22 C      Good
    +27.5V: 27.2 V      Good
    +12V: 12.1 V      Good
    +5V: 5.0 V      Good
    +3.3V: 3.3 V      Good
  Miscellaneous:
    Data retention drive status:      Good
```

show fibre

Syntax:

show fibre

Description:

This command shows the Fibre Channel interface information available in the [Fibre Channel Configuration](#) administrative functions web page.

Arguments: None

Example:

```
show fibre
-- Fibre Channel interface configuration --
World Wide Node Name: 0x5000293000090005
Port A (0):
  Desired Loop ID: XXX
  Actual Address: 0x0000EF
  Actual Loop ID: 0
  World Wide Port Name: 0x5000293001090005
Port B (1):
  Desired Loop ID: XXX
```

Actual Address: Not assigned  
Actual Loop ID: Not assigned

## show general

### Syntax:

```
show general
```

### Description:

This command shows the information in the [General Configuration](#) administrative functions web page.

**Arguments:** None

### Example:

```
show general
- General system configuration -
    Hardware error report interval: Only once
```

## show initiators

### Syntax:

```
show initiators
```

### Description:

This command shows the current initiator list.

**Arguments:** None

### Example:

```
show initiators
-- Current initiators --
  0: 0x2000000E08B00DC63
  1: 0x400101AA53000109
  2: 0x20000001027A00001
  3: 0x20200001027A00001
  4: 0x20400001027A00001
```

## show inventory

### Syntax:

```
show inventory
```

### Description:

This command shows the hardware configuration information available in the [System Inventory](#) web page.

**Arguments:** None

### Example:

```
show inventory
- System Inventory -
  Bottom power supply (0):
    On/Off switch: On
    Locked in chassis: Yes
    Serial number: N302020001
  Top power supply (1):
    On/Off switch: On
    Locked in chassis: Yes
    Serial number: N302020002
  Top RAM array card (0):
    Size: 2048 MB
    Serial number: G302020001
  RAM array card (1):
    Not installed
  RAM array card (2):
    Not installed
```

```

RAM array card (3):
  Not installed
RAM array card (4):
  Not installed
Bottom RAM array card (5):
  Not installed
Other system hardware:
  Chassis battery: Installed
  Front fan carrier (0): Not installed
  Rear fan carrier (1): Installed
  Controller board serial number: UF02020001
  Backplane serial number: P302020003
  RMR serial number: R302070001

```

**show ip****Syntax:**

```
show ip
```

**Description:**

This command shows the network configuration information available in the **IP Configuration** administrative functions web page.

**Arguments:** None

**Example:**

```

show ip
- IP configuration -
  Host name: SD3000
  Domain name: soliddata.com
  IP address: 172.16.8.105
  Subnet mask: 255.255.248.0
  Gateway: 172.16.8.1
  DNS server: 172.16.8.20
  IP parameters obtained through DHCP

```

**show lun****Syntax:**

```
show lun
```

**Description:**

This command shows the LUN table available in the "LUN Configuration" administrative functions web page.

**Arguments:** None

**Example:**

```

show lun
-- LUN configuration --
  0: 128 MB
  1: 128 MB
  2: 512 MB
  3: 4 GB
  4: 256 MB
  5: 1 GB
  6: 256 MB
  7: 4 GB
  8: 5888 MB

```

**show main****Syntax:**

```
show main
```

**Description:**

This command shows the information available in the [Main Menu](#) web page.

#### Arguments: None

```
Example:
show main
- Overall system information -
  Remote monitor:
    Firmware revision: 0.02.b
    Bootloader revision: 2.00.a+4
  Controller:
    Firmware revision: 0.02.b
    System state: Ready
    FC port 0 state: Ready
    FC port 1 state: Ready
```

#### Syntax:

```
show smtp
```

#### Description:

This command shows the email configuration information available in the [Email Configuration](#) administrative functions web page.

#### Arguments: None

#### Example:

```
show smtp
- SMTP configuration -
  Server IP address: 172.16.16.20
  Message destination list:
    0: username@soliddata.com
```

#### show mask

#### Syntax:

```
show mask
```

#### Description:

This command shows the LUN masking table available in the "LUN Masking Configuration" administrative functions web page.

#### Arguments: None

#### Example:

```
show mask
-- LUN masking configuration --
# Initiator Accessible LUNs
0: 0x200000E08B00DC63 None
1: All Unspecified 0, 1, 2, 3, 4, 5
2: 0x76001100403050F0 4, 6
3: 0x300000A800001000 8
```

#### show snmp

#### Syntax:

```
show snmp
```

#### Description:

This command shows the SNMP configuration information available in the [SNMP Configuration](#) administrative functions web page.

#### Arguments: None

```
Example:
show snmp
- SNMP configuration -
  System Contact: admin
  System Location: 3542 Bassett St.
  Trap host list:
```

```
0: 172.16.8.99
1: 172.16.48.128
```

## 5.2.5 Other Commands

### help

#### Syntax:

```
help command
```

#### Description:

This command displays help information on the use of other commands, including the possible subcommands that may be issued. It is possible to enter an incomplete command to see what the possible completions may be, although this will not work in all situations.

#### Arguments:

- **command** - The command to get help on.

#### Example:

```
help show
USAGE: show subcommand
```

This command displays different types of system information, depending on what subcommand is used.

```
Subcommands:
diagnostics - Show system diagnostic data
fibre - Show Fibre Channel configuration
general - Show general system configuration
inventory - Show system inventory
ip - Show IP configuration
main - Show overall system information
smtp - Show SMTP client configuration
snmp - Show SNMP agent configuration
```

The above example shows the type of information provided for an incomplete command - just entering "show" at the command line is not a valid command because it needs a subcommand to be specified. Therefore, "help show" gives information on the possible subcommand.

```
help set ip
USAGE: set ip host_name domain ip_address subnet_mask gateway dns
```

This command sets the following network interface parameters:

```
host_name - system host name
domain - system domain name
ip_address - system IP address
subnet_mask - system subnet mask
gateway - IP address of the system's default gateway
dns - IP address of the primary DNS server to use
```

With the exception of "host\_name" and "domain " all of these parameters are IP addresses which should be set with a string of the form "XXX.XXX.XXX.XXX." To keep the current value for a parameter instead of changing it give the new value '-'. For example:

```
set ip SD3000 soliddata.com - 255.255.255.0 - 100.101.2.3
```

To have the interface parameters (with the exception of host name) assigned by DHCP set the system IP address to "0.0.0.0." For example:

```
set ip - - 0.0.0.0 - - -
```

The above example shows the type of information provided for a complete command.

### 5.2.6 Menu Interface

In addition to entering commands conventionally on the command line the user may use a menu interface by simple pressing <Enter> at the command line. The user can then use the number keys (0-9) to navigate through an interactive menu to perform the desired actions. If further input is needed (such as the argument to a command) then the user is prompted for the needed value.

## 5.3 Event Messages

The following is a list of event messages that can be reported to the operator through the Remote Monitor interface.

<b>Startup in Progress</b>	Unit has been powered on and is in the process of restoring data from its internal Data Retention Drive.
<b>System Ready</b>	Unit has been powered on and has completed the process of restoring data from its internal Data Retention Drive.
<b>Startup Aborted</b>	Unit has aborted restoring data from its internal Data Retention Drive and is shutting down.
<b>Shutdown in Progress</b>	Unit is being powered off and is in the process of saving data to its internal Data Retention Drive.
<b>Shutdown Complete</b>	Unit has completed saving data to its internal Data Retention Drive.
<b>Shutdown Aborted</b>	Unit has aborted saving data to its internal Data Retention Drive and is returning to the Ready state.
<b>Controller Reset</b>	An error occurred on the system controller board.
<b>RMR Reset</b>	An error occurred on the RMR board
<b>Data Retention Drive Good</b>	The internal Data Retention Drive has been repaired after a problem.
<b>Data Retention Drive Bad</b>	There is a problem with the internal Data Retention Drive within the solid-state file cache.
<b>Fibre Channel Port Ready</b>	The Fibre Channel port is ready - it will respond to all commands including read and write commands.
<b>Controller 27.5V Out of Range</b>	The 27.5V input to the controller board has dropped below 26.8 volts or risen above 28.2 volts.
<b>Controller 12V Out of Range</b>	The 12V input to the controller board has dropped below 11.4 volts, or risen above 12.6 volts.
<b>Controller 5V Out of Range</b>	The 5V input to the controller board has dropped below 4.8 volts, or risen above 5.2 volts.

**Controller 3.3V  
Out of Range**

The 3.3V input to the controller board has dropped below 3.1 volts or risen above 3.5 volts.

**Controller  
Temperature1  
Out of Range**

The chassis temperature (reading 1) has dropped below 0 degrees Celsius or risen above 45 degrees Celsius.

**Controller  
Temperature 2  
Out of Range**

The chassis temperature (reading 2) has dropped below 0 degrees Celsius or risen above 45 degrees Celsius.

**Power Supply  
Installed**

The power supply has been installed in the chassis when it previously was not present.

**Power Supply  
Removed**

The power supply was removed from the chassis.

**Power Supply  
Installed But Off**

The power supply is installed but not turned on.

**Power Supply  
Deactivated**

The power supply has been deactivated and is ready to be removed from the chassis.

**Power Supply  
Activated**

The power supply was activated and locked in the chassis.

**Power Supply  
Switched Off**

The power supply on/off switch was flipped to OFF.

**Power Supply  
Switched On**

The power supply on/off switch was flipped to ON.

**Power Supply  
AC Line Failed**

The AC power into the power supply has failed.

**Power Supply AC  
Line Restored**

The AC power into the power supply has been restored after a failure.

**Power Supply 28V  
Out of Range**

The 28V output from the power supply has dropped below 26.6 volts or risen above 29.4 volts.

**Power Supply 12.4V  
Out of Range**

The 12.4V output from the power supply has dropped below 11.2 volts or risen above 13.6 volts.

**Power Supply 5.4V  
Out of Range**

The 5.4V output from the power supply has dropped below 4.9 volts or risen above 5.9 volts.

**Power Supply 3.7V  
Out of Range**

The 3.7V output from the power supply has dropped below 3.3 volts or risen above 4.1 volts.

**Power Supply  
Battery Voltage  
Out of Range**

The battery input to the power supply has dropped below 26.1 volts or risen above 28.9 volts.

**Power Supply  
Battery Level Low**

The battery level has dropped to below 20%.

**Power Supply Fan  
Tach 1 Out of Range**

The speed of the power supply's first fan has dropped below 4900 RPM or risen above 13000 RPM.



<b>Power Supply Fan Tach 2 Out of Range</b>	The speed of the power supply's second fan has dropped below 4900 RPM or risen above 13000 RPM.
<b>Power Supply Temperature Out of Range</b>	The power supply temperature has dropped below 0 degrees Celsius, or risen above 45 degrees Celsius.
<b>Fan Carrier Installed</b>	The fan carrier has been installed in the chassis when it previously was not present.
<b>Fan Carrier Removed</b>	The fan carrier was removed from the chassis.
<b>Fan Carrier Fan Tach 1 Out of Range</b>	The speed of the front fan carrier's first fan has dropped below 2625 RPM or risen above 4875; or the rear fan carrier's first fan has dropped below 4550 RPM or risen above 8450.
<b>Fan Carrier Fan Tach 2 Out of Range</b>	The speed of the fan carrier's second fan has dropped below 2625 RPM or risen above 4875; or the rear fan carrier's second fan has dropped below 4550 RPM or risen above 8450.
<b>RAM Card Installed</b>	The RAM card has been installed in the chassis when it previously was not present.
<b>RAM Card Removed</b>	The RAM card was removed from the chassis.
<b>RAM Card Predictive Memory Error</b>	2 Soft (or ECC correctable) errors were encountered within 24 hours of each other on the same RAM card. This may indicate a failing memory board.
<b>RAM Card Uncorrectable Memory Error</b>	A memory error occurred that could NOT be corrected using ECC. This indicates a definite memory board failure.
<b>RAM Card Temperature 1 Out of Range</b>	The first temperature on the RAM card has dropped below 0 degrees Celsius, or risen above 45 degrees Celsius.
<b>RAM Card Temperature 2 Out of Range</b>	The second temperature on the RAM card has dropped below 0 degrees Celsius, or risen above 45 degrees Celsius.
<b>Chassis Battery Installed</b>	The chassis battery has been installed in the chassis when it previously was not present.
<b>Chassis Battery Removed</b>	The chassis battery was removed from the chassis.
<b>Chassis Battery Voltage Out of Range</b>	The chassis battery voltage has dropped below 26.1 volts, or risen above 28.9 volts.
<b>Chassis Battery Level Low</b>	The chassis battery level has dropped to less than 20% full.
<b>System Error</b>	The system experienced an unrecoverable error.
<b>Hardware Error</b>	The system experienced a recoverable hardware error.

5.4    **Controller Configuration Interface**

5.4.1    **Serial Port Connection**

A VT100 terminal emulation program with the following settings should be used to communicate through this serial port.

To use the monitor, connect the 9 pin female connector to a RS-232 terminal or to the COM port on a PC with an external cable wired as follows:

Model 3000		COM Port
Pin 2 (Tx)	to	Pin 2 (Rx)
Pin 3 (Rx)	to	Pin 3 (Tx)
Pin 5 (gnd)	to	Pin 5 (gnd)

Table 5-1. Serial Port Connection Wire Settings

When connected to a COM port on a PC, a terminal emulation program such as Hyperterminal can be used to communicate with the monitor.

Set the terminal emulation program as follows:

- Baud rate: <= 115200
- Data width: 8 bits
- Parity: None
- Stop bit: 1 bit
- Flow control: Xon/Xoff
- Local echo: Off
- Newline sequence (for transmit and receive): CR

### 5.4.2 Power Up Sequence

```

SolidData Bootloader 3.00.a - 3000 Controller
Performing normal startup procedure.

Running Power-On Self-Tests:

  Bootloader ROM checksum test - passed.
  Front panel LED test - passed.
  RAM 16-bit incrementing pattern test - passed.
  RAM alternating 0xAAAA/0x5555 pattern test - passed.
  RAM alternating 0x5555/0xAAAA pattern test - passed.
  RAM walking bit one test - passed.
  RAM walking bit zero test - passed.

Running Built-In Self-Tests:

  SCSI controller test - passed.
  Fibre Channel controller A test - passed.
  Fibre Channel controller B test - passed.
  Dual-port RAM test - passed.
  FPGA table RAM test - passed.
  Non-volatile RAM test - passed.

SolidData Bootloader 3.00.a (3000 Controller) Menu:

  0 - Download new firmware to flash via serial connection
  1 - Run program in flash
  2 - Calculate and display flash xsum
  3 - Calculate and display bootloader xsum
  4 - Perform severe walking bit test on RAM
  5 - Run fibre channel controller A SDRAM tests
  6 - Run fibre channel controller B SDRAM tests

Checking flash checksum...
Running binary firmware image in flash.
Configuring QLogic Fas466 for Single-Ended mode.
Configuring QLogic Fas466 for Single-Ended mode.
IPC link up
Received BHKD_QRY IPC message
Received RESTORE_CMD IPC message
backupRestoreInitiate: Issuing initializing SCSI Bus Reset.
Issuing spin up command to target 0
Spin-up for target 0 complete, issuing first I/O.

Issuing spin down command to target 0
Spin Down complete for target 0

```

Figure 5-2. Power Up Sequence

### 5.4.3 Online Menu

```
Primary Debug Menu:
d - dump QLogic 440 chip registers base 0x4000
D - dump QLogic 440 chip registers base 0x6000
f - dump trace 0
F - dump trace 1
O - dump OS level trace
v - Current ALPA status
```

Figure 5-3. Online Menu

### 5.4.4 Firmware Download

To download new firmware, repeatedly press the <a> key while running BIST. The Solid Data Bootloader will start as follows:

```
SolidData Bootloader 3.00.a (3000 Controller) Menu:
0 - Download new firmware to flash via serial connection
1 - Run program in flash
2 - Calculate and display flash xsum
3 - Calculate and display bootloader xsum
4 - Perform severe walking bit test on RAM
5 - Run fibre channel controller A SDRAM tests
6 - Run fibre channel controller B SDRAM tests
```

Figure 5-4. Bootloader Menu

Select "0" from the menu to download new firmware:

```
You chose to download new firmware.
Erasing all flash sectors...
Ready to receive hex file now...
```

Figure 5-5. Download New Firmware

Send the new HEX file from the terminal emulator:

```
Ready to receive hex file now...
.....
.....
.....
.....
.....
.....
.....
Wrote flash checksum 0x03C37FAB.
Read 904116 bytes from hex file, and wrote 343902 bytes to flash memory.
SolidData Bootloader 3.00.a (3000 Controller) Menu:
  0 - Download new firmware to flash via serial connection
  1 - Run program in flash
  2 - Calculate and display flash xsum
  3 - Calculate and display bootloader xsum
  4 - Perform severe walking bit test on RAM
  5 - Run fibre channel controller A SDRAM tests
  6 - Run fibre channel controller B SDRAM tests
```

Figure 5-6. Receive New Hex File

When the download has completed, select <1> from the menu to start.

```
Found valid image in flash.
Running binary flash image.
ERROR (-10) sending IPC_RAM_STS_MID IPC message
IPC link up
Received BHKD_QRY IPC message
Configuring QLogic Fas466 for Single-Ended mode.
Configuring QLogic Fas466 for Single-Ended mode.
Received RESTORE_CMD IPC message

Primary Debug Menu:
d - dump QLogic 440 chip registers base 0x4000
D - dump QLogic 440 chip registers base 0x6000
f - dump trace 0
F - dump trace 1
O - dump OS level trace
Checking flash checksum...
Running binary firmware image in flash.
Configuring QLogic Fas466 for Single-Ended mode.
Configuring QLogic Fas466 for Single-Ended mode.
IPC link up

Primary Debug Menu:
d - dump QLogic 440 chip registers base 0x4000
D - dump QLogic 440 chip registers base 0x6000
f - dump trace 0
F - dump trace 1
O - dump OS level trace
v - Current ALPA status
```

Figure 5-7. Download Complete

5.5 Operating System Configurations

The model 3000 does not require special drivers or operating system patches. It can be connected to a variety of host adapters or switches.

5.5.1 Hewlett-Packard HPUX

The model 3000 is compatible with Hewlett-Packard host bus adapters such as the A3404A, A3740A and A5158A.

You can direct connect the model 3000 to these adapters or to a connected switch.

After connecting the model 3000 to the appropriate host adapter or switch, you can reboot the system. You can also use the "ioscan" to configure the drive.

hpn#ioscan -fnC disk					
Class	I	H/W Path	Driver S/W State	H/W Type	Description
disk	4	0/0/1/0.1.0	sdisk SCAN /dev/dsk/c0t1d0	DEVICE /dev/rdisk/c0t1d0	HP DVD-ROM 6x/32x
disk	0	0/0/2/0.6.0	sdisk SCAN /dev/dsk/c1t6d0	DEVICE /dev/rdisk/c1t6d0	SEAGATE ST39102LC
disk	1	0/0/2/1.6.0	sdisk SCAN /dev/dsk/c2t6d0	DEVICE /dev/rdisk/c2t6d0	SEAGATE ST39102LC
disk	155	1/4/0/0.8.0.255.0.0.0	sdisk SCAN /dev/dsk/c15t0d0	DEVICE /dev/rdisk/c15t0d0	SDS 3000
disk	152	1/8/0/0.2.0	sdisk SCAN /dev/dsk/c19t2d0	DEVICE /dev/rdisk/c19t2d0	SDS 800S LVD/FIBRE
disk	153	1/8/0/1.2.0	sdisk SCAN /dev/dsk/c20t2d0	DEVICE /dev/rdisk/c20t2d0	SDS 800S LVD/FIBRE
disk	16	1/10/0/0.1.0	sdisk SCAN /dev/dsk/c4t1d0	DEVICE /dev/rdisk/c4t1d0	HP C5447A
hpn#					

Table 5-2. HPUX Configuration

If the device name does not appear in the "ioscan -fnC disk" output, use the "insf -e" command to build the needed special files.

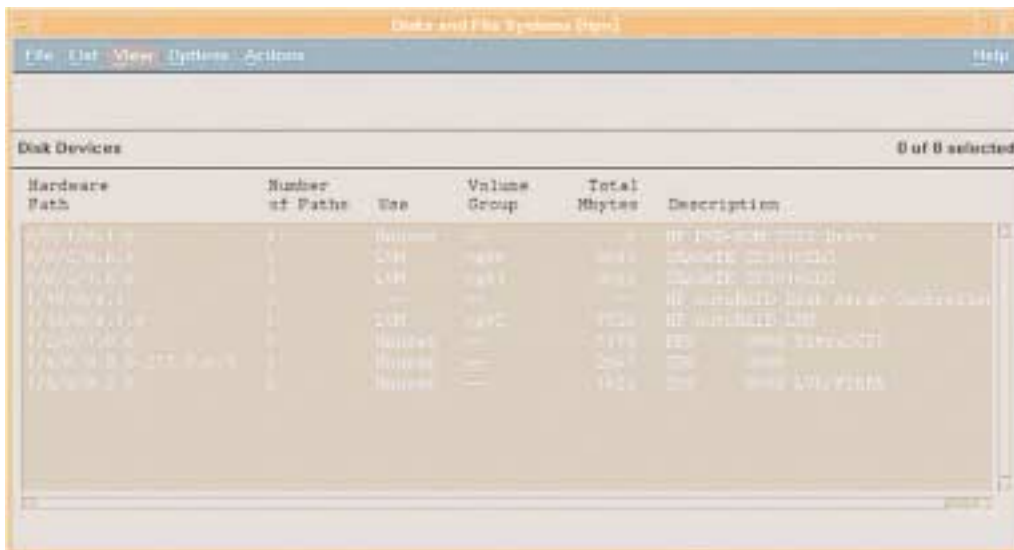
The drive can then be initialized using one of the following methods:

```
hpn#mediainit -v /dev/rdisk/c15t0d0
mediainit: initialization process starting
mediainit: locking SCSI device
mediainit: initializing media
mediainit: verifying media
mediainit: initialization process completed
hpn#

hpn#pvcreate /dev/rdisk/c15t0d0
Physical volume "/dev/rdisk/c15t0d0" has been successfully created.
hpn#
```

Figure 5-8. HP Configuration/Drive Initialization

The model 3000 can also be configured using "SAM:"



The screenshot shows the SAM interface with a table of disk devices. The table has columns for Hardware Path, Number of Paths, Use, Volume Group, Total Bytes, and Description. The data is as follows:

Hardware Path	Number of Paths	Use	Volume Group	Total Bytes	Description
/dev/dsk/c15t0d0	1	Storage	hpn	512K	HP 150-100 1500 Drive
/dev/dsk/c15t0d1	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d2	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d3	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d4	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d5	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d6	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d7	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d8	1	Cache	hpn	512K	Cache 1500 1500
/dev/dsk/c15t0d9	1	Cache	hpn	512K	Cache 1500 1500

Figure 5-9. HP Configuration/SAM

## 5.5.2 SUN Solaris

The model 3000 is compatible with SUN host bus adapters such as: X6729A, X6730A and X6731A. It has also been tested on Emulex LP8000, Qlogic 2100F and Qlogic 2200F.

1. After connecting the model 3000 to a SUN system, proceed with configuration as follows:

Configuration of the model 3000 can be done one of two ways:

- Do a reconfiguration boot by halting the system and doing a "boot -r."
- Doing the following commands can do the reconfiguration online:

```
# drvconfig
# disks
#
```

## 2. Run the format command to label and partition the drive.

```
# format
Searching for disks...done
AVAILABLE DISK SELECTIONS:
    0. c0t0d0 <SUN9.0G cyl 4924 alt 2 hd 27 sec 133>
        /pci@1f,4000/scsi@3/sd@0,0
    1. c0t2d0 <SUN9.0G cyl 4924 alt 2 hd 27 sec 133>
        /pci@1f,4000/scsi@3/sd@2,0
    2. c5t1d0 <SDS-3000-1.02 cyl 4093 alt 2 hd 8 sec 128>
        /pci@6,4000/scsi@3/sd@1,0
    3. c13t0d0 <SDS-800SUltraSCSI-US01 cyl 5117 alt 2 hd 8 sec 128>
        /pci@1f,4000/scsi@4/sd@0,0

Specify disk (enter its number):2
selecting c5t1d0
[disk formatted]
FORMAT MENU:

disk          - select a disk
type          - select (define) a disk type
partition     - select (define) a partition table
current       - describe the current disk
format        - format and analyze the disk
repair        - repair a defective sector
label         - write label to the disk
analyze       - surface analysis
defect        - defect list management
backup        - search for backup labels
verify        - read and display labels
save          - save new disk/partition definitions
inquiry       - show vendor, product and revision
volname       - set 8-character volume name
!<cmd>        - execute <cmd>, then return
quit

format> label
Ready to label disk, continue? y
format>
```



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## About Solid Data

Solid Data Systems is the industry leader in providing solid-state, file-caching appliances for the e-business and digital communications marketplaces. Using patented hardware and software technologies, Solid Data offers a line of robust, rack-optimized file-caching appliances that dramatically increase system performance for transaction-intensive applications - such as wireless messaging, e-mail, and e-business - thereby reducing the total cost of ownership for the enterprise.

Solid Data Systems has earned a leadership position in the growing market due to its innovative implementation of solid-state technology for file-caching solutions. With thousands of systems installed in the field to serve business-critical applications, Solid Data has secured repeat business with a broad range of high-profile customers, who embrace leading-edge IT strategies and maintain high expectations relative to the performance, reliability, availability, ease of use, and value of their IT investments.

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