

NAAS

SNAZ USER GUIDE



Plasmon

Raidtec
SOLUTIONS

Preliminaries

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Chapter 1

Introduction

SNAZ network attached file servers

The SNAZ family of network attach file servers (NAS) provide robust and easily managed file serving for departmental, branch office and medium sized company applications.

- S4-350 is a 1U 19 inch rack mount unit with 4 drive bays offering user storage of between 750GB and 1.5TB (Usable Capacity using RAID 5; the S4-350 is configured without a hot spare)
- S8-350 is a 2U 19inch rack mount unit with 8 drive bays offering user storage of up to 2TB (Usable Capacity using RAID 5). For larger capacity requirements, the associated 2U SNAZ Expansion unit extends the S8 capacity to 4TB and 6TB of user storage (Usable Capacity using RAID 5).



Key Features include:

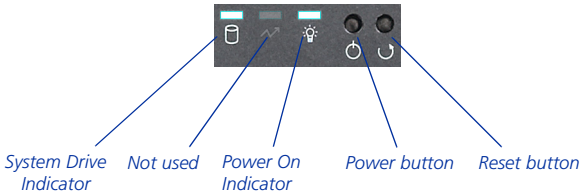
- 750GB to 6TB of user storage
- SNAZ OS v4 is a dedicated Linux based, XFS journaled operating system for fast, reliable operation
- Windows CIFS and UNIX NFS support enable file sharing between Window, Linux and UNIX users.
- Dual Gigabit Ethernet (with teaming and failover) connection to the network(s)
- Powerful Xeon processor supports many simultaneous client users
- RAID 5 fault tolerance is standard with administrator configurable RAID 0, 1.

- Hot swappable SATA disk drives and hot spare disk(s) (the S4-350 is configured without a hot spare) for resilient operation.
- Browser based SNAZ Manager, gives easy installation and ongoing management with extensive context related on-screen help
- Convenient user storage management capabilities such as Group and User Quotas and on-line volume expansion
- Configurable stand alone User and File access rights as well as easy integration with Windows Active Directory.
- Powerful, built-in BakBone NetVault backup utility ensures extensive compatibility with tape drives, autoloaders and libraries and flexible back-up.
- Snapshot important data to a separate volume for almost instantaneous backup
- Replicate between SNAZ units with SNAZ Replifile for data protection.

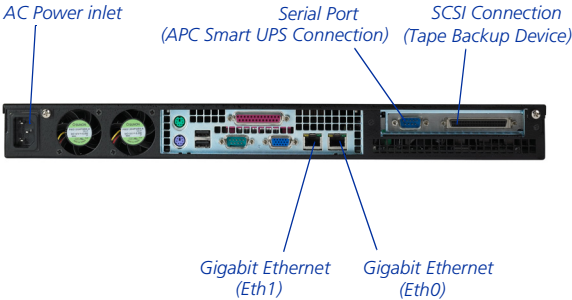
Front panel features



The SNAZ front panel controls have the following features:



Rear panel features



Note: SNAZ S4 rear view shown (SNAZ S8 similar)

SNAS

Chapter 2

The SNAZ Manager

Overview

This chapter describes the features of the SNAZ Manager, which administrator's use to configure and monitor the SNAZ and its Users, Groups and Shares.

SNAZ Manager Server Configuration Wizard

The first time you start the SNAZ Manager, you'll see is the **Server Configuration Wizard**. This page allows you to perform the initial configuration of your SNAZ.

For further details of the **Server Configuration Wizard**, please refer to the *SNAZ Quick Start Guide*.

Home page features

The SNAZ Manager home page gives an overview of current system status, and allows you to access all the system configuration and monitoring operations, via a menu bar along the top of the page.

The screenshot displays the SNAZ S8 home page interface. At the top, there is a navigation menu with tabs for System, Network, Storage, Data Protection, Diagnostics, and Shutdown. The main content area is titled "System - Status" and contains several sections:

- System Up Time:** 0 Day(s) 0 Hour(s) 12 Minute(s)
- CPU Usage:** 87%
- System Volume:** Total: 1.98 GB Free: 1.27 GB (with a [More Details](#) link)
- Volumes:** Online 1 (with a [More Details](#) link)
- RAIDs:** Normal 1 (with a [More Details](#) link)
- Disks:** Online 8 (with a [More Details](#) link)
- Services:** SMB: Stopped, NFS: Stopped, FTP: Stopped, Replication: Stopped, UPS: Stopped, Backup: Stopped (with a [More Details](#) link)
- Environment:** CPU Temperature: 51 Celsius, Board Temperature: 35 Celsius, Fan Speed: 3000 rpm

Menu bar

The menu bar lets you access all the SNAZ's configuration and monitoring options, as well as the on-line help.






- 1 Move the pointer over a top-level menu item to reveal submenu options, for example:




- 2 Click on your chosen option, refer to [Table 2-1](#) for further information.

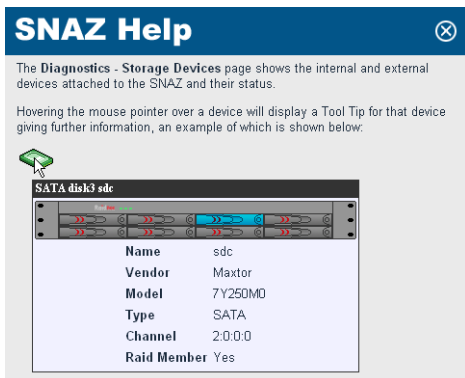
Table 2-1 SNAZ Manager menu bar


Menu/Icon	Description
System	Lets you set the time and date, update system software, manage system services and define notification recipients.
Network	Lets you configure the network settings and define users, groups and shares
Storage	Lets you define and monitor the status of volumes and RAIDs
Data Protection	Lets you configure snapshots, replications, perform a configuration backup and describes how to backup the SNAZ
Diagnostics	Lets you monitor the status of devices in and attached to the SNAZ and view the system information (serial number, software version, etc.)
Shutdown	Lets you shutdown or reboot the SNAZ
	Displays context-sensitive on-line help
	Returns you to the System - Status (home) page
	Logs you out of the current Web interface session

On-line help

Each page of the Web interface has an on-line help page associated with it. To access the on-line help for a page:


- 1 From the page you require help with, click the  icon.
The SNAZ Help page will open in a pop-up browser Window.
For example:



SNAZ Help 


The **Diagnostics - Storage Devices** page shows the internal and external devices attached to the SNAZ and their status.

Hovering the mouse pointer over a device will display a Tool Tip for that device giving further information, an example of which is shown below:




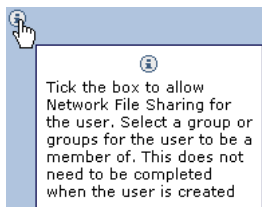
SATA disk3 sdc


Name	sdc
Vendor	Maxtor
Model	7Y250MD
Type	SATA
Channel	2:0:0:0
Raid Member	Yes


- 2 When you are finished using the on-line help, click the  icon to close the Window.

Tool Tips

Whenever you see the  icon next in the Web interface, you can hover over the icon to view a Tool Tip for that item.
For example:










Tick the box to allow Network File Sharing for the user. Select a group or groups for the user to be a member of. This does not need to be completed when the user is created




System status


The SNAZ Manager **System - Status** (home) page automatically refreshes its content every 30 seconds and displays the following information:

- System Up Time - The amount of time which has elapsed since the SNAZ was last rebooted
- CPU Usage - The current CPU utilisation, as sampled over 3 seconds
- System Volume - The total size and amount of free space available in the System Volume
- Volumes - The number of storage Volumes present on the System and their status:




Icon	Meaning
	The volume(s) that are Online
	The volume(s) that are Offline
	The volume(s) that are Faulty

- RAID(s) - The number of RAID(s) present on the System and their status:

Icon	Meaning
	The RAID(s) that are Online
	The RAID(s) that are Degraded and/or Resynchronising
	The RAID(s) that are Offline

Icon	Meaning
	The RAID(s) that are Faulty

- Disks - The number of Disks present on the System and their status:

Icon	Meaning
	The Disk(s) that are Online
	The Disk(s) that are Offline
	The Disk(s) that are Faulty

- Services - The Services configured on the System and their status (**Started** or **Stopped**).

The following is shown only if your version of SNAZ enclosure has environmental monitoring hardware:

- Environmental - The SNAZ will display the CPU and motherboard temperature.

System menu

System
Status
Time & Date
Services
Software Update
Notification

The **System** menu allows you to access:

- Status (home) page - see [System status](#) on page 11
- [Time & Date](#)
- [Services](#) - see [page 15](#)
- [Software Update](#) - see [page 23](#)
- [Notification](#) - see [page 24](#).

Time & Date

The **System - Time & Date** page allows you to:

- Set the time and date manually
- Synchronize the system's time with a Network Time Protocol (NTP) Server.

To set the time and date manually:

- 1 From the menu bar, select **System - Time & Date**.

System - Time & Date

Time Zone: (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London ⓘ

Daylight Saving: ⓘ

Date and Time


Date: 2005/10/17 ⓘ

Time: 10 Hour(s) 25 Minute(s) 22 Second(s) ⓘ


Internet Time

Automatically synchronize with Internet time server ⓘ

- 2 Use the drop-down menus to select a **Time Zone** from the list.
- 3 If appropriate, tick the box for **Daylight Saving** time.

- 4 Set the **Date**, you can either type in the date in the format YYYY/MM/DD (e.g. 2006/07/24 for the 24th July 2006) or click on the calendar icon () to show the **Select Date** pop-up:

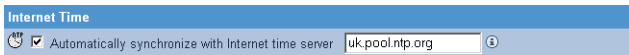


- 5 Set the **Time** in the format Hour(s), Minute(s) and Second(s).
- 6 Click  to save the changes.

Synchronising the time and date with an NTP server

To set the time and date using an NTP server:

- 1 From the menu bar, select **System - Time & Date**.



- 2 Tick the **Automatically synchronize with Internet time server** box and enter an NTP server URL to automatically synchronize the time with an Internet time server.

You can test the connection to the NTP server by clicking



Note: If you are using a SNAZ and an Active Directory Server, it is essential that their system time be synchronised. We recommend that the same NTP server is used for both the SNAZ and the Active Directory Server.

- 3 Click  to save the changes.

Services

System - Services		
Service	Status	Action
MS Networking	Started	stop
NFS	Started	stop
FTP	Started	stop
Replication	Started	stop
UPS	Stopped	start
Backup	Stopped	start

The **System - Services** page allows you to start, stop and, in some cases, configure:

- *MS Networking* - see [page 16](#)
- NFS - This is configured via the **Network - Shares** page - see [page 37](#)
- *FTP* - see [page 23](#)
- Replication - This is configured via the **Data Protection - Replication Target** page - see [page 63](#)
- *UPS* - see [page 20](#)
- *Backup* - see [page 22](#).

MS Networking

To configure MS Networking:


- 1 From the menu bar, select **System - Services** and click on **MS Networking**. The **MS Networking (Configuration)** page opens:

The screenshot shows the 'MS Networking (Configuration)' window. It has a title bar with 'Configuration' and 'Security' tabs. The 'Configuration' tab is active. The window contains several fields: 'Server Description' with the value 'SMB Server'; 'Connection Timeout' with a value of '0' and the unit 'minutes'; 'WINS Server IP' which is empty; 'Max Sessions' with a value of '0'; 'Use Network Interface(s)' with two radio button options: 'Using all available interfaces' (which is selected) and 'Using the following interfaces'; a list box showing 'eth0' and 'eth1'; and 'File system code page' with a dropdown menu set to 'UTF-8'. Each field has an information icon to its right.

- 2 Enter a **Server Description**. This is a name (or type) description for the server.
- 3 If required, enter a **Connection Timeout** in minutes. This is the amount of time that connections may remain idle, with no open files, before disconnecting them from the share. The default timeout is 30 minutes.
- 4 If required, enter a **WINS Server ID**. This is the IP address of the Windows Internet Naming Service (WINS) server.
- 5 If required, enter the number of **Max Sessions**. This is the maximum number of concurrent MS Networking sessions that the SNAZ will accept. The default is 60 sessions.
- 6 Select whether MS Networking connects:
 - **Using all available interfaces** - to use any and all available network ports
 - **Using the following interfaces** - to use a network port specified from the drop-down list.
- 7 Click on the **Security** tab. This gives access to the Active Directory Server user authentication features.

The screenshot shows the 'System - Services - MS Networking (Security)' configuration window. It has two tabs: 'Configuration' and 'Security'. Under 'Configuration', there are several fields:

- 'Workgroup': A radio button is selected, with an empty text box and a help icon.
- 'Domain Name': A radio button is selected, with a text box containing 'SNAZ.PCS' and a 'Connected' status indicator with a help icon.
- 'Organization Unit (Optional)': A text box containing 'Computers' and a help icon.
- 'User Name (Optional)': A text box containing 'admin' and a help icon.
- 'Password (Optional)': A text box with masked characters and a help icon.
- 'Domain Type': A dropdown menu showing 'ADS(Win2K+)'.

- 8 If required, enter a **Workgroup**.
OR
Enter a **Domain Name**. This is the domain name the MS Networking service will use and is not the same as a DNS domain name.
- 9 If required, enter the name of the **Organization Unit (OU)** within the Active Directory structure in which the SNAZ will appear. By default, the server will appear within the OU named "Computers".
- 10 If required, enter the Windows **User Name**. If a Windows User Name is entered, their **Password** must be supplied.
- 11 The **Domain Type** is derived from the connection to the Active Directory Server. The two types of domain are:
 - ADS (Win2K+)
 - NT Compatible.
- 12 Click  to save the changes.

FTP

To configure FTP access to the SNAZ:

- 1 From the menu bar, select **System - Services** and click on **FTP**. The **FTP (Configuration)** page opens:

Configuration		Security
System - Services - FTP (Configuration)		
FTP Server Banner	Welcome to your FTP Service ⓘ	
Data Mode	<input type="radio"/> PORT <input type="radio"/> PASV <input checked="" type="radio"/> BOTH ⓘ	
Connection Timeout	<input type="radio"/> Short <input checked="" type="radio"/> Medium <input type="radio"/> Long ⓘ	
Max Clients	0 ⓘ	
Max Clients per IP	0 ⓘ	
Max Transfer Rate	0 KBytes/second ⓘ	

- 2 If required, enter an **FTP Server Banner**. This is a message which will be displayed to users when they access the SNAZ via FTP.
- 3 Enter a **Data Mode**. The data mode can be:
 - **PORT** - The client connects from a random unprivileged port ($N > 1024$) to the FTP server's command port, port 21. Then, the client starts listening to port $N+1$ and sends the FTP command PORT $N+1$ to the FTP server. The server will then connect back to the client's specified data port from its local data port, which is port 20
 - **PASV** - The client initiates both connections to the server, solving the problem of firewalls filtering the incoming data port connection to the client from the server. When opening an FTP connection, the client opens two random unprivileged ports locally ($N > 1024$ and $N+1$). The first port contacts the server on port 21, but instead of then issuing a PORT command and allowing the server to connect back to its data port, the client will issue the PASV command. The result of this is that the server then opens a random unprivileged port ($P > 1024$) and sends the PORT P command back to the client. The client then initiates the connection from port $N+1$ to port P on the server to transfer data
 - **BOTH** - The FTP client defines the connection method (PORT or PASV) and the server responds accordingly.
- 4 Enter a **Connection Timeout**. This defines how long the SNAZ should remain connected, but idle, before disconnecting.

The timeout settings for connections are:

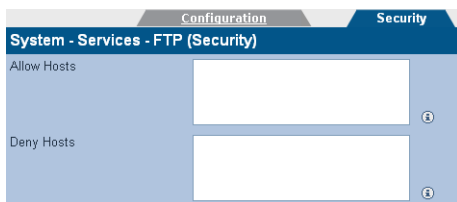
- 30 seconds for Short
- 60 seconds for Medium
- 300 seconds for Long.

The timeout settings for transfers are:

- 150 seconds for Short
- 300 seconds for Medium
- 1500 seconds for Long.

- 5 Enter **Max Clients**. This is the maximum number of concurrent FTP client connections.
- 6 Enter **Max Clients per IP**. This is the maximum number of concurrent FTP client connections per IP address.
- 7 Enter the **Max Transfer Rate**. This is the maximum rate, in Bytes, of FTP data transfer.
- 8 Click on the **Security** tab. This allows you to enter IP addresses and/or hostnames which you wish to explicitly Allow or Deny FTP access to the SNAZ.

Note: When hosts are added to either the Allow or Deny lists, all other hosts automatically become marked as the opposite, unless they are specified otherwise.



- 9 Click **save** to save the changes and, as appropriate, click **start** to start or click **stop** to stop the service.

UPS

The information in the **System - Services - UPS** page is derived from the UPS itself.

Refer to your UPS's documentation for further details.

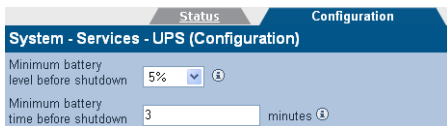
Note: The SNAZ only supports APC Smart brand UPSs.

- 1 From the menu bar, select **System - Services** and click on **UPS**. The **UPS (Status)** page opens:

	Status	Configuration
System - Services - UPS (Status)		
UPS Model	Smart-UPS 1000 RM	
Status	ONLINE	
Line Voltage	250.5 Volts	
Battery Charge	100.0 Percent	
Battery Time Left	28.0 Minutes	
Output Voltage	250.5 Volts	
UPS Temperature	25.6 C Internal	
Last time power transfer to battery		

- **UPS Model** - The type of UPS attached to the SNAZ
- **Status** - The UPS's status (e.g ONLINE,)
- **Line Voltage** - The UPS's input voltage
- **Battery Charge** - The amount of battery charge, in percent, remaining
- **Battery Time Left** - The amount of battery charge, in minutes, remaining
- **Output Voltage** - The UPS's output voltage (to the SNAZ)
- **UPS Temperature** - The temperature of the UPS enclosure
- **Last time power was transferred to UPS** - The last time the power was transferred from the mains supply to the UPS.

- Click on the **Configuration** tab. This allows you to configure:
 - Minimum battery level before shutdown** - Select the minimum UPS battery level, in percent, prior to the SNAZ shutting down from the drop-down list
 - Minimum battery time before shutdown** - Enter the minimum UPS battery time remaining, in minutes, prior to the SNAZ shutting down.

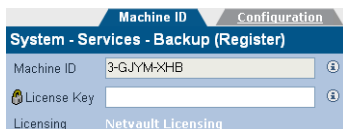


- Click **save** to save the changes and, as appropriate, click **start** to start or click **stop** to stop the service.

Backup

The SNAZ uses preinstalled BakBone NetVault software to perform system data backups.

- 1 From the menu bar, select **System - Services** and click on **Backup**. The **Backup (Register)** page opens:



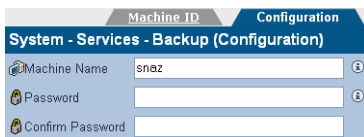
The **Machine ID** was automatically generated at the time the NetVault Software was installed on the SNAZ.

- 2 Enter the **License Key**. When the SNAZ system is registered, via the [Plasmon Warranty Registration website](#), the License Key will be supplied by email and should be entered here.
- 3 Click the **register** button to complete the software registration.

A message bar will indicate the success or failure of the registration, along with troubleshooting information. In the event of any errors or problems, please contact [Plasmon Technical Support](#).

A hyperlink to the [Plasmon Warranty Registration website](#) is also presented.

- 4 Click on the **Configuration** tab.



- 5 Enter a **Machine Name**. To allow the distinction between different devices within a NetVault environment, a unique Machine Name will be generated for your SNAZ.
- 6 Enter a Password and then **Confirm Password** if you wish to restrict client access to the Backup services.
- 7 Click **save** to save the changes and, as appropriate, click **start** to start or click **stop** to stop the service.

Software Update

The **System - Software Update** page allows you to update the System software using:

- **HTTP** - from a local computer
- **FTP** - from the ftp.plasmon.com website.

HTTP

To update the System software using HTTP:

- 1 From the menu bar, select **System - Software Update**. The **Software Update (HTTP)** page opens:

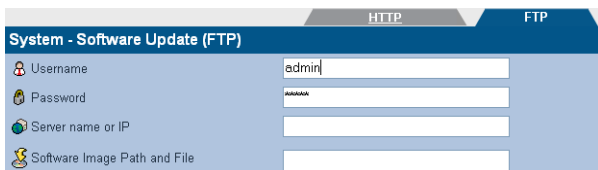


- 2 Enter the **Software Image File** path to a local copy of the SNAZ OS software image or click browse to search.
- 3 Click **upload** to begin the software update.
Follow the on-screen instructions to complete the installation.

FTP

To update the System software using FTP:

- 1 From the menu bar, select **System - Software Update**. Click on the **FTP** tab.



- 2 Enter an FTP **Username** and that username's **Password**.
- 3 Enter the **Server name or IP** address for the FTP site.
- 4 Enter the **Software Image Path and File** to the copy of the SNAZ OS software image.
- 5 Click **transfer** to begin the software update.
Follow the on-screen instructions to complete the installation.

Notification

The SNAZ allows for system administrator's to be notified of system events and errors by means of:

- *Email (SMTP) Notification*
- *SNMP Notification* - see [page 26](#).

Note: Both email and SNMP notification services can be running at the same time.

Email (SMTP) Notification

To enable email (SMTP) notification:






- 1 From the menu bar, select **System - Notification**. The **System - Notification (SMTP)** page opens:




System - Notification (SMTP)	
Enable	<input checked="" type="checkbox"/>
SMTP Server	192.168.4.2
SMTP Port	25
Sender (optional)	SNAZ-S8@example.com
Username (optional)	admin
Password (optional)	*****
Notification Recipients	
Recipients	Alert threshold Level
doyston@software.example.com	1

- 2 Tick the **Enable** box to enable, or un.tick to disable, the email notification service.
- 3 Enter an **SMTP Server** (mail server) name or IP address.
- 4 Enter an **SMTP Port**. The normal port used for email is 25.
- 5 If required, you can add a **Sender** to your notifications.
- 6 If required, you can add a **Username** to the notifications. If a username is added, that user's **Password** also needs to be entered.

- 7 Enter the email address(es) of up to five email notification **Recipients**.
- 8 Select an **Alert Threshold Level** for each recipient. These are described below:

Table 2-2 Notification Alert Threshold Levels

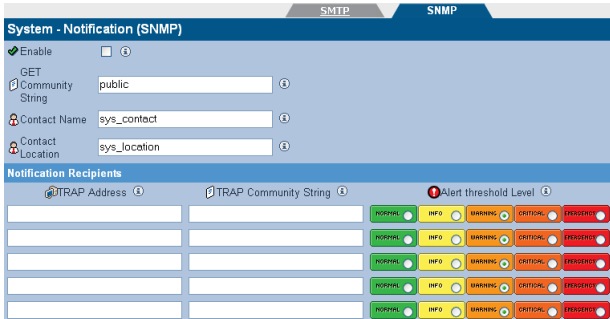
Level	Meaning
	These notifications require no action. This level includes all notifications
	These notifications may require some action to be taken. This level includes Warning, Critical and Emergency level notifications
	These notifications require that action should be take to keep the SNAZ operating at maximum efficiency. This level includes Critical and Emergency level notifications
	These notifications require that action must be taken. This level includes Emergency level notifications
	These notifications require that action must immediately be taken. This level includes only Emergency level notifications

- 9 Click  to save the changes,  to test SNMP notification (a test notification is sent to each recipient) or click  to view the **Notification Log**.

SNMP Notification

To enable SNMP notification:

- 1 From the menu bar, select **System - Notification**. Click on the **SNMP** tab. The **System - Notification (SNMP)** page opens:











TRAP Address	TRAP Community String	Alert threshold Level
		NORMAL
		NORMAL
		NORMAL
		NORMAL
		NORMAL

- 2 Tick the **Enable** box to enable, or untick to disable, the SNMP notification service.
- 3 Enter a **GET Community String**. By default the SNAZ does not use Community Strings to authenticate sent notifications. However, if required, a Community String can be entered here to enable this function.
- 4 Enter a **Contact Name** for SNMP notifications. The Contact Name specifies the person to contact for the host, and how you can contact this person (such as by telephone extension or email address), for example: *John Smith, X 1234, smith@plasmon.com*.
- 5 Enter a **Contact Location** for SNMP notifications. The Contact Location specifies the geographical location of the host, for example: *SNAZ-S4, Server Room 2, Plasmon HQ, UK*.
- 6 Enter the **TRAP Address** (IP addresses) and **TRAP Community String** of up to five SNMP notification **Recipients**.

- 7 Select an **Alert Threshold Level** for each recipient. These are described below:

Table 2-3 Notification Alert Threshold Levels

Level	Meaning
	These notifications require no action. This level includes all notifications
	These notifications may require some action to be taken. This level includes Warning, Critical and Emergency level notifications
	These notifications require that action should be take to keep the SNAZ operating at maximum efficiency. This level includes Critical and Emergency level notifications
	These notifications require that action must be taken. This level includes Emergency level notifications
	These notifications require that action must immediately be taken. This level includes only Emergency level notifications

- 8 Click  to save the changes,  to test SNMP notification (a test notification is sent to each recipient) or click  to view the **Notification Log**.

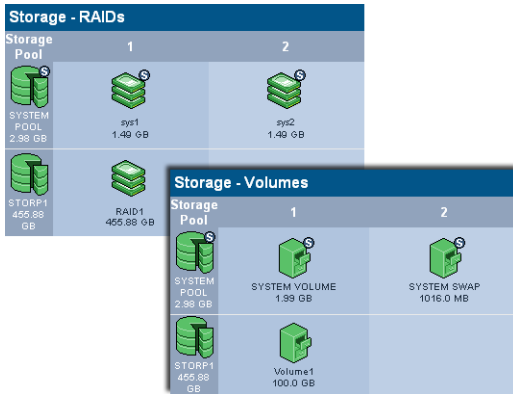
Shares on the SNAZ

Shares are used to give specified users controlled access to specific folders and subfolders on the SNAZ system, from their client computers.

This section does not detail how to create the individual components of the Share (such as RAID's and Volumes), it is intended to demonstrate the process involved in creating a Share.

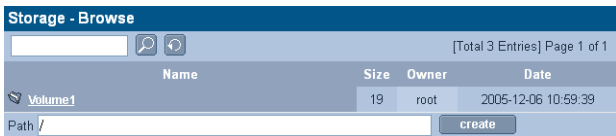
How a Share is created

Our example SNAZ system has a previously created RAID (called RAID1), containing a Volume (called Volume1):



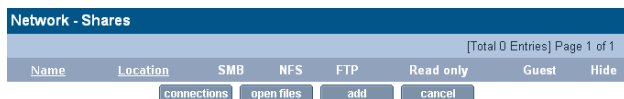
Our example SNAZ system also has some users (called User2 and User3), who are members of a group (called Group1).

From the **Storage - Browse** screen, the Volume looks like this:



To create an accessible Share (in this example Windows SMB):

- 1 From the menu bar, select **Network - Shares**:

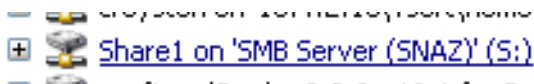


Then click **add**.

- 2 A Share is then created, as shown in [Adding a Share](#) on page 37, called Share1 (with Group1 given access):



A Share now exists that users can access from their Windows client computers, as they would for any other network file share:



Network menu

Network
Configuration
Users
Groups
Shares

The Network menu allows you to access:

- *Configuration*
- *Users*
- *Groups*
- *Shares*

Configuration

The information in the **Network - Configuration** page is usually entered via the Server Configuration Wizard (which runs automatically during the initial installation of the SNAZ system).

To configure the Network settings:



- 1 From the menu bar, select **Network - Configuration**.

The screenshot shows the 'Network - Configuration (Configuration)' page. At the top, there are three tabs: 'Configuration', 'Ports', and 'Hosts'. The 'Configuration' tab is selected. Below the tabs, the page is organized into several sections:

- Configuration:** Hostname: soyuz; Domain Name: example.com.
- Routing Configuration:** Network Gateway: 192.168.4.20.
- Name Server Settings:** DNS Servers: 192.168.4.1, 192.168.4.3.

- 2 Enter a **Hostname** for the SNAZ.
- 3 Enter the **Domain Name** which the SNAZ is attached to.
- 4 Enter your **Network Gateway** IP address or hostname.
- 5 Enter the IP address(es) of up to 3 **DNS Servers**. Multiple DNS Servers are usually used to provide fail-over Domain Name resolution.


- 6 Click on the **Ports** tab. The SNAZ's network (Ethernet) ports are listed:

Configuration		Ports			Hosts	
Network - Configuration (Ports)						
Name	Enabled	DHCP	IP Address	Netmask	Link-Up	Bond
 eth0	✓	✓	10.4.4.22	255.255.255.0	✓	
 eth1	✗	✓			✓	

The following information is also displayed:

- **Name** - The Ethernet port name. The SNAZ has two Ethernet ports *eth0* and *eth1*. Clicking on the port Name allows you to view the network ports configuration.
- **Enabled** - Shows whether the Ethernet port is enabled.
- **DHCP** - Shows whether the DHCP is enabled.
- **IP Address** - Shows the IP address of the port
- **Netmask** - Shows the Network mask of the port
- **Link up** - Whether the two ports are linked
- **Bond** - Whether or not the ports are bonded. This is used to provide load balancing (where the two ethernet cards share network activity to prevent overloading) or fault tolerance (where one ethernet card is used, the other being kept as a backup in case of failure of the first).

- 7 Click on the **Hosts** tab.

Configuration		Ports	Hosts
Network - Configuration (Hosts)			
[Total 1 Entries] Page 1 of 1			
IP Address	Host Name(s)		
 10.4.2.97	lapetus		

- 8 Click to add a host. This page allows you to enter a list of Hosts which are known to the SNAZ. This list is used to resolve hosts when DNS is not available.
- 9 Click to save the changes.

Users

The **Network - Users** page lists all the Users known to the system.

Adding a User

To add a User:

- 1 From the menu bar, select **Network - Users**.

Network - Users							
User Name	UID	Web Admin (Full Control)	Web Admin (View Only)	Samba	Replication	SSH	FTP
admin	500	✓	✗	✗	✓	✓	✓
rep1	501	✗	✗	✗	✓	✗	✗
user1	502	✗	✓	✗	✗	✗	✗

- 2 Click **add**. The **Network - Users - Add** page is displayed:

Network - Users - Add

Name User Id

Description

Password Setup

Password

Confirm Password

Service Privileges

Network File Sharing

Network Sharing Group Privileges

Replication FTP SSH

Web Administration (Full Control) (View Only)

- 3 Enter the User's **Name**. A **User Id** is automatically generated.
- 4 Enter a **Description** for the User.
- 5 Enter a and confirm the User's **Password** (this is mandatory).
- 6 Tick the **Network File Sharing** box to enable NFS for the User and select a Group from the **Network Sharing Group Privileges** list.
- 7 If the User is to have replication privileges, tick the **Replication** box.
- 8 If the User is to have FTP access privileges, tick the **FTP** box.

- If the User is to have SSH access privileges, tick the **SSH** box. SSH is a way to log into another computer over a network using a command line (console) interface.
- If the User is to have Web administration access privileges, tick the **Web Administration** box. By default the User will have **View Only** privileges. If required, select the **Full Control** radio button.
- Click to add the User.

Deleting a User

To delete a User:

- From the menu bar, select **Network - Users**.

Network - Users							
User Name	UID	Web Admin (Full Control)	Web Admin (View Only)	Samba	Replication	SSH	FTP
admin	500	✓	✗	✗	✓	✓	✓
rep1	501	✗	✗	✗	✓	✗	✗
user1	502	✗	✓	✗	✗	✗	✗

- Click the User Name of the User you wish to delete. The **Network - Users - Update** page is displayed.
- Click .
- A warning message is displayed. Click to confirm deletion of the user.

Editing a User's details

To edit a User's details:

- 1 From the menu bar, select **Network - Users**.

Network - Users							
User Name	UID	Web Admin (Full Control)	Web Admin (View Only)	Samba	Replication	SSH	FTP
admin	500	✓	✗	✗	✓	✓	✓
rep1	501	✗	✗	✗	✓	✗	✗
user1	502	✗	✓	✗	✗	✗	✗

- 2 Click the **User Name** of the User you wish to edit. The **Network - Users - Update** page is displayed:

Network - Users - Update

Name: user1 User Id: 502

Description:

Password Update

Password:

Confirm Password:

Service Privileges

Network File Sharing

Network Sharing Group Privileges:

Replication FTP SSH

Web Administration (Full Control) (View Only)

- 3 You can edit the User's **Description**, **Password** or change their **Service Privileges**.
- 4 Click to save the changes.

Groups

The **Network - Groups** page lists all the Groups known to the system and allows you to add, edit or delete Groups from the system.

Adding a Group

To add a Group:

- 1 From the menu bar, select **Network - Groups**:



Network - Groups	
[Total 1 Entries] Page 1 of 1	
Name	Group Id
 Test_Users	111

- 2 Click . The **Network - Groups - Add** page is displayed:



Network - Groups - Add	
Name	<input type="text"/>
GID	<input type="text" value="112"/>

- 3 Enter a **Name** for the Group.
- 4 Click to add the Group.

Editing a Group's details

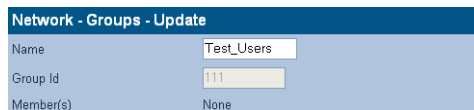
You can only edit the Name of a Group. To edit a Group's name:

- 1 From the menu bar, select **Network - Groups**.



Network - Groups	
[Total 1 Entries] Page 1 of 1	
Name	Group Id
 Test_Users	111

- 2 Click the **Name** of the Group you wish to edit. The **Network - Groups - Update** page is displayed:



Network - Groups - Update	
Name	<input type="text" value="Test_Users"/>
Group Id	<input type="text" value="111"/>
Member(s)	None

- 3 Edit the Group's **Name**.
- 4 Click to save the changes.

Deleting a Group

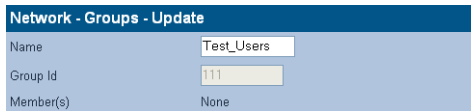
To delete a Group:

- 1 From the menu bar, select **Network - Groups**.



Network - Groups	
[Total 1 Entries] Page 1 of 1	
Name	Group Id
 Test_Users	111

- 2 Click the **Name** of the Group you wish to delete. The **Network - Groups - Update** page is displayed:



Network - Groups - Update	
Name	<input type="text" value="Test_Users"/>
Group Id	<input type="text" value="111"/>
Member(s)	None

- 3 Click .
- 4 A warning message is displayed. Click to confirm deletion of the Group.

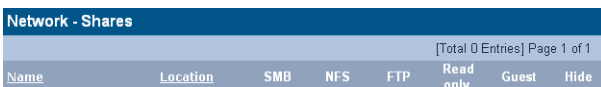
Shares

The **Network - Shares** page allows you to view, edit and delete Shares from the system. It is also used to view active connections and open files and configure access (ACLs) to the various Shares on the system.

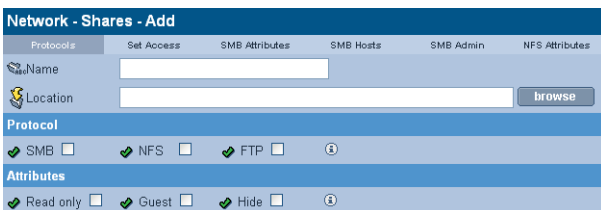
Adding a Share

To add a Share:

- 1 From the menu bar, select **Network - Shares**.



- 2 Click **add**. The **Network - Shares - Add** page, **Protocols** tab is displayed:



- 3 Enter a **Name** for the Share.
- 4 Enter a **Location** for the Share or click **browse** to browse for a location.
- 5 Tick one or more **Protocol** box. This defines how the Users will access the Share.
- 6 Tick one or more **Attributes** box. This defines what access privileges Users will have on the Share.

- 7 Click **next >>**, the **Set Access** tab is displayed:

The screenshot shows the 'Set Access' tab of the 'Network - Shares - Add' configuration window. The 'Name' field is 'Doc_Share' and the 'Location' is '/gtdf'. Under 'Owner and Group', the 'Owner' is 'root' and the 'Owner Group' is 'root'. An 'Access' table is displayed with 3 entries:

Name	Read	Write
root	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
root	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Everyone	<input checked="" type="checkbox"/>	<input type="checkbox"/>

An 'add' button is located at the bottom right of the table.

- 8 The default **Owner** and **Owner Group** are displayed (The current logged in User). Click **browse** to browse for a specific User.
- 9 To give specific Users access to the share, click **add** to browse.
- 10 Click **next >>**, the **SMB Attributes** tab is displayed:

The screenshot shows the 'SMB Attributes' tab of the 'Network - Shares - Add' configuration window. The 'Name' is 'Doc_Share' and the 'Location' is '/gtdf'. The 'Attributes' section contains the following options:

- Read only
- Guest
- Oplock
- Worm

- 11 Enter the **Attributes** for Windows (SMB) access to the Share.

- 12 Click **next >>**, the **SMB Hosts** tab is displayed:

The screenshot shows the 'Network - Shares - Add' wizard with the 'SMB Hosts' tab selected. The 'Name' field contains 'Doc_Share' and the 'Location' field contains '/gtdf'. There are two empty text boxes for 'Allow hosts' and 'Deny hosts', each with an information icon to its right. The tabs at the top are 'Protocols', 'Set Access', 'SMB Attributes', 'SMB Hosts', 'SMB Admin', and 'NFS Attributes'.

- 13 Enter the hostnames or IP addresses of Hosts you specifically want to be allowed or denied access to the Share.

Note: When hosts are added to either the Allow or Deny lists, all other hosts automatically become marked as the opposite, unless they are specified otherwise.

- 14 Click **next >>**, the **SMB Admin** tab is displayed:

The screenshot shows the 'Network - Shares - Add' wizard with the 'SMB Admin' tab selected. The 'Name' field contains 'Doc_Share' and the 'Location' field contains '/gtdf'. Below the fields is a section titled 'Admin Users' with a table containing 0 entries and a page indicator 'Page 1 of 1'. There is an 'add' button at the bottom right of the table.

- 15 Click **add** to add an Administrator User for this Share.
- 16 Click **next >>**, the **NFS Attributes** tab is displayed:

The screenshot shows the 'Network - Shares - Add' wizard with the 'NFS Attributes' tab selected. The 'Name' field contains 'Doc_Share' and the 'Location' field contains '/gtdf'. There is a 'Guest Host Access' section with three checked options: 'Enable', 'Read only', and 'AllowRoot'. Below that is a 'Host Access' section with a table containing 0 entries and a page indicator 'Page 1 of 1'. The table has columns for 'Hostname', 'Read only', 'AllowRoot', and 'SyncMode'. There is an 'add' button at the bottom right of the table.

- 17 Click **add** to add NFS Hosts to the Share.

Storage menu

Storage
RAIDs
Volumes
Browse

The Storage menu allows you to access:

- *RAIDs*
- *Volumes*
- *Browse*










RAIDs

The **Storage - RAIDs** page allows you to view, add or remove RAIDs on the system. You can also define hot spare disks.


Adding a RAID

To add a RAID:


- 1 From the menu bar, select **Storage - RAIDs**.

Storage - RAIDs				
Storage Pool	1	2	3	4
 SYSTEM POOL 2.56 GB	 sys1 292.0 MB	 sys4 1016.0 MB	 sys3 292.0 MB	 sys2 1016.0 MB
 StorP1 231.53 GB	 1st_Raid1 231.53 GB			
 StorP2 231.53 GB	 2nd_Raid1 231.53 GB			

- 2 Click **NEW**. The **Storage - RAIDs - Add** page opens:

Storage - RAIDs - Add	
Name	<input type="text" value="StorP1"/>
Storage - RAIDs - RAID Update	
RAID Name	<input type="text" value="RAID1"/>
RAID Level	<input type="text" value="RAID 0 - Stripe"/>
Chunk Size (kB)	<input type="text" value="64KB"/>
Disks available for new RAID	 SPR4K SATA Disk_2 233.79 GB

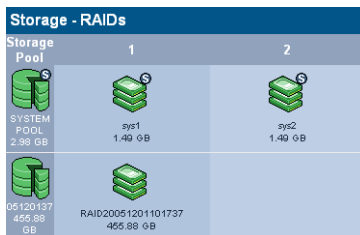
- 3 A **Pool Name** is automatically generated for the RAID to be a member of. You can also enter your own (up to 7 characters e.g. StorP1).
- 4 A **RAID Name** is automatically generated. You can also enter your own (e.g. RAID1 or 1st_RAID).

- 5 Select a **RAID Level** from the drop-down list. This can be either:
 - **RAID 0** - RAID 0 is a striped disk array without fault tolerance. Provides data striping (spreading out blocks of each file across multiple disk drives) but no redundancy. This improves performance but does not deliver fault tolerance. If one drive fails then all data in the array is lost
 - **RAID 1** - RAID 1 provides disk mirroring. Level 1 provides twice the read transaction rate of single disks and the same write transaction rate as single disks
 - **RAID 5** - RAID 5 provides data striping at the byte level and also stripe error correction information. This results in excellent performance and good fault tolerance. Level 5 is one of the most popular implementations of RAID.
- 6 Select a **Chunk Size (KB)** from the drop-down list. This is the size of the data chunks written to each disk.
- 7 Select the disks you wish to be members of the RAID from the **Disks available for new RAID** list. The new RAID will allocate all available storage space on those disks to the RAID.
- 8 Click  to add the new RAID.

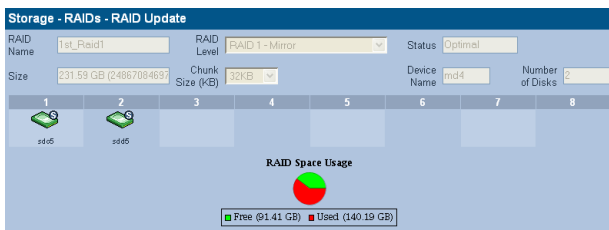
Removing a RAID

To remove a RAID:

- 1 From the menu bar, select **Storage - RAIDs**.



- 2 Click on the RAID you wish to remove. The **Storage - RAIDs - RAID Update** page opens.



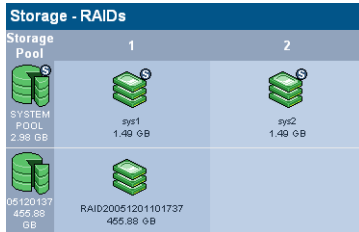
- 3 Click **remove**. You will be prompted to confirm you wish to delete the RAID. Click **remove** again to confirm or click **cancel** to cancel.

Defining Hot Spares

Hot spare disks can be defined to provide fault tolerance in RAID's. A disk which has been marked as a hot spare will automatically take the place of a failed disks in any RAID.

To mark a disk as a hot spare:

- 1 From the menu bar, select **Storage - RAID's**.



- 2 Click **hot spares**. The **Storage - RAID's - Hot Spares** page will open:

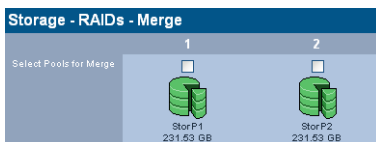


- 3 Tick the box(es) of disk(s) which you wish to mark as hot spare.
- 4 Click **set** to set the hot spare(s).
- 5 Click **finish** to save the changes and return to the **Storage - RAID's** page.

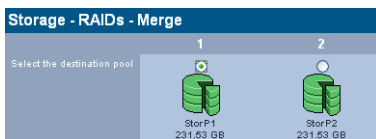
Merging RAIDs (Pools)

To merge storage pools:

- 1 Create a new RAID - see [Adding a RAID](#) on page 41.
- 2 From the menu bar, select **Storage - RAIDs**.
- 3 Click **merge**. The **Storage - RAIDs - Merge** page will open:



- 4 Select the pools (RAIDs) to merge and click **next >>**.
- 5 Select the destination pool (the pool which will remain after the merge):



- 6 Then click **merge**. When the pools have successfully merged, the SNAZ Manager will return to the **Storage - RAIDs** page.

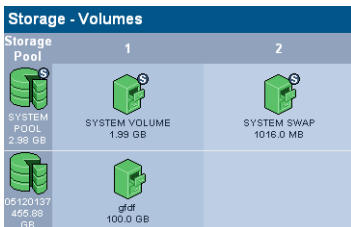
Volumes

The **Storage - Volumes** page allows you to view, add or remove Volumes from the system.

Adding a volume

To add a Volume:

- 1 From the menu bar, select **Storage - Volumes**.



- 2 Click **add**. The **Storage - Volumes - Volume Add** page opens:

The screenshot shows the 'Storage - Volumes - Volume Add' form. It includes the following fields:

- Name: Volume1
- Select Pool: StorP1 (dropdown)
- Space Available: 315.75 GB
- Initial Size: (empty input field) GB (dropdown)

- 3 A **Name** is automatically generated. You can also enter your own (up to 32 characters; a-z, A-Z, 0-9, - (hyphen) and _ (underscore) e.g. Volume_1).
- 4 Select a Pool that the Volume should be in from the **Select Pool** drop-down list.
- 5 Enter an **Initial Size** for the Volume.

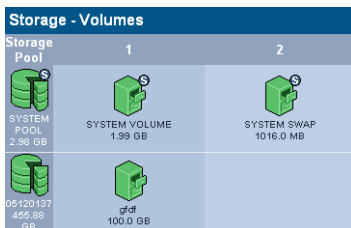
Note: When creating an initial size for the new volume, we recommend that 20% of the available space should be kept for Snapshot use or for future expansion of the Volume. The system will warn you if this is not the case.

- 6 Click **add** to add the new Volume.

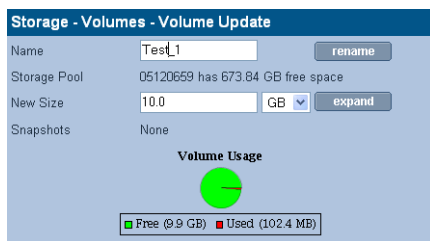
Removing a Volume

To remove a Volume:

- 1 From the menu bar, select **Storage - Volumes**.



- 2 Click on the Volume you wish to remove. The **Storage - Volumes - Volume Update** page opens:



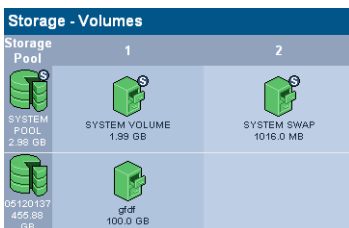
- 3 Click **remove**. You will be prompted to confirm you wish to delete the Volume. Click **remove** again to confirm or click to cancel.

Changing a User's Volume Quota

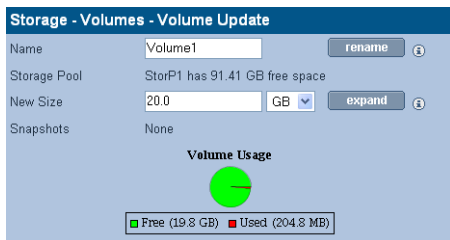
Users can be allocated a specific amount of a Volume which they can use. This amount is called their Quota.

To change a user's Quota:

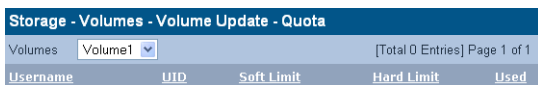
- 1 From the menu bar, select **Storage - Volumes**:



- 2 Click on the Volume you wish to change the Quota of. The **Storage - Volumes - Volume Update** page opens:



- 3 Click **quota**. The **Storage - Volumes - Volume Update - Quota** page opens:



- 4 Click **add**. The **Storage - Volumes - Volume Update - Quota - Add** page opens:

Storage - Volumes - Volume Update - Quota - Add

Volume

Username **browse**

Soft Limit MB

Hard Limit MB

Volume Usage

Free (19.8 GB) Used (204.8 MB)

- 5 Click **browse** to add a User to allocate the Quota to:

Storage - Volumes - Volume Update - Quota - Add

Volume

Username **browse**

Soft Limit GB

Hard Limit GB

Volume Usage

Free (19.8 GB) Used (204.8 MB)

For that user, enter:

- **Soft Limit** - to restrict the users quota, however, if a file is written which exceeds the Soft Limit, the file will still be written, as long as the Hard Limit is not exceeded
 - **Hard Limit** - The total amount of disk space allocated to the specified user. The user cannot exceed this limit.
- 6 Click **add**. The **Storage - Volumes - Volume Update - Quota** page opens, displaying the user's new quota:

Storage - Volumes - Volume Update - Quota				
Username	UID	Soft Limit	Hard Limit	Used
User2	509	1.0 GB	2.0 GB	0 Bytes

Volumes [Total 1 Entries] Page 1 of 1

Browse

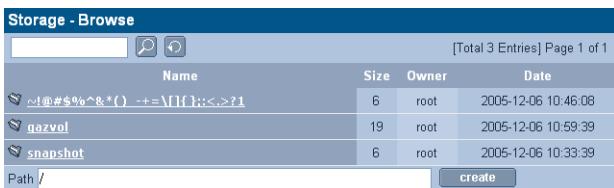
The **Storage - Browse** page allows you to search or browse through the directories present on the system.

Note: If you are using Active Directory to provide access control, ignore this section and refer to MS Networking on page 16.


Finding data

To search for a file:

- 1 From the menu bar, select **Storage - Browse**.



The screenshot shows the 'Storage - Browse' interface. At the top, there is a search bar with a magnifying glass icon and a refresh icon. To the right of the search bar, it says '[Total 3 Entries] Page 1 of 1'. Below the search bar is a table with the following columns: Name, Size, Owner, and Date. The table contains three entries: a file named '~!@#%&^&*() -+=\|{};:;<.>?1' with size 6, owner root, and date 2005-12-06 10:46:08; a file named 'gazvol' with size 19, owner root, and date 2005-12-06 10:59:39; and a file named 'snapshot' with size 6, owner root, and date 2005-12-06 10:33:39. Below the table is a 'Path /' input field with a 'create' button.

Enter a search string in the text box and click .

Click  to reset the content of the text box.

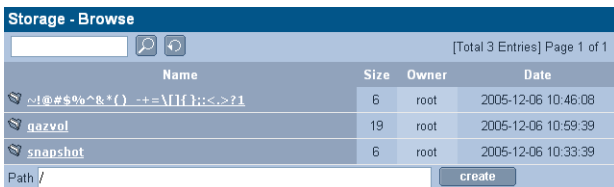
Alternatively, you can manually browse the directory tree for a file.

Setting or modifying an ACL

Clicking on a file or directory will take you to the **Storage - Browse - Access** page. From there you can change the access privileges, known as Access Control Lists or ACLs, Groups and Users have.

To change a Group's or User's access privileges (set or modify ACLs):

- 1 From the menu bar, select **Storage - Browse**.



This screenshot is identical to the one above, showing the 'Storage - Browse' interface with the search bar, table of files, and path input field.

- 2 Search or browse to a directory or file. Click on **access**. The **Storage - Browse - Access** page opens.

Storage - Browse - Access (Access)

Location: /DATA/TESTDATA/PCS TEST DATA **browse**

Owner: 136844 **browse**

Group: SNAZCHILD\domain users **browse**

ACL [Total 6 Entries] Page 1 of 2 **next >>**

Name	Read	Write	Make Inheritable
136844 (Owner)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SNAZCHILD\domain users (Group)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Everyone	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SNAZ\tfjmoore	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SNAZ\domain users	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

add

From this page you can:

- View the current **Location**. Click **browse** to browse to another directory
- View the directory's **Owner** and **Owner Group**. Click **browse** to browse for another Owner or Owner Group
- **ACL** - This section lists the Users and Groups who have access to the directory and their access privileges.
Click **add** to add more Users or Groups.

- 3 Click the **Attributes** tab.

Storage - Browse - Access (Attributes)

Location: /DATA/TESTDATA/PCS TEST DATA

Owner: 136844

Group: SNAZCHILD\domain users

Allow propagation of inheritable ACL changes (from ancestor)

DOS Attributes

Hidden Archive Read-only System ⓘ

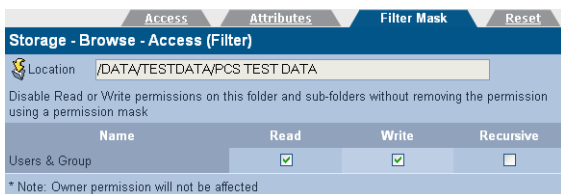
From this tab you can:

- **Allow propagation of inheritable ACL changes (from ancestor)** - This can be used to pass access privileges from the current directory to its sub-directories. In this way, you

can place a single ACL high up in the directory tree to control access

- You can also set the **DOS Attributes** for the directory.

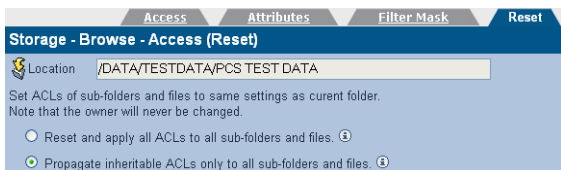
4 Click the **Filter Mask** tab.



From this tab you can:

- Set a **Filter Mask** - This is a way of temporarily modifying the access privileges of the current directory, without changing all the ACLs beneath it.

5 Click the **Reset** tab.



From this tab you can reset the access permission of sub-directories to be the same as the current directory, as follows:

- **Reset and apply all ACLs to all sub-folders and files** - This option will reset and then apply the current folder's access properties to all sub-folders and files
- **Propagate inheritable ACLs only to all sub-folders and files** - This option will apply the current folder's access properties, which are marked as Make Inheritable, to all sub-folders and files.

6 When the ACLs have been satisfactorily set, click **save** to save the changes.

Data protection menu

Data Protection
Snapshots
Replication Sources
Replication Targets
Configuration Backup
Data Backup

The Data Protection menu allows you to access:

- *Snapshots*
- *Replication Sources* - see [page 59](#)
- *Replication Targets* - see [page 63](#)

Note: Replications require at least two SNAZ (OS version 4) systems to operate; a Source which generates the data to be replicated and a Target (or targets) for the replicated data to be written to.

- *Configuration Backup* - see [page 64](#)
- *Data Backup* - see [page 66](#). The **Data Protection - Data Backup** page only contains details of how the NetVault software should be configured. To change the settings or enter the BakBone NetVault License Key, via the **System - Services - Backup** page - see [page 22](#).

Snapshots

The **Data Protection - Snapshot** page lists all the snapshot schedules on the system and allows you to add or modify snapshots.

Note: A snapshot can only be added when a Volume has been created.

Estimating snapshot volume requirements

When estimating the snapshot volume requirements, the following considerations should be made:

- Allocate 10% of available space if
 - Activity on the SNAZ is write light
 - Write access is concentrated in a few places.
- Allocate 25% of available space if
 - Activity on the SNAZ is write heavy
 - Write access is not concentrated, but is randomised across the volumes.

Scheduling a snapshot

To schedule a snapshot:

Caution: System performance may degrade while a snapshot is being performed. Snapshots should be scheduled appropriately to minimise user impact.

- 1 From the menu bar, select **Data Protection - Snapshots**.
- 2 Click on **add**. The **Data Protection - Snapshot - Add** page opens.

The screenshot shows the 'Data Protection - Snapshot - Add' configuration page. It includes the following fields and options:

- Select Volume:** A dropdown menu with 'DATA' selected.
- Mount Point:** An empty text input field with an information icon.
- How much?:** A section header for the following fields:
 - Free Pool Space:** A text input field showing '77.69 GB'.
 - Volume Size:** A text input field showing '200.0 GB'.
 - Initial Size:** A dropdown menu with '10% (20480 MB)' selected, followed by a checked 'Grow Automatically' checkbox and an information icon.
 - Keep Snapshot:** A dropdown menu with 'Forever' selected and an information icon.

From this page you need to:

- **Select Volume** - Choose a Volume to make the snapshot of from the drop down list
- **Mount Point** - By default snapshots are kept in the snapshot folder in each volume. If required, specify a location (directory) for the Snapshot within the snapshot directory, which will then automatically be created
- **Initial Size** - Select an initial size for the snapshot and if required, tick the **Grow Automatically** box to change the snapshot size as required.
- **Keep Snapshot** - Select whether to keep the snapshot **Forever** or **For ... Days** from the drop down list(s).

Note: A maximum of 5 snapshots may be scheduled every day. However, only 4 snapshots will be preserved by the system at any one time in order to maintain reasonable system performance.

- 3 Click on **next >>**.

- 4 Select when to schedule the snapshot for:
- **Now** - Perform the snapshot immediately
 - **Once Later** - Perform a single snapshot at a time you specify
 - **Repeat** - Perform a snapshot at the regular intervals you specify.

Data Protection - Snapshots - Add

When?

Schedule It ⓘ

Schedule Name

Run at hours ⓘ

of Every ⓘ

Mon Tue Wed Thu Fri Sat Sun



To modify an existing schedule

To modify an existing snapshot schedule:

- 1 From the menu bar, select **Data Protection - Snapshots**.
- 2 Click on the schedule you wish to modify.



The **Data Protection - Snapshot - Schedule Update** opens.

Data Protection - Snapshot - Schedule Update	
Schedule Name	S1108715
Mount Point	<input type="text"/> ⓘ
How much?	
Volume Size	200.0 GB
Initial Size	10% (20480 MB) <input type="button" value="v"/> Grow Automatically <input checked="" type="checkbox"/> ⓘ
Keep Snapshot	For <input type="text" value="2"/> Days <input type="button" value="v"/> ⓘ
Snapshots	
1	2
 19.99 GB 2005/12/06 11:00:01	 19.99 GB 2005/12/05 11:00:01

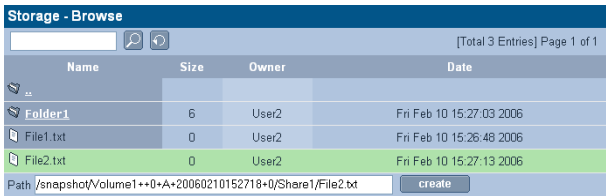
- 3 You can modify the **Mount Point**, **Initial Size** (including **Grow Automatically**) and **Keep Snapshot** period. You can also click and change the time(s) the snapshot is scheduled for.
- 4 Click to save the changes, click to deactivate or click to delete the snapshot.

To rollback previous version of a file using a snapshot

Snapshots can only be used to reinstate (rollback) a previous version of a file.

To rollback a file from a snapshot:

- 1 From the menu bar, select **Storage - Browse**:
- 2 Click the snapshot directory.
Click on the required version of the snapshot, then navigate the directory tree to the required file and click on it (the background will highlight green to indicate selection):



The screenshot shows a web interface titled "Storage - Browse". At the top, there is a search bar and navigation icons. Below this is a table with columns for "Name", "Size", "Owner", and "Date". The table contains three entries: "Folder1", "File1.txt", and "File2.txt". The "File2.txt" row is highlighted in green. Below the table, there is a path field containing "/snapshot/Volume1++0+A+20060210152718+0/Share1/File2.txt" and a "create" button.

Name	Size	Owner	Date
Folder1	6	User2	Fri Feb 10 15:27:03 2006
File1.txt	0	User2	Fri Feb 10 15:26:48 2006
File2.txt	0	User2	Fri Feb 10 15:27:13 2006

Path: /snapshot/Volume1++0+A+20060210152718+0/Share1/File2.txt

- 3 Click **rollback**.

A warning will be displayed, click **rollback** to confirm the file rollback. A message will indicate when the file rollback has completed.

Replication Sources

A replication is a copy of the contents of a folder, it's sub-folders and files which must be located on another system.

A replication Source is the system the replicated data originates from.

The **Data Protection - Replication Sources** page lists all the replications made or scheduled by the system.

Data Protection - Replication Sources						
[Total 1 Entries] Page 1 of 1						
Schedule Name	Target Host	User Name	Mirror Directory	Use Snapshot	Activated	Last Job
ExampleSchedule	Hostname.example.com	Rep1	Mirror-03	✘	✔	Not Run

Adding a replication source

To add a replication source:

- 1 From the menu bar, select **Data Protection - Replication Source**. Click **add**. The **Data Protection - Replication Source - Add** page opens:

Data Protection - Replication Source - Add

Source System Target System Schedule

Schedule Name: ExampleSchedule ⓘ

Directories/Files: /directoryName1/, /directoryName2/ add ⓘ

Exclude: /directoryName1/excludedDirectory1/ add ⓘ

Use Snapshot Preserve ACL ⓘ

Max Bandwidth: 0 KB/S ⓘ

- 2 From this page, enter:
 - **Schedule Name**
 - **Directories/Files** - Click **add** to browse for files or folders to include in the Replication
 - **Exclude** - Click **add** to browse for files or folders to exclude from the Replication
 - **Use Snapshot** - Select to replicate a snapshot. When this option is selected, a snapshot is taken and is replicated to the target system. This can be used to ensure that no

further changes are made (i.e. the Replication is in a known state) to the Replication during the replication process.

- **Preserve ACL** - Select to preserve the ACLs of the data being replicated
- **Max Bandwidth** - You can specify the maximum network bandwidth the Replication may use.

3 Click **next >>**.

4 The **Target System** tab will open.

Source System	Target System	Schedule
Schedule Name	ExampleSchedule	
Target Host	Hostname.example.com	
User Name	admin	
Password	XXXXXXXXXX	connect
Mirror Directory	/SNAZMirror/	
Available Space	No Limit	

From this page, enter:

- **Target Host** - The IP address or hostname of the replication target system, this system must have a previously configured replication target defined
- **User Name** and **Password** - The user name and password of the User who has replication privileges on the target system.

Click **connect**, then enter:

- **Mirror Directory** - A mirror directory is selected from the drop-down list. This information and the **Available Space** is derived from the connection to the replication target system.

5 Click **next >>**.

6 The **Schedule** tab will open.

The screenshot shows a dialog box titled "Data Protection - Replication Sources - Add" with three tabs: "Source System", "Target System", and "Schedule". The "Schedule" tab is active. It contains the following fields:

- Schedule Name:** A text input field containing "ExampleSchedule".
- Type:** A dropdown menu set to "Once Later" with an information icon to its right.
- Start Time:** A date and time picker showing "2006/02/06" at "0 : 00".

From this page, enter:

- **Type** - Select **Once Later**, **Weekly** or **Monthly** from the drop-down list. The field(s) below will change to the appropriate type of schedule

7 Enter the required information and click **finish** to finish.

Recovering a replication source

To recover from a failure using a replication target's copy of system data:

- 1 From the menu bar, select **Data Protection - Replication Source**.

Click **recover**. The **Data Protection - Replication Sources - Recover** page opens:

Data Protection - Replication Sources - Recover	
Target Host	<input type="text" value="targetexample.com"/>
Mirror Directory	<input type="text" value="/RepMirror1/"/>
Owner	<input type="text" value="Rep1"/>
Password	<input type="password" value="*****"/>

- 2 Enter:
 - **Target Host** - The hostname or IP address of the Replication target system
 - **Mirror Directory** - The directory on the target system that the Replication was written to
 - **Owner** - The user name of the Replication source owner
 - **Password** - The Replication source owner's password.
- 3 Click **recover**. A warning message is displayed, click **recover** to confirm. A message will indicate when the recovery is completed.

Replication Targets

A replication is a copy of the contents of a folder, its sub-folders and files which must be located on another system.

A replication Target is the system the replicated data is being written to.

The **Data Protection - Replication Targets** page lists all the replications made or scheduled by the system.

Data Protection - Replication Targets						
						[Total 2 Entries] Page 1 of 1
Mirror Name	Location	Owner	Owner Quota	Used By	Status	Last Replication Time
ExampleTarget	/REP/ExampleRep1	Rep	No Limit		Idle	

Adding a replication target

To add a replication target:

- 1 From the menu bar, select **Data Protection - Replication Source**. Click on **add**. The **Data Protection - Replication Source - Add** page opens:

Data Protection - Replication Targets - Add	
Mirror Name	<input type="text" value="ExampleTarget"/>
Location	<input type="text" value="/Replications/ExampleFolder"/> browse
Owner	<input type="text" value="User1"/> browse
Owner Quota	<input type="text" value="No Limit"/>

From this page, enter:

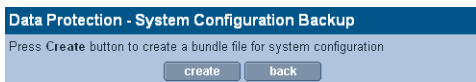
- **Mirror Name** - Enter a name for the replication target
 - **Location** - Click **browse** to browse for a location of the replication target
 - **Owner** - Click **browse** to select a replication Owner. This user must have replication privileges assigned to them. The **Owner Quota** field will also be derived from the Owner's privileges.
- 2 Click **add**.

Configuration Backup

The **Data Protection - Configuration Backup** page allows you to create a bundle containing the configuration files from the SNAZ.

To create a Configuration Backup bundle:

- 1 From the menu bar, select **Data Protection - Configuration Backup**.



- 2 Click **create**. The configuration bundle will be created and a download link displayed:

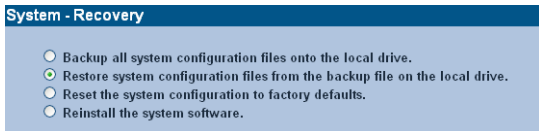


The configuration bundle can now be saved to another system.

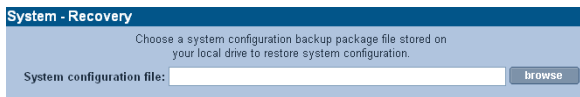
Restoring the configuration backup

To restore the configuration backup:

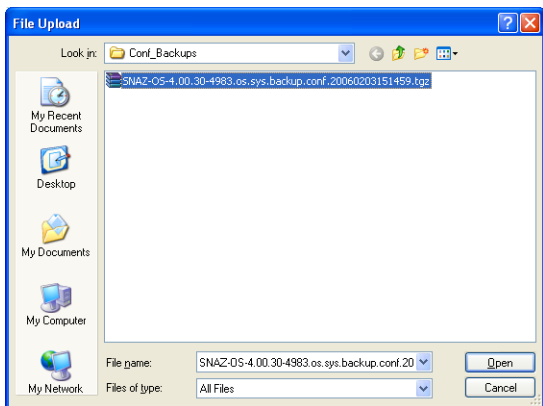
- 1 From the menu bar, select **Shutdown**.
- 2 Select **Reboot into Maintenance Mode**.
- 3 When the SNAZ has rebooted, from the menu bar, select **System - Recovery**.
- 4 Select the **Restore system configuration files from the backup file on the local drive** radio button.



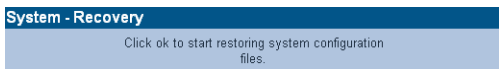
- 5 Click **ok**.



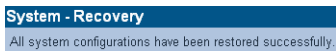
- 6 Click **browse**. Select the location of the configuration backup file and click **Open**.



- 7 Click **ok** to upload the configuration file bundle.



- 8 Click **ok** to restore the configuration. When the restore is complete the following is displayed:



- 9 Click **ok** to return to the main **System - Recovery** page.
- 10 From the menu bar, select **Shutdown** then **Reboot** and click **ok**.

Data Backup

The **Data Protection - Data Backup** page lists information required to configure the BakBone NetVault backup software, as follows:

Definitions

The SNAZ has both a NetVault Server and Client running on it:

- **NetVault Server** - controls the backup process
- **NetVault Client** - accesses the data which is to be backed up.

A separate PC is used to run the **NetVault GUI**, which is used to administer the backup process.

Note: The NetVault GUI must be installed as a Server.

Licensing

A full BakBone NetVault License Key must be entered for ongoing operation of the backup utility.

The License Key will be emailed to you following registration via the [Plasmon Warranty Registration website](#). For further information refer to *Backup* on page 22.

Backup Devices

Backup devices should be attached via the supplied U320 HD68 SCSI interface on the rear of the SNAZ unit.

Note: SCSI termination of the backup device(s) may be necessary. Refer to the backup device manufacturer's documentation for further details.

Confirmation that the backup device(s), either as a stand alone tape drive or an Autoloader comprising the Autoloader itself and a number of drives, have been recognised by the system may found via the **Diagnostics - Storage Devices** page.

For a list of compatible tape devices, see:

- [BakBone NetVault Supported Platforms](#)

Configuration

- **NetVault Server**
 - **Machine Name** - To allow the distinction between different devices within a NetVault environment, each SNAZ will have a unique Machine Name. This can be found on the **System - Services - Backup (Configuration)** page.
 - **Password** - A Password may be configured to restrict client access. This will need to be noted for the NetVault Client installation.
 - **Services** - The backup service must be running (Started) in order for NetVault to communicate with the backup device. The status of the service may be found on the **System - Services** page.
- **NetVault GUI**
 - **Domain Setup** - NetVault is designed to work in an environment in which one machine is configured as a NetVault Server and various other machines throughout the network act as NetVault Clients assigned to it. A single NetVault Server and its NetVault Clients make up a NetVault Domain. Full Domain configuration details may be found in Chapter 12 of the [NetVault Administrator's Guide](#).
 - **Data** - Data stored on the SNAZ may be found in the 'exports' folder. Folders directly under the exports folder will be named by storage volume. In addition the default location for the storage of snapshots may be found within the exports folder, in a folder named 'snapshot'.

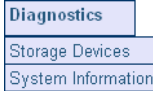
*Note: From the NetVault Client this will appear as:
Machine Name\File System\exports*

NetVault Links

Click the hyperlink below to view (requires internet connection):

- [NetVault Product Support](#)
- [NetVault Support Knowledge Base](#)
- [NetVault Getting Started Guide](#)
- [NetVault Administrator's Guide](#)
- [NetVault Product Licensing](#)

Diagnostics menu



The Diagnostics menu allows you to access:

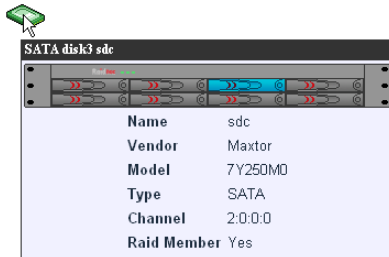
- *Storage Devices*
- *System Information* - see [page 68](#)

Storage Devices

The **Diagnostics - Storage Devices** page shows the internal and external devices attached to the SNAZ and their status.

Diagnostics - Storage Devices								
Controller	0	1	2	3	4	5	6	7
Intel IDE (00:1f:01)	FLASH 61.25 MB							
Marvell SATA (04:02:00)	disk5 / 233.76 GB	disk6 / 233.76 GB	disk7 / 233.76 GB	disk8 / 233.76 GB	disk1 / 233.76 GB	RETRY1 disk2 / 233.76 GB	disk3 / 233.76 GB	disk4 / 233.76 GB
Adaptec SCSI (04:03:01)	ULTRIUM-TD2	ThinStorPlus AL						
Adaptec SCSI (04:03:00)								

Hovering the mouse pointer over a device will display a Tool Tip for that device giving further information, an example of which is shown below:



Disk status icons























- Disks which are marked with an  are system disks. This means they are used to store the system partition, which contains the configuration files of the SNAZ OS. They can still be used as part of any RAID(s)
- Disks which are marked with an  have been detected by the system as being in a prefail state. This means that certain types of errors have been found on them and they are likely to become faulty as a result. The system uses Self-Monitoring Analysis And Reporting Technology (SMART) parameters to track these errors
- Disks which are marked with **SPARE** have been assigned as hot spare disks. These are used should one of the other disks fail
- Disks which are marked with **NO RAID** are not currently members of a RAID
- Disks which are marked with **REJECT** have been rejected by the RAID they were a member of
- Disks which are marked with **RESYNC** are currently being resynchronised. The system, at all times, has to ensure that all mirrored RAID disks contain exactly the same data. If a difference is found, resynchronisation is performed to bring all the RAID disks back to identical mirrors of one another.

Table 2-4 Disk status icons

Icon	Meaning
	The disk is online and unformatted
	The disk is online, unformatted and the system has detected the disk is about to fail
	The disk is online
	The disk is online and the disk is not part of a RAID
	The disk is online and has been rejected by the system




Icon	Meaning
	The disk is online and has been marked as a spare disk
	The disk is online and the system has detected the disk is about to fail
	The disk is online, is not part of a RAID and the system has detected the disk is about to fail
	The disk is online, has been rejected by the system and the system has detected the disk is about to fail
	The disk is online, has been marked as a spare disk and the system has detected the disk is about to fail
	The disk is online and is a system disk
	The disk is online, is a system disk and is not part of a RAID
	The disk is online, is a system disk and has been rejected by the system
	The disk is online, is a system disk and has been marked as a spare disk
	The disk is online, is a system disk and the system has detected the disk is about to fail
	The disk is online, is a system disk, is not part of a RAID and the system has detected the disk is about to fail
	The disk is online, is a system disk, has been rejected by the system and the system has detected the disk is about to fail
	The disk is online, is a system disk, has been marked as a spare disk and the system has detected the disk is about to fail

Icon	Meaning
	The disk is resynchronising
	The disk is offline
	The disk is missing or information about its status is unavailable
	The disk is faulty and unformatted
	The disk is faulty
	The disk is faulty and is not part of a RAID
	The disk is faulty and has been rejected by the system
	The disk is faulty and is a system disk
	The disk is faulty, is a system disk and is not part of a RAID
	The disk is faulty, is a system disk and has been rejected by the system

Tape drive status icons





If a tape drive is attached, for backup purposes, its status is displayed as follows:

Table 2-5 Tape drive status icons

Icons	Meaning
	The tape drive is empty or its status cannot be determined
	The tape drive is online and/or currently in use
	The tape drive is faulty

Miscellaneous icons

Table 2-6 Miscellaneous icons

Icons	Meaning
 FLASH	This icon represents the Flash disk. This is where the SNAZ OS is located
	This icon represents an externally attached device, such as a tape autoloader
	This icon represents an internal (to the SNAZ) controller card, e.g the SNAZ's SATA Controller
	This icon represents an external controller card, i.e. the interface to an external device attached to the SNAZ, e.g connection from the SNAZ to an external SCSI device

System Information

The **Diagnostics - System Information** page allows you to view the following information:

System Info		Log Files
Diagnostics - System Information (System Info)		
System Serial Number	unused	
Hardware Version	1.11	
Server Board	unknown	
Motherboard Serial Number	2088	
Model Number	2088	
CPU	Intel(R) Xeon(TM) CPU 2.40GHz	
Total Memory	1.0 GB	
Software Version	4.00.30	
Build	4983	
Plasmon Warranty Registration	http://plasmon.net/softmaint.nsf	
Technical support website	N/A	
Technical support email	N/A	

System Info

- **System Serial Number** - The SNAZ's serial number
- **Hardware Version** - The current hardware version
- **Server Board** - Server board information
- **Motherboard Serial Number** - The SNAZ's motherboard serial number
- **Model Number** - The model number details the product configuration of the SNAZ, describing information such as the enclosure type, the memory capacity, the type of controller fitted and many others
- **CPU** - Processor information
- **Total Memory** - The amount of memory (RAM) on the system
- **System ID** - The unique serial number of this unit
- **Software Version** - The currently installed software version
- **Build** - The currently installed software version's build
- **Plasmon warranty registration** - Hyperlink to the Plasmon warranty registration web page (requires an external internet connection)
- **Technical Support Website** - Hyperlink
- **Technical Support Email** - Hyperlink.

Log Files

- **Create Log Files Bundle of** - Log file bundles are used by Technical Support to diagnose failures on your SNAZ. You can specify a time period, using the drop down list, to create a log file bundle of.

Shutdown menu

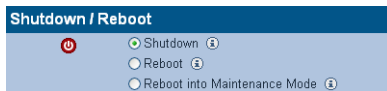
Shutdown

The **Shutdown** page allows you to:

- Shutdown
- Reboot
- Reboot into Maintenance Mode - Maintenance Mode is normally only used by Service personnel.

To shutdown or reboot the SNAZ:

- 1 From the menu bar, select **Shutdown**. the Shutdown page opens:



- 2 Select the appropriate radio button.
- 3 Click , then click again to confirm.

NAS

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