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For your own safety

In the interest of your own safety and perfect performance of your new product and computer system please note the following:

- Computer components and disk drives are sensitive to static charge. Take precautions to divert any electrostatic charge from your person before and whilst handling the components with your hands or any tools.
- Before removing Controllers or Power Supplies ensure that the system is powered down and disconnected from the mains socket.



WARNING: MULTIPLE POWER CONNECTIONS. REMOVE ALL POWER LEADS TO COMPLETELY ISOLATE POWER.



WARNING: DO NOT CONNECT ALL THREE POWER LEADS TO THE SAME INPUT CIRCUIT.

- Ensure correct lifting methods are used when handling the ATAbeast. Special care should be taken when removing the ATAbeast from its packaging and positioning the ATAbeast to its required location.
- When installing ATAbeast as a rack mounted component ensure that all fixtures are secure. All bolts and screws should be fully tightened. Failure to comply with this may result in the unit not being fully supported in the rack and could lead to the product dropping out of rack or falling on to other rack components.

About the ATAbeast Manual

In the margins are chapter numbers to help you quickly find your way through the manual.



NOTES

Contain important information and useful tips on the operation of your ATAbeast.



CAUTIONS

Must be observed to avoid damage to your equipment.



WARNINGS

Must be followed carefully to avoid bodily injury.

All information within this manual is correct at the time of print. New features and firmware maybe available for your Nexsan products. Please contact us for your latest revision.

Manual Status – ATAbeast Revision A04 – 20/1/04

[01.0] *ATAbeast Product Description*

The Nexsan ATAbeast represents the fifth generation of high speed, high capacity ATA storage subsystems from Nexsan Technologies. In just 4U of rack space the ATAbeast holds a maximum of 42 drives and offers unparalleled capacity in this form factor.

Configuration of the ATAbeast is conducted by NexScan, Nexsan's unique configuration tool. NexScan allows the ATAbeast to be configured by either the built in web server or via the on board RS232 serial port. Both methods are not hardware, software or java runtime specific. The web interfaces uses standard HTML and is compatible with all mainstream browsers (Internet Explorer, Netscape, Opera, Mozilla etc).

All main components of the ATAbeast are pluggable; these include PSUs (Power Supply Units), RAID controller/s and disks.

Due to the ATAbeast's huge data capacity and low cost it is ideal for disks to disk backup, video and audio archiving, near-line storage and secondary storage.

[02.0] *ATAbeast Technical Specifications*

Physical Specifications

- Height 176mm [6.93"] 4U
- Width 431mm [16.98"]
- Depth 739mm [29.11"]
- Depth including handles 785mm [30.93"]
- Weight including 42 x 300GB Hard disks 62.5Kg [137.5Lbs]

Power and Cooling

- Power supplies 3 x 450 watt load sharing
- Cooling 3 x Radial blowers @ 3800RPM
(one embedded into each PSU)

Communication Interfaces

- 10/100 Base-T Ethernet RJ45 (one per controller)
- Supports TCP/IP, HTTP, SMTP, SNMP and FTP
- GUI HTML supported by most standard Internet browser
- Email sent via SMTP in event of failure or warning event
- Trap sent via SNMP in event of failure or warning event
- RS232 Serial Interface DB9 (one per controller)
- Supports VT100
- Compatible with terminal emulation software such as Hyper Terminal and Kermit

External Data Interface

- Dual port, 2Gb Fibre Channel (2 x 2Gb per controller)

[03.0] **Getting Started**

This part of the manual is designed to enable you (the user) to configure and start using your ATAbeast safely and swiftly. Please carefully read and review all the information in this section before installing the product.

[03.01] **Before you begin**

Ensure that the ambient temperature of the installation site for the ATAbeast does not exceed 35°C. If the temperature of the installation site is not automatically regulated ensure that seasonal climate changes will not result in the maximum temperature being breached. The ambient temperature requirement for the ATAbeast remains the same when multiple units are present.

Ensure full airflow is possible. Do not obstruct the front or rear of the product.

Do not lift the ATAbeast chassis alone. Ask a colleague to assist you.

If installing the ATAbeast in to a rack mount cabinet you are advised to remove power supplies and disks before doing so. This will make the unit much lighter to lift. When installing into a rack mount cabinet take extra care not to trap finger and items of clothing during the installation.

If the ATAbeast is being installed into a rack please make sure that the rack is correctly grounded.

The user must ensure that the mains power drawn by the equipment does not overload the supply available in the rack. When connecting the equipment to the supply, ensure that the rating details of the equipment are considered.

[04.0] **Power Up Notice**

When the ATAbeast powers up the Battery LED may intermittently flash green and red. This indicates that it is not possible to determine the back up battery status. After around ten minutes the following three states will have been decided.

The Battery is charged – The battery will continue to trickle charge and the battery LED will turn to solid green.

The Battery voltage is low – The battery will be quick charged. The LED will remain flashing red / green intermittently until the charge is complete.

The Battery is dead – The battery cannot be charged or is not present. The LED will be solid red.

[04.01] **Single and Dual Controller Configurations**

The ATAbeast supports both single controller and dual controller configurations.

In the single controller configuration the controller is able to view and configure all 42 drives. In the case of a permanent controller failure the controller must be replaced for operation to continue.

Dual controller configurations each access 21 different drives. Each controller has it's own IP address and GUI. The drives owned by the second controller are not visible to the first and vice versa. If a single controller fails the other controller will continue to work as normal. However if the faulty controller is removed and the system is rebooted the surviving controller will assume ownership of all the disks, RAID groups and volumes.

[05.0] **LEDs**

The status of certain components of the ATAbeast can be established by using the LEDs on the front of the unit.

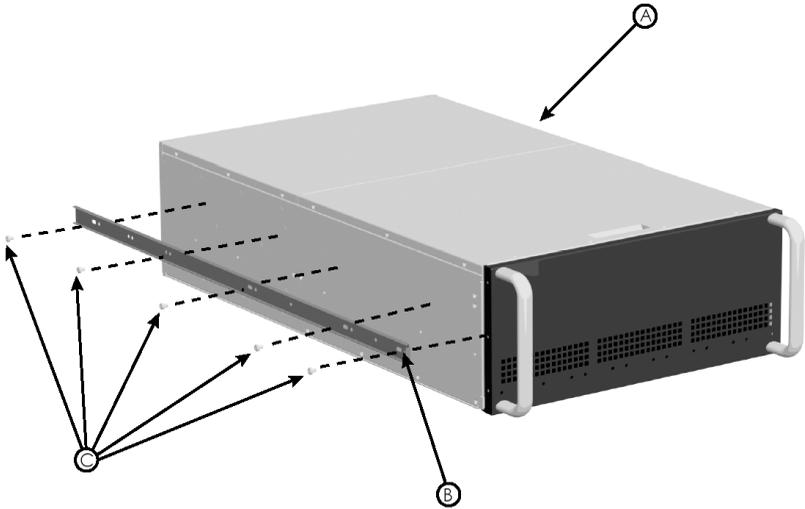
1	PSU0 Blower	Green = OK,	Red = fault,	Off = not fitted
2	PSU0 Power	Green = OK,	Red = fault,	Off = not fitted
3	PSU1 Blower	Green = OK,	Red = fault,	Off = not fitted
4	PSU1 Power	Green = OK,	Red = fault,	Off = not fitted
5	PSU2 Blower	Green = OK,	Red = fault,	Off = not fitted
6	PSU3 Power	Green = OK,	Red = fault,	Off = not fitted
7	Controller A Status	Green = OK,	Red = fault,	Off = not fitted
8	Controller B Status	Green = OK,	Red = fault,	Off = not fitted
9	Battery Status	Green = both OK, Red/Green = Charging, Red = at least one has a fault.		
10	Environment Status	Green = both OK, Red = at least one fault.		
11	Raid Status	Green = all raids good, Red/Green = rebuilding*, Red = Critical**		
12	Spares Available	Green = one or more spares available, Off = no spare.		

Please note that there are actually 14 LED's. The ones labelled P1 & P 2 at the extreme left and right of the chassis front panel are for factory use only.

During the start up sequence some or all of the LEDs will flash red. This is normal. If you are not sure about the status of the system check the web or serial GUI.

[06.0] *Installing Rack kit*

[06.01] Inner Rack Slide Mounting Assembly



Left hand assembly shown

Parts List

- [A] RACK EQUIPMENT – ATAbeast Chassis
- [B] INNER SLIDE RAIL
- [C] M4 x 6 SCREWS [8300038]

Instructions

- Remove chassis ears prior to rack mounting the equipment.
- Temporarily refit screws into chassis.
- Separate the inner rail from the intermediate / outer slide rail [B].
- Screw inner slide rail [B] to the side of the chassis using five M4 x 6 screws.
- Repeat for right hand side.
- Ensure that the open end of the inner rack slide is situated toward the rear of the chassis.



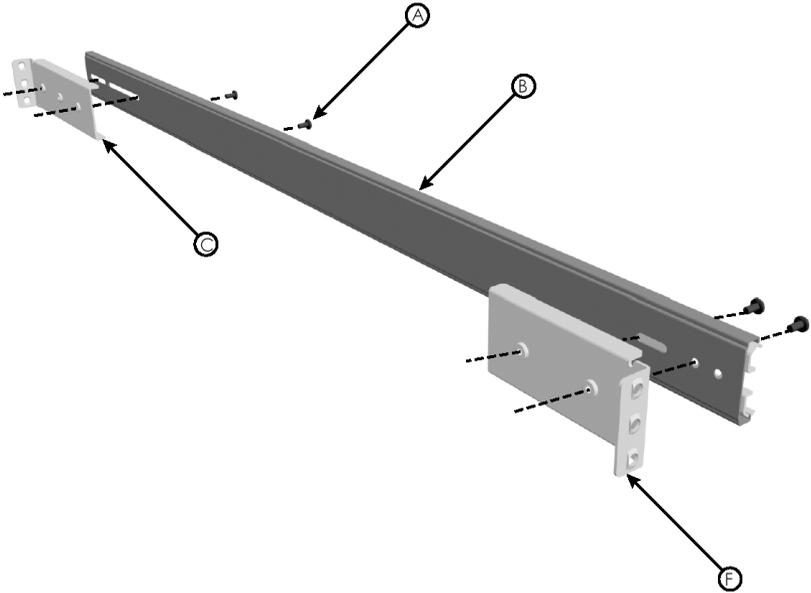
CAUTION: ALL REMOVABLE PARTS SHOULD BE REMOVED FROM THE RACK EQUIPMENT PRIOR TO ASSEMBLY IN A RACK. i.e. PSU's / Controllers / Disks.



CAUTION: ENSURE THAT CORRECT LIFTING TECHNIQUES ARE USED WHEN HANDLING RACK EQUIPMENT.

TOTAL OF BASE CHASSIS IS 24kg's (33lbs)

[06.02] Rack Slide Mounting Bracket Assembly



Parts List

- [A] M4 x 8 SLOTTED SCREW [8300047]
- [B] SLIDE RAIL INTERMEDIATE / OUTER ASSEMBLY
- [C] REAR MOUNTING BRACKET [3100331]
- [D] FRONT MOUNTING BRACKET [3100330]

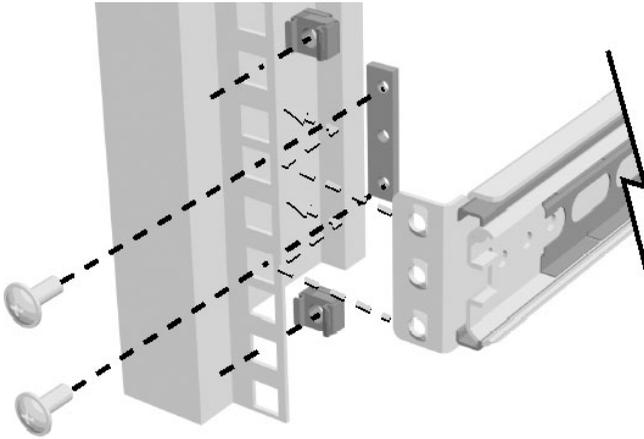
Instructions

- Attach front and rear [long] extended brackets [C and D] to the outer rail using the diagram as a guide.
- Repeat for right hand slide rail.

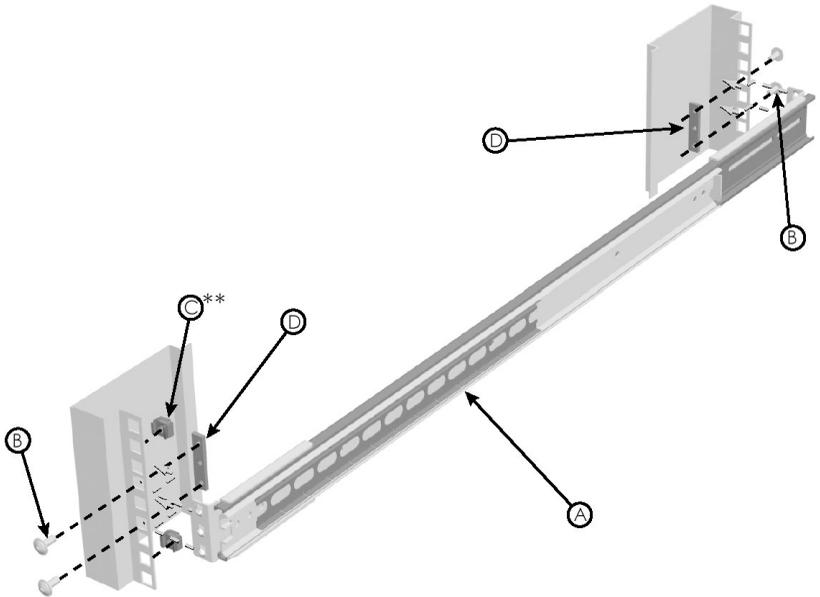


NOTE: When attaching the rear brackets, first attach them loosely, adjust the length to fit the cabinet and then tighten.

[06.03] Mounting the Slide Assembly in a Rack

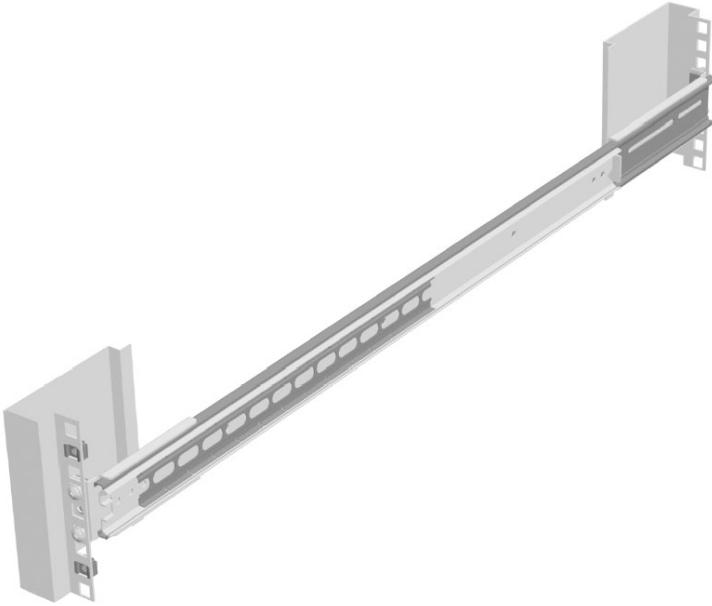


Front rack mounting detail



Left hand assembly shown

*** the outer two cage nuts are used for securing the rack enclosure once fitted.*



Left hand assembly shown

Parts List

- [A] OUTER SLIDE RAIL ASSEMBLY
- [B] M5 FLANGED HEAD SCREW [8300098]
- [C] M6 CAGE NUT [8300014]
- [D] BAR NUT [3100080]

Instructions

- Check orientation of bar nut [ensure the near side of the bar nut is facing the outside of the mounting brackets as shown].
- Press cage nuts into front rack flange holes [use the provided paper template to locate correct fixing holes to position the equipment in the rack].
- Sandwich the slide rail assembly between the inside flanges of the rack and the bar nuts [C and D].
- Screw through both the rack flange and bar nuts with the M5 screw [B].
- Repeat on right hand side of rack



NOTE: The rear fixing of the slide rail assembly is identical to the front fixing.



NOTE: Ensure that the outer slide rail assembly is aligned correctly to accept the rack equipment you are mounting.

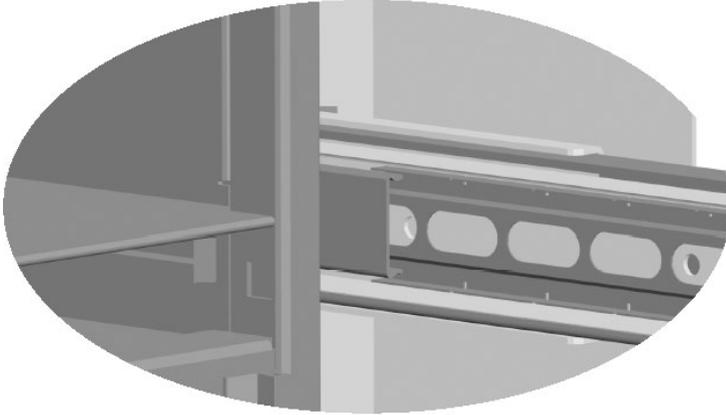


NOTE: Either Ensure that the rack slide assemblies are positioned such that they are parallel to each other and vertical in relation to the ground plane. Alternatively use the Installation alignment kit 3900062 purchased separately. Incorrect alignment or fitting of rack slides may result in damage to the rack slides, the rack equipment or injury to personnel.

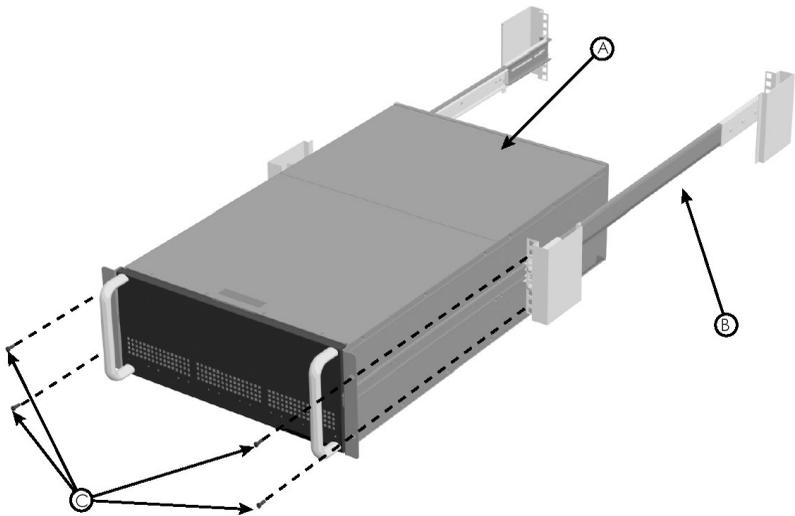


NOTE: Prior to installation of the rack equipment loosely tighten the fixing screws.

[06.04] Final Rack Equipment to Rack Assembly



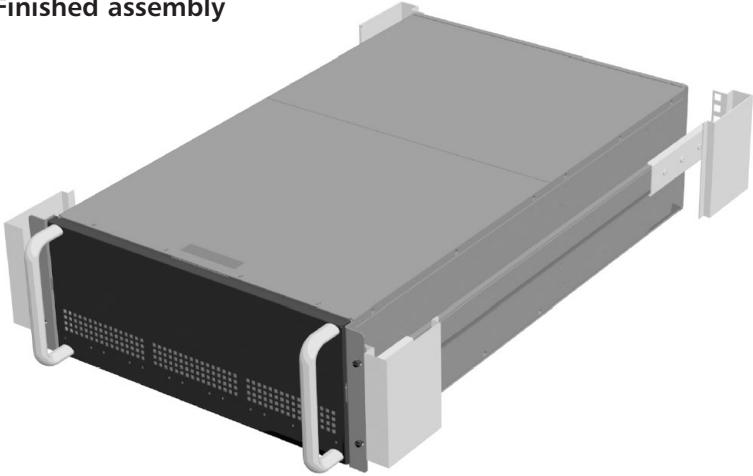
Insertion view



Nexsan ATAbeast rack equipment shown

DO NOT ATTEMPT TO INSTALL THE ENCLOSURE WITH DISKS INSTALLED

Finished assembly



Nexsan ATAbeast rack equipment shown

DO NOT ATTEMPT TO INSTALL THE ENCLOSURE WITH DISKS INSTALLED

Parts List

- [A] ATAbeast RACK EQUIPMENT ASSEMBLY
- [B] RACK ASSEMBLY
- [C] M6 x 12 SCREWS [8300032]

Instructions

- Carefully slide rack assembly [A] into the rack slide assemblies [B].
- Cycle this chassis in the slides a number of times to ensure free movement prior to fully tightening the screws.
- Secure rack equipment into rack with four M6 x 12 screws [C] after refitting rack ears [reverse of removal].



NOTE: Ensure intermediate slides are pushed all the way into the outer slides and that the slide ball retainers are positioned at the front of the intermediate slides prior to loading the rack equipment



NOTE: Do NOT over tighten screws, Over tightening screws could damage your rack equipment.



NOTE: It is recommended that the equipment is installed by two people to ensure correct alignment of the chassis in the rack.



CAUTION: ALL REMOVABLE PARTS SHOULD BE REMOVED FROM THE RACK EQUIPMENT PRIOR TO ASSEMBLY IN A RACK.



CAUTION: ENSURE THAT CORRECT LIFTING TECHNIQUES ARE USED WHEN HANDLING RACK EQUIPMENT.



CAUTION: ENSURE ALL RAIL SLIDE SCREWS ARE FULLY TIGHTENED TO AVOID RACK EQUIPMENT FALLING OUT OF RACK.

[07.0] *Inserting Disks*

Physical Installation of disks



WARNING: POTENTIALLY HAZARDOUS ENERGY. TRAINED SERVICE PERSONNEL ONLY.

1. Remove the 10 screws that are used to attach the front lid of the product.

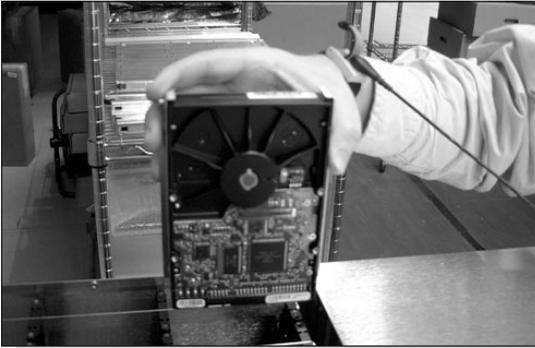


2. Remove the ATAbeast lid.



3. With the lid removed you are ready to insert the drives. Ensure that you read pages 11 and 12 that displays the slot arrangements for 14 and 28 drive systems and Dual Controller Non Redundant systems. You must also use ESD protection when installing drives to protect the disks from static discharge.

Lift up the disk with the interface ATA interface (pins) pointing downward into the chassis. Line up the drive at the desired slot and gently lower the drive until you meet resistance.



4. Firmly push the drive into the chassis until it reaches a full stop.

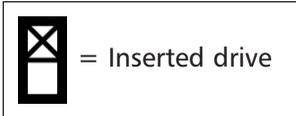


5. Repeat until all drives are installed. Reattach the lid and screw into place before powering on the system.

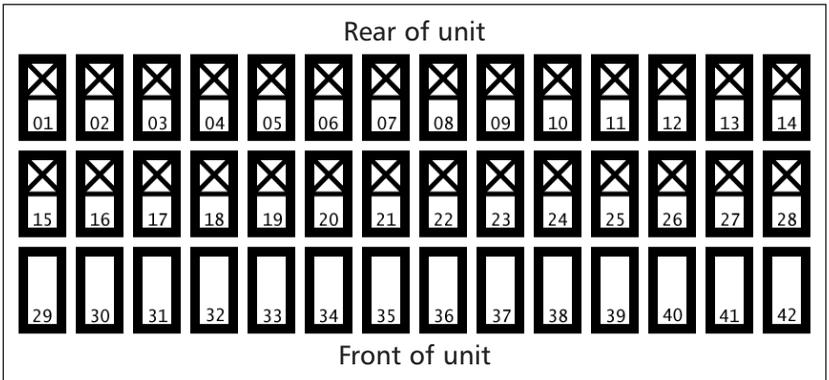
[08.0] *Single controller*

ATAbeasts are available with 28 or 42 drives. Ensure that the following layouts are followed when inserting drives into 28 drive units to ensure the best cooling and performance.

Key



Single Controller 28 Drives installed

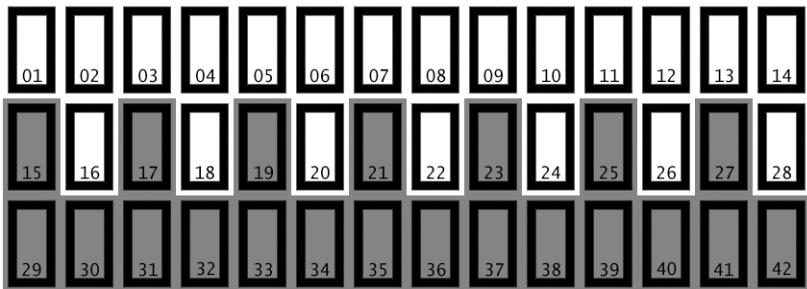


[09.0] **DCNR (Dual Controller Non Redundant)**

The following instructions must be read to ensure data integrity, performance and correct cooling of DCNR systems.

Each DCNR system ships with two sets of drives. These drives have been factory tested and configured to run with a particular controller. The disks are separated in the package into two separate trays. These are marked 'Controller 0' and 'Controller 1'. **DO NOT MIX THESE DRIVES.**

Each controller in a DCNR system has ownership of 21 slots. These slots are pre-defined and cannot be altered. The key below shows the slots that each controller owns.



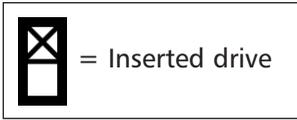
BLANK = Controller 0

GREY = Controller 1

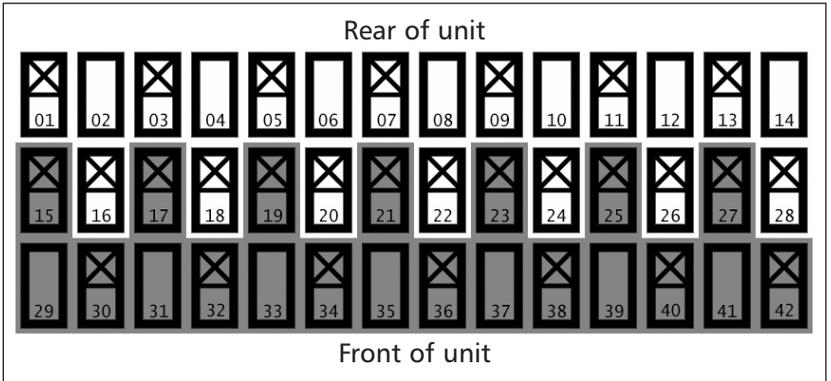
If the unit you have purchased is fully populated ensure that all the drives from the 'Controller0' tray are installed into the slots that are owned by Controller 0. Then repeat this with the 'Controller 1' ensuring that all the drives are installed into slots that Controller 1 owns.

For installation when only 28 drives are present, use the opposite diagrams to correctly configure where drive should be placed. You must still ensure that you only install drives from the 'Controller 0' tray into Controller owed slots and vice versa.

Key



Dual Controller 28 Drives installed



The following section explains how to configure the ATAbeast. For DCNR models all of these processes must be done for each controller individually.

[10.0] *Setting up the network*

The ATAbeast controller ships with a default IP address depending on the slot it is inserted to.

Slot	Default IP Address
0 (top)	10.11.12.13
1 (bottom)	10.11.12.14

It is likely that this address may not be accessible from the IP address of your network. To change the IP address there are two main methods;

- 1) Add a route to access the desired IP address.
- 2) Use the serial port to change the IP address to something suitable.

Both methods are acceptable.

Add a route to access the desired IP address.

To add a route to access the desired IP address you must have access to the CLI (command line interface) or a shell window / terminal.

Type the following line, according to your OS to add the route.

Windows: route add 10.11.12.13 mask 255.255.255.255
<workstation ip number>

Linux: /sbin/route add 10.11.12.13/32 gw <workstation ip number>

Solaris: route add 10.11.12.13 mask 255.255.255.255
<Workstation IP number>

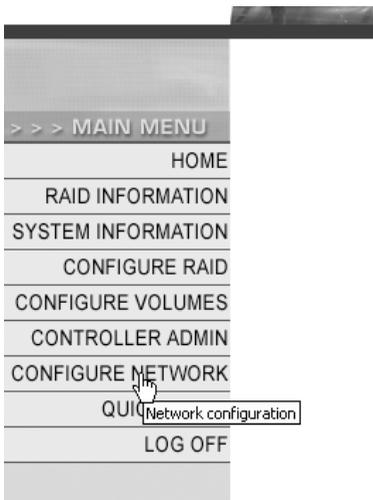
Where <Workstation IP number> is, replace this with the IP address of the workstation you are using. Also be aware the controller in slot1 you will need to change the route to 10.11.12.14

Now you will be able to access the ATAbeast’s web interface using a standard browser. Now is a perfect time to complete the set up of the network. To do this you must type the IP address of the ATAbeast into your Internet Browser (ie Microsoft Internet Explorer or Netscape Communicator).



When you hit return or the GO button the browser should load the ATAbeast’s login page. You will need to click the login button to continue; by default this will not require a user name or password.

Now the main page is loaded click the ‘Network Configuration” button on the left hand side of the main page.



All of the pages in the main frame (except the home page) have multiple tabs at the top of the page which are used to access other related pages. In this instance the default tab is the one you require.

	Current state	New state
How to set IP address	Manual	<input checked="" type="radio"/> Manual <input type="radio"/> DHCP/BOOTP
IP address	192.168.1.162	<input type="text" value="192.168.1.162"/>
Subnet mask	255.255.255.0	<input type="text" value="255.255.255.0"/>
Gateway	192.168.1.5	<input type="text" value="192.168.1.5"/>
Primary DNS	<i>Not configured</i>	<input type="text"/>
Secondary DNS	<i>Not configured</i>	<input type="text"/>
Web page auto refresh (10 to 120 secs)	Enabled <input checked="" type="checkbox"/> , Auto refresh time <input type="text" value="30"/> seconds	
	<input type="button" value="Save Configuration"/>	<input type="button" value="Reset"/>

How to set IP address – decides whether to use DHCP (Dynamic Host Configuration Protocol) or a manually set IP address. Use the radio buttons to select the desired value. If you choose DHCP you will not need to choose any further values. It is recommended to have your DHCP server reserve a static IP for your ATAbeast.

IP address – assuming you have chosen to set up the network manually enter a free IP address into the text box. The IP address that you already have may be fine.

Subnet mask – set the subnet mask that fits the class of your network. In most cases 255.255.255.0 is fine. Type the new subnet mask into the text box.

Gateway – type the IP address of your Internet gateway into this text box.

Primary/Secondary DNS – type the IP address of both your Primary and Secondary DNS into the supplied text boxes.

Web page auto refresh – determines whether the web pages should be reloaded at a given interval in order to show any changes to the system on screen. If you wish to use this ensure that the 'Enabled' box is ticked. You will also need to specify a value in seconds to determine the frequency of web page refreshing.

When you have updated all these settings click the 'Save configuration' button. You will need to restart the system before these changes take effect.

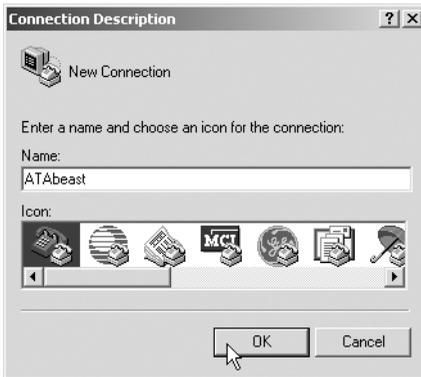
Use the serial port to change the IP address to something suitable.

You will need to use the serial port of your computer, sometimes known as COM port, with the supplied DB9 cable. This cable is known as a null modem cable, unlike a straight cable a null modem cable has lines 2 and 3 crossed.

The below instructions are for using 'Hyper Terminal' although you can use any terminal emulation program.

First of all ensure that the serial cable is connected to the ATAbeast and an available serial port on your computer.

Open 'Hyper Terminal' and choose to create a new connection.

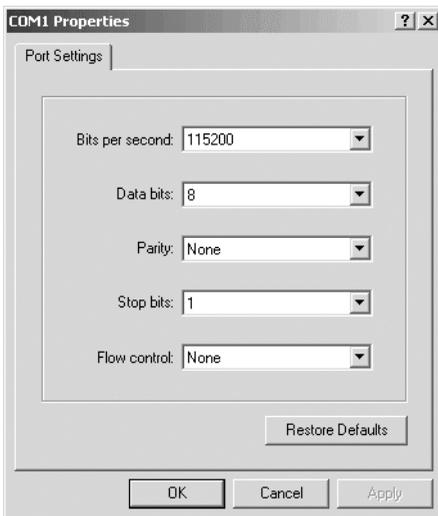


Name the connection 'ATAbeast'

Click OK to progress to the next page.



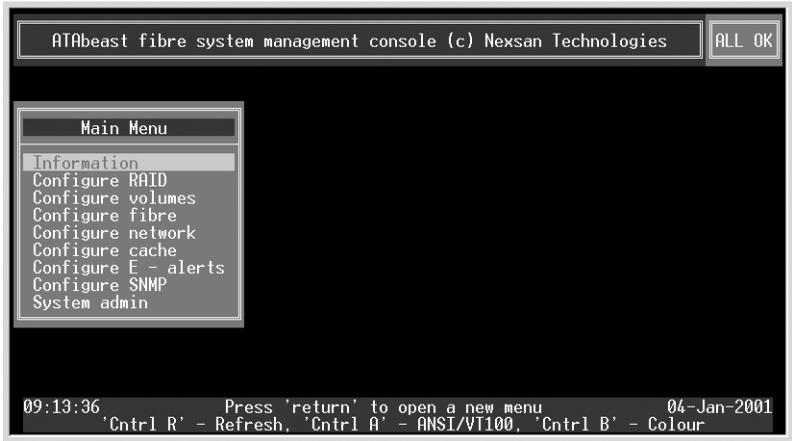
Select the computer's COM port that has the serial cable inserted and click the 'OK' button to continue.



Choose 115200 bits per second, 8 data bits, no parity bits and set Flow control to None.

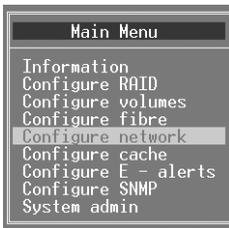
Click 'OK' to connect.

Now that the port is connected you may need to press the return key to activate the serial port interface. Then you should see the following screen.

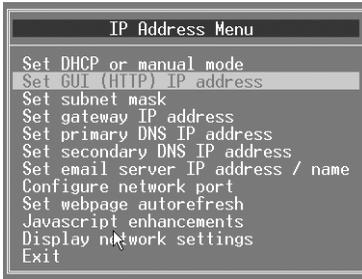


The serial port can easily be navigated using the cursor (arrow) buttons on the keyboard. There are also some special functions that are listed at the bottom of the page such as Ctrl+R to refresh the screen; there are also options to switch between ANSI and VT100 modes and to toggle between black and white and colour.

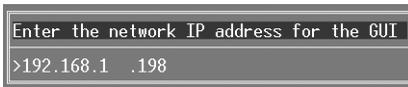
To edit the network configuration use the cursor keys to select the line 'Configure Network' and press return.



Then select 'Set GUI (HTTP) IP address' and press return.

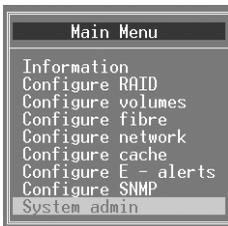


At the following page type in the desired IP address.



Click on return. Now the new IP address is saved a reboot is necessary for the new settings to be applied. To reboot the controller press the left arrow button repeatedly until the main menu is displayed.

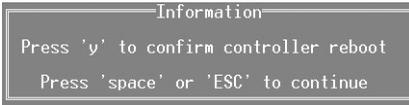
Then select the 'System Admin' from the main menu.



Once the 'System Admin' menu loads select 'Reboot Controller' and press the return key.

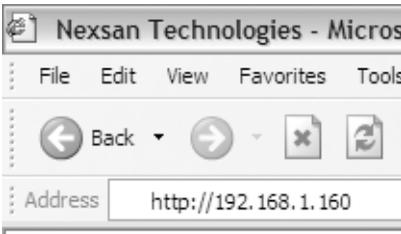


To confirm the reboot press the 'y' key when prompted



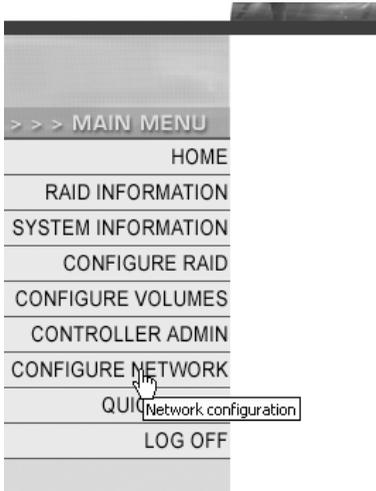
When the controller reboots you are advised to use the web interface to continue the configuration of the system.

To access the GUI type the newly designated IP address of the ATAbeast into your web browser.



When you press return or the GO button the browser should load the ATAbeast's login page. You will need to click the login button to continue; by default this will not require a user name or password.

Now the main page is loaded click the 'Network Configuration" button on the left hand side of the main page.



All the pages in the main frame (except the home page) have multiple tabs at the top of the page used for access other related pages. In this instance the default tab is the one you require.

NETWORK SETTINGS NETWORK PORT E-ALERT SNMP DATE+TIME SECURITY GUI MODE

Configure Network \ Configure Network Settings

	Current state	New state
How to set IP address	Manual	<input checked="" type="radio"/> Manual <input type="radio"/> DHCP/BOOTP
IP address	192.168.1.162	<input type="text" value="192.168.1.162"/>
Subnet mask	255.255.255.0	<input type="text" value="255.255.255.0"/>
Gateway	192.168.1.5	<input type="text" value="192.168.1.5"/>
Primary DNS	Not configured	<input type="text"/>
Secondary DNS	Not configured	<input type="text"/>
Web page auto refresh (10 to 120 secs)	Enabled <input checked="" type="checkbox"/> , Auto refresh time <input type="text" value="30"/> seconds	
<input type="button" value="Save Configuration"/> <input type="button" value="Reset"/>		

(?)

How to set IP address – decides whether to use DHCP (Dynamic Host Configuration Protocol) or a manually set IP address. Use the radio buttons to select the desired value. If you choose DHCP you will not need to choose any further values. It is recommended to have your DHCP server reserve a static IP for your ATAbeast.

IP address – You have already made this setting in the Serial port so, you not need to change this now.

Subnet mask – set the subnet mask that fits the class of your network. In most cases 255.255.255.0 is fine. Type the new subnet mask into the text box.

Gateway – type the IP address of your Internet gateway into this text box.

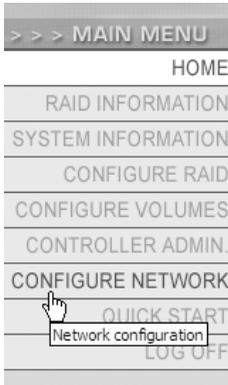
Primary/Secondary DNS – type the IP address of both your Primary and Secondary DNS into the supplied text boxes.

Web page auto refresh – determines whether the web pages should be reloaded at a given interval in order to show any changes to the system on screen. If you wish to use this ensure that the 'Enabled' box is ticked. You will also need to specify a value in seconds to determine the frequency of web page refreshing.

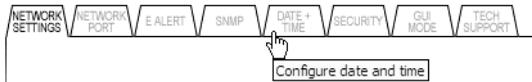
When you have updated all these settings hit the 'Save configuration' button. You will need to restart the system before these changes take effect.

[10.01] Set Time and Date

It is important to set the Time and Date for the ATAbeast. From the GUI home page click on the 'Configure Network'



This will open a new page in the main frame. At the top of this page there will be a number of tabs. Click the tab marked 'Time + Date' This will load the Data + Time page.



There are two ways to set a Date and Time, either manually or automatically.

Time entered in 'hh:mm:ss' format	<input type="text" value="09:11:35"/>
Date entered in 'dd/mm/yyyy' format	<input type="text" value="08/01/2001"/>
Timezone relative to GMT (GMT offset)	GMT <input type="button" value="v"/>
Time server IP address to use for auto time and date configure.	<input type="text" value="129.6.15.28"/> <input checked="" type="radio"/> Use IP address from list <input type="text"/> <input type="radio"/> Use entered IP address
Time server time and date format	#### yy-mm-dd hh:mm:ss tt l h [NIST format] <input type="button" value="v"/>
Set system time and date by the time server every 24 hours	<input type="checkbox"/>
<input type="button" value="Save Settings"/>	

To set the Time and Date *manually* use the following fields.

Time entered in 'hh:mm:ss' format – input the time into this field in the specified format. Please note that the inputted time will not tick, the time you type in will be used from the time you click the 'Save Settings' button, not from when you typed it.

Date entered in 'dd/mm/yyyy' format – input the date in the specified format.

Timezone relative to GMT (GMT offset) – Use the drop down menu to select the time zone.

When you have made these changes click the 'Save Settings' button.

To set the Time and Date *automatically* use the following fields.

Time server IP address to use for auto time and date configure – allows you to select a predefined time server from the drop down menu or a custom time server for automatic time and date configuration. Use the radio buttons to decide which mode to use.

Time server time and date format – is a drop down menu that allows you to select the format of the data that will be received from the time server. Choose this carefully as many time servers use different settings.

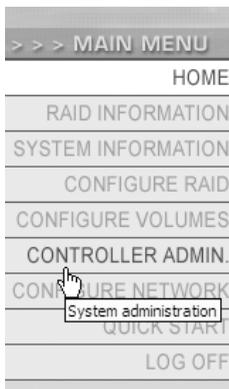
Set system time and date by the timer server every 24 hours – check the tick box if you wish to check the time and date every 24 hours.

When you have made these changes click the ‘Save Settings’ button.

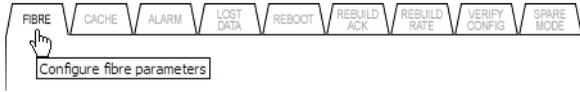
[10.02] Setup Fibre Channel Interface

In order to ensure correct operation of the Fibre Channel interface you should use the web GUI to review and / or alter the Fibre Channel settings.

From the home page select the ‘Controller Admin.’ from the left hand frame.



When the main frame reloads, click 'Fibre' from the row of tabs at the top of the page.



The Fibre page allows the configuration of both Fibre Ports on the current controller. Use the drop down menus to configure the settings.

Host Port 0 settings		
	Current status	New state
Topology	Loop Down	LOOP <input type="button" value="v"/>
Loop ID	? (Loop Down)	0 <input type="button" value="v"/>
Link speed	Loop Down	2Gbit <input type="button" value="v"/>
Frame size	2112	2112 <input type="button" value="v"/>
Host Port 1 settings		
	Current status	New state
Topology	Loop Down	LOOP <input type="button" value="v"/>
Loop ID	? (Loop Down)	0 <input type="button" value="v"/>
Link speed	Loop Down	2Gbit <input type="button" value="v"/>
Frame size	2112	2112 <input type="button" value="v"/>
<input type="button" value="Save new configuration"/>		<input type="button" value="Reset"/>

Topology – allows you to select between 'Point to Point', 'Loop' or 'Auto' topologies. The loop topology should be used when connecting to other devices using a switch whereas 'Point to Point' is normally used when connecting directly to an initiator or switch. The 'Auto' mode will try to negotiate what topology to use, this works by trying to connect to a loop, failing this it will try to connect using 'Point to Point' mode. Auto may not always work, especially if the device/s at the other end are also using auto.

Loop ID – selects the ID of this port. Use the drop down menu to select an address between 0 and 126. Auto may also be selected to find an address that is not already occupied. Loop ID does not need to be set if you are running in 'Point to Point' mode.

Link Speed – denotes the speed of the connection. The ATAbeast is capable of running at either 1Gbit (One Gigabit per second) or 2Gbit (Two Gigabits per second). You should set this speed depending on your other Fibre Channel equipment. It is also possible to use Auto mode that will attempt to negotiate the correct speed.

Frame Size – chooses the frame size to be used. The frame size relates to the data payload of each packet. Typically the larger the payload the more data can be transmitted. The available frame sizes are 512, 1024, 2048 and 2112.

After both interfaces have been configured click the 'Save new configuration'.

The settings will be applied at the next restart of the system.

[11.0] *Quick Start*

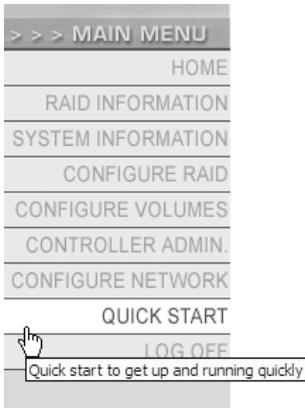
Quick Start is an easy and quick way to set up the ATAbeast.

It creates between 3 and 6 RAID 5 arrays per controller. Each Array is partitioned in to a single LUN (unless it is over 2.2TB, then additional volumes are created). All volumes are mapped to both host ports. The Fibre Channel interfaces are set to AUTO mode.

The default shipping configuration for the ATAbeast is Quick start with three RAID sets per controller.

If your system has no arrays present quick start is a good way to get started.

Form the GUI home page click on 'Quickstart' from the left frame.



The main frame will then display a warning that tells you that running Quickstart will delete all current data. There is also a drop down that selects between 3, 4 and six arrays and a second drop down menu that selects 0, 1 or 2 spares.



Select the desired parameters and click the 'Next>>' button

The following screen displays the settings about to be installed.

Setting	Target Configuration
Array#1	RAID level : 5 Stripe size : 64 Using disks : 17, 19, 21, 23, 25, 27, 42
Array#2	RAID level : 5 Stripe size : 64 Using disks : 30, 32, 34, 36, 38, 40, 41
Array#3	RAID level : 5 Stripe size : 64 Using disks : 29, 31, 33, 35, 37, 39
Create volumes for arrays : 1, 2, 3	100% of array capacity, mapped to both host ports. If 2.2TB limit is hit, additional volumes will be created to use the remaining array capacity
Hot spares	Create 1 hot spare Using disk : 15
Port 0 topology	AUTO
Port 0 loop ID	AUTO
Port 0 link speed	AUTO
Port 0 frame size	2112
Port 1 topology	AUTO
Port 1 loop ID	AUTO
Port 1 link speed	AUTO
Port 1 frame size	2112



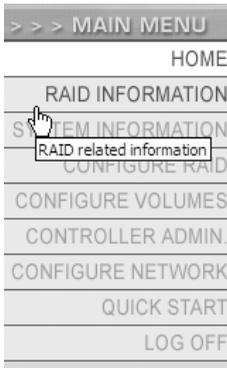
To continue you must click in the check box and then click the 'Quickstart' button.

A final warning will appear to ensure that you are aware that any current data will be destroyed.

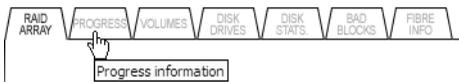


Again, click in the in the tick box and click 'Confirm Quickstart Configure' to continue or click the 'CANCEL Quickstart' button to cancel.

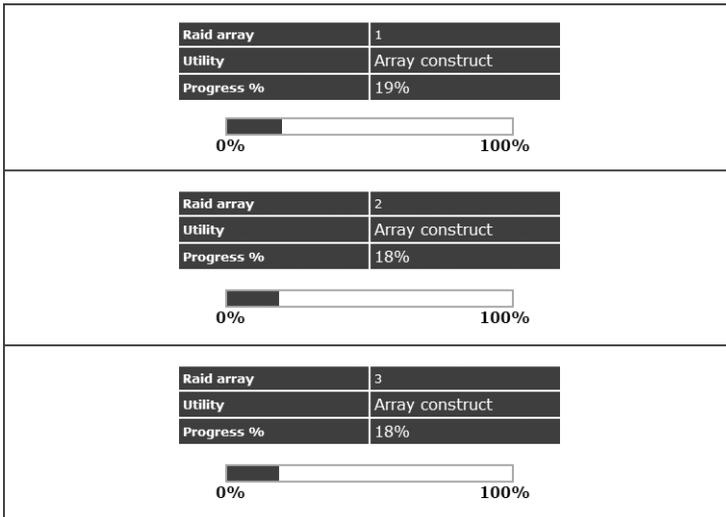
The Quickstart operation will take several hours to compile the array data. You can check on the progress of this in the progress page. From the home page, click on 'RAID information' in the left frame.



Then click on 'Progress' tab from the top of the main page.



The progress page displays the progress of any controller based utility on the any configured array.



The above example shows 3 arrays being constructed. When the progress bar reaches 100% the array is ready to be used.

[12.0] *Creating Custom RAID sets and Partitions*

Although the default setup may be acceptable for many customers it is possible to easily create custom RAID sets and volumes of types and sizes.

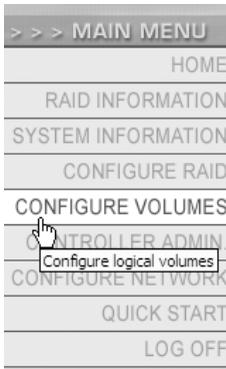
In order to create a RAID you must have free disks. Free disks are disks that do not belong to a RAID set and are not configured as hot spares. If no free drives are present then another drive must be made available.

Drives can be made available by deleting a configured RAID set or by deleting hot spares. Hot spares are easily deleted but RAID sets must contain no volumes before they can be deleted. To delete a RAID set all its volumes must be deleted first.

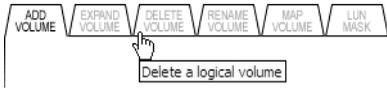
[12.01] **Deleting Volumes**

If a configured array exists that you want to delete then you will need to delete all the configured volumes on that array.

From the home page click on the 'Configure Volumes' button.



Then select the 'Delete Volumes' tab from the top of the screen.



This will bring up the delete volume page. The delete volume page displays a lot of information and must be carefully read before deleting volumes.

Free Space areas on RAID array 1, total capacity of 552.8 Gbytes

There are no free space areas, all of the array capacity is used

Volume ID (1) existing on array 1, array name 'TEST'

Volume name	Default volume
Volume capacity	552831 MB (552.8 GB)
% of total array used	100%
Host Port 0 loop ID:LUN	? (Loop Down):0
Host Port 1 loop ID:LUN	? (Loop Down):0
LUN masking	Click to view
Volume serial number	16c764f0
Volume Creation time	16:52:56
Volume Creation date	Monday 20-Oct-2003

Delete Volume
Existing on array#1
552831 MB (552.8 GB)

Below bar represents the size and position of the above volume

0%  100%

Free space after this volume - 0 MB (0.0 GB)

Free Space areas on RAID array 2, total capacity of 614.2 Gbytes

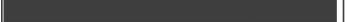
There are no free space areas, all of the array capacity is used

Volume ID (2) existing on array 2, array name 'Production'

Volume name	Default volume
Volume capacity	614257 MB (614.2 GB)
% of total array used	100%
Host Port 0 loop ID:LUN	? (Loop Down):1
Host Port 1 loop ID:LUN	? (Loop Down):1
LUN masking	Click to view
Volume serial number	16c7650d
Volume Creation time	16:53:41
Volume Creation date	Monday 20-Oct-2003

Delete Volume
Existing on array#2
614257 MB (614.2 GB)

Below bar represents the size and position of the above volume

0%  100%

Free space after this volume - 0 MB (0.0 GB)

Annotations on the right side of the screenshot:

- Shows that that the following volumes belong to Array 1
- This section shows there is no free space for any more volumes.
- Configured Volume
- Shows that that the following volumes belong to Array 2

To delete a volume first check the radio button of the specific volume then click the 'Delete Volume' button.

The following warning page will appear.

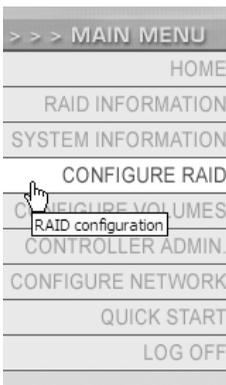


Click on the tick box then click the 'Confirm Delete Command' to confirm that you wish to delete the volume.

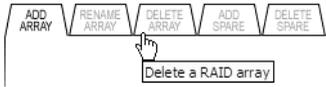
[12.02] Deleting RAID Sets

To delete a RAID set with no configured volumes follow the instructions below.

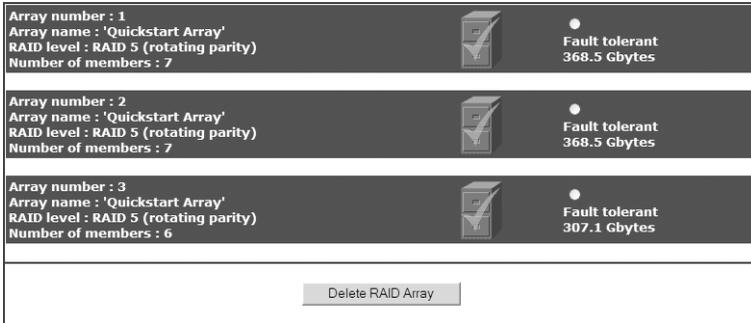
From the left hand menu on the home page of the GUI, click on the 'Configure RAID' button.



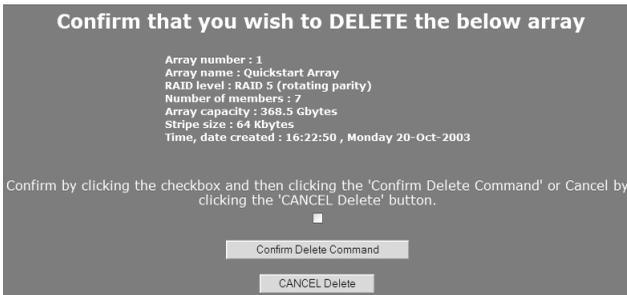
Then from the top of the page click on the 'Delete Array' tab



The main page will display the configured arrays.



Each array has a radio button. Click the radio button of the Array you wish to delete (you can only delete one array at a time). Then click the 'Delete RAID Array' button. If there are still volumes configured on this array you will not be able to delete it. First you must delete the volumes. If the array is volume free you will see the following warning page.

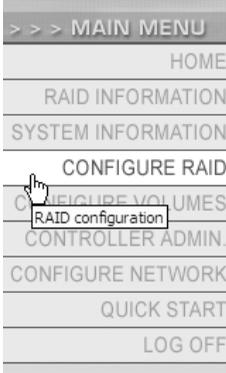


To continue with deleting the array click the tick box and then click the 'Confirm Delete Command' button.

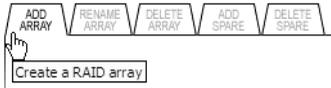
[12.03] **Creating RAID sets**

To delete a RAID set with no configured volumes follow the instructions below.

From the left hand menu on the home page of the GUI, click on the 'Configure RAID' button.



In the main frame click on the 'Add Array' tab from the top of the page.



Select the available drives (yellow) by checking the tick boxes. You can configure between 3 and 42 drives into a single RAID set but the recommended maximum number of drives is 14.

The screenshot shows a RAID configuration interface. At the top, there is a text input field for 'Array name' containing 'Test'. Below it is a dropdown menu for 'Select RAID level' set to 'RAID 5 (rotating parity)'. Underneath is another dropdown menu for 'Select stripe size' set to '64 Kbytes'. The main area is a grid of 42 drive slots, labeled 'Disk1' through 'Disk42'. Each slot contains a drive icon and a checkbox. Drives 1 through 7 are yellow and have their checkboxes checked. Drives 8 through 14 are grey and have their checkboxes unchecked. Drives 15 through 21 are grey and have their checkboxes unchecked. Drives 22 through 28 are grey and have their checkboxes unchecked. Drives 29 through 35 are grey and have their checkboxes unchecked. Drives 36 through 42 are grey and have their checkboxes unchecked. At the bottom of the interface, there are two buttons: 'Create RAID Set' and 'Reset'.

At the top of the page you can also select the following features:

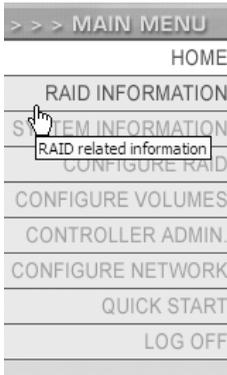
Array Name – This is a friendly internal name. This may be something like 'Production'.

Select RAID level – allows you to choose the RAID level that best suites your application. Use the drop down to select the correct RAID level.

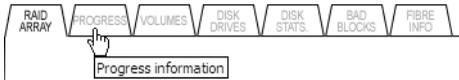
Select Stripe size – use the drop down menu to select the desired stripe size for your array.

Once all the setting and disks have been selected click the 'Create RAID Set' button to begin.

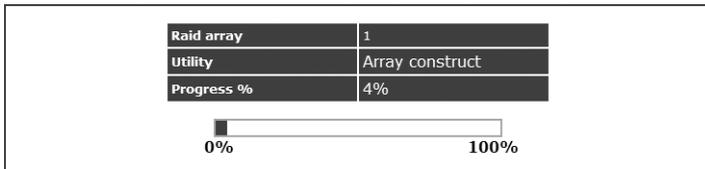
The construction of an array takes several hours. You can check on the progress of this in the progress page. From the home page, click on 'RAID information' in the left frame.



Then click on 'Progress' tab from the top of the main page.



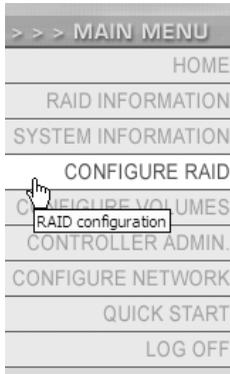
The progress page displays the progress of any controller based utility on the any configured array.



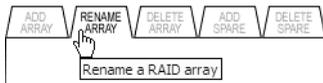
[12.04] Renaming Volume

The Rename Array feature is used to change the user defined friendly name of each configured array.

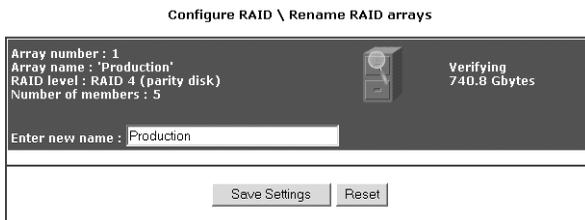
Click the 'Configure RAID' button on the left side of the GUI.



Then click 'Rename Array' tab from the top of the main page.



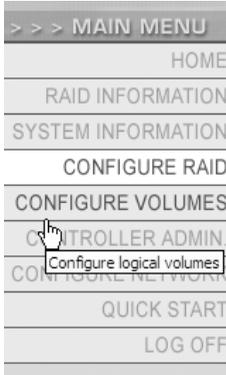
The 'Rename Array' page will appear in the main section of the web page.



To rename an array simply enter the new name of the array in relevant text box and click the 'Save Settings' button.

[12.05] Configuring Volumes

All the configuring of volumes is done within the 'Configure Volumes' section of GUI. To switch between the different functions use the tabs at the top of the screen.



[12.06] Creating Volumes

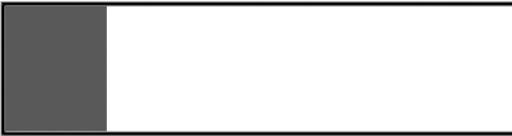
The Configure Volumes section of the GUI allows the user to create, expand, rename, remove and map volumes.

In order to use capacity in an array a volume must first be created. By default one full size volume is created for each array created (unless the 2.2TB Limit is breached). However, this volume can be deleted and multiple smaller ones created instead. Volumes can also be mapped to either one or both of the host ports of the system. This allows two completely independent computers to access different volumes on the same array.

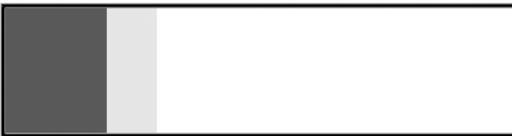
Volumes have certain limitations. The best way to understand how the volume works is to visualise an empty array as an empty block.



If the array is empty the first volume you create will start at the beginning of the array (unless you specify to leave free space there).



The above shows a dark grey section that represents a created volume roughly a 20% of the entire capacity of the array. You can see that begins at the beginning the array. A second array can be added after the first.

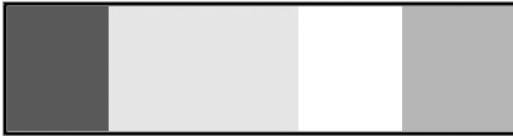


The newly created partition is showed above in light grey. It is shown above that the new volume backs directly on to the previous volume.

It is possible to expand volumes if there is free space directly at the end of the volume. Because of this the dark grey volume cannot be expanded, but the light grey can.



The light grey volume has been expanded. If another volume is created directly on the end of it further expansion is no longer possible. Because of this there is a feature when creating a new volume to 'reserve' space for future expansion of the previous volume.



Above a third volume has been added (in mid grey) that reserves space for future expansion of the light grey volume. The reserved space can only be used by the volume that ends before the free space.



The above picture shows that the light grey volume has now been expanded in to the reserved free space.

It is possible to delete a volume and reuse the space to create new volumes.



The above picture shows that the dark grey and mid grey volumes have been deleted. It is now possible to create new volumes in the available space. However it is not possible to create a single volume that spreads over two or more areas of free space. The largest volume creatable is equal to largest single area of free space. The RAID controller will, by default, create a new volume at the first free space area. If this is not possible, for example the first area of free space is not large enough for the desired size the controller will use the first space area large enough.

To create a new volume click on the 'Add Volume' tab at the top of the 'Configure Volumes' page.



The 'Add Volume' page will then load in the main frame.

Configure Volumes \ Create Logical Volume

Array number : 1
 Array name : 'Production'
 RAID level : RAID 4 (parity disk)
 Number of members : 5

Verifying
740.8 Gbytes

Enter the name for the new volume	<input type="text"/>
Enter the size of the new volume in Mega bytes (MB)	<input type="text"/> MB
Reserve an optional free space area at beginning of the new volume for future expansion of a previous volume.	<input type="text"/> MB
Select logical unit number (LUN) for new volume on host 0	UNMAPPED ▾
Select logical unit number (LUN) for new volume on host 1	UNMAPPED ▾

Configured Volume Information

Free Space areas on RAID array 1, total capacity of 740.8 Gbytes

No.	Size in MB	Size in GB
1	740865 MB	740.8 GB

There are no volumes configured

To create an array first click the radio button of the array from the top of the page. All the configured arrays will be listed at the top of the page, no button is selected by default.

Once the array has been selected you may wish to scroll to view how much space is available for each array.

When you know what space is available use the following sections to define the volume's parameters.

Enter the name for the new volume – defines friendly name of the volume

Enter the size of the new volume in MB – defines the size of the new volume in Megabytes.

Reserve an optional free space area at beginning of the new volume for future expansion of a previous volume – defines how much, if any, free space should be reserved for expansion of the previous volume.

Select logical unit number (LUN) for new volume on host 0/1 – defines the LUN value of this volume on host channel 0 and 1.

Once you have defined the relevant parameters click the 'Create Volume' button. The volume should be created and mapped instantly.

[12.07] Expand Volume

The 'Expand Volume' tool allows expansion of volumes. However a volume can only be expanded if free space resides directly after it.

Click the 'Expand Volume' tab to at the top of the 'Configure Volumes' page.



This will change the main page and display the 'Expand Volume' settings.

Configure Volumes \ Expand a Logical Volume

Free Space areas on RAID array 1, total capacity of 740.8 Gbytes

No.	Size in MB	Size in GB
1	490865 MB	490.8 GB

Volume ID (1) existing on array 1, array name 'Production'

<i>Volume name</i>	Test1
<i>Volume capacity</i>	250000 MB (250.0 GB)
<i>% of total array used</i>	33%
<i>Host 0 target ID:LUN</i>	4:0
<i>Host 1 target ID:LUN</i>	5:UNMAPPED
<i>Volume serial number</i>	e9eb8a28
<i>Volume Creation time</i>	14:13:04
<i>Volume Creation date</i>	Friday 29-Nov-2002

Existing on array#1
250000 MB (250.0 GB)

MB

Below bar represents the size and position of the above volume

0%

100%

Free space after this volume : 490865 MB (490.8 GB)

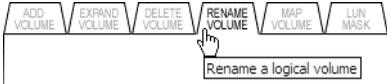
Each volume will be displayed on this page along with details of free space.

To expand a volume simply type the new size into the text box. Then 'Expand Volume' button to expand.

[12.08] Rename Volume

Volumes can have their assigned friendly names changed by using the Rename Volume page.

Click the 'Rename Volume' from the top of the page.



This will display the 'Rename Volume' page.

Configure Volumes \ Rename Logical Volumes

Volume Details	New name
Identifier - 1, Named - 'Test1', on array - 1 Capacity - 250000 MB (250.0 GB) Accessed on host0 target ID of 4, LUN0	<input type="text" value="Test1"/>
<input type="button" value="Save Settings"/> <input type="button" value="Reset"/>	

To change the friendly name of a volume type the new name into the supplied text box. You can change the name or more than one volume at a time. When you have made the changes click the 'Save Settings' button to confirm.

[12.09] Map Volume

Each volume must be mapped to a LUN on at least one host channel in order to be accessed. If you didn't map a volume when you created it or want to change the mapping then use this page.

Click the 'Map Volume' button at the top of the page.



This will load the 'Map Volume' page into the main section of the web page.

Configure Volumes \ Map Logical Volumes

Volume Details	Host Channel 0 LUN (SCSI ID 4)	Host Channel 1 LUN (SCSI ID 5)
Identifier - 1, Named - 'test1', on array - 1 Capacity - 250000 MB (250.0 GB)	LUN 0	LUN 0
Identifier - 2, Named - 'test2', on array - 1 Capacity - 250000 MB (250.0 GB)	UNMAPPED	LUN 1

Use the drop down menus for each volume to select the LUN for each Host Channel. You can apply a maximum of 32 LUNS per channel. If you select UNMAPPED then that LUN will not be accessed over that channel.

Press the 'Save settings' button to confirm changes.

Changes are made immediately, so changing the LUN of a volume in use could cause your Operating System to crash.

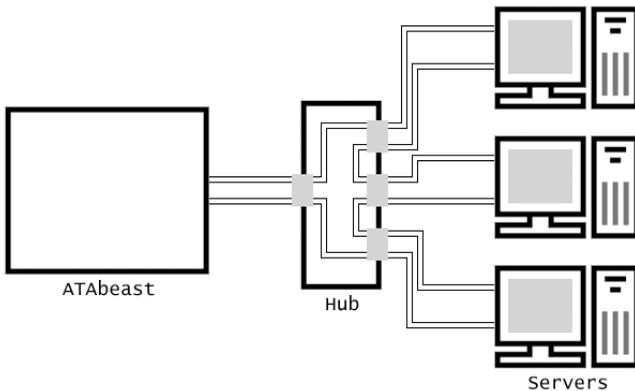
[13.0] *Configuring Fibre Channel and LUN Masking*

This section of the manual is designed to give a fuller understanding of the Fibre Channel interface features and set up parameters.

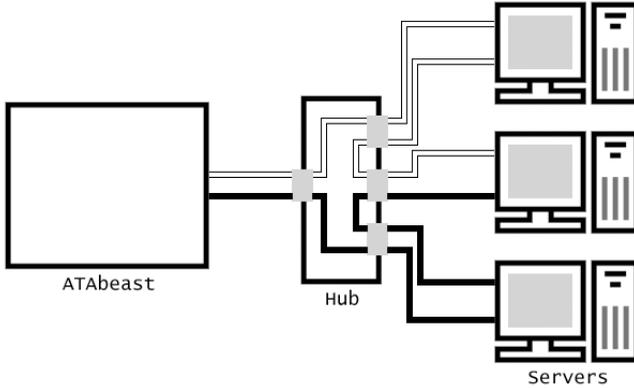
[13.01] **Fibre Channel Topologies**

The ATAbeast is capable of supporting the two most commonly recognised Fibre Channel protocols; these are point to point and loop.

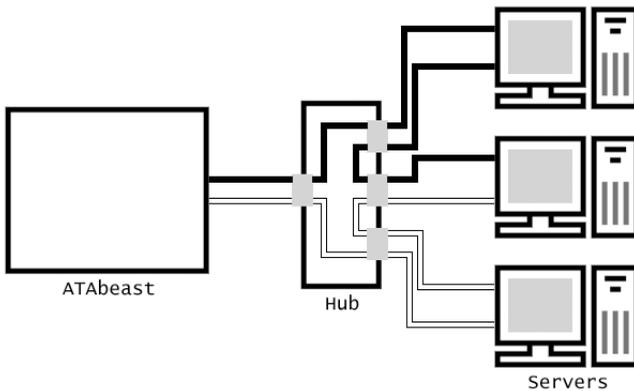
The loop topology can be used to directly connect to a HBA running in loop mode, but point to point is actually more efficient at this. Loop is mostly used when connecting the ATAbeast to a hub or loop switch. When using a hub all traffic is passed through all the nodes in the loop until it reaches it's destination. The entire bandwidth of the loop is shared by all the nodes. This significantly reduces performance.



The above diagram shows the two lines from each node going in to the hub in the centre. Each line represents either the TX or RX of each nodes cable. The following diagram shows the route of a packet going from the server in the middle to the ATAbeast.



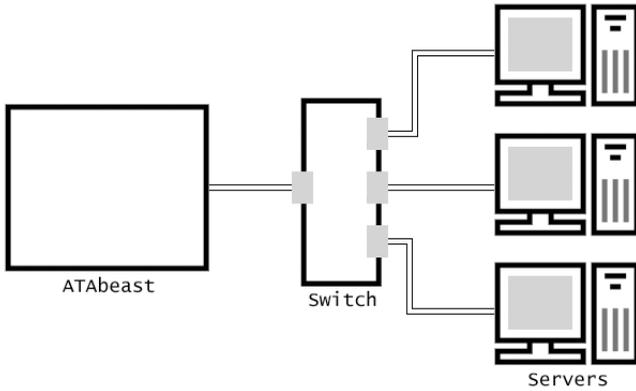
The data travels around the loop until it reaches the destination.



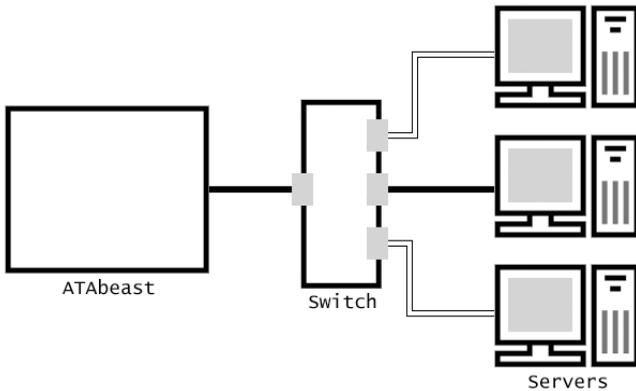
This diagram shows the data being transmitted from the ATAbeast back to the same server.

These diagrams show that loop modes is not particularly efficient. However a hub is significantly cheaper than a switch.

The next series of diagrams shows the same scenario as the loop mode running with a hub but this time using point to point mode with a fabric switch.



With the switch diagram it is not necessary to display the TX and RX as each node communicates directly with the switch. The logic in the switch sends data directly from one node to the destination node. The following diagram shows the same communication as before.



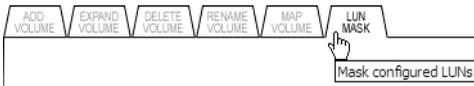
Here you can see that the data does not interfere and therefore does not affect the performance of the other nodes.

[13.02] LUN Mask

The ATAbeast has the ability to define which hosts (initiators) are allowed to access LUNs. Settings for each LUN are individually designated. All discovered initiators are listed and they can either be granted full access or no access.

To use this feature the beast must be connected to a Fabric Switch and be running in Point to Point mode. It is not possible to mask LUNs in Loop mode.

To access the 'LUN Mask' page click the 'LUN Mask' tab at the top of the 'Configure Volume' page.



CAUTION: MAPPING VOLUMES TO MORE THAN ONE HOST CAN CAUSE DATA CORRUPTION. IF YOU ARE MAPPING TO MORE THAN ONE HOST ENSURE THAT YOU HAVE THE CORRECT SOFTWARE TO DO THIS!

Configure Volumes \ Select Volume To LUN Mask

Free Space areas on RAID array 1, total capacity of 1481.4 Gbytes

There are no free space areas, all of the array capacity is used

Volume ID (1) existing on array 1, array name 'whatever'

<i>Volume name</i>	Default volume
<i>Volume capacity</i>	1481464 MB (1481.4 GB)
<i>% of total array used</i>	100%
<i>Host Port 0 loop ID:LUN</i>	? (Loop Down):0
<i>Host Port 1 loop ID:LUN</i>	(not in loop mode):0
<i>LUN masking</i>	Click to view
<i>Volume serial number</i>	e9da05c5
<i>Volume Creation time</i>	15:46:54
<i>Volume Creation date</i>	Monday 16-Dec-2002

Mask LUN
 Existing on array# 1
 1481464 MB (1481.4 GB)

Below bar represents the size and position of the above volume

0%

100%

Free space after this volume - 0 MB (0.0 GB)

The LUN Mask page shows each configured volume. In order to mask the desired LUN click the radio button and then click the adjacent 'Mask LUN' button.

Scanned list of initiator ports

port 0 not mapped to this volume.

Initiator ports found on port 1.

Port Address	WW Port Name	Allow Access to Volume
0x610a13	21-00-00-e0-8b-0e-25-94	<input type="checkbox"/>
0x610813	10-00-00-01-73-00-8b-5d	<input type="checkbox"/>
0x610913	10-00-00-01-73-80-8b-5d	<input checked="" type="checkbox"/>
0x610b13	21-01-00-e0-8b-2e-25-94	<input type="checkbox"/>
All other initiators		<input type="checkbox"/>

The second page is where the LUN Masking is set. Use the on page options to create a mask.

Scan Fibre Ports – is a button that scans the Fibre Channel for any newly added hosts (initiators) that were not present when the page was loaded.

The second section of the page lists the current initiators in black and previously discovered but now missing initiators in grey.

Each Initiator displays its 'Port Address' and 'WW Port Name'. The WW Port Name is the individual address of the initiator (the Fibre Channel adapter in the host computer). This address can be identified in the HBA's BIOS or sometimes it will be a small sticker on the HBA itself.

Each initiator can either have access to the volume 'Enabled' or 'Disabled'. Initiators with access enabled will have read and write access to the volume. Initiators with access disabled will not be able to access the LUN at all! Choose the desired state with the checkboxes.

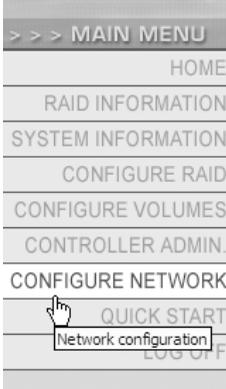
Initiators that have been previously discovered but are no longer present have the extra option of 'Remove', this will delete this initiator from the list. If it is discovered again it will follow the 'New Initiators' rule.

All other Initiators – is a check box that defines how newly discovered initiators will be treated. If the box is ticked then all new initiators will gain access to this LUN automatically, If the box is not ticked any new initiator will not be granted access.

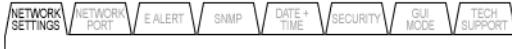
When the above options have been defined hit the 'Save LUN Mask' button.

[14.0] *Advanced Network Options*

All of the advanced networking options can be found in the 'Configure Network' section of the GUI. This can be accessed from the left hand side of any GUI page.



Each of the settings can then be accessed from the row of tabs that load at the top of the page.



[14.01] **Network Settings**

The Network Settings page is used to specify the address settings of the GUI, Subnet, Gateway and DNS.

	Current state	New state
How to set IP address	Manual	<input checked="" type="radio"/> Manual <input type="radio"/> DHCP/BOOTP
IP address	192.168.1.162	<input type="text" value="192.168.1.162"/>
Subnet mask	255.255.255.0	<input type="text" value="255.255.255.0"/>
Gateway	192.168.1.5	<input type="text" value="192.168.1.5"/>
Primary DNS	Not configured	<input type="text"/>
Secondary DNS	Not configured	<input type="text"/>
Web page auto refresh (10 to 120 secs)	Enabled <input checked="" type="checkbox"/> , Auto refresh time <input type="text" value="30"/> seconds	
		<input type="button" value="Save Configuration"/> <input type="button" value="Reset"/>

How to set IP address – decides whether to use DHCP (Dynamic Host Configuration Protocol) or a manually set IP address. Use the checkboxes to select the desired value. If you choose DHCP you will not need to choose any further values. It is recommended to have your DHCP server reserve a static IP for your ATAbeast.

IP address – assuming you have chosen to set up the network manually enter a free IP address into the text box. The IP address that you already have may be fine.

Subnet mask – set the subnet mask that fits the class of your network. In most cases 255.255.255.0 is fine. Type the new subnet mask into the text box.

Gateway – type the IP address of your Internet gateway into this text box.

Primary/Secondary DNS – type the IP address of both your Primary and Secondary DNS into the supplied text boxes.

Web page auto refresh – determines whether the web pages should be reloaded at a given interval in order to show any changes to the system on screen. If you wish to use this ensure that the 'Enabled' box is ticked. You will also need to specify a value in seconds to determine the frequency of web page refreshing.

When you have updated all these settings hit the 'Save configuration' button. You will need to restart the system before these changes take effect.

[14.02] Network Port

Use the Network Port page to alter the speed and duplex mode of the Network port.

Configure Network \ Network Port Settings

Current Setting	New Setting
10Mbit Half Duplex	Fixed to 10Mbit Half Duplex
<input type="button" value="Save Network Port Setting"/> <input type="button" value="Reset"/>	

The ATAbeast has a 10/100Base T Ethernet port that can be used in various modes, use the drop down menu to select the required mode.

- Auto negotiate network speed and duplex
- Auto negotiate network speed with fixed full duplex
- Auto negotiate network speed with fixed half duplex
- Fixed to 100Mbit Full Duplex
- Fixed to 100Mbit Half Duplex
- Fixed to 10Mbit Full Duplex
- Fixed to 10Mbit Half Duplex

If the ATAbeast is connected to a switch you may use full duplex, half duplex will also work fine with hubs and switches but may be a little slower. Only use 100Mbit if you are sure you have 100Mbit networking. If you are not sure about your networking use 'Fixed to 10Mbit Half Duplex'

When you have made your decision press the 'Save Network Port Setting' button.

You will need to restart the ATAbeast for the changes to take place.

[14.03] E Alert

ATAbeast has the capability of sending an email to a specified email address in the event of either a warning condition or an error condition.

Warning conditions in ATAbeast are instances where the operation of the system is continuing as normal, but an event has occurred that indicates possible future difficulties. Examples are internal temperature higher than normal, change of the network IP address dictated by a DHCP server (which means that you will need to use a new network address to access the Web Monitor), and similar events.

Error conditions denote events that significantly reduce the security of the system. Examples include failure of a data disk, loss of data due to errors on matching parts of two or more disks, or failure of one power supply.

Configure Network \ E - Alert Settings

Sender email address	<input type="text" value="dvATA2SCSI@nexsan.com"/>
SMTP email server	<input type="text" value="128.121.201.52"/>
Recipient email address	<input type="text" value="test@my_domain.com"/>
ATA RAID system friendly name	<input type="text" value="DVTATA2SCSI"/>
When to send	<input type="text" value="Send Email alarms for warnings and errors"/>
<input type="button" value="Save E - Alert Settings"/> <input type="button" value="Reset"/>	

Test E - Alert Settings	
<input type="button" value="Send Test Email Now"/>	to test@my_domain.com

Sender Email Address – is the address that the ATAbeast assumes as its email address. You may consider using `Alert@yourdomain.com` or `ATAbeaststatus@yourdomain.com`. To set the sender type address into the text box.

SMTP email server – is the address or name of your mail server. You can only type the name of your mail server (i.e. `mail.mydomain.com`) if you have DNS correctly set up either manually or via DHCP. Enter the value into the supplied text box.

Recipient Email Address – is the email address that NexScan should send email to. This would typically be the address of an administrator. Type the address into the provided text box.

ATA RAID system friendly name – is an easy way to determine the location of an ATAbeast that has sent email. This feature is mainly useful for users with many systems. A friendly name that relates to the location or use of the unit i.e. Server1 RAID. Type the desired value into the text box.

When to send – decides under what circumstances an email should be sent. There are three possible options. 'Don't send Email alarms' will not send any emails, this option is only recommended for users who do not wish to receive any emails from the unit and will be able to hear audible alarm should a problem occur. 'Send Email alarms for errors only' will send an email only when errors occur. This setting is suitable for most users. 'Send Email alarms for warnings and errors' will send email when warnings or errors occur; this is ideal for expert users. Use the drop down menu to choose the desired option.

When you have completed the set up hit the 'Save alarm settings' button. You may reload this page and use the 'Send test email now' to check that the configuration works.

[14.05] **Date & Time**

The ATAbeast has a real time clock. It is strongly advised that you set the time and date. This is very important when the system is recording events to the event log or sending emails and traps.

You can either enter the time and date manually or have time and date set by an Internet Time Server.

Configure Network \ Configure Time and Date

Time entered in 'hh:mm:ss' format	<input type="text" value="16:43:38"/>
Date entered in 'dd/mm/yyyy' format	<input type="text" value="04/12/2002"/>
Timezone relative to GMT (GMT offset)	<input type="text" value="GMT"/>
Time server IP address to use for auto time and date configure.	<input type="text" value="129.6.15.28"/> <input type="radio"/> Use IP address from list
	<input type="text" value="255.255.255.255"/> <input checked="" type="radio"/> Use entered IP address
Set system time and date by the time server every 24 hours	<input type="checkbox"/>
<input type="button" value="Save Settings"/>	
Attempt to configure system time and date automatically	
<input type="button" value="Auto Configure Time And Date"/>	

Time entered in 'hh:mm:ss' format – allows you to type in the current time.

Date entered in 'dd/mm/yyyy' format – allows you to enter the date manually.

Timezone relative to GMT (GMT offset) – allows you to set an offset to GMT by using drop down menus. This is very important especially when using Time Servers.

Time Server IP address for auto time and date configure – allows the user to select a time server from the pre-configured list or enter a new server. You must choose the radio button to choose which one.

Set system time and date by the time server every 24 hours – defines whether the time server is updated daily or not.

When you have finished defining the date and time settings click the 'Save Settings' button to confirm.

If your network address, gateway and GMT offset is already set up you can use Auto Configure time mode by clicking the 'Auto Configure Time and Date' button.

[14.06] **Password**



CAUTION: RESETING THE FACTORY RESULTS WILL RESET THE PASSWORDS.

ATAbeast offers two levels of security, User and Administration. The USER account allows you to browse many of the information pages and check on the general status of the product. The ADMIN access allows you to alter settings. By default the password login for ADMIN is turned off. The default passwords for USER and ADMIN are PASSWORD. The default password and usernames must be entered in UPPERCASE.

Configure Network \ Password configuration

Administrator access	
Current 'ADMIN' login password requirement	Security disabled - login password NOT required
Change 'ADMIN' login password requirement to	<input type="radio"/> Required <input checked="" type="radio"/> NOT required
Login user name is fixed to	ADMIN
Password	<input type="text"/>
Confirm password	<input type="text"/>
<input type="button" value="Set ADMIN Password"/>	
User access	
Current 'USER' login password requirement	Security disabled - login password NOT required
Change 'USER' login password requirement to	<input type="radio"/> Required <input checked="" type="radio"/> NOT required
Login user name is fixed to	USER
Password	<input type="text"/>
Confirm password	<input type="text"/>
<input type="button" value="Set USER Password"/>	

Current 'ADMIN/USER' login password requirement – displays whether security is enabled or not.

Change 'ADMIN/USER' login password requirement to – selects the security mode for either the ADMIN or USER. Use the checkboxes to select the desired mode.

Login user name is fixed to – Both the USER and ADMIN user names are fixed and cannot be altered.

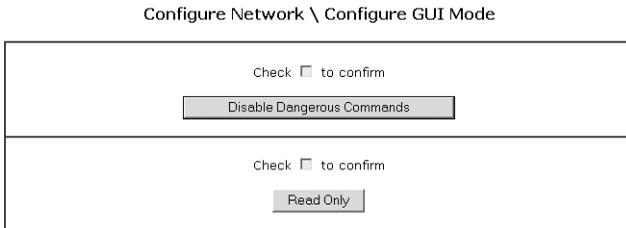
Password – type a new password in the text box.

Confirm password – you must correctly confirm the new password.

When you have entered the new USER/ADMIN settings hit the relevant set button. Only alter one user at a time.

[14.07] **GUI Mode**

It is possible with the GUI mode page to restrict access to the GUI. This may be a good idea if your system is located on a network not protected by a firewall or has a history of unwanted interference.



To disable dangerous commands, (these are Quick start, add spare, reboot, Delete volume, Expand volume, delete array, Map LUNs) tick the relevant tick box and click the 'Disable Dangerous Commands' button.

To change the GUI to read only check the relevant tick box and click the 'Read Only' button. When the GUI is in read only mode you not able to change any settings from the web interface what so ever.

To revert these commands you will need to use the serial port interface.

[14.08] Tech Support

The 'Technical Support' tool allows you to send a complete diagnostic read out of your ATAbeast system directly to your technical support.

Current emailer status	Ready
Technical support email address to send the email to	<input type="text" value="support@nexsan.com"/>
Customer details (name & company)	<input type="text"/>
Customer contact email address	<input type="text"/>
Enter a brief description of the problems with this system, 2000 characters maximum.	<input type="text"/>
Check <input type="checkbox"/> to confirm <input type="button" value="Send Email To Technical Support"/>	
<input type="button" value="Clear / Reset To Default"/>	

Use the setting to configure and send the Technical Support dump.

Technical support email address to send the email to – input the email address of the desired recipient.

Customer details (name & company) – this is the section to type in your name and company.

Customer contact email address – this field defines the sender address. Ensure that you type your own email address of the email address of the person responsible for the system in to this field.

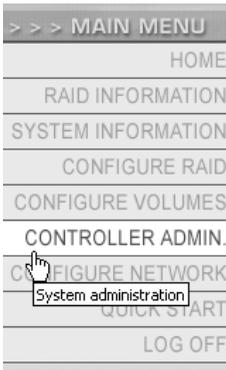
Enter a brief description... – input a description of the problem into this field. Also include details of your operating system/s and SAN environment. Do not exceed 2000 characters.

To send click in the tick box and then press the 'Send Email to Technical Support' button.

[15.0] *Advanced Controller Options*

The Controller ADMIN menu allows you to access areas of the GUI that can be used to change settings that apply directly to the controller.

To access the Controller ADMIN, click the 'Controller ADMIN' button on the left of the main page.



When the new page opens you will get the Controller ADMIN navigation bar at the top of the right hand frame.



Click on the tab of the page you wish to access.

[15.01] Fibre Channel

The Fibre page allows the configuration of both Fibre Ports on the current controller. Use the drop down menus to configure the settings.

Host Port 0 settings		
	Current status	New state
Topology	Loop Down	LOOP <input type="button" value="v"/>
Loop ID	? (Loop Down)	0 <input type="button" value="v"/>
Link speed	Loop Down	2Gbit <input type="button" value="v"/>
Frame size	2112	2112 <input type="button" value="v"/>
Host Port 1 settings		
	Current status	New state
Topology	Loop Down	LOOP <input type="button" value="v"/>
Loop ID	? (Loop Down)	0 <input type="button" value="v"/>
Link speed	Loop Down	2Gbit <input type="button" value="v"/>
Frame size	2112	2112 <input type="button" value="v"/>
<input type="button" value="Save new configuration"/> <input type="button" value="Reset"/>		

Topology – allows you to select between ‘Point to Point’, ‘Loop’ or ‘Auto’ topologies. The loop topology should be used when connecting to other devices using a switch whereas ‘Point to Point’ is normally used when connecting directly to an initiator or switch. The ‘Auto’ mode will try to negotiate what topology to use, this works by trying to connect to a loop, failing this it will try to connect using ‘Point to Point’ mode. Auto may not always work, especially if the device/s at the other end are also using auto.

Loop ID – selects the ID of this port. Use the drop down menu to select an address between 0 and 126. Auto may also be selected to find an address that is not already occupied. Loop ID does not need to be set if you are running in ‘Point to Point’ mode.

Link Speed – denotes the speed of the connection. The ATAbeast is capable of running at either 1Gbit (One Gigabit per second) or 2Gbit (Two Gigabits per second). You should set this speed depending on your other Fibre Channel equipment. It is also possible to use Auto mode that will attempt to negotiate the correct speed.

Frame Size – chooses the frame size to be used. The frame size relates to the data payload of each packet. Typically the larger the payload the more data can be transmitted. The available frame sizes are 512, 1024, 2048 and 2112.

After both interfaces have been configured click the ‘Save new configuration’.

The settings will be applied at the next restart of the system.

[15.02] **Cache**

ATAbeast has a write cache memory, which is normally enabled. The cache memory holds data being written to disk, this enables the controller to confirm that a command is completed before the data has been physically written. It has a battery backup to protect cached data for up to three days in the event of a power failure during an unfinished write operation. The ATAbeast controller will automatically complete any unfinished write operations after power is restored, provided the cached data is available.

Controller Admin \ Configure Cache

Current write cache state	Enabled - 120 MB
Manually override current write cache status	Force write cache to Disabled <input type="checkbox"/>
Desired write cache state	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Allow SCSI host to override write cache configuration	<input type="checkbox"/>
<input type="button" value="Save Settings"/> <input type="button" value="Reset"/>	

Current write cache state – show what cache is currently being used.

Manually override current write cache status – will force the cache on or off without a reboot. Use the tick box if you wish to use this option.

Desired write cache status – chooses the preferred cache state. Use the checkboxes to select Enable or Disable write cache.

Allow SCSI host to override write cache status – some SCSI commands will force write cache not to be used. Click the tick box to override this.

Once you have made the required changes hit the ‘Save settings’ button to continue.

[15.03] Alarm

The audible alarm can be switched off or resounded using this page.

Controller Admin \ Audible Alarm

<input type="button" value="Silence The Audible Alarm"/>
<input type="button" value="Re - Sound The Audible Alarm"/>

Silence the audible alarm – By clicking this button the audible alarm will be silenced, note that this does not solve the problem that caused the alarm to sound.

Re-sound the audible alarm – To remind yourself or others that an unsolved problem exists with this RAID system click this button to resound the audible alarm.

[15.04] Lost Data

The Lost Data page is used to acknowledge and turn off the warning regarding missing data due to bad blocks.

Controller Admin \ Lost Data / Bad Blocks

<input type="button" value="Acknowledge Lost Data Warning"/>
--

When the RAID controller cannot reconstruct array data due to there being no access to the redundant data (2 or more blocks not accessible or using RAID 0) then you will see the ‘The RAID controller has found some unrecoverable data blocks’ warning in the problem page. Click the ‘Acknowledge lost data warning’ button to clear this warning, it is recommended that you then run a host based OS utility that can detect and repair disk errors such as ‘scandisk’.

[15.05] Reboot

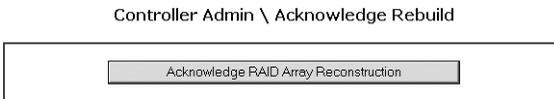
The Reboot page allows the controller to be restarted without physical contact with the device.



Click the 'Reboot Controller' button to reboot the ATA RAID controller. While the controller is rebooting the configured arrays and volumes will not be accessible from your attached host system(s), before this function is used it is advised that all host IO is ceased. You may also need to reboot your host system(s) after the RAID controller has rebooted.

[15.06] Acknowledge Rebuild

When a RAID array has been through a reconstruct process the problem has to be manually acknowledged, this ensures the system administrator is aware that a spare disk has been used and that a failed disk exists.



Click the "Acknowledge RAID Array Reconstruction" to clear the reconstruction warning.

[15.07] Rebuild Rate

The Rebuild Rate page can be used to increase the amount of IO time dedicated to rebuilding a critical array. If your host activity is high then a higher rebuild priority may need to be selected so the array rebuild completes in a shorter space of time.

Controller Admin \ Configure Rebuild Priority

Select rebuild rate	High <input checked="" type="radio"/> Medium <input type="radio"/> Low <input type="radio"/>
<input type="button" value="Set Rebuild Priority"/>	

To select a new rebuild click the appropriate checkbox, then click 'Set Rebuild Priority'.

[15.08] Verify Config (Configuration)

The Verify Config page allows the user to specify what type of verification should be carried out on configured RAID sets and how often.

Select verify utility to use	Surface scan <input checked="" type="radio"/> Parity scrub <input type="radio"/>
Verify Interval	1 week <input checked="" type="radio"/> 2 weeks <input type="radio"/> 4 weeks <input type="radio"/>
<input type="button" value="Save Settings"/>	
Click <input type="button" value="Execute Verify Utility NOW"/> to force the selected array verify utility to run now	

Select Verify Utility to use – Set one of two utilities to use for the next array verify utility, this will execute after the selected utility interval has expired, surface scanning uses up very little array IO time where as Parity scrub uses much more. Surface scanning will make sure all data blocks on all array disks can be read, where as a 'parity scrub' will read all the array data and make sure the parity (redundant) data is intact, any parity inconsistencies will be corrected. Both utilities will correct (where possible) blocks that cannot be read by using the parity data to rebuild the missing data onto a remapped block.

Verify Interval – Use the above settings to set the amount of time between an array verify or click 'Execute verify utility NOW' to start the selected verify utility.

[15.09] **Spare Mode**

The Spare Mode page allows the user to determine how disks should be used when an array is critical.

Inserted or unused disks automatically used as hot spares	<input type="radio"/>
Inserted or unused disks must be manually configured as hot spares	<input checked="" type="radio"/>
<input type="button" value="Set Spare Mode"/>	

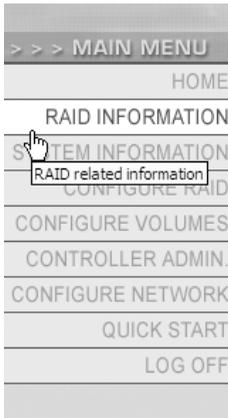
Inserted disks automatically used as hot spares – any disk not belonging to a RAID array can be used as a hot spare / rebuild disk. Note that for a hot spare disk to be of use it must be at least the same capacity of the smallest RAID array member.

Inserted disks must be manually configured as hot spares – any newly inserted disk or an existing unused disk will not be used as a rebuild disk, the disk must be configured as a hot spare by the user of this system before the disk will be used by a degraded / critical array.

[16.0] **RAID Information**

The 'RAID information' section of the web GUI offers valuable data that can be used to examine the set up of Arrays, Volumes, Disks and Fibre Channel.

To access the 'RAID Information' section of the GUI click on the 'RAID Information' button on the left side of the GUI home page.



Use the navigation bar at the top of the page to enter the desired page.



[16.01] RAID Array

<i>Array number</i>	1
<i>Array name</i>	Production
<i>Array status / health</i>	RAID array is fault tolerant
<i>Raid level</i>	RAID 4 (parity disk)
<i>Array capacity</i>	740.8 Gbytes
<i>No. of array members</i>	5
<i>No. of spares</i>	9
<i>No. of volumes</i>	0
<i>Data stripe size</i>	32 Kbytes
<i>Write cache</i>	Enabled
<i>Write cache size</i>	120 MB
<i>Rebuild priority</i>	High
<i>Verify utility</i>	Surface scan, executing in 6 days
<i>Verify utility interval</i>	7 days
<i>Number of reads</i>	0
<i>Numbers of writes</i>	0
<i>Time created</i>	14:27:56
<i>Date created</i>	Thursday 21-Nov-2002



Fault tolerant
740.8 Gbytes

Member 1	Member 2	Member 3	Mem
<ul style="list-style-type: none"> • Disk 1 • Mod - IC95L180AW207-1 • s/n - VNVF0166G0SDUD • FW - V260A6 	<ul style="list-style-type: none"> • Disk 2 • Mod - IC95L180AW207-1 • s/n - VNVF0166G0GE2D • FW - V260A6 	<ul style="list-style-type: none"> • Disk 3 • Mod - IC95L180AW207-1 • s/n - VNVF0166G13H4D • FW - V260A6 	<ul style="list-style-type: none"> • Disk • Mod • s/n • FW

The RAID Array page shows information regarding each configured array, even if the array is not fully constructed. The information displayed is as follows.

Array Number – Friendly reference number, normally given in order of creation.

Array Name – User defined friendly label for array.

Array Status / Health – Current health value. Either Fault Tolerant, Not Fault Tolerant, Critical or Offline

RAID Level – Displays the RAID of the array

Array Capacity – Displays array capacity in Gigabytes (GB)

No. of Array Members – Displays number of disks in the array.

No. of Spares – Displays to total number of spares for this array.

No. of Volumes – Displays total number of configured volumes for this array.

Data Stripe Size – Displays stripe size for the array.

Write Cache – Displays if write caches is enabled or not.

Write Cache Size – Displays amount of write cache.

Rebuild Priority – Displays the user definable Rebuild rate.

Verify Utility – Shows the time and date of next scheduled array verification.

Verify Utility Interval – Displays how often verification will be performed.

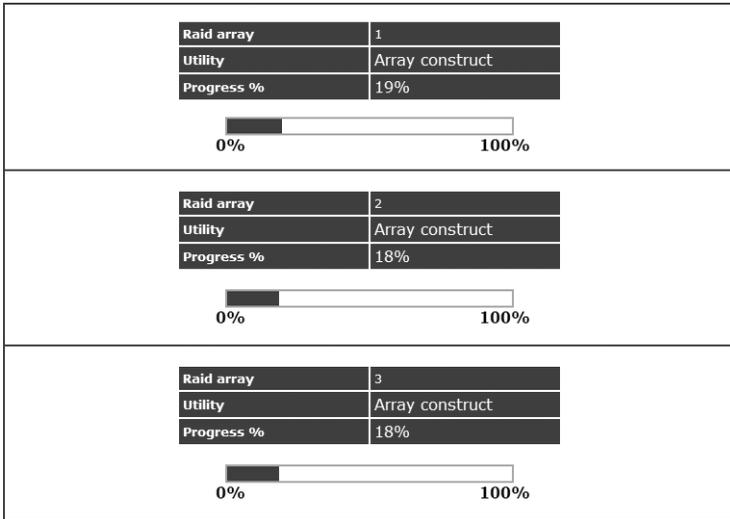
Time Created – Displays the time that the array was created.

Date Created – Displays the date that the array was created.

The bottom of the section shows all the disks in the set. On small or low resolution monitors it may be necessary to scroll to the right to see all of the drives in the array.

[16.02] Progress

The progress page shows the progress of certain array utilities in percentage.



The completion of the following processes can be viewed at this screen:

- Array Construct (create)
- Parity Scrub
- Array Reconstruct (rebuild)
- Surface Scan

[16.03] Volumes

The volumes page displays each configured array and the volumes that array contains. The below example page shows the simplest of configurations, one array with one volume. Your own configuration may be more complicated than this, however, the principle is the same.

RAID Information \ Configured Logical Volumes

Free Space areas on RAID array 1, total capacity of 1481.4 Gbytes

There are no free space areas, all of the array capacity is used

Volume ID (1) existing on array 1, array name 'whatever'

Volume name	Default volume
Volume capacity	1481464 MB (1481.4 GB)
% of total array used	100%
Host Port 0 loop ID:LUN	? (Loop Down):0
Host Port 1 loop ID:LUN	(not in loop mode):0
LUN masking	Click to view
Volume serial number	e9da05c5
Volume Creation time	15:46:54
Volume Creation date	Monday 16-Dec-2002

Existing on array# 1
1481464 MB (1481.4 GB)

Below bar represents the size and position of the above volume

0%  100%

Free space after this volume - 0 MB (0.0 GB)

The top section of the page shows the capacity information regarding 'array 1', beneath this is the volume information. The information displayed is as follows.

Volume Name – User defined friendly name for the volume

Volume Capacity – Size of the volume in Megabytes, capacity in Gigabytes is in brackets.

% Of Total Array Used – Displays the amount, in percent, that this volume uses of the entire capacity of the array.

Host Port 0/1 target ID: LUN – Displays the Loop ID and LUN of this array on both host channels.

Lun Mask – Clicking the link shows the LUN masking properties of this volume.

Volume Serial Number – Displays the volume serial number, this information may be required for some specialist SCSI tasks.

Volume Creation Time – Displays time that volume was created.

Volume Creation Date – Displays date that volume was created.

[16.04] **Disk Drives**

The disk drives page has two main modes. The first is the disk overview page, which shows all the disks in the system.

Disk29		Array #3	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PK07PE • FW - YAR41B
Disk30		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PG2BSE • FW - YAR41B
Disk31		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PKZJYE • FW - YAR41B
Disk32		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PKZHTE • FW - YAR41B
Disk33		Array #3	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PF3VLE • FW - YAR41B
Disk34		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2Q3MP3E • FW - YAR41B
Disk35		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PKZHNE • FW - YAR41B
Disk36		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PG35YE • FW - YAR41B
Disk37		Array #3	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PKZNRE • FW - YAR41B
Disk38		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PHBFJE • FW - YAR41B
Disk39		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PK055E • FW - YAR41B
Disk40		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2P8LCLE • FW - YAR41B
Disk41		Array #2	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2PJ8SRE • FW - YAR41B
Disk42		Array #1	Model - Maxtor 6Y060L0 • Capacity - 61493 MB Serial - Y2Q4TH9E • FW - YAR41B

The page shows the disks numbered 1 to 42 and they are positioned in a Rackmount unit. Written directly under each disk is its status and which, if any, array group it belongs too.

The second section is displayed when a disk is clicked on.

RAID Information \ Disk Information

Disk Information for Disk number - (3)	
Status	Member of array 1
Capacity	185284 MB
Model	1C35L180AVV207-1
Serial number	VWVF01G6G13H4D
Firmware	V260A6
R/W Transfer Retries	0
R/W Media Retries	0



Back

The information on each disk is as follows.

Status – Displays ownership status.

Capacity – Displays raw capacity of disk drive.

Model – Displays manufactures model number for disk drive.

Serial Number – Displays serial number of drive.

Firmware – Displays current firmware level of drive.

R/W Transfer Retries – Displays number of transfer retries (should normally be 0).

R/W Media Retries – Displays number of media retries (should normally be 0).

In the below information table there two navigation buttons. These are used to advance to the next drive (this is the next number up, for example from drive 4 to 5) and retreat to the previous drive (4 to 3).

Below this is a back button to go back to the disk overview page.

The main page also contains a disk stress tester. This tool will destroy all data on all arrays and volumes. If you wish to stress test drives please contact your technical support before proceeding.

[16.05] Disk Stats

Disk Stats (Statistics) is the page that shows access information about the disks in the subsystem.

Disk Number	IOs			Transfer Retries		Media Retries	
	Read	Write	Others	Read	Write	Read	Write
Disk1	667986	1840373	77	0	0	0	0
Disk2	397115	1833344	77	0	0	0	0
Disk3	530266	1836039	77	0	0	0	0
Disk4	332456	1831930	77	0	0	0	0
Disk5	29208	2128652	74	0	0	0	0
Disk6	29403	2118859	74	0	0	0	0
Disk7	20607	2126635	74	0	0	0	0
Disk8	786337	1441663	80	0	0	0	0
Disk9	739602	1855945	80	0	0	0	0
Disk10	685430	1439055	80	0	0	0	0
Disk11	938620	1447697	80	0	0	0	0
Disk12	619220	1436784	80	0	0	0	0
Disk13	857155	1444197	80	0	0	0	0
Disk14	537059	1434974	80	0	0	0	0
Disk15							
Disk16	382485	1828805	77	0	0	0	0
Disk17							
Disk18	549285	1822372	78	0	0	0	0

The picture above shows all the disks in the system and how many times they have been accessed. Refer to the help below for explanations.

IOs – Displays the number of requested IOs by the host system. The individual figures represent each request. Bear in mind that a single request may be up to 255 blocks long.

Transfer Retries – Displays number of instances when a request has failed because due to a problem between the RAID controller and ATA disk. This counter will normally read 0.

Media Retries – Displays number of instances when a request has failed because bad surface media on the hard disk. This will normally read 0.

Read – Number of host read requests logged.

Write – Number of host write requests logged.

Other – Number of accesses to RAID configuration and or GUI Information (event log, etc) on disk.

[16.06] Bad Blocks

Bad blocks are sections of disk that data can no longer be read from or written to. The ATAbeast automatically re-maps single bad blocks to spare blocks when using a parity protected RAID level. However if two bad block are discovered at once that block of data is lost. This is most likely to happen during a rebuild, when one disk is missing and another disk has a media error. In general bad blocks are really quite unlikely.

Disk No.	Total number of bad blocks	Newly discovered bad blocks	Bad block details
Disk 1	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 2	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 3	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 4	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 5	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 6	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 7	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 8	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 9	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 10	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 11	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 12	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 13	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 14	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 15			Details
Disk 16	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details
Disk 17			Details
Disk 18	0 blocks - 0 Kbytes	0 blocks - 0 Kbytes	Details

The page shows the number of bad blocks for each drive. Most drives will never suffer from bad blocks. If there are bad blocks present you can view where these are with the 'Details' button. Each drives bad blocks can be viewed individually if there are any present.

[16.07] **Fibre Info**

The Fibre Info page displays the current Fibre setting for the host channels.

RAID Information \ Fibre Information

Host Port 0	
Fibre Port Name	20-00-00-04+02-E0-00-7A
Fibre Node Name	10-00-00-04+02-E0-00-7A
Fibre Loop State	Loop Down
SFP Information	SFP not available
Topology	Loop Down
Loop ID	? (Loop Down)
Port ID	Loop Down
Link speed	Loop Down
Host Port 1	
Fibre Port Name	20-00-00-04+02-E1-00-7A
Fibre Node Name	10-00-00-04+02-E1-00-7A
Fibre Loop State	Loop up at 2Gbit
SFP Information	PICOLIGHT, LC, 229CG0HD
Topology	F Port
Loop ID	(not in loop mode)
Port ID	01-12-00
Link speed	2Gbit

The explanations for each field follows.

Fibre Port Name – Shows the address of the Fibre Port. A Fibre port is what a initiator connects to and is contained within the Fibre node.

Fibre Node Name – Displays the address of the Fibre Node. A Fibre Node is the address of the enclosure and is capable of supporting multiple ports.

Fibre Loop Status – Displays the status of the Fibre Loop, status is either UP or Down.

SFP Information – Displays make and model of installed SFP.

Topology – Displays current topology.

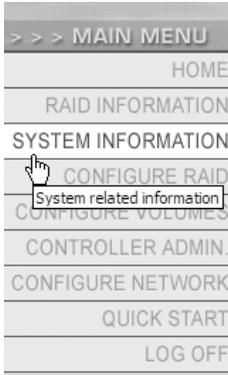
Loop ID – Shows loop address (if in loop mode)

Port ID – Shows port ID (if in Point to Point mode)

Link Speed – Shows current Fibre Channel link speed.

[17.0] *System Information*

The system information pages can be used to access information regarding non RAID elements of the system. Click on the 'System Information' button on the left column of the home page.



On the main frame of the GUI use the tabs at the top of the page to access the individual elements of this section.



[17.01] **System Information**

The System Information page displays basic information about the subsystem.

Description	Information
System	ATAbeast Fibre
Installed controllers	2
Controller ID	0 (Master)
Enclosure type	Rack
Host connection	Dual 2Gbit fibre ports
Firmware revision	8b25
Boot loader revision	V002
Web GUI revision	4.20
System ID	01000049
Controller serial number	000402E80049
System up time	1 Days, 22 Hours, 46 Mins 12 Secs
Time	10:49:32
Date	Friday 24-Oct-2003
Write cache	504 MB, Enabled

The information displayed is as follows.

Systems – Displays ATAboy Family Model.

Installed Controller – Displays how many controllers are present in the chassis

Controller ID – Displays if this controller is the Master or Slave

Enclosure Type – Displays whether the unit is a Rack or Tower.

Host Connection – Displays type of host connection.

Firmware Version – Displays firmware version.

Boot Loader Revision – Displays the revision number of the boot loader

Web GUI Revision – Displays version of Web GUI

System ID – Displays the System ID of this chassis

Controller Serial Number – Displays the serial number of this controller

System Up Time – Displays length of time system has been operating.

Time – Prints current time.

Date – Prints current date.

Write Cache – Displays write cache amount and status.

[17.02] Environmental Information

The Environmental page is used to read the values of the various environmental devices and monitors in the ATAbey subsystem.

Element	Information	Status
Cooling	PSU Blower0, RPM - 3792	OK
Cooling	PSU Blower1, RPM - 3879	OK
Cooling	PSU Blower2, RPM - 3879	OK
Power	PSU0 state	OK
Power	PSU1 state	OK
Power	PSU2 state	OK
Voltage	12V Rail is at 11.62V	OK
Voltage	5V Rail is at 4.93V	OK
Voltage	3V3 Rail is at 3.27V	OK
Voltage	CPU core is at 1.20V	OK
Voltage	Battery is at 8.56V	OK
Temperature	Controller is 32°C	OK
Temperature	Battery is 27°C	OK
Charge Mode	Battery is trickle charging	OK

Use the section below to better understand the main heading in this section.

Cooling – Displays the status of the blowers.

Power – Displays the status of the Power Supplies.

Voltage – Displays Rail, CPU and Battery voltages.

Temperature – Displays Controller and battery temperature.

Charge Mode – Displays Battery charging mode.

[17.03] Network Information

The Network Information page can be used to gather information about the networking aspect of the ATAbeast.

System Information \ Network Information

Description	Setting
Ethernet address	00-04-02-D0-08-09
How to set IP addresses	Manual
HTTP IP address	192.168.1.162
Subnet mask	<i>Not configured</i>
Gateway IP address	<i>Not configured</i>
Primary DNS IP address	<i>Not configured</i>
Secondary DNS IP address	<i>Not configured</i>
Webpage refresh	Enabled, refresh rate 30 secs
Network port	100Mbit Half Duplex
SMTP server	128.121.201.52
Sender email address	dvtATA2SCSI@nexsan.com
Recipient email address	steve@nexsan.com
Friendly name	DVTATA2SCSI
When to send E-alerts	On Warnings & Errors
IP address for SNMP traps	255.255.255.255
Trap version	On Warnings & Errors
When to send SNMP traps	Disabled
ADMIN account status	Password is Default, Account Disabled
USER account status	Password is Configured, Account Disabled
GUI mode	Full GUI access
Auto set time and date	Disabled
Selected time server	129.6.15.28
Javascript enhancements	Enabled

The information on this page is described below.

Ethernet address – Physical Ethernet address, also used as the serial number.

How to set IP addresses – Displays whether IP address is set manually or via DHCP.

HTTP IP address – Displays current IP address.

Subnet mask – Displays current subnet mask.

Gateway IP address – Displays current gateway.

Primary / Secondary DNS IP address – Displays DNS settings.

Webpage refresh – Prints status and interval.

Network port – Displays speed and duplex settings.

SMTP server – Displays mail server IP address.

Sender email address – Displays email from address fro email alerts.

Recipient email address – Displays target address of email alerts.

Friendly name – Displays user defined friendly name of system.

When to send E-alerts On – Displays if and when emails are sent.

IP address for SNMP traps – Prints IP address for SNMP traps to be sent to.

Trap version – Prints trap version.

When to send SNMP traps – Displays when traps will be sent.

ADMIN account status – Displays ADMIN user info.

USER account status – Displays USER info.

GUI mode – Displays current GUI access mode.

Auto set time and date – Shows if time is set via time server.

Selected time server – Displays IP address of time server.

Javascript enhancements – Displays if GUI is using Javascript.

[17.04] Network Statistics

The network statistics page displays information on network packets.

System Information \ Network Statistics

Transmitted		Packets
Successful		109498
Collisions		81
FIFO errors		0
Carrier errors		0
Window errors		0
Other errors		0
Received		Packets
Successful		171154
Overflow errors		0
FIFO errors		0
Length errors		0
CRC errors		0
Frame errors		0
Other errors		0

Collisions – Counts the number of packet collisions when two network devices transmit at the same time.

FIFO errors – Counts DMA (direct memory access) transfer errors when loading the FIFO (first in first out / buffer) on the network IC.

Carrier errors – Counts errors from the data carrier signal, due to it not being within limits or lost during a transfer.

Window errors – Counts the number of collisions that was detected by the network IC after the 64th byte which is too late.

Overflow errors – Counts the number of times the network IC runs out of FIFO space.

Length errors – Counts packets that are less than 64 bytes or greater than 1518 bytes.

CRC errors – Counts the number of packets with a bad CRC, increases when a packet that contains corrupt data is received.

Frame errors – Counts the number of frame alignment errors, caused by a frame not containing the correct number of bytes but is not larger or smaller than the length limits.

[17.05] Problems

The Problem page is where you can view a summary of current problems with the system.

System Information \ Current System Status - summary of all known problems

Number	Description
-	There are no problems with this system

Most of the time there will be no information in this page. However in the unlikely event that your subsystem has a problem this page will give you information about the fault. You can also shortcut to this page by clicking the 'green tick' or 'red cross' (depending on subsystem status) in the top right of the GUI.

[17.06] Event Log

The Event Log is like a diary of events kept by the controller. Certain events will be recorded to the log, which is stored on the systems hard disks.

System Information \ Event Log

```

0000: 27-Nov-2002 at 10:01:35: Surface scan for RAID set 1 is switching to 942/min
0001: 26-Nov-2002 at 09:57:06: Surface scan for RAID set 1 has started
0002: 23-Nov-2002 at 16:46:27: RAID set 1 started: level 4 with chunk size 32 Kbytes using 5 disks
0003: 23-Nov-2002 at 16:46:26: IDE Inquiry disk 1: Model IC35L180AVV207-1, Firmware V26OA6
0004: 23-Nov-2002 at 16:46:26: Serial Number VNVF01G6G0SDUD 361882080 Blocks UDMAmode 3
0004: 23-Nov-2002 at 16:46:25: IDE Inquiry disk 2: Model IC35L180AVV207-1, Firmware V26OA6
0004: 23-Nov-2002 at 16:46:25: Serial Number VNVF01G6G0GE2D 361882080 Blocks UDMAmode 3
0005: 23-Nov-2002 at 16:46:23: IDE Inquiry disk 3: Model IC35L180AVV207-1, Firmware V26OA6
0005: 23-Nov-2002 at 16:46:23: Serial Number VNVF01G6G13H4D 361882080 Blocks UDMAmode 3
0006: 23-Nov-2002 at 16:46:22: IDE Inquiry disk 4: Model IC35L180AVV207-1, Firmware V26OA6
0006: 23-Nov-2002 at 16:46:22: Serial Number VNVF01G6G0SDWD 361882080 Blocks UDMAmode 3
0007: 23-Nov-2002 at 16:46:20: IDE Inquiry disk 5: Model IC35L180AVV207-1, Firmware V26OA6
0007: 23-Nov-2002 at 16:46:20: Serial Number VNVF01G6G13H2D 361882080 Blocks UDMAmode 3
0008: 23-Nov-2002 at 16:46:19: IDE Inquiry disk 6: Model IC35L180AVV207-1, Firmware V26OA6
0008: 23-Nov-2002 at 16:46:19: Serial Number VNVF01G6G12AYD 361882080 Blocks UDMAmode 3
0009: 23-Nov-2002 at 16:46:18: IDE Inquiry disk 7: Model IC35L180AVV207-1, Firmware V26OA6
0009: 23-Nov-2002 at 16:46:18: Serial Number VNVF01G6G13D2D 361882080 Blocks UDMAmode 3
0010: 23-Nov-2002 at 16:46:16: IDE Inquiry disk 8: Model IC35L180AVV207-1, Firmware V26OA6
0010: 23-Nov-2002 at 16:46:16: Serial Number VNVF01G6G13HLD 361882080 Blocks UDMAmode 3
0011: 23-Nov-2002 at 16:46:15: IDE Inquiry disk 9: Model IC35L180AVV207-1, Firmware V26OA6
0011: 23-Nov-2002 at 16:46:15: Serial Number VNVF01G6G13JND 361882080 Blocks UDMAmode 3
0012: 23-Nov-2002 at 16:46:13: IDE Inquiry disk 10: Model IC35L180AVV207-1, Firmware V26OA6
0012: 23-Nov-2002 at 16:46:13: Serial Number VNVF01G6G13AUD 361882080 Blocks UDMAmode 3
0013: 23-Nov-2002 at 16:46:12: IDE Inquiry disk 11: Model IC35L180AVV207-1, Firmware V26OA6
0013: 23-Nov-2002 at 16:46:12: Serial Number VNVF01G6G13N7D 361882080 Blocks UDMAmode 3
0014: 23-Nov-2002 at 16:46:11: IDE Inquiry disk 12: Model IC35L180AVV207-1, Firmware V26OA6
0014: 23-Nov-2002 at 16:46:11: Serial Number VNVF01G6G0VHKD 361882080 Blocks UDMAmode 3
0015: 23-Nov-2002 at 16:46:09: IDE Inquiry disk 13: Model IC35L180AVV207-1, Firmware V26OA6
0015: 23-Nov-2002 at 16:46:09: Serial Number VNVF01G6G13MMD 361882080 Blocks UDMAmode 3
0016: 23-Nov-2002 at 16:46:08: IDE Inquiry disk 14: Model IC35L180AVV207-1, Firmware V26OA6
0016: 23-Nov-2002 at 16:46:08: Serial Number VNVF01G6G12A6D 361882080 Blocks UDMAmode 3
0017: 23-Nov-2002 at 16:45:47: Network: IP address configured as 192.168.1.162
0018: 23-Nov-2002 at 16:45:47: Network: negotiated link speed=100 duplex=half
0019: 23-Nov-2002 at 16:45:45: System 00C90009 started (1203K112) with firmware 4b15

```

In normal operation the event log is rarely used. It may be required for you to mail the event log to your technical support if you are experiencing difficulties.

[17.07] Configuration Dump

The Configuration Dump (or Config Dump) page is similar to the Event Log page in the way that it is not usually used in normal operation. It displays information regarding all configurable options of the ATAbey.

System Information \ Current Configuration Dump

```

*****
*System Details*
*****
System : ATAbey2
Serial number : 00260809
Enclosure type : Rack
Host Connection : Dual SCSI U3 Channels
Firmware Revision : 4115
Serial menu Rev : 2.20
Mac / Ethernet Address : 00-04-02-00-08-09
System Up Time : 4 Days, 17 Hours, 36 Mins 29 Secs

*****
*Environmental Status*
*****

PSUD state : OK
PSUL state : OK
PSU Blower0, RPM : 2660 : OK
PSU Blower1, RPM : 2706 : OK
L3V Rail1 : 11.50V : OK
D3V Rail1 : 4.99V : OK
D3V Rail1 : 3.27V : OK
CPU core : 1.05V : OK
Battery : 8.55V : OK
Controller Temp. : 33 degC : OK
Battery Temp. : 26 degC : OK
Charge Mode : Not charging, Status : OK
Time : 10:23:02 Date : Thursday 26-Nov-2003
Audible Alarm State : Off

*****
*Current Problems*
*****
There are no problems with this system

```

If you are experiencing difficulties a support engineer may well ask you to email a copy of the Config Dump page to your technical support. With this information the engineer will be able to quickly spot any discrepancies in the configuration.

[17.08] **Multi View**

The Multi View page is used to create a HTML page that monitors Multiple ATAbeast and ATAboy units.

System Information \ Multiple View HTML Builder

The below IP address information will be lost when the system is powered off, click 'Build multiple view page' to build a html page that can be 'saved' to your local hard disk, this will allow multiple ATAboy systems to viewed from one web page.

IP address of remote ATAboy system	Optional end IP address of an IP address range
192.168.1.160	192.168.1.190
<input type="button" value="Build Multiple View Page"/>	

Multi View may be used with remote ATAbeast, ATAboy, ATAboy2S and ATAboy2F products.

As Multi View is still a new feature it may not be supported by all ATAboy products on your network. If you intend on using Multi View please ensure that all systems are running current firmware.

To create a Multi View page enter the IP addresses of the ATAbos and Beasts you wish to view in the left hand column. You can also add up to four ranges of address. To do this enter the start of the range into the left column and the end of the range in the adjacent right column.

When the addresses have been added click the 'Build Multiple View Page' button at the bottom of the screen.

System Information \ Multiple View HTML Builder

[Click here to display the multiple view page.](#)

BACK

Clicking the button should load the above confirmation page. Press the 'Click here to display multiple view page' to continue.

The new page will display is small graphical representation of each unit.

Multiple view of remote ATAbay systems	
IP address	Current system status
192.168.1.161	SVS:RTAbou2F SN:0021007R FW:5h15 Total capacity 1481.4 GB No. of RAID arrays : 5 No. of Pool spares : 0 Overall array status: OK 11:09:02 Thursday 28-Nov-2002      
192.168.1.162	SVS:RTAbou2 SN:00290809 FW:4h15 Total capacity 740.8 GB No. of RAID arrays : 1 No. of Pool spares : 0 Overall array status: OK 11:10:57 Thursday 28-Nov-2002      
192.168.1.163	System serial no. 002405EF Array capacity 559.7 GB No. of array disks : 8 No. of hot spares : 6 Array status: OK 11:09:24 28/11/2002      

Each scanned device shows the following information.

- RAID Controller Status
- Blower Status
- PSU Status
- Overall Status
- System Type
- Serial Number
- Firmware Revision
- Total Storage Capacity
- Number Of Configured Arrays
- No of Spares
- Time & Date

This page is refreshed based on your Network Settings, so if Web Refreshing is enabled you can view the status of your systems in near real time from a single window.

[18.0] *Troubleshooting*

[18.01] **Web Interface Problems**



Nothing happens when I type in the IP address I have assigned to NexScan in my web browser.

Check that system is responding.

The best way to contact the ATAbeast unit is with a ping utility. Different operating systems have different ping utilities, but they are on the whole very similar. We will use Microsoft for the purpose of this guide.

Open a DOS window and retreat to the root level of the C drive (or the drive that has the currently loaded Operating System), to do this type:

```
cd \
```

Then attempt to 'ping' the Nexsan unit. Type:

```
C:\> ping 192.1.168.225
```

(replace the above address with your ATAbeast's IP address)

If the ping is successful you will see a similar response to the one below.

```
Reply from 192.168.1.225: bytes=32 time=10ms TTL=30
Reply from 192.168.1.225: bytes=32 time<10ms TTL=30
Reply from 192.168.1.225: bytes=32 time<10ms TTL=30
Reply from 192.168.1.225: bytes=32 time<10ms TTL=30
```

Ping statistics for 192.168.1.225:

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 10ms, Average = 2ms
```

If you have a successful reply but cannot access the home page please consult technical support.

If no reply is returned check that you are using the right IP address. If you are using DHCP check that the DHCP has allocated an address to NexScan. If there is no reply you can perform a Fibre scan. When scanning the Fibre devices you will see an 'enquiry string' that reports back the size, name and speed of the connected devices. You can normally see this information when your computer is booting. When the ATAbeast is scanned the reply is ATABEA (xxxxxxx), the x's in parenthesis should be numbers in HEX that is the IP address. To decode this address take the first two numbers i.e. B1

B1 (hex) = 177 (decimal)

Repeat this until you have all four blocks of the IP address.

If you still get no reply you should attempt to reset the IP address manually. Use the serial port. Please refer to the main set up guide.



When I am using the menus I am being asked to provide a username and password.

You probably have security turned on. The username "ADMIN" and password "PASSWORD" (both uppercase without quote marks) will allow you to access any page.



The default user name and password are not responding, what do I do?

Make sure that you are entering the username and password in UPPERCASE, as this logon is case sensitive. If this is not the case the user name and password may have been changed from the original factory settings.

You can reset the password using the serial port interface.

Use the 'Getting Started' section to see how set up your computer to run with the serial port.

When logged on to the serial port, use the cursor keys to navigate the menus.

From the main menu go to:

System Admin >> Set GUI 'Admin' password

Type the new password into the supplied box.

The password is set immediately.

[18.02] Start Up Problems



When I power up my subsystem it beeps. What is the problem?

The subsystem will beep for a variety of reasons. A beeping unit does not mean that the unit is broken. If you have email enabled check your inbox. This will probably provide a clear explanation of where the problem lies.

You can also find the current problems using either the Web interface by clicking the red X in top right corner of the home page.

Another way to discover some problems is by checking the lights on the unit.

The front panel LEDs are clearly marked and will give an indication to where the problem lies.

For further help contact your technical support.



When I start up the Battery LED is flashing. Is my battery dead?

No. The flashing LED means that the battery state is unknown or charging. It is normal for this light to flash for the first 10 minutes of operation as the battery state is unknown.

If the flashing persists after ten minutes the battery is charging. If the LED is solid red after ten minutes the battery has failed and needs replacing.

[18.03] Resolving Problems



The NexScan Interface has told me that a disk has failed. My data is still online. What should I do?

If a disk has failed you will need to find out which one it is. Do this by using the web gui, also by opening the top of the beast you will see a red light next to the failed drive. You should extract the faulty disk. Then contact your dealer regarding a replacement. Arrange for a replacement as soon as possible, as your array may be in a critical state. When the replacement module arrives you should check that no damage has been caused during transit and then insert into the empty slot. ATAbeast will detect the new disk and rebuild to it if the array is critical. If you already had a spare disk ATAbeast will assign the new disk as a spare too.



A power supply has failed. My system still works but what should I do?

Do not remove the faulty power supply! Removing a power supply will drastically reduce airflow of chassis. Contact your dealer regarding a replacement PSU. Only remove the failed PSU when the replacement arrives.



My RAID controllers have failed. What should I do?

If a RAID controller fails you will not be able to access your data. Your data will be safe on the disks until a replacement controller arrives*. Leave the controller in place and contact your dealer for a replacement.

*Data in write cache will be lost if a controller fails.

Please contact your dealer for help with any other queries.

[19.0] *Firmware Updates*

Nexsan Technologies will occasionally make new firmware available for the ATAbeast. New firmware may include new features and ensure smooth running of the ATAbeast.

To update firmware follow the below instructions very carefully.

Unzip the firmware file to your C:\ directory or somewhere suitable.

Open the ATAbeast GUI by typing the ATAbeast's IP into your Internet browser and hit go.

Log in using Username: ADMIN and Password: Default is PASSWORD (this is not always required, depending on your security settings)

Once logged in and at the main window in the address bar type after the ATAbeast IP /admin/fwupdate.asp then click on the go button. For example: x.x.x.x/admin/fwupdate.asp.

Click on the browse tab to find the file you extracted to the C:\ directory select the firmware file and press open.

Once the file is selected then press the upload firmware tab. And you should see:

DO NOT SWITCH THE ATA RAID SYSTEM OFF until you are sure the firmware update has finished

Firmware update has started
[Click this text to see the current firmware update status](#)

To view the progress click on [Click this text to see the current firmware update](#)

You will know that the unit is finished upgrading when you see:

Firmware update finished, status – 'Microcode Updated OK'

Power cycle ATAboy for changes to take affect.

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