

# SATABeast<sup>®</sup> SASBeast<sup>™</sup> SATABeast<sup>®</sup>Xi



# SATABeast variants

# **Hardware Manual**

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# About the SATABeast Hardware Manual

This manual covers all variants of the SATABeast format including SATABeast (Fiber Channel host), SATABeast Xi, SASBeast etc. The term "SATABeast" is used throughout for all versions.

Chapter numbers are located in the margins to help you quickly find your way through the manual.

**NOTE –** Notes contain important information and useful tips on the operation of the SATABeast.

CAUTION - A Caution must be observed to avoid damage to the equipment.

WARNING - Warnings must be followed carefully to avoid personal injury.

All information within this manual is correct at the time of writing. Nexsan Technologies is constantly working on new features. As a result, new firmware may be available for the SATABeast. Please contact Nexsan Technical Support to check for the latest revision.

# 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 earth any electrostatic charge from your person before and while handling the components with your hands or any tools. Please use the anti-static wrist-strap shipped with the SATABeast.
- Ensure correct lifting methods are used when handling the SATABeast. Special care should be taken when removing the SATABeast from its packaging and positioning the SATABeast to its required location.
- When installing SATABeast as a rack-mounted component, ensure that all Nexsan-supplied mounting fixtures are secure. Do not mount this unit exclusively by the front ears. 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 the rack or falling onto other rack components.

**WARNING –** ENSURE THAT THE RACK IS SUFFICIENTLY STABLE BY HAVING WALL ANCHORS OR STABILISING LEGS.

WARNING - ALWAYS USE THE IEC POWER CORDS WHICH ARE SUPPLIED WITH THE SATABeast.

**WARNING –** OWING TO THERE BEING MULTIPLE POWER CONNECTIONS, REMOVE ALL POWER LEADS TO COMPLETELY ISOLATE THE POWER.

**CAUTION –** RISK OF EXPLOSION IF BATTERY IS REPLACED BY INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS PRINTED ON THEM OR IN COMPLIANCE WITH YOUR LOCAL REGULATIONS.

# **SATABeast Technical Specifications**

## **Physical Specifications**

#### Materials

Chassis	Pre-coated Galvanised Steel.
Chassis (internal)	Aluminium - (Platen).
Fascia	ABS (blend) Thermoplastic UL 94 V.0.

#### **SATABeast – Dimensions**

Height	4U	177.00mm.
Length	Overall	807mm.
	Chassis Ear mounting to face to end of unit	750mm.
Width	Overall	482.6mm.
	Of chassis	430mm.
Weight	Single controller version	69.00Kg
-	Active / Active version (dual)	76.00Kg.
Rack Slide Mounting Kit		4.8Kg.

#### Power

2 x 760W load-sharing, redundant PSUs. 2 x 1100W PSUs for SASBeast and newer SATABeast

#### Cooling

Front Panel	3 x 120cfm 12V Axial Fans (life 40,000hrs). SASBeast has uprated fans
PSUs	2 per PSU, 60cfm 12V Axial Fans (life 40,000hrs).
Auxiliary Blower Module	4 x 10cfm 12V Radial Blower (life 40,000hr)

#### **Communication Interfaces**

- 10/100/1000 Base-T Ethernet RJ45 (two per controller, one for GUI, both available for iSCSI).
- Supports TCP/IP, HTTP, SMTP, SNMP traps, Daytime and FTP. Optional SSL for firmware xe66 and beyond.
- GUI HTML supported by most Internet browsers.
- Email sent via SMTP in event of failure or warning event.
- Traps 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**

- Two Fiber Channel ports per controller, 2, 4 or 8 Gb/s, depending version.
- Two SAS expansion connectors per controller (Beast "2.5" controllers only).

# **Getting Started**

This manual is designed to enable the user to install and prepare the SATABeast for use quickly and safely. Please carefully read and review all of the information in this section before installing the product.

## Before you begin

Ensure that the ambient temperature of the installation site for the SATABeast does not exceed 35°C. If installed in rack, ensure the SATABeast's ingress air temperature is 35°C or lower. If the temperature of the installation site is not automatically regulated, then ensure that seasonal climate changes will not result in the maximum temperature being exceeded. The product's ambient temperature requirement remains the same when multiple units are present. Note that some product variants are limited to 30C ambient – check with Technical support if in doubt.

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

Ensure two or more persons are used to lift the SATABeast chassis and remove all pluggable components first to reduce weight.

If installing the SATABeast into a rack mount cabinet you must remove the power supplies, the disks and the controller(s) 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 fingers and clothing during the installation. Please follow the Rack Mount Instructions included with the Unit (or see the relevant section of this manual).

If the SATABeast is being installed into a rack, please ensure that the rack is correctly grounded.

**WARNING** – ENSURE THAT THE RACK IS SUFFICIENTLY STABLE BY HAVING WALL ANCHORS OR HAVING STABILISING LEGS DEPLOYED.

The user must ensure that the main power drawn by the equipment does not overload the available electrical supply in the rack. When connecting the equipment to the electrical supply, please consult the rating details of the SATABeast.

A disposable ESD strap is supplied with the unit as protection against Electrostatic Discharge. This strap should be worn at all times and properly tied to ground while handling your Nexsan systems. Ensure that your environment has sufficient ESD safeguards to protect against latent failures. Failure to protect against ESD may result in critical losses.

## **Power-Up Notice**

When the SATABeast is powered on, the battery LED may flash green and red (the LED is on the front panel and marked "BATT"), which 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.

**Solid Green -** the battery is charged and will continue to trickle charge, and data in the memory cache is protected.

Flashing Red / Green - the battery voltage is low, but will be quick charged. The LED will remain in this state until the charge is complete.

**Solid Red -** the battery is dead, cannot be charged or is not present. Data in the memory cache will not be protected.

## Single and Dual Controller Configurations

The SATABeast supports both single controller and dual controller configurations.

Dual controller systems support controller failover, so if either controller fails, host access to data on the disks will continue, provided the SAN is correctly configured.

This manual will focus predominantly on a dual controller installation, but with added information, where necessary, for a single controller installation.

## Taking Delivery

On receipt of your SATABeast, you should check to ensure no damage has been sustained in transit (report any damage to your shipper before proceeding) and that you have received the following items:

- Enclosure, set of slide rails, mounting hardware, drive canisters with the correct number of SATA disk drives, two power cables, a disposable ESD strap, a null modem cable, and any other additionally ordered items such as fibre cables.
- Packaging is reusable and should be retained for re-shipment purposes. The packaging comprises: main external carton (reusable), enclosure wrap with lifting handles, box with ESD foam compartments housing the drive canisters (should be used to ship out canisters containing drives when fitted) and two component/accessory boxes.

## Installing the SATABeast into a Rack

**CAUTION –** OWING TO THE WEIGHT OF THE SATABeast CHASSIS REMOVE ALL THE PSUS, BLOWERS, CONTROLLERS AND ANY INSTALLED DISKS BEFORE ATTEMPTING TO MOUNT THE SATABEAST INTO A RACK, FAILURE TO DO THIS MAY RESULT IN INJURY OR DAMAGE TO THE SATABeast.

**NOTE –** Diagrams below show a different front panel to the SATABeast Xi model. This does not affect the rack mounting procedure.

#### Fitting the inner rack slides



Exploded view of inner rack slides

WARNING - DO NOT ATTEMPT TO INSTALL THE SATABeast WITH DISKS INSTALLED.

**CAUTION –** ALL DISKS SHOULD BE REMOVED FROM THE RACK EQUIPMENT PRIOR TO ASSEMBLING THE COMPONENTS AND DURING ASSEMBLY INTO A RACK.

#### Parts List

Left hand assembly shown, the right hand side is identical.

- A SATABeast Chassis.
- **B** SLIDE RAILS Inner Members.
- C SCREW POZI TRUSS HD M4 x 6 [8300109] [20 total 5 Per Rail].

#### Instructions

When fitting, ensure that the open end of the inner slide rails face the rear of the chassis.

- 1. Separate the inner slide rails [B] from the outer slide rail (Not Shown).
- 2. Fit the inner slide rails [B] to the side of the chassis using ten M4 x 6 screws (five to each rail).

Repeat for the right-hand slide rails.



View of inner rack slides fitted

### Fitting the rack slide mounting bracket assembly



Exploded view of the rack slides mounting bracket assembly

#### Parts List

Left hand assembly shown, the right hand side is identical.

- A SCREW POZI TRUSS HD M4 x 6 [Minimum of 2 screws per mounting bracket] [8300109 ].
- **B** SLIDE RAILS Outer Members.
- C MOUNTING BRACKET Rear [3500132].
- D MOUNTING BRACKET- Front [3100391].

#### Instructions

- 1. Attach the front and rear brackets [C and D] to the outer rails using the diagram as a guide. The front bracket should be positioned towards the open end of the slide assembly.
- 2. When attaching the rear bracket, first attach it loosely, adjust the length to fit the cabinet and then tighten. Alternatively, loosely mount the front and rear brackets [C and D] to the rack, then attach the slide rail to the brackets using screws [A].

Repeat for the right hand slide rails.



View of the rack slides mounting brackets assembled

#### Mounting the slide rail assembly into a rack



General view and front detail view of mounting the slide assembly into a rack

#### Parts List

- A SLIDE RAIL Outer Assembly.
- B SCREW POZI FLANGE HD M5 X 12 [8300098].
- **C** M6 CAGED NUT [8300110].

#### Instructions

- 1. Locate the slide rail assembly between the inside flanges of the rack.
- 2. Fit the M5 screws [B] through the rack flange and into the bracket at the front and rear of the slide rail assembly. The rear fixing is identical to the front fixing.

Repeat on the right hand side of the rack.

#### Alignment

**CAUTION -** INCORRECT ALIGNMENT OR FITTING OF THE RACK SLIDES MAY RESULT IN DAMAGE TO THE RACK SLIDES, THE RACK EQUIPMENT OR INJURY TO PERSONNEL.

Ensure that the outer slide rail assembly is aligned correctly to accept the rack equipment being mounted.

Check 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.

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



View of the slide assembly fitted into a rack

#### Final fitting of the SATABeast rack equipment to the rack assembly



General view and detail view of fitting the SATABeast into the rack assembly

#### Parts List

- A RACK EQUIPMENT SATABeast.
- B RACK ASSEMBLY.
- C SCREW POZI PAN HD M6 X 16 [8300111].

**WARNING –** ENSURE THAT CORRECT LIFTING TECHNIQUES ARE USED WHEN HANDLING SATABeast EQUIPMENT, TOTAL WEIGHT OF THE CHASSIS INCLUDING THE DRIVES IS APROXIMATELY 70kgs (154lbs)

**CAUTION –** ALL DISKS SHOULD BE REMOVED FROM THE RACK EQUIPMENT PRIOR TO ASSEMBLY IN A RACK.

#### Instructions

Refer to the 'General View' illustration. Ensure that the slide ball retainers are positioned at the front of the slides prior to loading the SATABeast equipment.

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

- 1. Carefully slide the SATABeast rack assembly [A] into the rack slide assemblies [B].
- 2. Cycle the SATABEAST assembly in the slides a number of times to ensure free movement prior to fully tightening the slide rail fixing screws.
- 3. Secure the rack equipment into the rack with four M6 x 16 screws [C].

Do NOT over-tighten the screws; this could damage the rack equipment.



View of the SATABeast fitted into the rack assembly

**WARNING -** ENSURE THAT ALL RAIL SLIDE SCREWS ARE FULLY TIGHTENED TO AVOID ANY POSSIBILITY OF RACK EQUIPMENT FALLING OUT OF THE RACK.

For improved access to the Front Rack Mounting fixing screws, the Front Panel can be released and swung into the open position.

## **Physical Components**

In order to use the SATABeast, it is important for you to know how to correctly install and remove the pluggable components.

Should failure of a component be suspected, a Beacon on the Graphical User Interface (GUI) indicates which unit, PSU or Disk Drive, has failed.

#### **Power Supplies**

Should a PSU fail or lose its mains power, its cooling fans will still operate because they are powered from the surviving PSU via the mid-plane of the unit.

#### **PSU Insertion**

Release the ejector lever locking screw, pull the ejector lever so it is at 90° to the to the PSU unit. Line up the power supply with one of the two apertures in the rear of the SATABeast unit. Insert the PSU gently until it comes to a halt. Then rotate and close the ejector lever until it rests against the PSU face-plate, secure it in to place with the locking screw.

#### **PSU Removal**

**CAUTION –** A FAILED POWER SUPPLY OR BLOWER SHOULD BE REPLACED AS SOON AS POSSIBLE. CONTINUED OPERATION WITH A FAILED POWER SUPPLY OR BLOWER WILL RESULT IN A DRAMATIC, IRREVERSIBLE REDUCTION IN SYSTEM MTBF. DO NOT REMOVE THE FAILED POWER SUPPLY UNTIL A REPLACEMENT IS ON SITE AND AVAILABLE.

**CAUTION –** INADVERTENTLY REMOVING THE FUNCTIONAL, SURVIVING POWER SUPPLY WILL RESULT IN SYSTEM FAILURE AND POSSIBLE DATA LOSS.

Loosen the locking screw by turning it counter-clockwise. Pull out the ejector lever of the PSU so that it is at 90° to the chassis. Use the ejector lever to pull the power supply free from the chassis and support the weight of the PSU as it is being removed.

#### **Auxiliary Blower Module**

The Auxiliary Blower Module is a fan-tray that is located below the controllers, as viewed from the rear of the chassis. It provides cooling for the controllers.

#### Insertion

Hold the blower module up to the guide rails. Ensure that the ejector levers are at 90° to the chassis. Gently push the blower module into the chassis until resistance is felt. Then close the ejector levers so that the thumb screws can be tightened. You must ensure that while closing the levers the blower module slides fully into the chassis. The thumb screws should then be fully tightened.

#### Removal

Unscrew the thumb screws on the ejector levers. Pull the ejector levers towards you until they are at 90° to the chassis. Gently remove the blower module, remember to support the weight of the module as it comes free from the unit.

#### **RAID Controller**

#### **Controller Insertion**

Hold the RAID controller up to the guide rails. Ensure that the controller ejector levers are at 90° to the chassis. Gently push the RAID controller into the chassis until you meet resistance. Then close the controller ejector levers so that the thumb screws can be tightened. You must ensure that while closing the levers the controller slides fully into the chassis. The thumb screws should then be fully tightened.

#### **Controller Removal**

Unscrew the thumb screws on the ejector levers. Pull the ejector levers towards you until they are at 90° to the chassis. Gently remove the controller, remember to support the weight of the controller as it comes free from the unit.

#### **Disk Drives**

The SATABeast can be fitted with up to 42 disks. Depending on product variant, these can be SATA, SAS or a mix of both. The disks are arranged as three pairs of back-to-back disks on 7 "slice cards". The slice cards are mounted on a rigid platen. Note that all disks must be pre-fitted with disk rails.

#### **Disk Insertion**

**WARNING –** POTENTIALLY HAZARDOUS ENERGY. TRAINED SERVICE PERSONNEL ONLY.

**CAUTION –** ENSURE THAT THE RACK STABILISERS ARE DEPLOYED OR THAT THE RACK IS ADEQUATELY SECURED PRIOR TO WORKING IN THE DRIVE BAY OF SATABeast.

If necessary, remove the Rack fixing screws from the chassis ears and gently pull the unit out of the Rack, on its rack slides, until it reaches the rack slide stops.

- 1. Unscrew the two thumb screws on each side of the front panel behind the chassis ears, towards the top of the unit. The front panel will then fold down, restrained by a gas damper.
- 2. Pull the top cover towards the front of the SATABeast then lift away from the unit.
- 3. With the top cover removed you are ready to insert the drives. You must use ESD protection when installing drives to protect the disks from static discharge.
- 4. Lift up the disk with the SATA interface connector pointing downward into the chassis. Line up the drive at the desired slot and gently lower the drive until you meet resistance.
- 5. Firmly push the drive into the chassis until it reaches a full stop.
- 6. Repeat until all drives are installed. Reattach the cover and close the front panel, replace and tighten the front panel fixing screws before powering on the system.

#### Disk Removal

**CAUTION –** REMOVING A DISK FROM A WORKING SYSTEM MAY RESULT IN OFFLINE RAID ARRAYS AND INACCESSIBLE HOST DATA. ALWAYS BE SURE THAT THE CORRECT DISK IS BEING REMOVED, CHECK BY LOOKING AT THE DISK STATUS LED.

**CAUTION –** ENSURE THAT THE RACK STABILISERS ARE DEPLOYED OR THAT THE RACK IS ADEQUATELY SECURED PRIOR TO WORKING IN THE DRIVE BAY OF THE SATABeast

If necessary, remove the Rack fixing screws from the chassis ears, gently pull the unit out of the rack on its rack slides unit it reaches the rack slide stops.

- 1. Unscrew the two thumb screws on each side of the front panel behind the chassis ears, towards the top of the unit. The front panel will then fold down, restrained by a gas damper.
- 2. Pull the top cover towards the front of the SATABeast then lift away from the unit.
- 3. Using the supplied Disk Removal Tool, locate the hooks of the tool under the pins protruding from the disk carrier rails.
- 4. Gently push down on the tool to pull the disk free from the SATA connector. When possible, grab the disk and fully remove it from the chassis.
- 5. When finished, reattach the top cover and close the front panel, engage and tighten the thumb screws.

**CAUTION -** DO NOT LEAVE THE SATABeast RUNNING WITH THE LID OFF LONGER THAN IS NECESSARY, THIS WILL REDUCE THE COOLING OF THE DRIVES AND THE MTBF OF THE SYSTEM.

## Information LEDs

#### **Front LEDs**

The status of the main components of the SATABeast can be established by referring to the LEDs on the front of the unit. The LED information shown below is listed by working from left to right, when facing the front of the SATABeast system.

1	PSU0 Blower	Green = OK,	Red = fault	
2	PSU0 Power	Green = OK,	Red = fault	
3	PSU1 Blower	Green = OK,	Red = fault	
4	PSU1 Power	Green = OK,	Red = fault	
5	Front Blowers	Green = OK,	Red = fault	
6	Rear Blowers	Green = OK,	Red = fault	
7	Controller 0 Status	Green = OK,	Red = fault,	Off = controller not fitted
8	Controller 1 Status	Green = OK,	Red = fault,	Off = controller not fitted
9	Battery Status	Green = both C Red = one or m	)K, Red/Green = hore battery fault	: Charging, s.
10	Environmental Status	Green = OK, R Could be temp	ed = at least one erature or interna	e fault. al controller voltages.
11	Raid Status	Green = all RAID arrays OK Red/Green = at least one array is rebuilding, Red = at least one array is critical		
12	Spares Available	Green = one or more spares available, Off = no spares available.		

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 GUI or serial interface.

#### **Silence Button**

• Insert a thin object (such as a paper clip) to silence the audible alarm. The alarm will re-sound if any additional errors occur.

#### **Rear LEDs**

The Power Supply Unit is shown below:



#### Fan

- The LED is green to indicate that the fan is operating at an acceptable RPM.
- The LED is red to indicate that the fan is spinning too slow or not at all.

#### PSU

- The LED is green to indicate the PSU is operating.
- The LED is red when the PSU is not operating.

#### **Controller LEDs**

A controller with fibre host connection is shown below:



The variant with rear SAS-based expansion connectors is shown below:

#### **Battery / Cache Status**

- The LED is Green when the write cache still contains data (this means that there is data in the cache that has not been flushed to the disk array). Please note that you may have write cache enabled but the light may not be on. This will be because there is no data currently in write cache.
- The LED Flashes Green to indicate that power has been removed from the system and the battery is sustaining the cache. The battery voltage is 7.2volts or above.
- The LED Flashes Amber to indicate that power has been removed from the system and the battery is sustaining the cache. The battery voltage is below 7.2volts.

#### Network

- Port 0 is to be used for connecting to your LAN and GUI Access and iSCSI
- Port 1 is to be used for iSCSI only.
- The left LED of the Ethernet port displays activity and will flash green when data is being transferred.
- The right LED is the link status and will remain green when a link of any speed and duplex is
  present.

#### **Fiber Channel**

Both of the Fiber Channel ports have a bi-colour LED, one colour is green the other colour amber. The following information can be used to decode the current status of the Fiber Channel port.

Green	Amber	Activity
On	On	Power on
On	Off	Online (loop up)
Off	On	Signal acquired (but loop down)
Off	Flash	Loss of signal
Flash	Flash	Firmware error

#### **Internal LEDs**

#### **Disk Drive Status**

• The LED is red if a drive is suspected to be bad (drive failed), this LED will flash to indicate a potentially unreliable disk drive.

#### **Disk Drive Activity**

• The LED is green when an installed drive is in a 'ready' state. During activity the LED will flicker.

The rear view of the SATABeast is shown below:



The front view of the SATABeast is shown below:



The front view of the SATABeast Xi is shown below:



The Auxiliary Blower Module is shown below:



# **Using the SATABeast**

The SATABeast is configured using a built-in Web-base GUI. All the software-based features of the unit are described in the SATABeast Software Manual.

This manual only covers the initial setup of the unit.

## Initial Network Address Setup

Before you can configure the SATA unit via its web interface, you need to set up its IP address. SATA controllers ship 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, depending on the IP configuration of your network. To change the IP address there are three main methods;

- 1. Obtain and use the Nexsan System Configuration Tool from the Nexsan website or from Technical Support.
- 2. Add a route to access the desired IP address.
- 3. Use the serial port to change the IP address to something suitable.

All methods are acceptable.

**NOTE –** The GUI is available on Net Port 0 only. iSCSI capability is however available on both network ports.

**NOTE –** Many of the same things can be done in the Serial Port as can be done in the GUI, but we always recommend using the web interface.

#### 1) Use the Nexsan IP Configuration Tool (Recommended)

The Nexsan IP Config Tool is a small GUI-based tool that runs under various systems including Macintosh and Windows. The tool is available on the CD included with the product. Alternatively, you can obtain and install the correct version of the tool to suit your computer type, from the Nexsan website or by calling Technical Support.

The tool works by issuing discovery packets on the local LAN segment, and all Nexsan devices running xx60 firmware or higher will respond to these packets. It can also scan IP address ranges to discover Nexsan storage devices. All discovered units will be listed in the main panel of the tool and the user can setup the desired IP address in each unit. Once this is done, there is no further need to run the tool; all other configuration is done through your web browser.

Installation of the tool should be similar to installing any other applications to your Mac; in fact, you can run it directly from the CD if you wish, without installing it.

**NOTE –** You can use the Windows version of the IP Tool on a PC if you have PCs on you network. The Windows and Mac versions both do the same job.

The tool is small and self-explanatory but also comes with help information. For a SATABeast that is newly introduced to your network, the IP Tool will show the following:

000	Nexsan IP Tool
RAID Systems:	
New RA	ID system detected
A new Ne	exsan RAID system has been detected on the local
RAID Syste	bo you wish to compare it now?
	Yes
Status	
System ID:	Log in
URL:	Beacon
Controller 0 Net 0	Controller 1 Net 0
O Use DHCF	
Assign IP address:	Assign IP address: Use Static IP
IP Address	IP Address
Subnet Mask	Subnet Mask
Cateway	Cateway
Gateway	Gateway
Primary DNS	Primary DNS
Secondary DNS	Secondary DNS
Copy Host Setti	ings Reset Apply Changes

Click on "Yes" to continue and set up the IP parameters on your SATABeast. See below an example of a unit that has set up and subsequently found by the IP Tool. You can click on the "URL" link to launch a browser session to your unit. (Note that an Xi unit is shown in the example).

AID Systems: A. System Name YELLOW SATABoy #2 T Internal I.T SATABeast Internal I.T SATABeast Nexsan SATABeast Xi AID System System: Nexsan SAT/ Status: OK System ID: 017640C8 (S URL: http://172.10 Controller 0 Net 0 Assign IP address: Use IP Address 172.1 Subnet Mask 255.2	System ID 3 0168177C 1 017640F8 2 0176410F 017640C8 ABeast Xi ATABeast Xi 5.8.142	Firmware         IP Address           Bn60         172.16.8.203           Gm60         172.16.10.222, 172.16.10.22           Gm60         172.16.10.224           Ka61 (dev)         172.16.8.142, 172.16.8.143           Security is e           Log In           Beaco	23	
A. System Name YELLOW SATABoy #2 T Internal I.T SATABeast Internal I.T SATABeast Nexsan SATABeast Xi AID System System: Nexsan SAT/ Status: OK System ID: 017640C8 (S URL: http://172.14 Controller 0 Net 0 Assign IP address: Use IP Address 172.1 Subnet Mask 255.2	System ID 3 016B177C 1 017640F8 2 0176410F 017640C8 ABeast Xi ATABeast Xi 5.8.142	Firmware         IP Address           Bn60         172.16.8.203           Gm60         172.16.10.222, 172.16.10.22           Gm60         172.16.10.224           Ka61 (dev)         172.16.8.142, 172.16.8.143           Security is e           Log In           Beaco	23	
<ul> <li>YELLOW SATABoy #2 T</li> <li>Internal I.T SATABeast</li> <li>Internal I.T SATABeast</li> <li>Internal I.T SATABeast</li> <li>Nexsan SATABeast Xi</li> </ul> AID System System: Nexsan SATA System ID: 017640C8 (S URL: <a href="http://172.14">http://172.14</a> Controller 0 Net 0 Assign IP address: <a href="http://056">Use</a> IP Address 172.1 Subnet Mask 255.2	3 0168177C 1 017640F8 2 0176410F 017640C8 ABeast Xi ATABeast Xi 5.8.142	Bn60         172.16.8.203           Gm60         172.16.10.222, 172.16.10.22           Gm60         172.16.10.224           Ka61 (dev)         172.16.8.142, 172.16.8.143           Security is e         Log In           Beaco         Beaco	23 mabled	
Internal I.T SATABeast Internal I.T SATABeast Internal I.T SATABeast Nexsan SATABeast Xi AID System System: Nexsan SATA System ID: 017640C8 (S URL: <a href="http://172.14">http://172.14</a> Controller 0 Net 0 Assign IP address: <a href="http://056">Use</a> IP Address 172.1 Subnet Mask 255.2	1 017640F8 2 0176410F 017640C8 ABeast Xi ATABeast Xi 5.8.142	Gm60 172.16.10.222, 172.16.10.22 Gm60 172.16.10.224 Ka61 (dev) 172.16.8.142, 172.16.8.143 Security is e Log li Beaco	enabled	
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IP Address 172.1 Subnet Mask 255.2	Chantin ID	Assign IP address:		
IP Address 172.1 Subnet Mask 255.2	Static IP	• Use Static IP		
Subnet Mask 255.2	6.8.142	IP Address 172.16.8.143		
	55.0.0	Subnet Mask 255.255.0.0		
Gateway 172.1	6.1.1	Gateway 172.16.1.1		
Primary DNS 172.1	6.1.2	Primary DNS 172.16.1.2		
Secondary DNS 172.1		Secondary DNS 172.16.1.13		

#### 2) 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 mask 255.255.255.255 

Solaris:
route add 10.11.12.13 mask 255.255.255.255

Replace <Workstation IP number> with the IP address of the workstation you are using.

To add a route for the controller in Slot 1 you will need to change the 'route add' IP address to 10.11.12.14

#### 3) Use the serial port to change the IP address to something suitable (PC-based)

Alternatively, you can use the serial port of a PC or suitable KVM (if available) with the supplied DB9 cable. This is often known as a "COM port". This cable is known as a null modem cable; unlike a straight-through cable, a null modem cable has signals 2 and 3 crossed.

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

**NOTE –** Hyper Terminal is not now supplied with MS Windows. It may be downloaded free from Hillgrave.

First, ensure that the serial cable is connected to the storage unit and to an available serial port on your computer. Open 'Hyper Terminal' and choose to create a new connection. Name the connection 'SATABeast' or some other identifiable name. Then click "OK" to progress to the next dialogue box.

Connection Description	<u>?</u> ×
New Connection	
Enter a name and choose an icon for the connection:	
Name:	
SATABeast	
lcon:	
🤏 🤹 🧐 🚱	2
OK Can	cel

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

Connect To	<u>? ×</u>
SATAB6	east
Enter details for	the phone number that you want to dial:
Country/region:	United States (1)
Area code:	01332
Phone number:	
Connect using:	COM1
	OK Cancel

Choose 115200 bits per second, 8 data bits, 1 stop bit, no parity bits and set Flow control to None. Then click "OK" to connect.

COM1 P	roperties				<u>?</u> ×
Port Se	ettings				
	Bits per second:	115200		•	
	Data bits:	8		•	
	Parity:	None		•	
	Stop bits:	1		•	
	Flow control:	None		•	
			Restor	e Defaults	
	0	ĸ	Cancel	Ap	ply

Now that the port is connected you may need to press the return key or Ctrl+R to activate the serial port interface. You should then see the following screen:

SATABeast system	management	console (	c) Nexsan	Technologies		L OK
Main Menu						
Information Configure RATD						
Configure volumes Configure fibre						
Configure iSCSI Configure network						
Configure Cache Configure E - alerts						
System admin						
11:32:31 Pi	ress 'retur	n'to oper	n a new me	nu	28-Feb-	2007_
'Cntrl R' - Re	fresh, 'Cnti	-1 A' - AM	ISI/VT100,	'Cntrl B' - C	olour	

The serial port menu system can easily be navigated using the cursor (arrow) buttons on your keyboard. There are also some special functions that are listed at the bottom of the terminal screen 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 'Configure network' option and press return

Main Menu
Information Configure RAID Configure volumes Configure fibre Configure iSCSI Configure network Configure cache Configure E - alerts Configure SNMP System admin

Then select 'Set static IP address' and press return.

Network Menu
Set DHCP or Static IP mode
Set static IP address
Set subnet mask
Set gateway TP address
Sat primary DNS TD address
Set secondary DNS IP address
Set hostname
Enable/disable iSCSI port
Configure network nort
Display notwork TP status
Display network in Status
Display network port settings
Display network services
Apply new settings
Fxit

Type in the desired IP address in the input box.

Enter the network	IP	address	for	the	GUI
>172.16 .1 .210					

Press return. Now the new IP address is saved. Select the 'Apply new settings' option or reboot the unit for the change to take effect.

### Connecting Your Web Browser with the Storage Unit

After the initial IP address has been set up in the unit, you will be able to use the web interface to continue the configuration of the system. You must type the IP address of the unit into your Internet Browser (i.e. Microsoft Internet Explorer or Netscape Communicator).

File Edit View		Favorit	es	Tools Help			
ф Ba	ack 🔻	⇒ ×	8		Q.	Search	🙀 Favorite
Addre		10.11	12.13		- 00-		

When you press return or click the GO button, the browser should load the unit's login page. You will need to click the login button to continue; by default there is no username, nor password.





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After logging in, the product's Home Page will load.

If you have successfully completed one of the above steps, the SATABeast should be available for full configuration. Please refer to the SATABeast/SATABoy Software Manual.

# Troubleshooting

## Web Interface Problems

# When I type in the IP address I have assigned to my storage unit in my web browser, nothing happens.

Check that the system is responding:

The best way to contact the SATABeast 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

**NOTE –** Replace the above address with your SATABeast'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 milliseconds: 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 the storage unit.

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.

## 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 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 is charging. It is normal for this light to flash for the first 10 minutes of operation because the state of the battery 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.

### **Resolving Problems**

#### The Web GUI 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, you should extract the faulty disk, DO NOT re-use a failed disk in the system even if it appears to have no fault. 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. The SATABeast will detect the new disk and rebuild to it if the array is critical. If you already had a spare disk the SATABeast will assign the new disk as a spare too, check this has happened using the web GUI.

#### 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 and cooling, potentially resulting in over heating the system. Contact your dealer regarding a replacement PSU. Only remove the failed PSU when the replacement arrives.

#### My RAID controller has 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<sup>\*</sup>. Leave the controller in place and contact your dealer for a replacement.

**CAUTION –** DATA STORED IN THE WRITE CACHE WILL BE LOST IF A CONTROLLER FAILS IN NON-AA SYSTEMS.

Please contact your dealer or reseller for help with any other queries.

# Safe Removal of Batteries

Nexsan storage products use batteries within the controllers to enable at least 72 hours of backup capability in the event of a mains power failure. Once power is restored, any pending transactions in the cache are processed.

After a time the batteries may not hold charge effectively and will need to be replaced, this is the procedure, for Beast variants:

- Remove controller from chassis
- Remove top cover.
- There is one NiMH rechargeable battery pack installed which is shown in fig 1.
- Disconnect battery lead from the circuit board.
- To remove battery, simply remove the two screws shown fig 1.
- Do not abuse battery.
- Dispose of battery properly according to local laws.



Fig 1

# **Tiered Storage & SAS Drive installation guide**

SATABeast can be fitted with SAS and SATA drives in the same chassis (tiered storage). To optimize drive cooling in tiered storage units, please follow the guidelines below:

- For maximum cooling efficiency, please install the SAS drives at the front of the Chassis closest to • the fans with any SATA drives in the back two rows.
- For part populated systems e.g. 14 SAS + 14 SATA place the SAS drives at the front and the SATA drives in the rear with the middle row empty.
- In any row of drives that is not fully populated, the best practice to ensure optimum cooling is to • spread the drives out, with roughly equal distances between each drive. For example if you fitted 7 SAS drives, they would be fitted in a pattern; Fit one, skip one, fit one, etc., in the front row. In general, space the drives out within each row, wherever there is not a full complement of drives being deployed. As per above drawing.
- Do not co-mingle the drives in any rows.

Note: Green indicates SAS and Blue indicates SATA

# **Contact Information**

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