

# Linux Installation Instructions for the SATABoy and SATABeast Fibre

Technical Services  
Nexsan Technologies

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Nexsan

Technical Manual

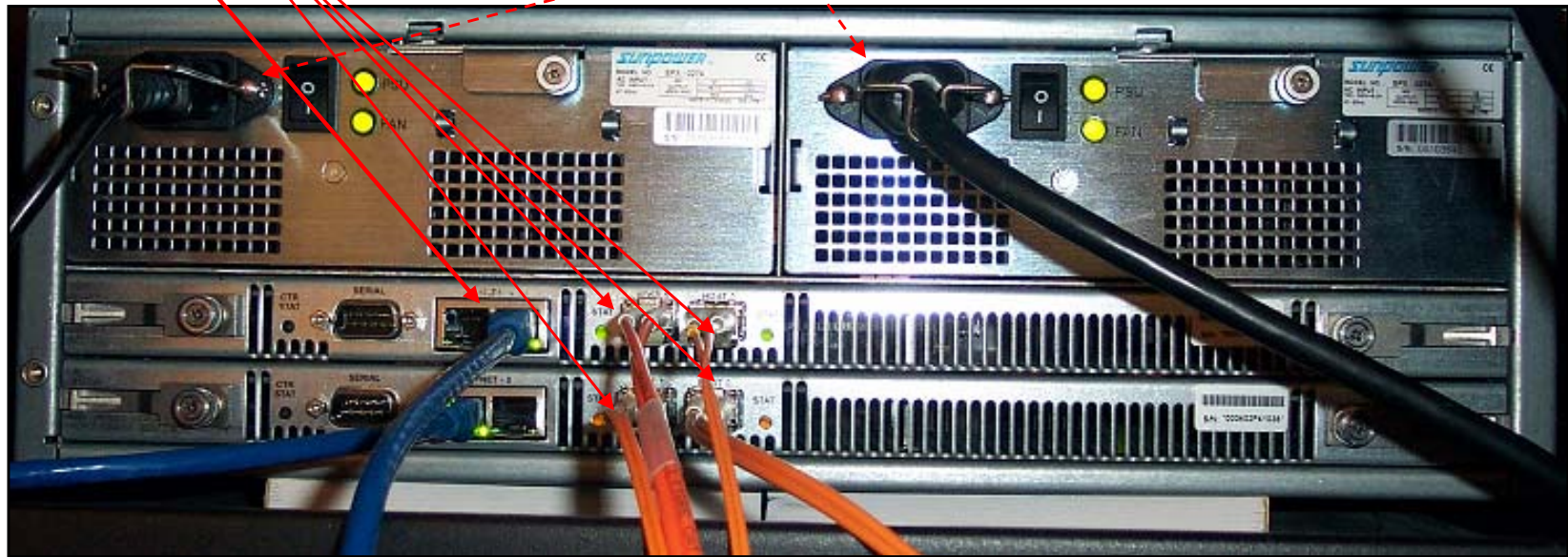
## Install Cables for SATABoy/Beast

- Plug in power cables
- Plug in Fibre cables
- Plug in Network cables for management access

Fiber cables

Network cable

Power cables

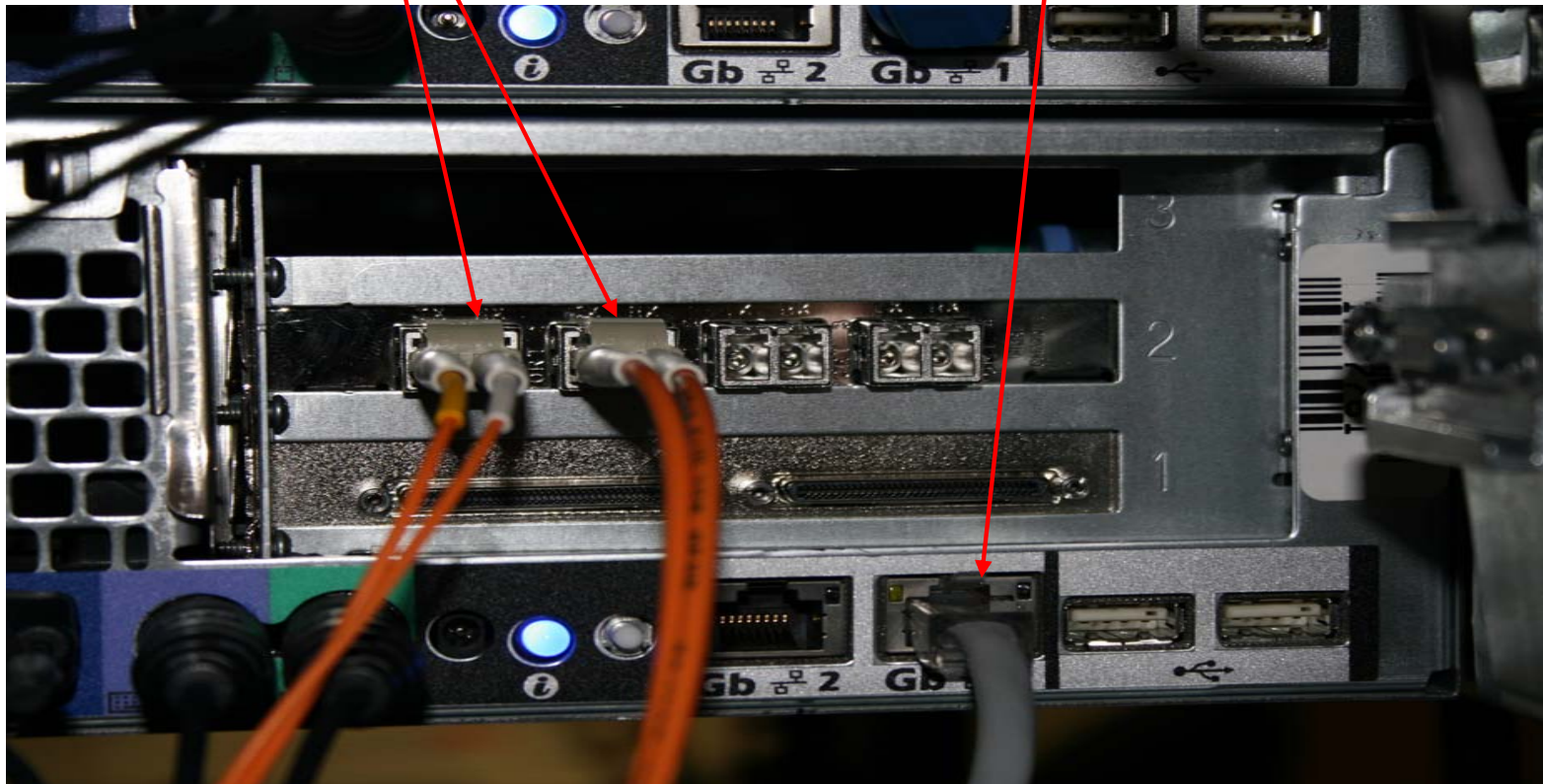


## Install cables for Server

- Install Network cable
- Install fibre cable to HBA

Fibre Cable

Network Cable



## Accessing the Management Interface

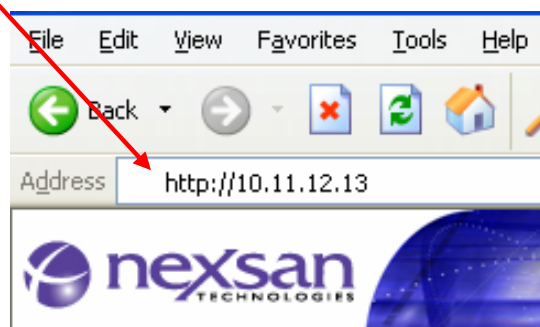
- The Nexsan controller ships with a default IP for each controller  
C0 (top) 10.11.12.13  
C1 (bottom) 10.11.12.14
- There are two ways to access the unit described below
  - 1) Via the GUI interface through a web browser
  - 2) The serial port via HyperTerminal or a terminal emulation

**Please refer to the user's manual for further instructions.**

## Accessing the GUI

- Once the routing has been established, you will be able to access the unit's web interface using a standard browser. It is important to complete the network configuration of the SATABeast
- To do this you must type the IP address of the unit into your Internet Browser

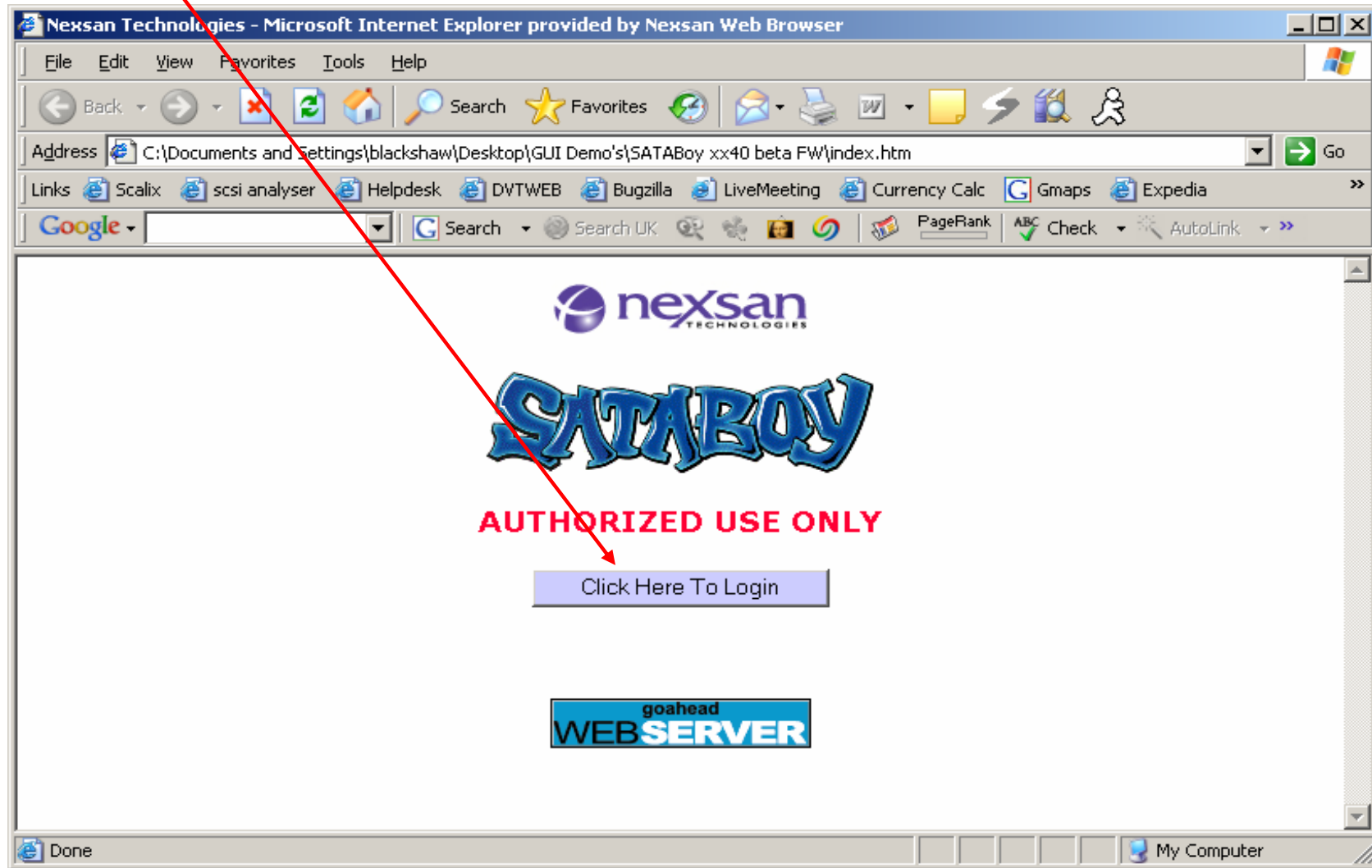
Default IP



- Once you have typed the IP hit go and log into the Nexsan. The initial install does not require a username or password

## Click on the Login Tab

Login tab



Considering the large amount of possibilities, one of the most essential factors in creating or recreating a RAID ARRAY is proper planning. Make sure you have your requirements defined before moving ahead.

Keep in mind that all of the Nexsan units will come preconfigured, which may require additional steps of deleting existing volumes and Arrays.

If you're recreating an existing ARRAY you will need to BACKUP up all your data before proceeding.

This document will cover the creation of a RAID5 ARRAY which may be used to as a example in creating any other RAID set.

## Deleting The Volume(s)

Once the data is backed up you can delete all volumes one by one.

- 1. CONFIGURE VOLUMES
- 2. DELETE VOLUME
- 3. CHECK RADIO BUTTON
- 4. DELETE VOLUME TAB

- > > > MAIN MENU
- HOME
- RAID INFORMATION
- SYSTEM INFORMATION
- CONFIGURE RAID
- CONFIGURE VOLUMES
- CONFIG HOST ACCESS
- SYSTEM ADMIN.
- CONFIGURE NETWORK
- QUICK START
- LOG OFF

ADD VOLUME EXPAND VOLUME **DELETE VOLUME** RENAME VOLUME MAP VOLUME

### Configure Volumes

#### Delete a Logical Volume

Free space areas on 'array1'  
Array 1, Controller 1  
Total capacity 3.2 TB (2.9 TiB)

Free Area	Size in MB	Size in GB
There are no free space areas, all of the array capacity is used		

Volume ID (3) on 'array1' (Array 1)

Volume name	vol1
Volume capacity	1600085 MB, 1600.0 GB (1490.1 GiB)
% of total array used	50%
Number of bad blocks	0
LUN mapping	Click to view
Volume serial number	6D45443E
Volume created	Thursday 02 Nov-2006 16:59:10

Delete Volume

Existing on array 1, controller 1  
1600085 MB, 1600.0 GB  
(1490.1 GiB)

Below bar represents the size and position of the above volume

0%	<div style="width: 100%;"></div>	100%
----	----------------------------------	------

Free space after this volume - 0 MB, 0.0 GB

# Deleting The Volume(s)

Continue deleting the volumes one by one, until all volumes have been deleted.

- 1. CHECK RADIO BUTON
- CONFIRM DELETE COMMAND

**Confirm that you wish to DELETE the below Volume**

3: 'vol1'  
Array: 'array1', Controller 1  
Capacity: 1.6 TB (1490.1 GiB)

Controller 0 Ports  
---

Controller 1 Ports  
Fibre - Host 0, LUN 0

Confirm by clicking the checkbox and then clicking the 'Confirm Delete Command' or Cancel by clicking the 'CANCEL Delete' button.

Confirm Delete Command

CANCEL Delete

>>> MAIN MENU  
HOME  
RAID INFORMATION  
SYSTEM INFORMATION  
CONFIGURE RAID  
CONFIGURE VOLUMES  
CONFIG HOST ACCESS  
SYSTEM ADMIN.  
CONFIGURE NETWORK  
QUICK START  
LOG OFF

After each volume have been deleted you will get confirmation screen.

## Deleting The Array(s)

Once the volumes have been deleted from an ARRAY, you can delete the ARRAY.

- 1. CONFIGURE RAID
- 2. DELETE ARRAY
- 3. CHECK RADIO BUTON
- 4. DELETE RAID ARRAY

- >>> MAIN MENU
- HOME
- RAID INFORMATION
- SYSTEM INFORMATION
- CONFIGURE RAID
- CONFIGURE VOLUMES
- CONFIG HOST ACCESS
- SYSTEM ADMIN.
- CONFIGURE NETWORK
- QUICK START
- LOG OFF

ADD ARRAY   RENAME ARRAY   **DELETE ARRAY**   ARRAY OWNER   ADD SPARE   DELETE SPARE   SPARE MODE   LOST DATA   REBUILD ACK

Delete a RAID array

Configure RAID  
Delete a RAID Array

Array name : 'array1' Array number : 1, Controller 1 RAID level : RAID 6 (rotating dual parity) Number of members : 10		<input checked="" type="radio"/> Fault tolerant 3.2 TB (2.9 TiB)
Array name : 'array4' Array number : 2, Controller 1 RAID level : RAID 6 (rotating dual parity) Number of members : 10		<input type="radio"/> Fault tolerant 3.2 TB (2.9 TiB)
Array name : 'array2' Array number : 3, Controller 0 RAID level : RAID 6 (rotating dual parity) Number of members : 10		<input type="radio"/> Fault tolerant 3.2 TB (2.9 TiB)
Array name : 'array3' Array number : 4, Controller 1 RAID level : RAID 6 (rotating dual parity) Number of members : 10		<input type="radio"/> Fault tolerant 3.2 TB (2.9 TiB)

Delete RAID Array

# Deleting The Array(s)

Continue with deleting the ARRAY.

1. CHECK RADIO BUTTON

2. CONFIRM DELETE COMMAND

The screenshot shows a web-based RAID management interface. On the left is a navigation menu with the following items: >>> MAIN MENU, HOME, RAID INFORMATION, SYSTEM INFORMATION, CONFIGURE RAID, CONFIGURE VOLUMES, CONFIG HOST ACCESS, SYSTEM ADMIN., CONFIGURE NETWORK, QUICK START, and LOG OFF. The main content area has a red background and contains the following text:

**Confirm that you wish to DELETE the below array**

Array name : array1  
Array number : 1

RAID level : RAID 6 (rotating dual parity)  
Number of members : 10  
Array capacity : 3.2 TB (2.9 TiB)  
Stripe size : 128 Kbytes  
Created : Thursday 02-Nov-2006 16:54:13

Confirm by clicking the checkbox and then clicking the 'Confirm Delete Command' or Cancel by clicking the 'CANCEL Delete' button.

Below the text is a checked checkbox, a 'Confirm Delete Command' button, and a 'CANCEL Delete' button. Two blue arrows point from the numbered instructions above to the checkbox and the 'Confirm Delete Command' button respectively.

After each array have been deleted you will get confirmation screen.

## Creating The Array(s)

Now that all the volumes and ARRAY(S) have been deleted, please continue with creating a new ARRAY.

- 1. SELECT CONFIGURE RAID
- 2. SELECT ADD ARRAY TAB
- 3. SELECT ARRAY NAME, RAID LEVEL, STRIP SIZE, ARRAY/CONTROLLER OWNER

- >>> MAIN MENU
- HOME
- RAID INFORMATION
- SYSTEM INFORMATION
- CONFIGURE RAID
- CONFIGURE VOLUMES
- CONFIG HOST ACCESS
- SYSTEM ADMIN.
- CONFIGURE NETWORK
- QUICK START
- LOG OFF

ADD ARRAY | RENAME ARRAY | DELETE ARRAY | ARRAY OWNER | ADD SPARE | DELETE SPARE | SPARE MODE | LOST DATA | REBUILD ACK

### Configure RAID

Create a New RAID Array

Array name: ARRAY #1

Select RAID level: RAID 5 (rotating parity)

Select stripe size: 128 Kbytes

Select array owner: Controller 0

Quick Create:

Disk1	Disk2	Disk3	Disk4	Disk5	Disk6	Disk7	Disk8	Disk9	Disk10	Disk11
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Disk15	Disk16	Disk17	Disk18	Disk19	Disk20	Disk21	Disk22	Disk23	Disk24	Disk25
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disk29	Disk30	Disk31	Disk32	Disk33	Disk34	Disk35	Disk36	Disk37	Disk38	Disk39
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Create RAID Set | Reset

4. SELECT THE AVAILABLE DRIVES FOR THE ARRAY

5. SELECT CREATE RAID SET TAB

## Creating The Volume(s)

When you create an ARRAY one volume will be created automatically. However if you like to have more than one volume in the ARRAY you should go trough the procedure of deleting the default volume and creating multiple volumes.

- 1. SELECT CONFIGURE RAID
- 2. SELECT ADD VOLUME
- 3. SELECT APROPRIATE OPTIONS
- 4. CREATE VOLUME

ADD VOLUME EXPAND VOLUME DELETE VOLUME RENAME VOLUME MAP VOLUME

Configure Volumes  
Create a Logical Volume

Array has been successfully configured  
Volumes will not be accessible until initialisation is completed

Array# 1 selected, Controller 0, RAID5, 3.6 TB (3.2 TiB)

Enter the name for the new volume: ARRAY #1

Enter the size of the new volume in % of array capacity: 100 %

Reserve an optional free space area at beginning of the new volume for future expansion of a previous volume: %

Limit volume size to less than 2TB:

Create Volume Reset

MB GB % MiB GiB Change Units

**NOTE:** Any time a different unit is selected acknowledge it by clicking on "Change Units"

## Mapping The Volumes

Once volumes are created you will need to map them to the appropriate port(s), this depends on your unit's configuration settings.

1. CONFIGURE VOLUMES

2. MAP VOLUME TO THE APPROPRIATE PORT

ADD VOLUME EXPAND VOLUME DELETE VOLUME RENAME VOLUME MAP VOLUME LUN MASK

>>> MAIN MENU  
HOME  
RAID INFORMATION  
SYSTEM INFORMATION  
CONFIGURE RAID  
CONFIGURE VOLUMES  
SYSTEM ADMIN.  
CONFIGURE NETWORK  
QUICK START  
LOG OFF

Configure Volumes  
Map Logical Volumes

Volumes on Controller 1	Fibre		iSCSI	
	Host 0	Host 1	Net 0	Net 1
1: 'vol1' Array: 'speed', Controller 1 Capacity: 640.0 GB (596.0 GiB)	LUN 0	LUN 0	-	-
2: 'iscsi' Array: 'array3', Controller 1 Capacity: 672.0 GB (625.8 GiB)	LUN 1	LUN 1	-	-

Save settings Reset

3. SELECT THE SAVE SETTINGS TAB

**WARNING: Mapping the same volume to 2 different servers without file locking or clustering software will result in data corruption !**

## Checking RAID Array Progress

1. SELECT RAID INFORMATION TAB

2. SELECT THE PROGRESS TAB

- >>> MAIN MENU
- HOME
- RAID INFORMATION
- SYSTEM INFORMATION
- CONFIGURE RAID
- CONFIGURE VOLUMES
- CONFIG HOST ACCESS
- SYSTEM ADMIN.
- CONFIGURE NETWORK
- QUICK START
- LOG OFF

- RAID ARRAY
- PROGRESS
- VOLUMES
- DISK DRIVES
- DISK STATS.
- FIBRE INFO
- ISCSI INFO
- HOST STATS.
- SYSTEM NAV.

RAID Information  
RAID Array Utility Progress

PROGRESS BAR

'ARRAY #1'	
Array number : 1, Controller 0	
Utility	Array construct
Progress %	39%



Note: The array creation varies depending on the size of the drives and the amount of drives added to the array.

## Checking FC Host Ports

Select either loop, point to point or auto, loop topology is used when you have more than one fibre device connected to a host bus adapter (HBA) via a fibre hub. Point to point is the preferred topology used when you are connecting this system to a fibre switch or directly to a fibre HBA (no hub). Selecting auto will make this system attempt to discover the topology automatically.

The screenshot shows the 'System Admin Configure Fibre' interface. At the top right, there is a green checkmark and the text 'ALL OK'. Below the navigation tabs, the configuration table is displayed:

Controller 0	Fibre - Host 0		Fibre - Host 1	
	Current status	New state	Current status	New state
<b>Topology</b>	P2P, full fabric	AUTO	Loop Down	Point to point
<b>Loop ID</b>	?(N.A)	5	?(Loop Down)	AUTO
<b>Link speed</b>	2Gbit	AUTO	Loop Down	AUTO
<b>Frame size</b>	2112	2112	2112	2112
<b>Host port cleanup</b>	Yes	Yes	Yes	Yes

- After the Nexsan unit is connected to the fibre and the LUNs have been mapped to the appropriate ports the Linux initiator can be powered on.
- Once the Host Bus adapter's drivers have been installed you can display the SCSI devices currently attached to the SCSI subsystem type **cat /proc/scsi/scsi** in a terminal shell. The output will list three lines per each SCSI device. The LUNs being presented from the Nexsan unit will contain the string 'NEXSAN' in the Vendor field.

```
Host: scsi2 channel: 00 Id: 00 Lun: 00
Vendor: NEXAN      Model: SATABOY      REV: Bd52
Type:   Direct-Access      ANSI SCSI revision: 05
```

- You should be able to determine the /dev listings of the Nexsan volumes by using the **dmesg** command.

```
scsi2: Topology - (N_Port-to-N_Port), Host Loop address 0x1
  Vendor: NEXAN      Model: SATABOY      REV: Bd52
  Type:   Direct-Access      ANSI SCSI revision: 05
scsi2(2:0:0:0):Enabled tagged queuing que depth 16.
Attached scsi disk sdb at scsi2, channel 0, id 0, lun 0
```

🌀 You should now be able to partition and format the volume(s) in the usual ways. For example:

```
[root@root /]# fdisk /dev/sdh
Command (m for help): n
Command action
    e extended
    p primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-17366, default 1):
Using default value 1
Last cylinder or +size or +sizeM or +sizeK (1-17366, default 17366):
Using default value 17366

Command (m for help): p

Disk /dev/sdh: 64 heads, 32 sectors, 17366 cylinders
Units = cylinders of 2048 * 512 bytes

    Device Boot      Start         End      Blocks   Id System
   /dev/sdh1          1        17366    17782768    83 Linux

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.

WARNING: If you have created or modified any DOS 6.x
partitions, please see the fdisk manual page for additional
information.
Syncing disks.
[root@root /]# mkfs -t jfs /dev/sdh1
mkfs.jfs version 1.1.0, 20-Nov-2002
Warning! All data on device /dev/sdh1 will be lost!
Continue? (Y/N) y
Format completed successfully.
```

- Lastly, the volume can be mounted and used. For example:

```
[root@root ~]# mount -t jfs /dev/sdh1 /NexsanVolume
```

**If you are still having issues feel free to contact  
Technical Support**

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**Thank you**