FORUM™
SUBSEA TECHNOLOGIES

VisualSoft Suite User Guide

AV-STOR NAS Configuration and Maintenance

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1 INTRODUCTION

VisualSoft supplies a wide range of Network Attached Storage (NAS) units or **Data Storage Servers** (DSS). Each NAS or DSS has a software interface which you can access to configure the device.

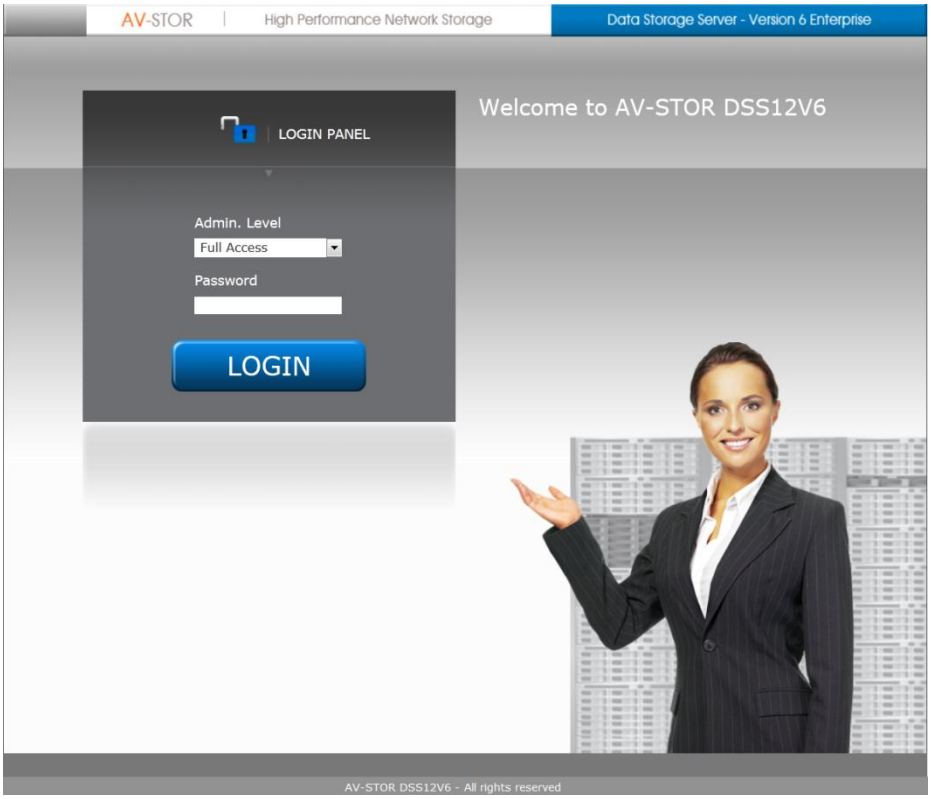
The data on these units is managed by a RAID card which is manufactured by either **LSI Logic** or by **3ware**. There are different management interfaces for each type of card.

2 LOGGING IN

2.1 Data Storage Server (DSS) Interface

Use the following steps to access and configure the DSS software

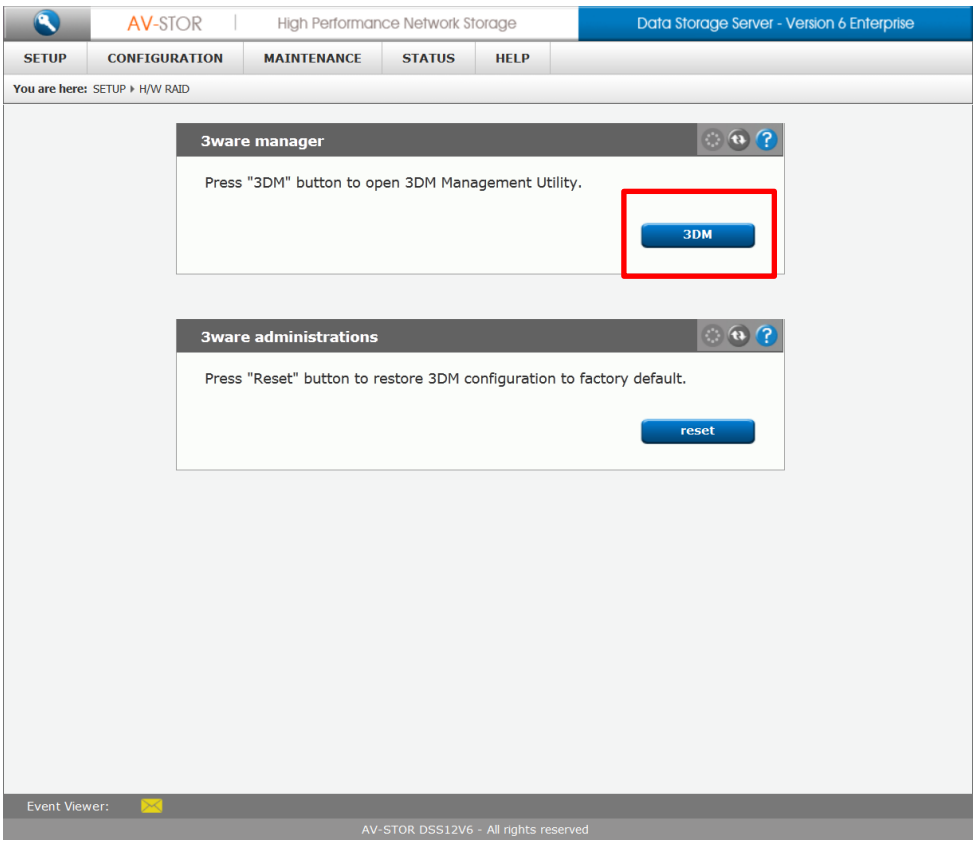
- Open a web browser (such as Mozilla Firefox or Internet Explorer)
- Type in the name or IP address of the storage unit and press Enter
- Enter the details Admin Level: **'Full Access'** Password: **'admin'**
- Click the 'Login' button



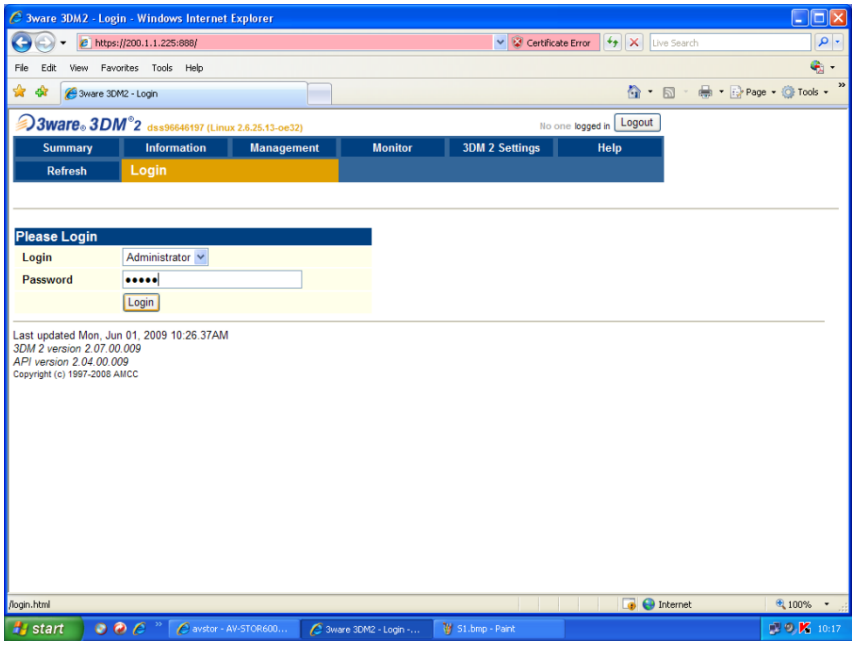
2.2 3ware Interface

Use the following steps to access and configure the 3ware system software

- Open a web browser (such as Mozilla Firefox or Internet Explorer)
- Type in the name or IP address of the NAS unit and press Enter
- Select the ‘Setup’ tab
- Select ‘H/W RAID’ from the drop-down menu.
- Click on the ‘3DM’ button



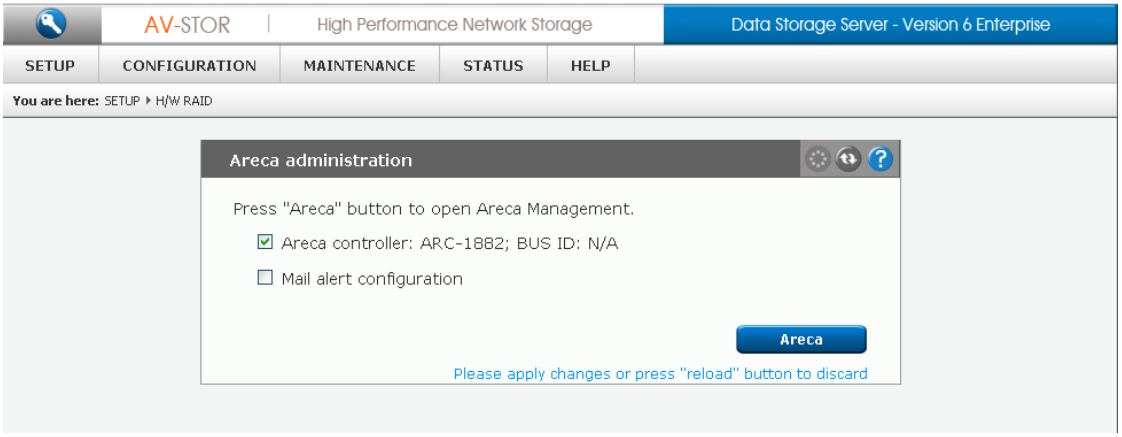
- Enter the details Login: **‘Administrator’** Password: **‘3ware’**
- Click the ‘Login’ button



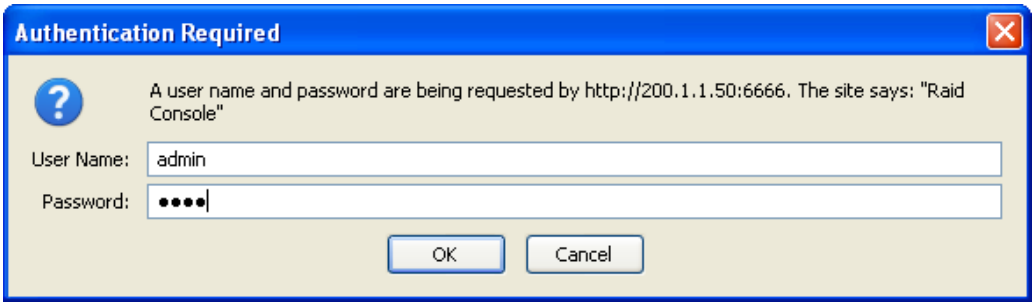
2.3 Areca

Use the following steps to access and configure the Areca system software

- Open a web browser (such as Mozilla Firefox or Internet Explorer)
- Type in the name or IP address of the NAS unit and press Enter
- Select the ‘Setup’ tab
- Select ‘H/W RAID’ from the drop-down menu.
- Tick the ‘Areca Controller: ARC-XXXX’ tick box and click ‘Areca’



- Enter the details Login: **‘admin’** Password: **‘0000’**
- Click ‘OK’



3 UNIT SHUTDOWN/RESTART

This section details the different methods to correctly shutdown your Data Storage Server (DSS). Units such as these should be shutdown in a controlled manner to reduce the risks of any data loss. Units that suffer a power loss or are shutdown in an uncontrolled manner are more likely to sustain data loss.

3.1 Via Internet Explorer or Mozilla Firefox

Once you have logged into the Data Storage Server as detailed in section 2.1 you have the ability to turn off the unit through this same interface.

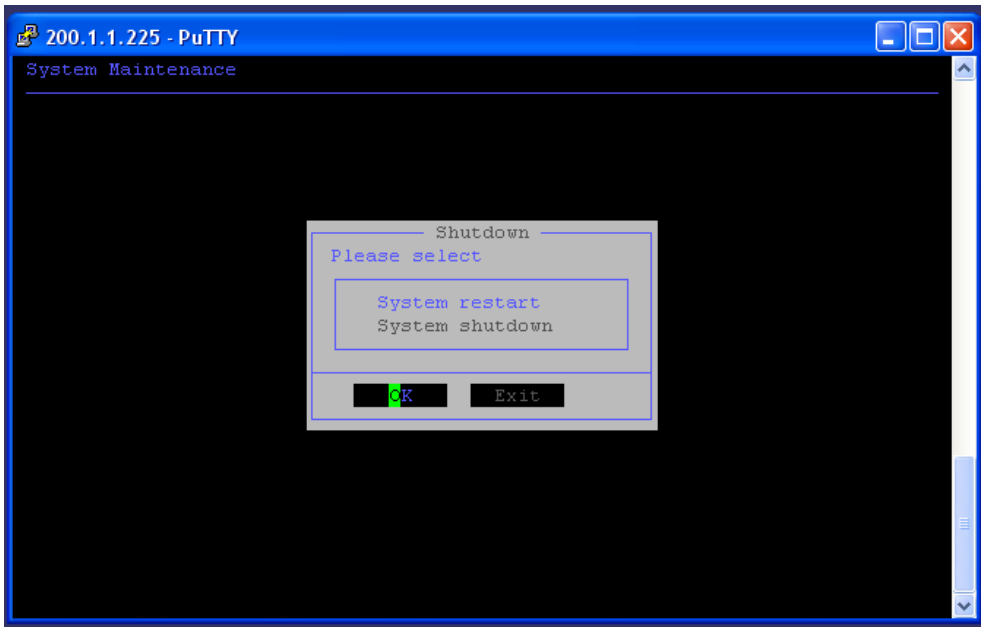
You should navigate to Maintenance > Shutdown where you will find the section for 'System Shutdown'.

In this same area you may also issue a System Restart command to the unit, this will do a complete reboot of the system without having to manually power it on.

3.2 Via Console

If you have a monitor connected directly to the Data Storage Server or you have connected to the console using Putty as per section "Console Access Using Putty" then you can shutdown/restart the unit using the following commands.

- On the main console screen enter the following key combination Ctrl+Alt+k
- You will be given two options, 'System Restart' or 'System Shutdown'
    - A restart will power cycle the system
    - A shutdown will turn the unit off



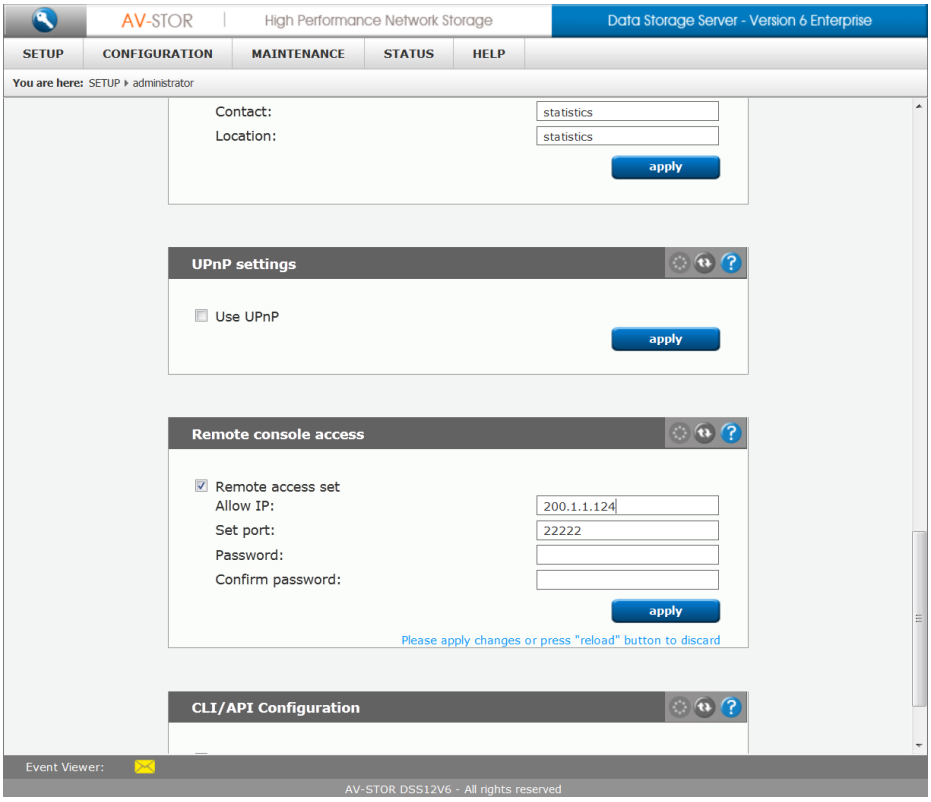
4 CONSOLE ACCESS USING PUTTY

Putty is a free and open source terminal emulator application. You can use Putty to gain remote access to the storage unit from a PC on the network. This is useful for accessing to the following options without having to connect a monitor to the storage unit itself:

- Delete Contents of Unit
- IP Settings
- Restart/Shutdown

4.1 Allowing Access via the DSS Software

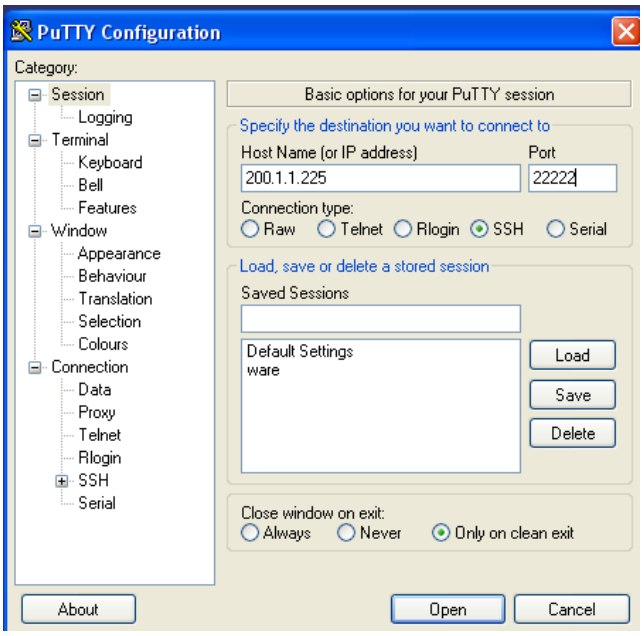
- Select the ‘Setup’ tab
- Select the ‘administrator’ tab on the lower row
- Tick ‘Remote access set’
- In ‘Allow IP’ type the PC IP address you want to connect from
- In ‘Set Port’ leave the default 22222
- In ‘Password’ enter ‘**admin**’



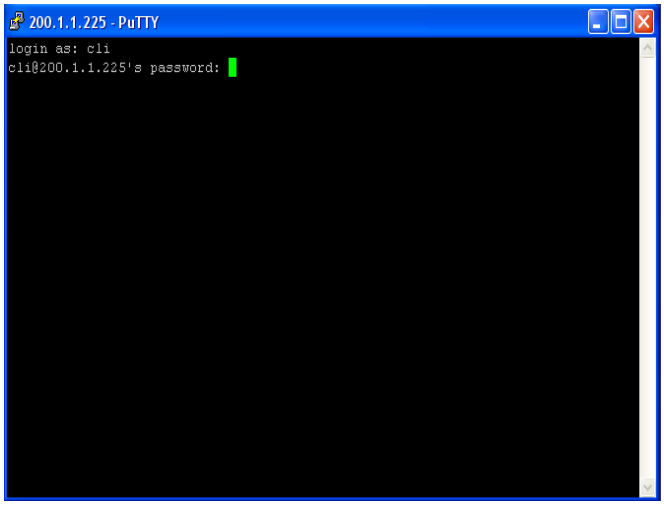
4.2 Putty Operation

Putty can be run directly from any computer supplied by VisualSoft. Navigate to 'C:\Visualsoft Utilities\3rd Party Programs\Putty' and run the file 'Putty.exe'. (If you want to run the Putty software from a different PC, you can copy the Putty.exe file.)

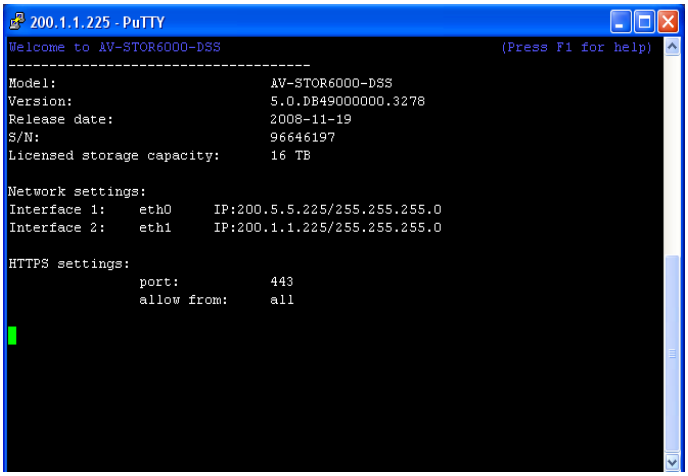
- In 'Host Name' type in the name or IP address of the unit
- In 'Port' enter 22222 as defined in section 4.1 above
- Click the 'Open' button



- On the screen that appears Login as: '**cli**' and use the password: '**admin**' as defined in section 3.1 and press enter



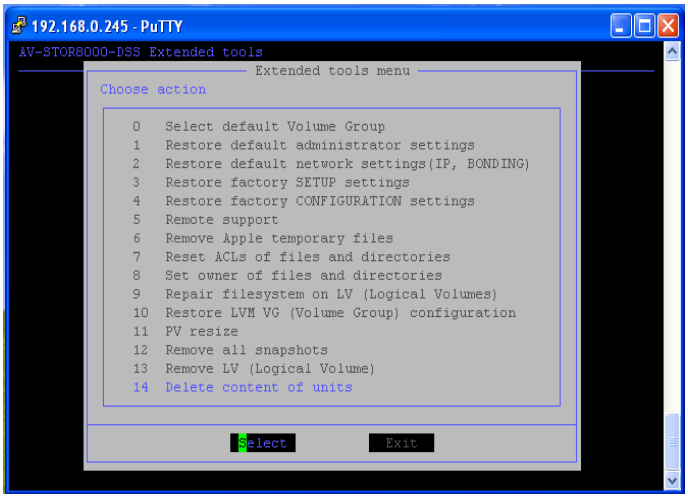
- You will now see exactly what you would see if you had monitor plugged in.



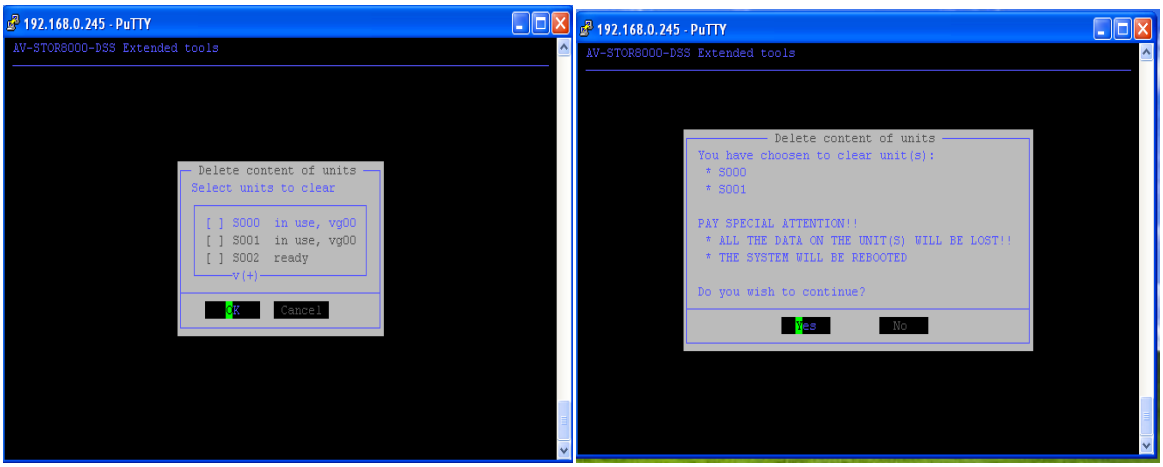
4.3 Deleting the Contents of a Storage Unit

This section details how to remove all of the data on your Data Storage Server. You should only do this if you are certain all the data on your unit can be safely erased. You should consider whether you have a backup. If you do not have a backup, are you certain than none of the data on the storage unit will be needed?

- On the main console screen enter the following key combination Ctrl+Alt+x
- Select Yes
- Enter the password ‘admin’ and press Enter
- Select Option 14 ‘Delete Contents of Unit’
- Enter the password ‘admin’ and press Enter

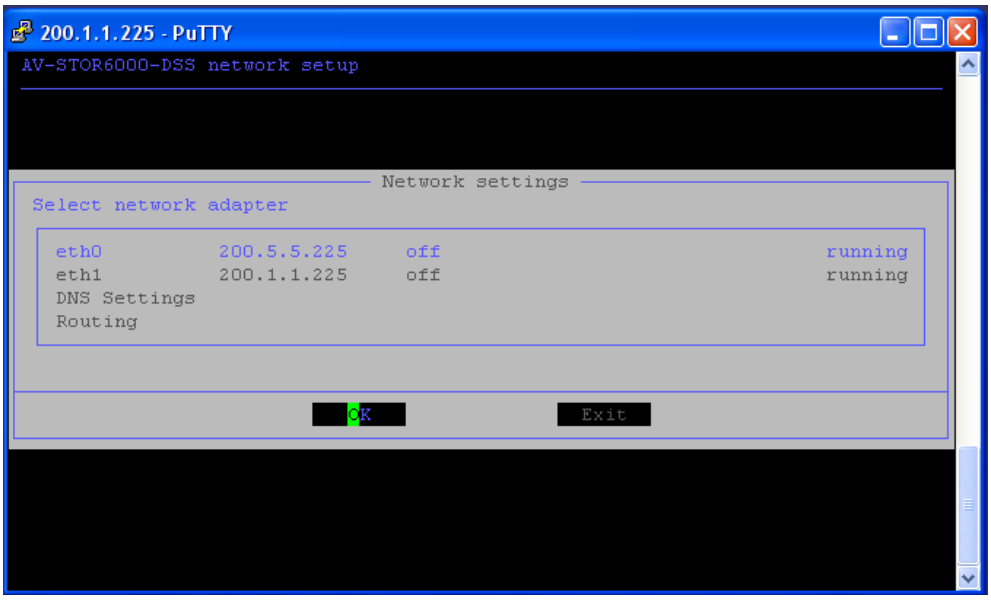


- Press the space bar on volume groups you wish to delete
- Highlight the ‘OK’ button and press Enter

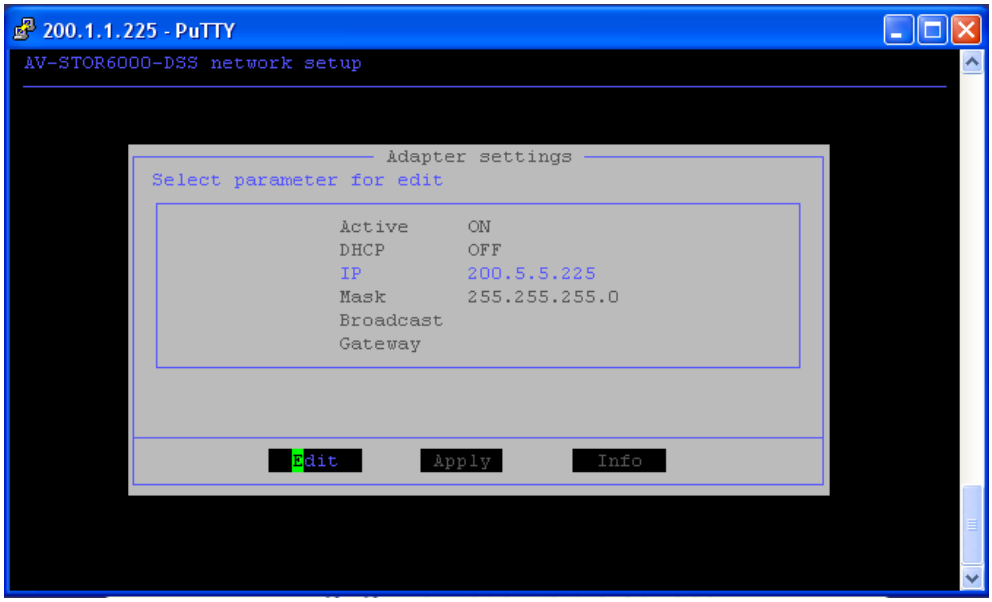


4.4 Configure IP Addresses

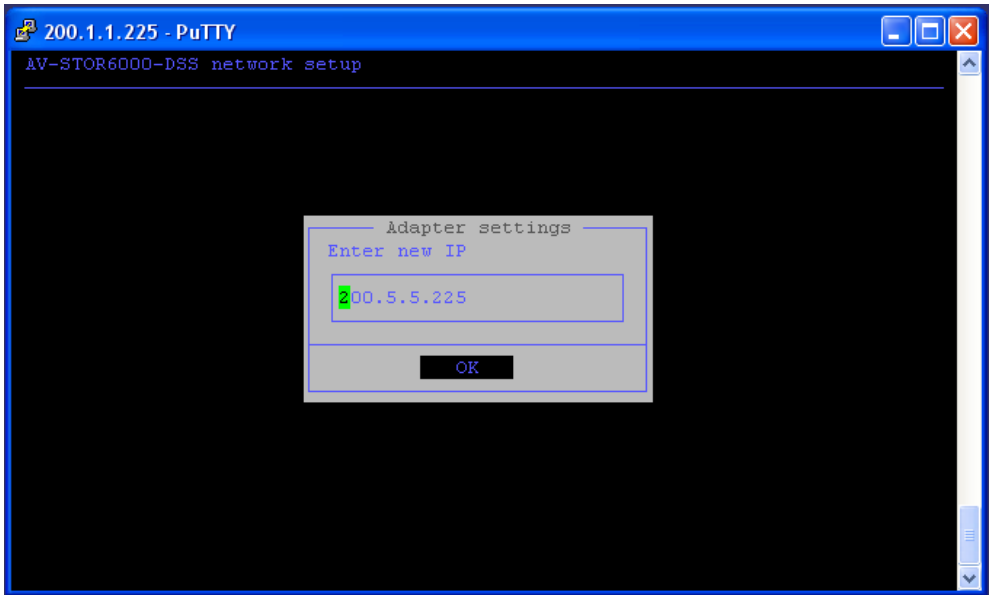
- On the main console screen enter the following key combination Ctrl+Alt+n
- Select an installed network adapter by using the up/down arrows on keyboard and press Enter.



- Select the IP address details you want to change and press Enter for example ‘IP’



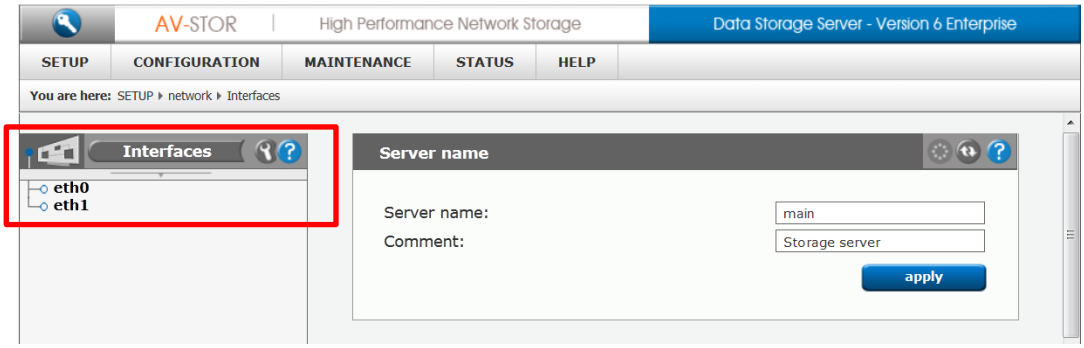
- Delete the existing IP and enter the new details



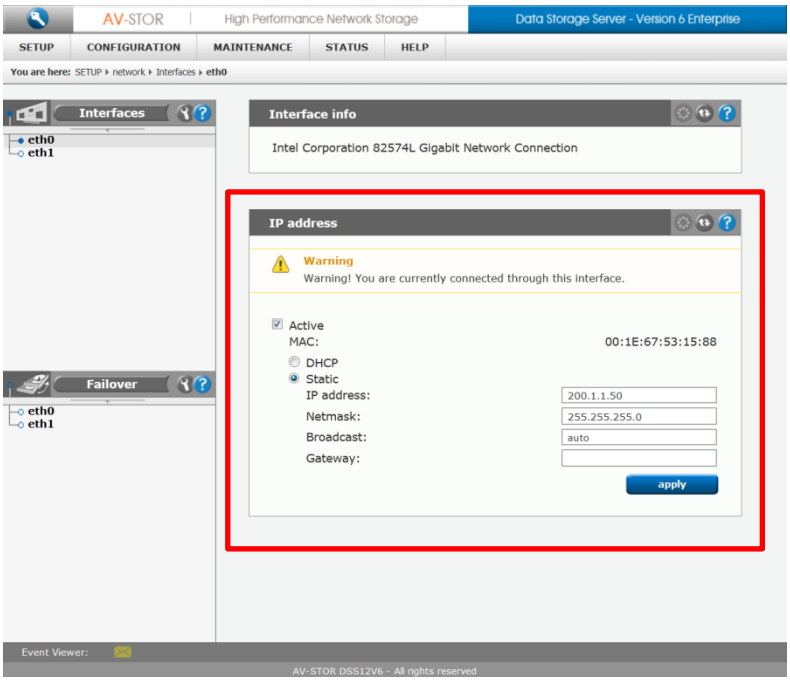
5 ASSIGNING AN IP ADDRESS VIA A WEB BROWSER

Assigning the correct IP address to your unit is required to be able to access your data. If you know the current IP address you can change it as shown below.

- Select the ‘Setup’ tab
- Select ‘Network’ and choose ‘Interfaces’ from the drop-down menu.
- Select the Interface you wish to change from the left hand side of the browser as highlighted.



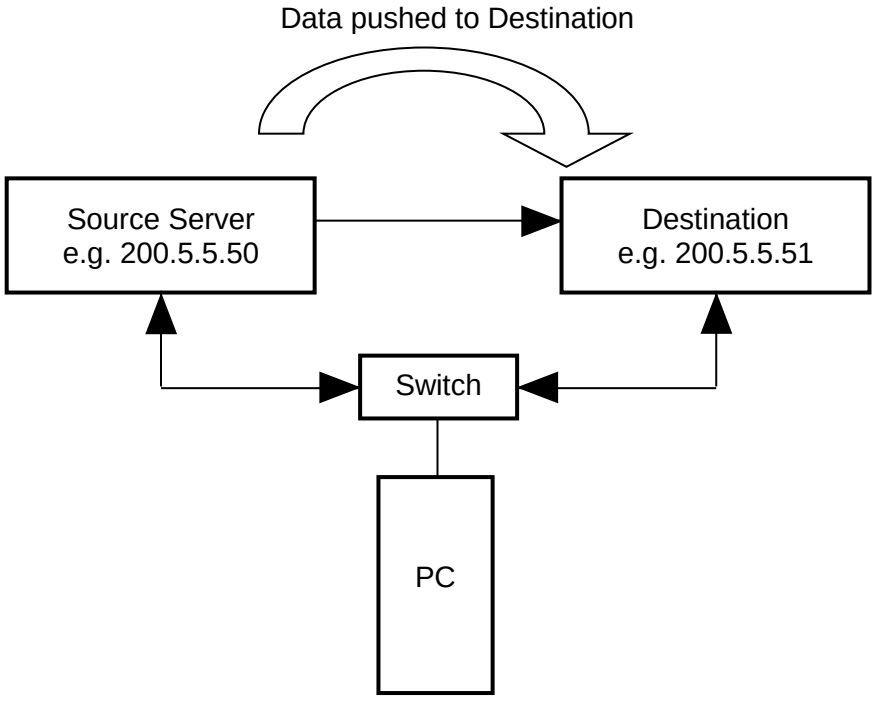
- Amend the details as you require and select “Apply”.



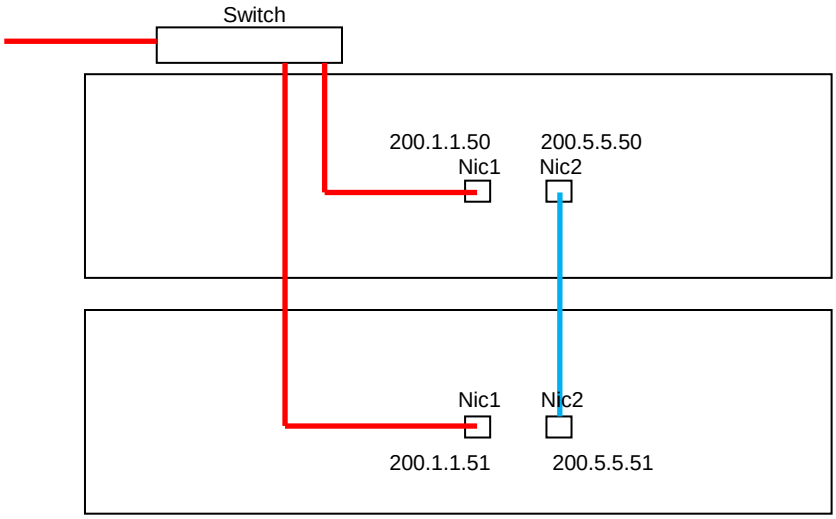
6 REPLICATION GUIDE

Data replication allows you to have a fully automated backup of your data, by continually copying the data on one storage unit to another.

Data replication can occur between two different shares on two different units. This setup is used to prevent any loss of data if one unit fails. In this document we will refer to the main or primary unit as the 'source' and the mirror or backup unit as the 'destination'.

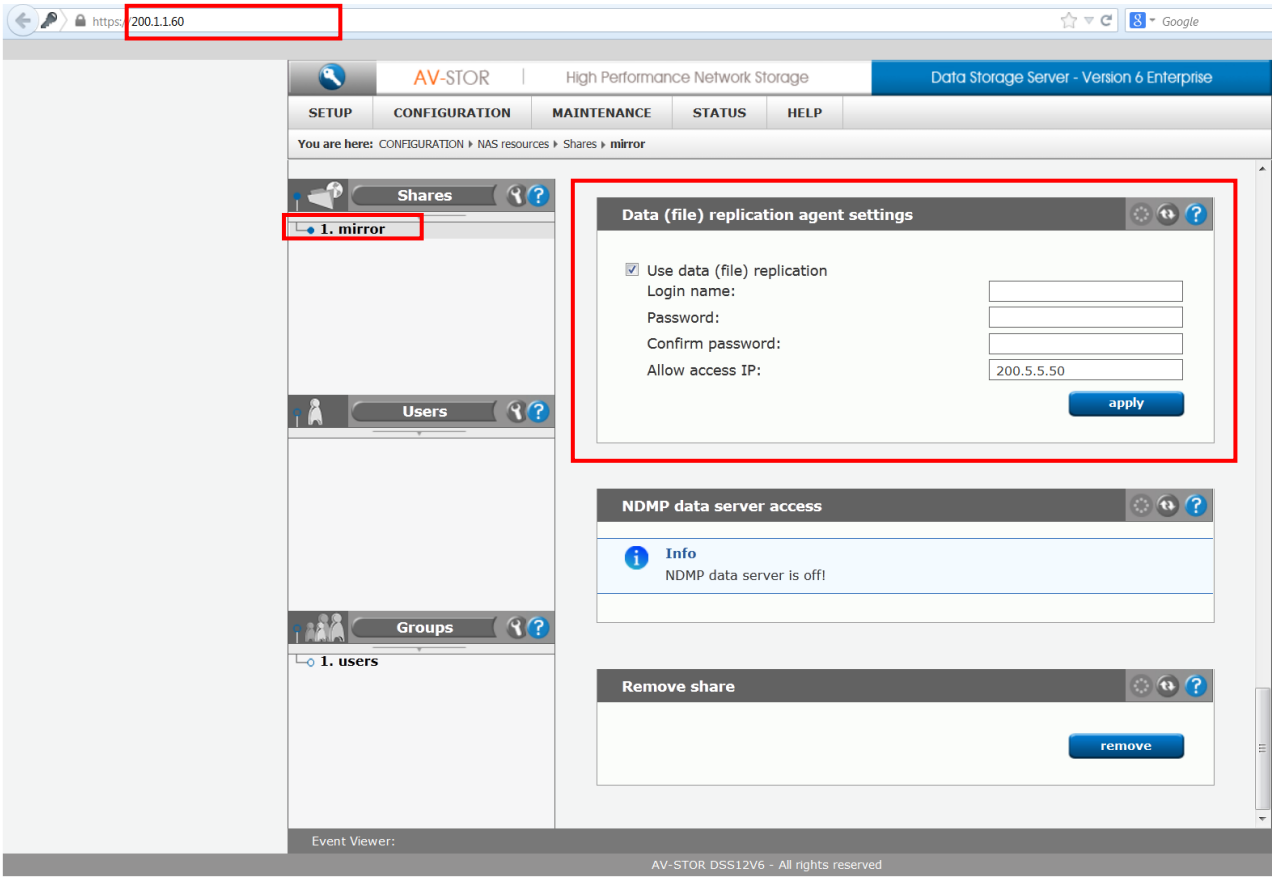


Detailed Network IP and cable Diagram



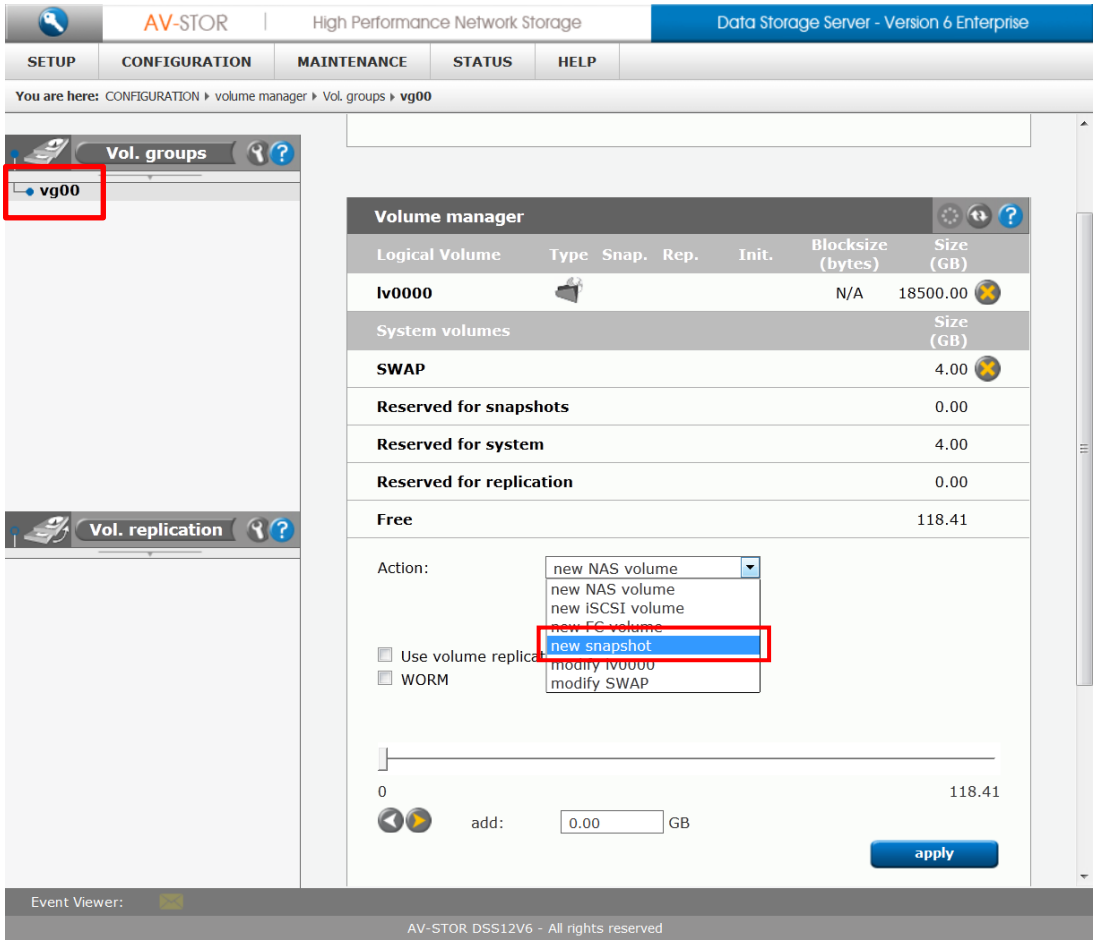
On the Destination Drive

- Select the ‘Configuration’ tab
- Select ‘NAS Settings’ from the drop-down menu
- Tick the Data replication agent box and select Apply
- Select the ‘Configuration’ tab
- Select ‘NAS Resources’
- Select ‘Shares’ and then the share you want to work with e.g. “mirror”
- Tick ‘Use data replication’
    - In ‘Allow access IP’ enter the source IP address e.g. 200.5.5.50
    - Click Apply

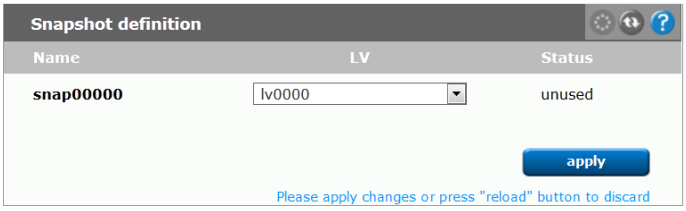


On the Source Drive

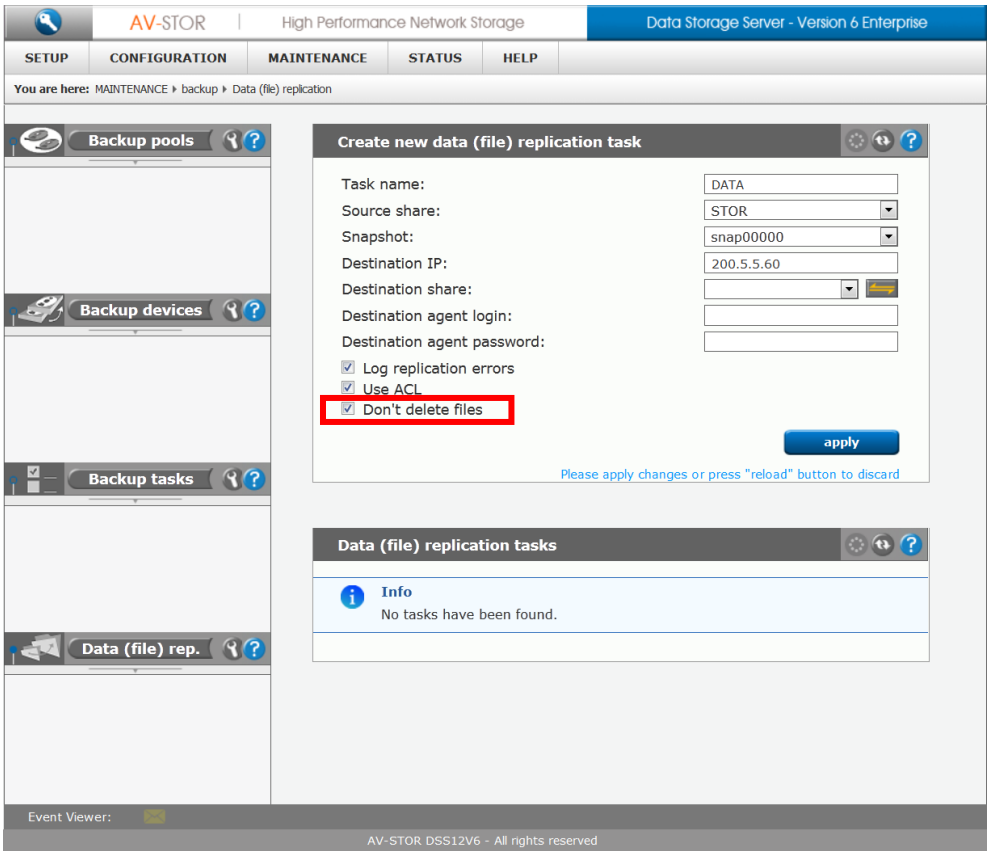
- Select the ‘Configuration’ tab
- Select ‘Volume Manager’
- Select ‘vg00’ under Vol. groups on the left hand side of the page
- Create a snap shot using remaining space (50GB or more)
    - In the ‘Action’ field select ‘new snapshot’
    - Set the size and then select ‘apply’



- In snap shot definition at the bottom of the page – Select lv0000

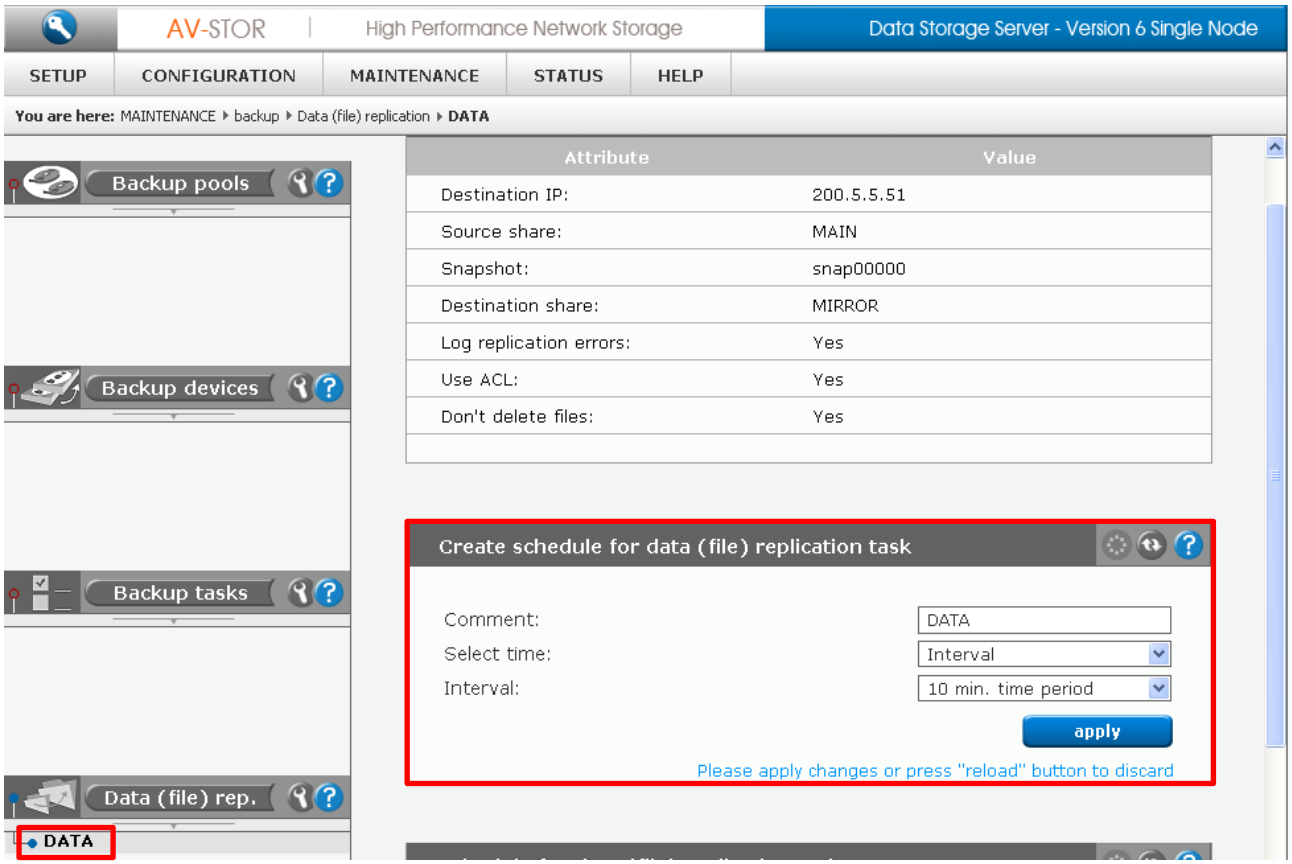


- Select the ‘Maintenance’ tab
- Select ‘Backup’ from the drop-down menu
- Select the ‘Data Replication’ area on the left hand side
- Select ‘New data replication task’
    - Task name – user defined
    - Source Share – name of share you wish to replicate
    - Snap shot – this will auto fill
    - Destination IP – IP Address of Destination unit
    - Destination share – choose available share
    - Login and Password – leave blank
    - TICK don’t delete files – this will mean that if something is deleted of the source drive it will not be removed from the destination
    - Select Apply



Select the new data replication task that you have created

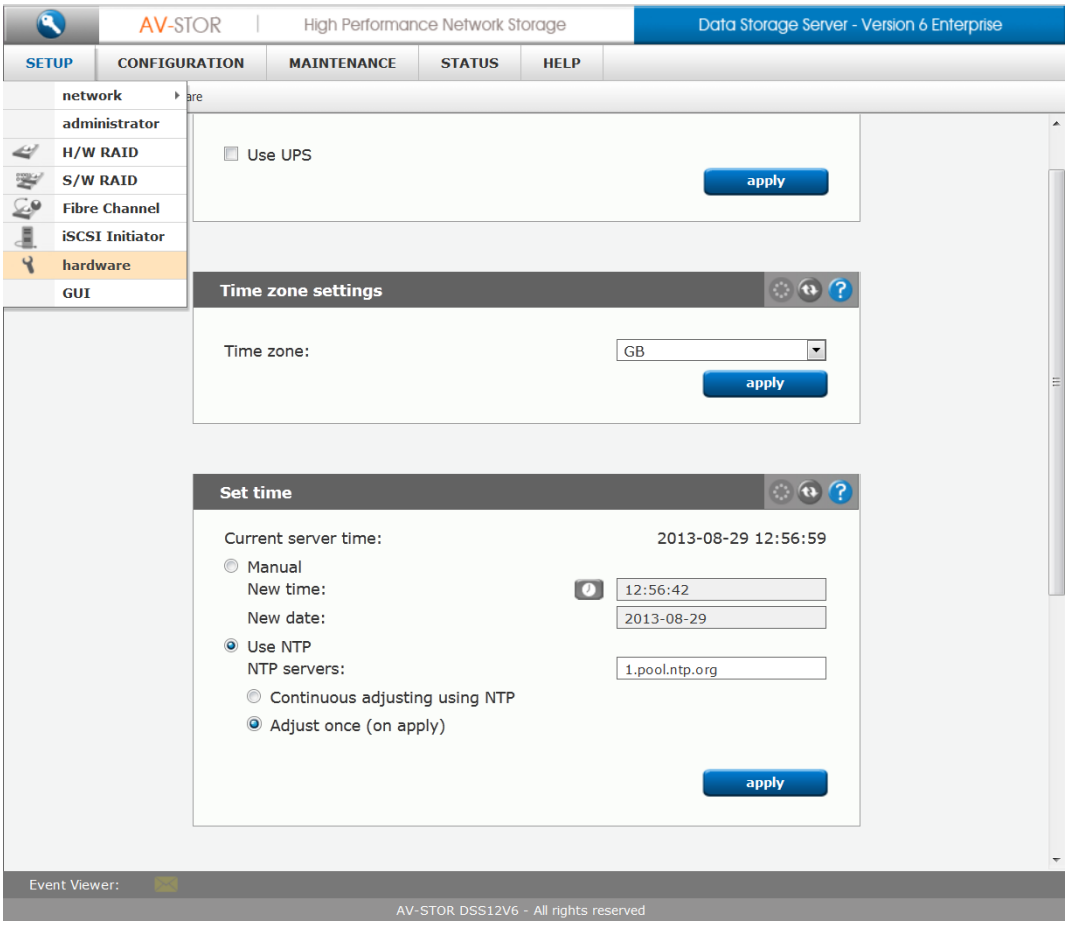
- Create schedule for data replication task
  - Comment > DATA
  - Select time interval > 10mins
  - Select Apply



7 TIME SETTINGS

It is important that the correct time and time zone is set on the unit so file creation and modification times are shown correctly.

- Select the 'Setup' tab
- Select 'Hardware' from the drop-down menu
- On the page displayed you will see **'Time zone'** settings and **'Set Time'** options.



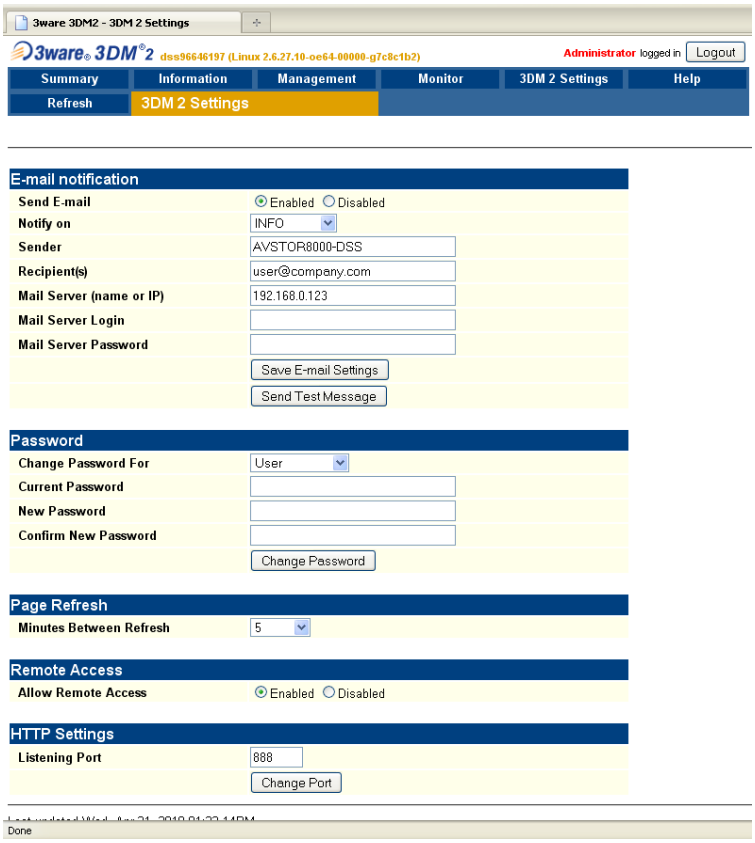
- You should adjust the settings as necessary. Where possible you should use an NTP server. If that is not possible you could set the clock to be the same as that of the PC you are working on, or as a last resort set it manually.

8 EMAIL NOTIFICATION

Email notification can be used to send Information, Warnings and Errors to several email addresses of your choice and it is an important service to ensure any issues that arise with the RAID card are dealt with promptly.

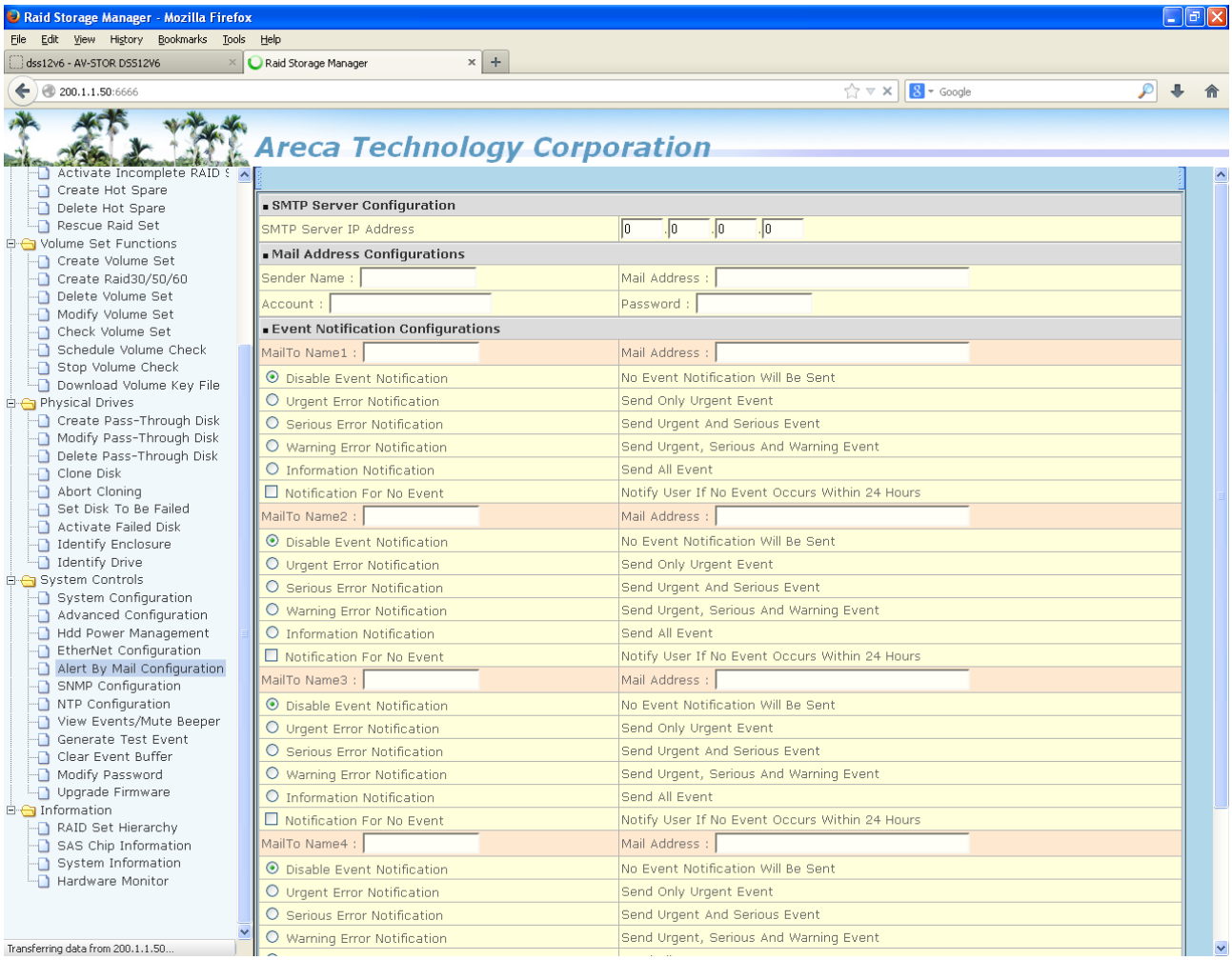
8.1 3ware

- Login to the 3ware interface as detailed in section 2.2 above.
- Go to 3DM 2 Settings
- Select which level you wish to be notified on e.g. INFO, WARNING or ERROR (INFO is the recommended setting, and will ensure that you will receive all messages.)
- Enter the sender name, the recipients you wish the email to go to and the details of the mail server you wish to use



8.2 Areca

- Log into the Areca interface as detailed in section 2.3 above
- Navigate to ‘System Controls’ on the left-hand pane and expand the folder
- Click ‘Alert by Mail Configuration’
- Enter the sender name, the recipients you wish the email to go to and the details of the mail server you wish to use
- Select on which level you wish to be notified e.g. Urgent Error, Serious Error, Warning Error or Information Notification (Information is the recommended setting, and will ensure that you will receive all messages.)

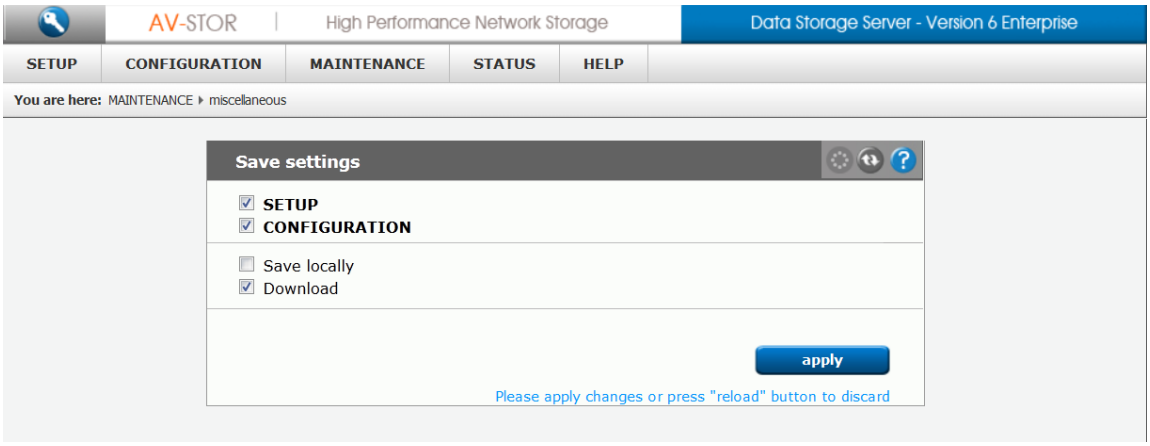


9 MANAGE YOUR DSS SETTINGS

This option allows you to save all configurations that have been applied in the DSS interface i.e. IP Addresses, Bonding, Replication, Time Settings, volume settings, share names.

9.1 Save

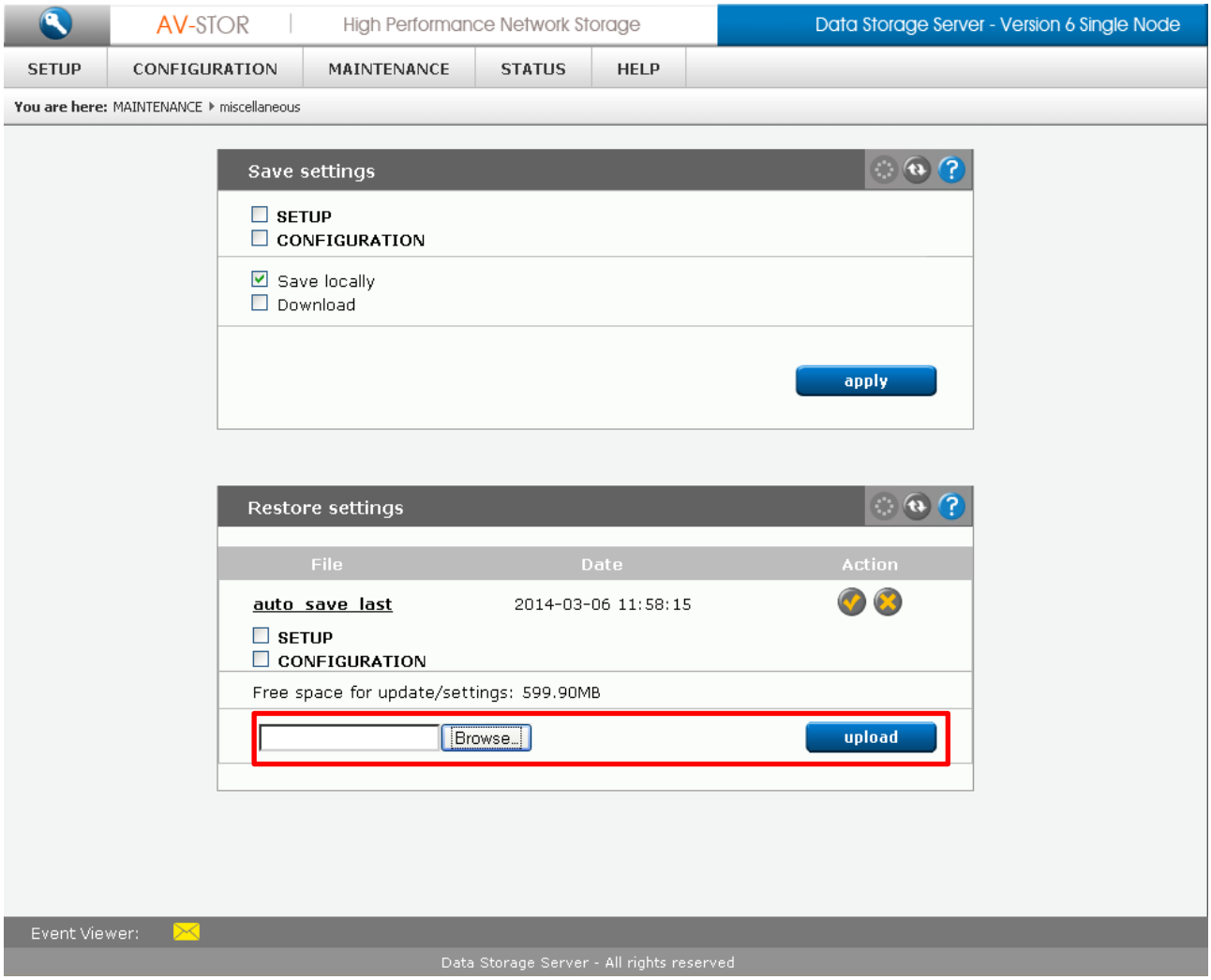
- Select the ‘Maintenance’ tab
- Select ‘Miscellaneous’ from the drop-down menu
- Tick ‘Setup’, ‘Configuration’ and ‘Download’ to save all settings onto your desktop.



- This file will appear wherever you have chosen to store it e.g. Desktop.

9.2 Restore

To re-apply the settings that you have saved, at the bottom of the same page, you can 'Browse' to where the settings file is saved and upload your old settings. You will be asked to reboot the NAS when the upload is complete.



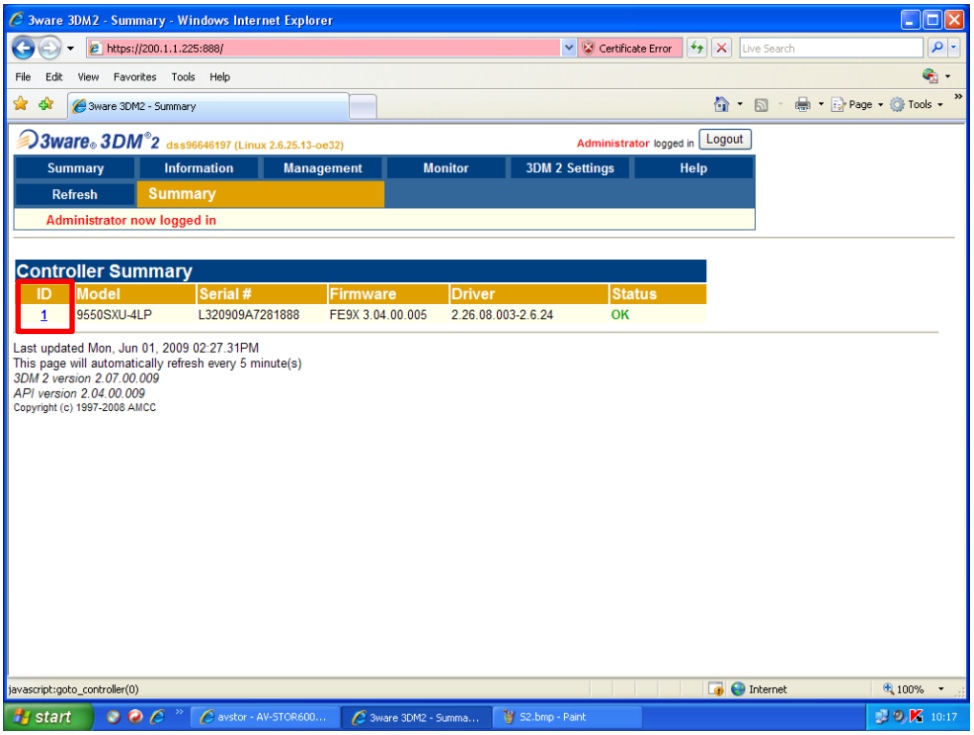
10 HEALTH CHECKS

It is not always possible to setup automated email notification. Some vessels do not have the necessary access or permissions to do this within their corporate IT system.

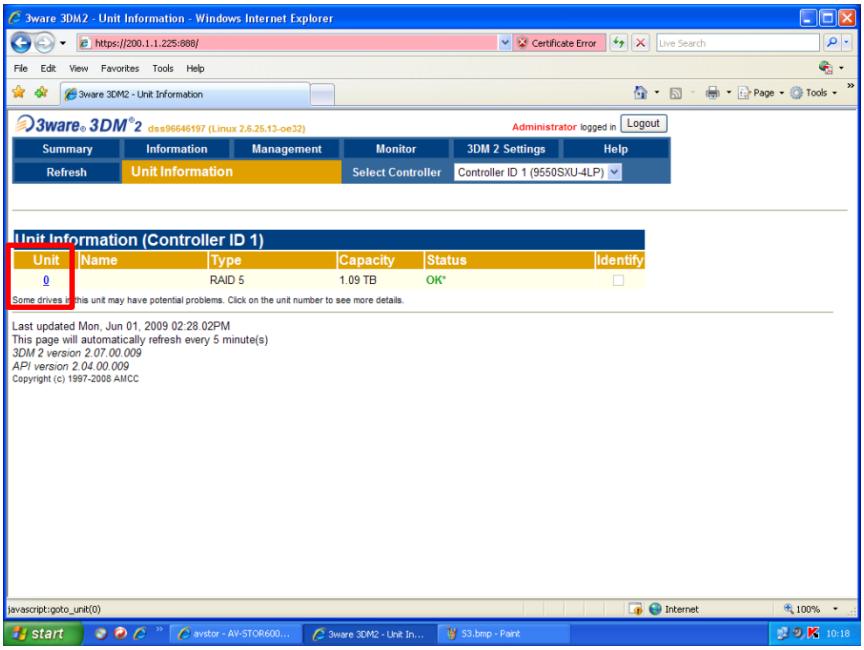
If you cannot setup email notification, it is very important that you carry out regular “health checks” to ensure the continued correct operation of the storage unit. These checks ensure that disks are not failing and that your data remains safe.

10.1 3ware

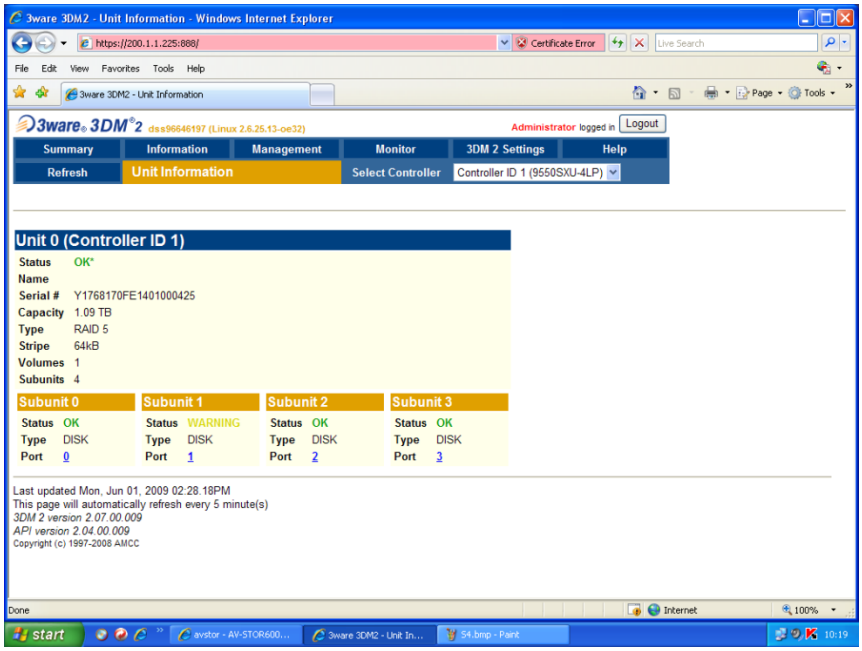
- Login to the 3ware interface as detailed in section 2.2
- In the ID column of the Controller Summary you will see ID 1 in blue underlined text. Click on ‘1’.



- In the Unit Information click the blue number 0 link.

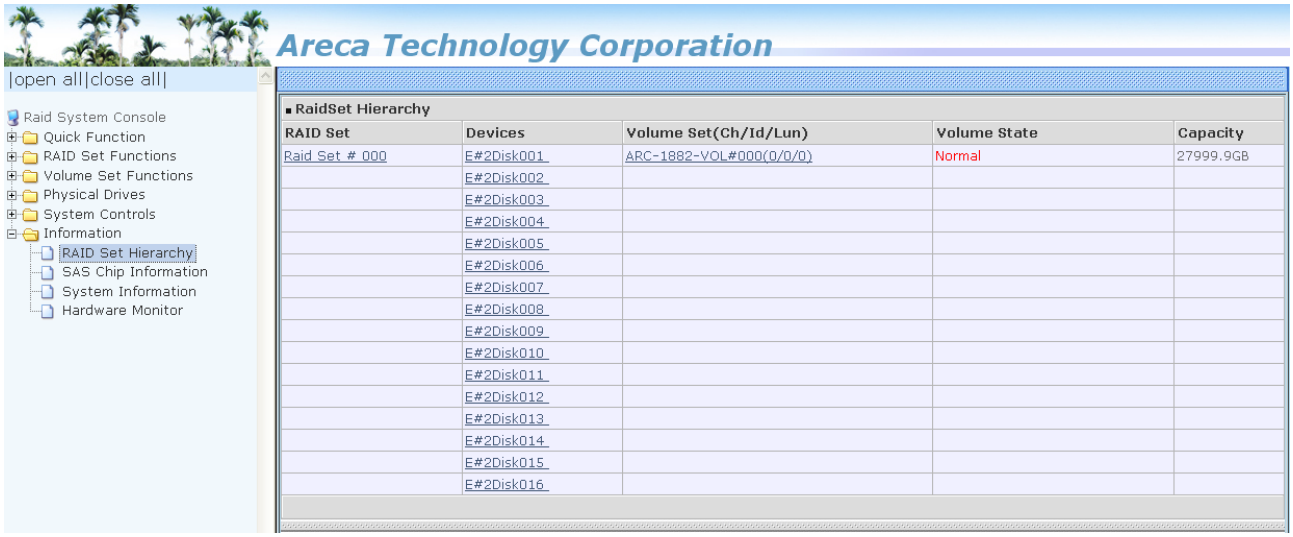


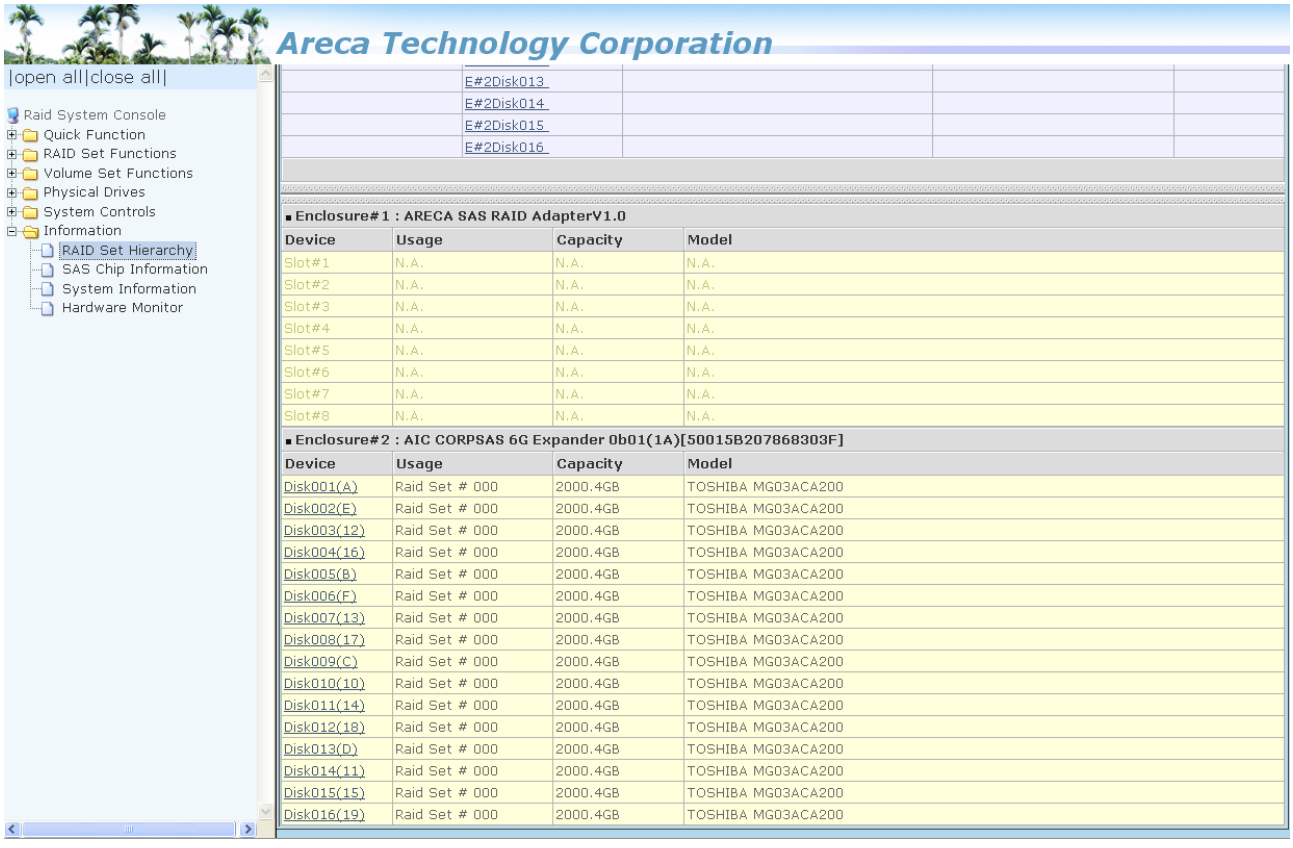
This next screen that appears will show you each individual drive and its status. If everything is working properly, all drives will have green status **OK**. If you see other status levels like **DEGRADED**, **WARNING**, **ERROR** etc you should contact Visualsoft Support for further advice. (See the contact details at the end of this document.)



10.2 Areca

- Log in to the Areca interface as detailed in section 2.3
- Navigate to Information on the left-hand pane and expand the folder
- Choose RAID Set Hierarchy





11 HDD FAILURE/REPLACEMENT PROCEDURE

Over a period of time disks in the NAS can fail. If this occurs you should use the procedures below to avoid any loss of data or further damage to your NAS.

When a disk fails a red or orange light will appear on the front of the disk. Alternatively you may have identified a failed disk by doing regular health checks as described elsewhere in this document. In either case you should do the following:

- Log in to the DSS Interface as detailed in section 2.1
- The first page you see will be the Help > About page. Copy the following details and send them in an email to us at visualsoft.support@f-e-t.com
    - Model
    - Version
    - Licence key
    - S/N
    - Licence Storage Capacity
- You will then need to download the logs as described in section 12 and send them to us in an email along with the details above.
- At no time should you switch off the NAS while there is a drive failure, unless you are specifically asked to do so by *VisualSoft* or the DSS manufacturer.

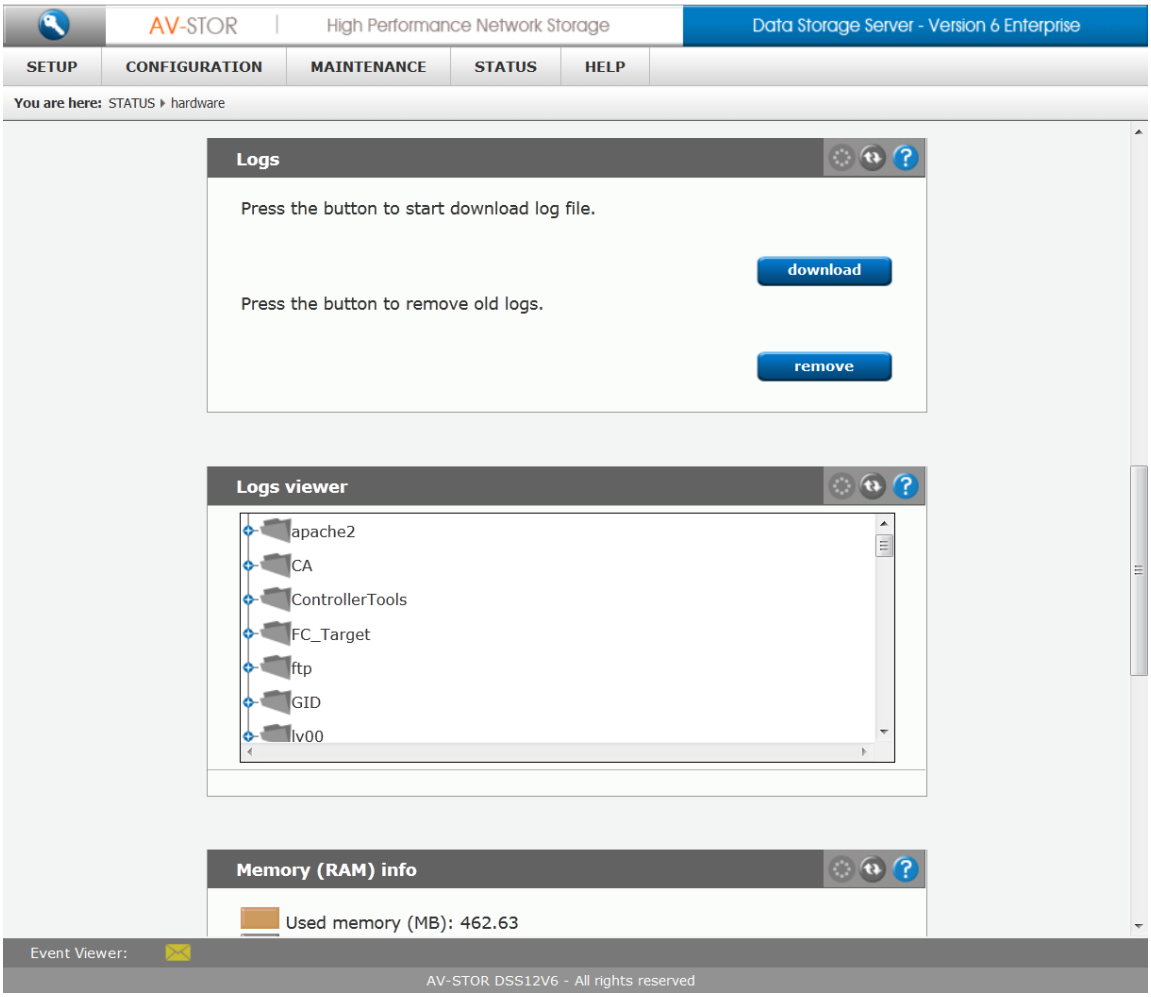
Disk failures must be dealt with as quickly as possible; Failure to do so can result in data loss. **You must take responsibility for your NAS** unit and make sure you know what RAID type you have configured so that you know how many failures you can have before data loss occurs. RAID types are client specific and can be RAID5 or RAID6, each either with or without “Hot-Spares”.

12 RETRIEVING LOGS

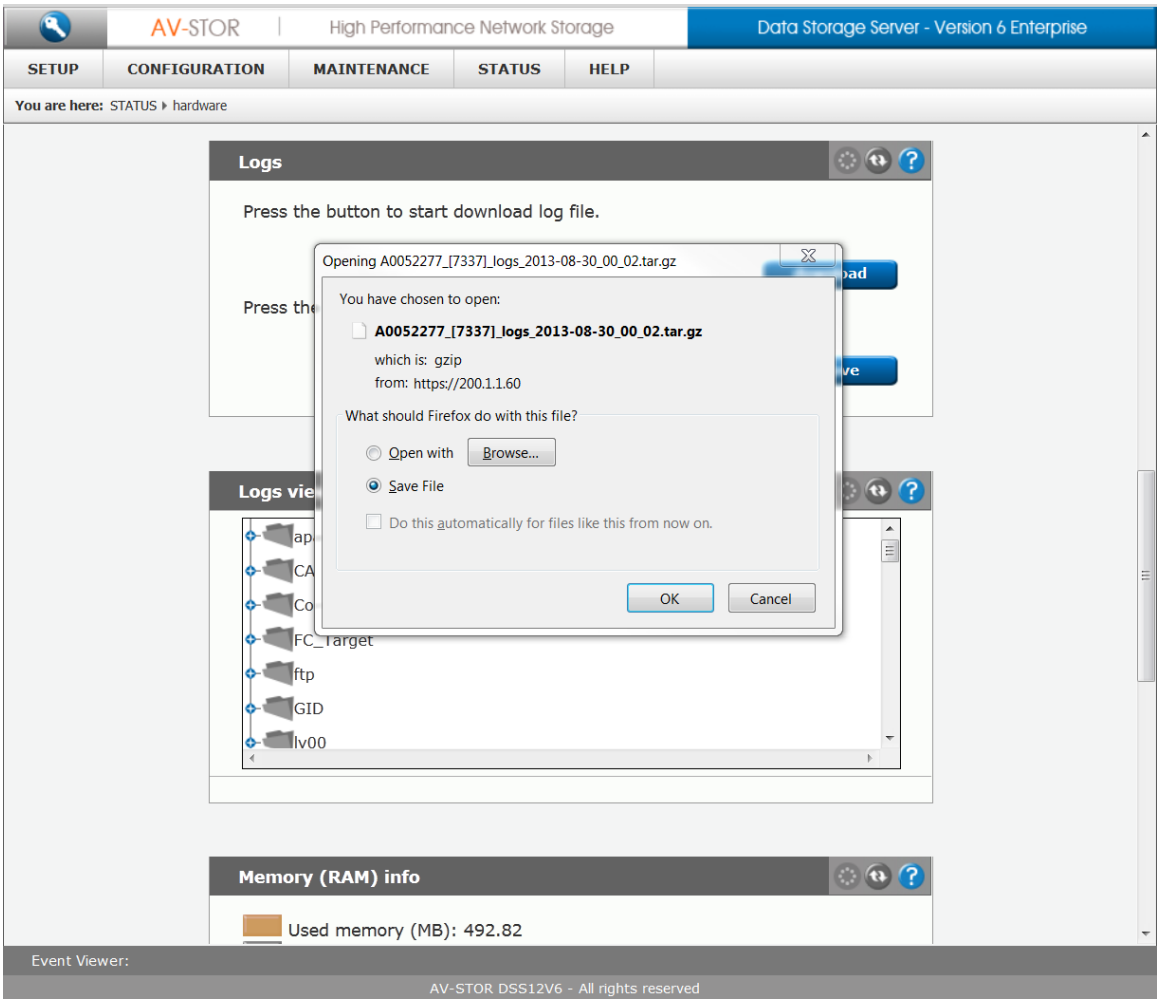
The logs stored within the DSS and 3ware interfaces are important, and will help you to identify whether a storage unit has any problems. It is important that you familiarise yourself with these logs, so that you can find them and send them to VisualSoft if asked to do so.

12.1 DSS Logs

- Select the ‘Status’ tab
- Select ‘Hardware’ from the drop-down menu



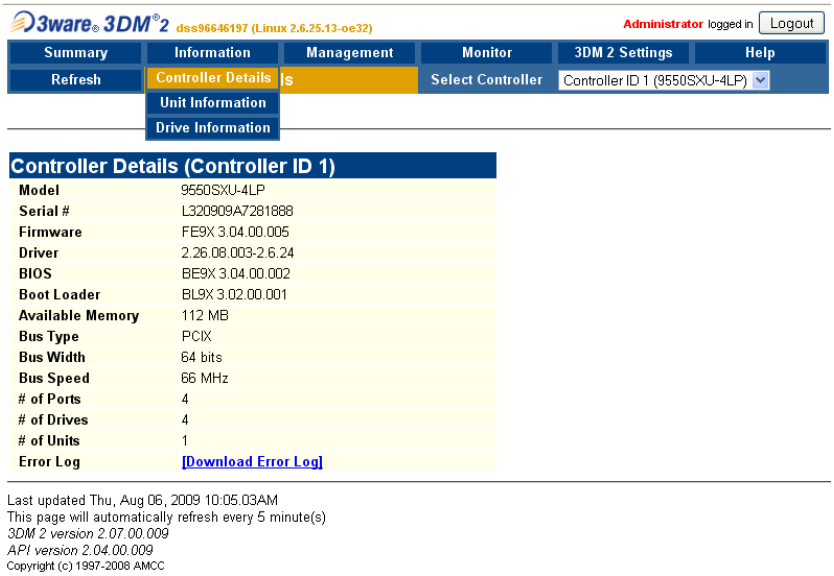
- Click ‘Download’ to download the DSS (data storage server) Logs. A window will appear asking for a destination for the Log file



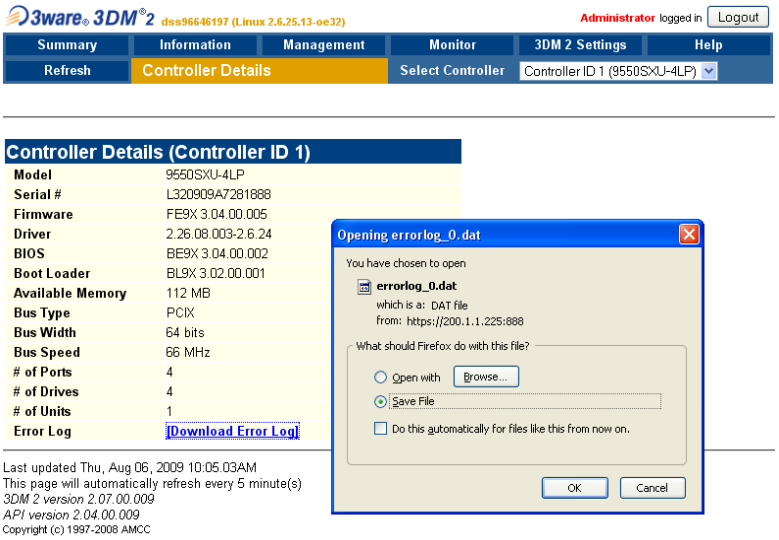
- Attach the downloaded file to an email and send it to *VisualSoft*’s Hardware Suport Team at visualsoft.support@f-e-t.com

12.2 3ware Logs

- Login to the 3ware interface as detailed in section 2.2
- Navigate to ‘Information’ > ‘Controller Details’



- Select ‘Download Error Log’ to download the 3ware Logs. A window will appear asking for a destination for the Log file.



- Attach the file you download to an email and send it to VisualSoft at visualsoft.support@f-e-t.com

13 ADDING A HOT-SPARE DISK AFTER A DISK FAILURE

If a disk which is part of your volume fails, the “Hot-Spare” disk will be activated automatically and data will be recovered to that disk. The failed disk must then be replaced with a new disk which must then be configured as the Hot-Spare.

Please follow these instructions to create a Hot-Spare using either 3ware and LSI RAID cards.

13.1 3ware

- Login to the 3ware interface as detailed in section 2.2
- Go to the **Management** section and select **Maintenance**
- Select the spare drive at the bottom of the window by checking the box next to it.
- Click **Create** Unit.
- In the dialog box that appears, select the configuration type **Spare**.
- Click Ok.
- Press **Rescan Controller** button at the top
- You will see the spare appear at the top of the page, under Unit Maintenance.

13.2 Areca

Areca NAS units are built in RAID6 configuration. This means up to 2 hard disks within the RAID can fail without risk of losing data. In the case of a failed disk, all that is required is to swap the failed disk with a new disk. See section 12 of this guide for steps to obtain disks through VisualSoft Support.

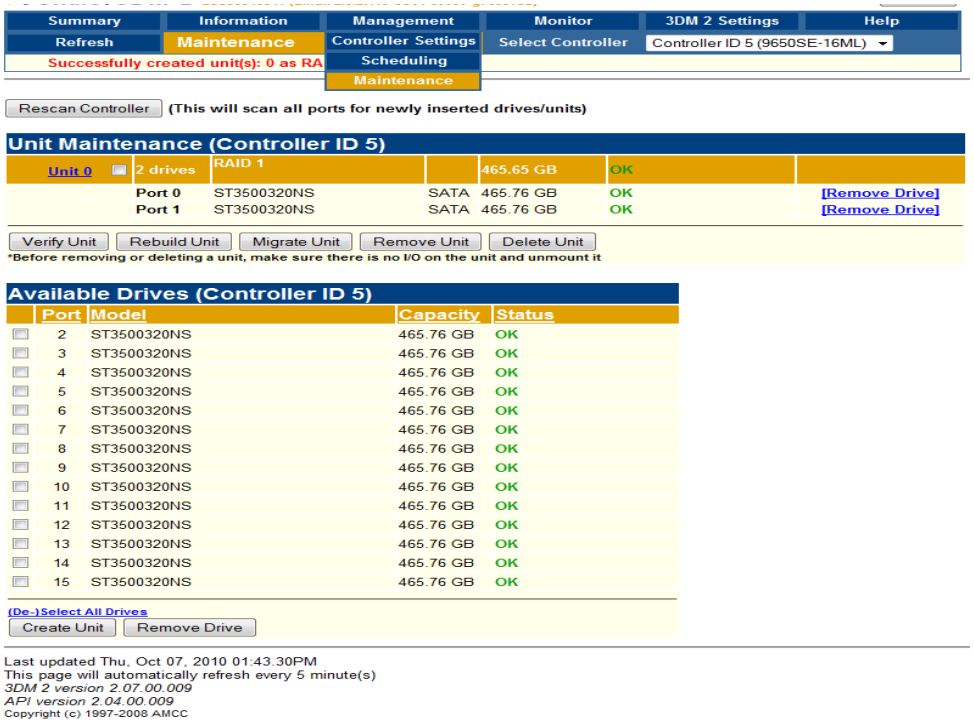
To add a hot-spare to a RAID6 configuration would require breaking the RAID and by doing this the drives would be formatted and the data lost.

14 EXPANDING EXISTING VOLUME

You can expand a unit's capacity by adding one or more drives to it without changing the RAID level. Expanding unit capacity can be accomplished while the unit is online, without experiencing any data loss. This process is also referred to as Online Capacity Expansion (OCE).

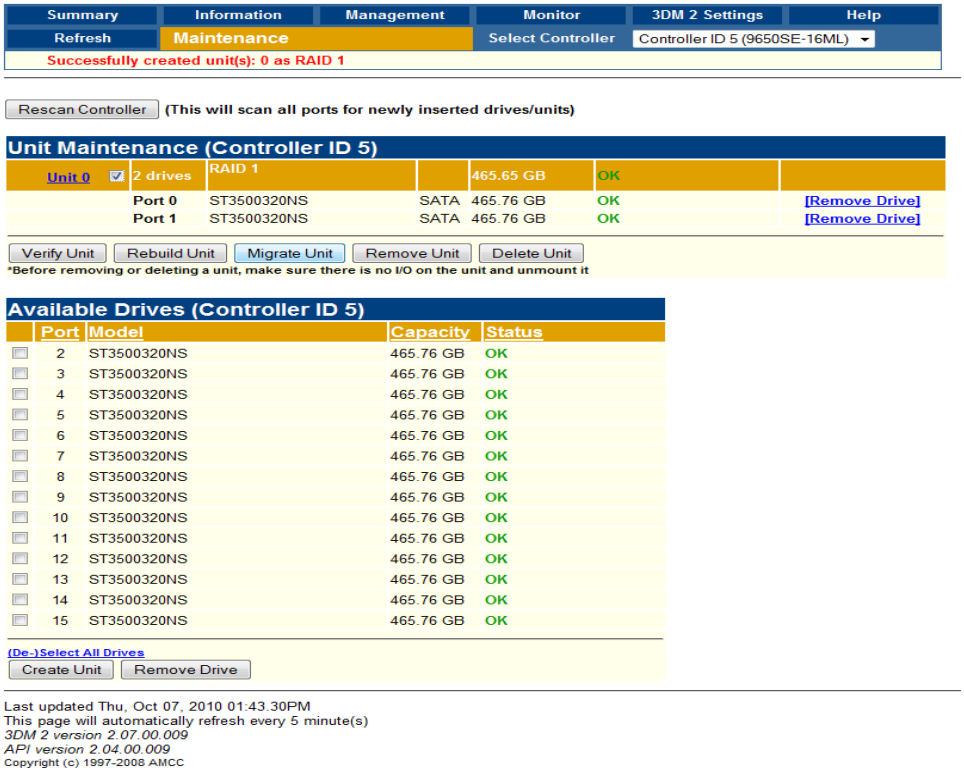
14.1 Expanding the unit's capacity in 3DM 2

1 In 3DM 2, choose **Management > Maintenance.**



2 In the Unit Maintenance table on the Maintenance Page, select the unit you wish to expand by checking the box next to the Unit ID.

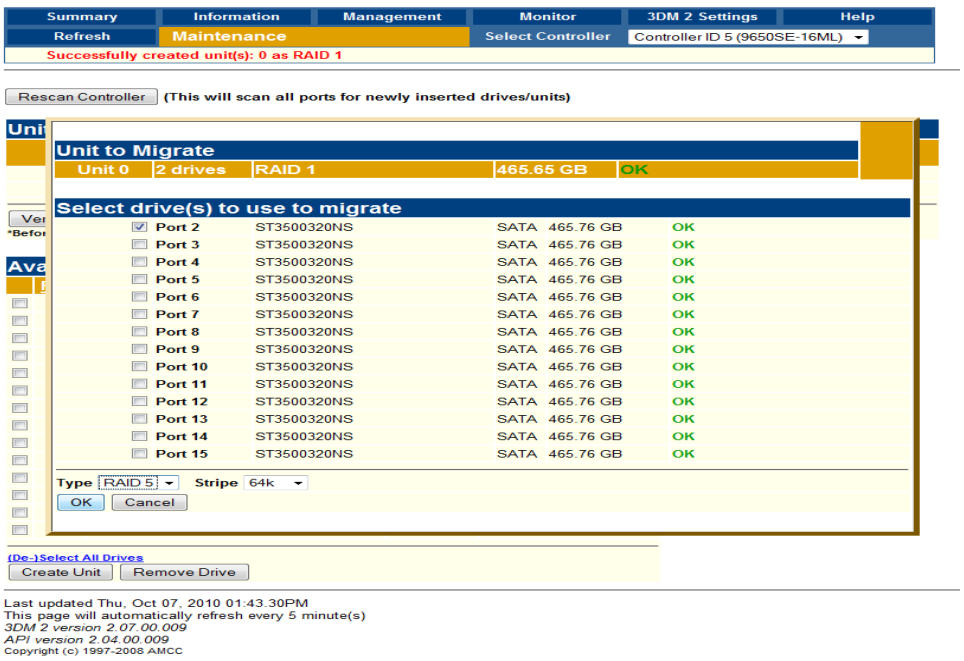
3 Click the **Migrate Unit** button.



The Migrate dialog box appears, listing the drives which can be added to the unit.

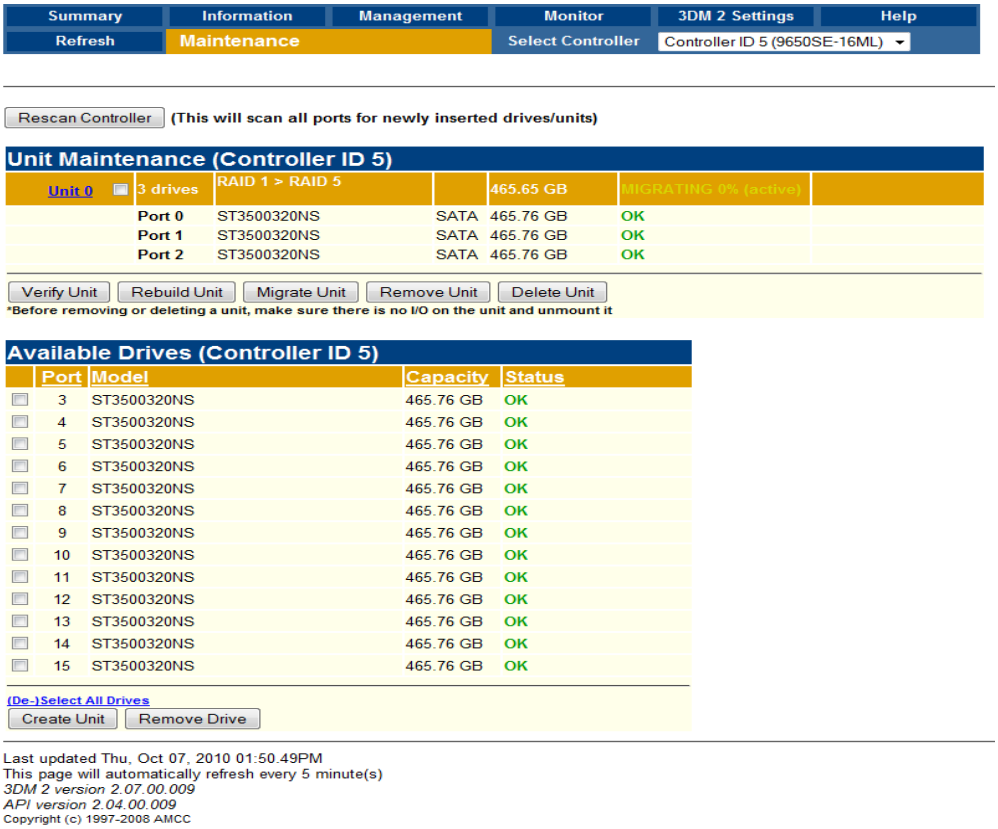
4 Select the drives(s) you wish to add to the unit by checking the Port ID box next to each one.

5 If desired or necessary, select the appropriate RAID level.



6 Click **OK**.

The Maintenance page updates to show the newly reconfigured unit. The Status column title indicates that Migration is in progress.



Then I initializes

14.2 Expanding the unit's capacity in the DSS

15 UPDATING FIRMWARE

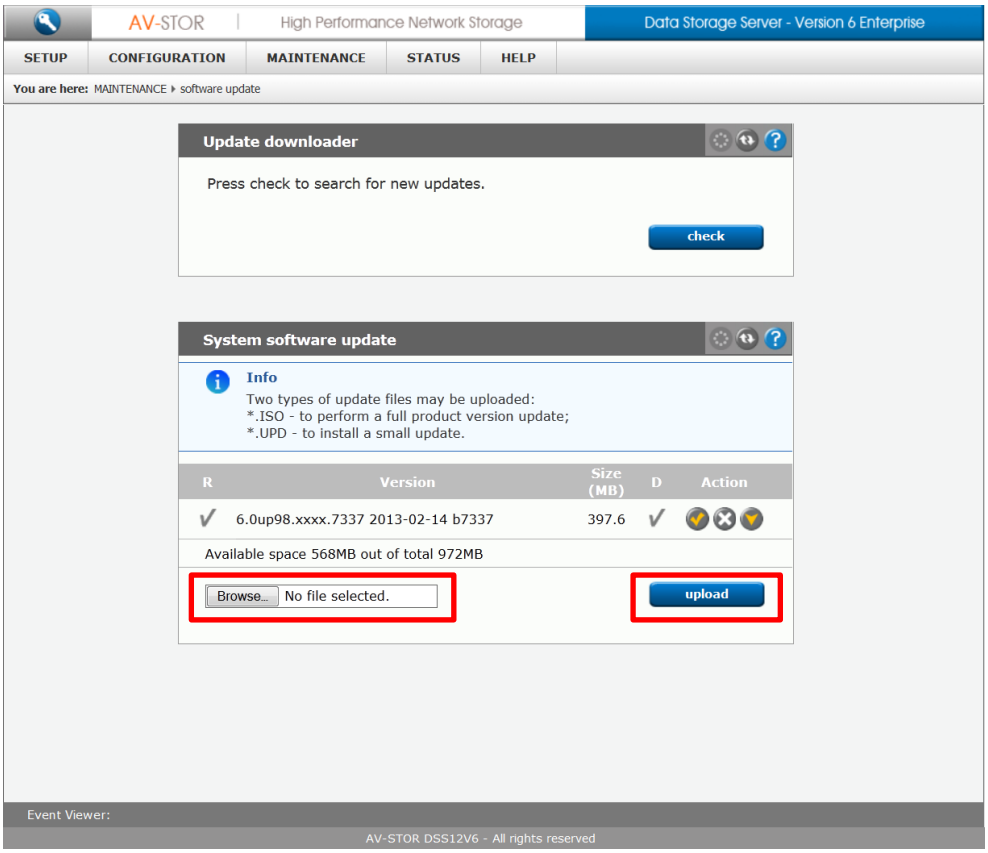
15.1 Introduction

It is important to have all units updated with the latest firmware. These updates can include vital bug fixes and useful new features. There are two types of updates, one for the DSS and another for the 3ware card.

Before applying any firmware upgrades, please ensure that all of your data is backed up before you proceed. Also, please save all system settings. You can use Section 8 for instructions on how to do this.

15.2 DSS ISO Upgrades through Browser

- Select the 'Maintenance' tab
- Select 'Software Update' from the drop-down menu
- Browse to the .iso image file provided by Visualsoft, then click upload. This will take a couple of minutes.
- When the upload is complete, press the yellow tick symbol to apply the update and restart the NAS when asked to.



15.3 Firmware Upgrade

15.3.1 Version 3518

All Version 5 AV-STOR DSS NAS units should be using firmware version 3518. If you have not upgraded to 3518 you will be unable to apply any new patches or small updates that are available.

You can upgrade to build version 3518 from build 3204 or greater. Units with build versions lower than 3204 will first have to upgrade to 3278 before upgrading to 3518.

15.3.2 Version 7337

All Version 6 AV-STOR DSS NAS units should be using firmware version 7337. If you have not upgraded to 7337 you will be unable to apply any new patches or small updates that are available.

You can upgrade to build version 7337 from build 6536 or greater. Units with build versions lower than 6536 will first have to upgrade to 6536 before upgrading to 7337.

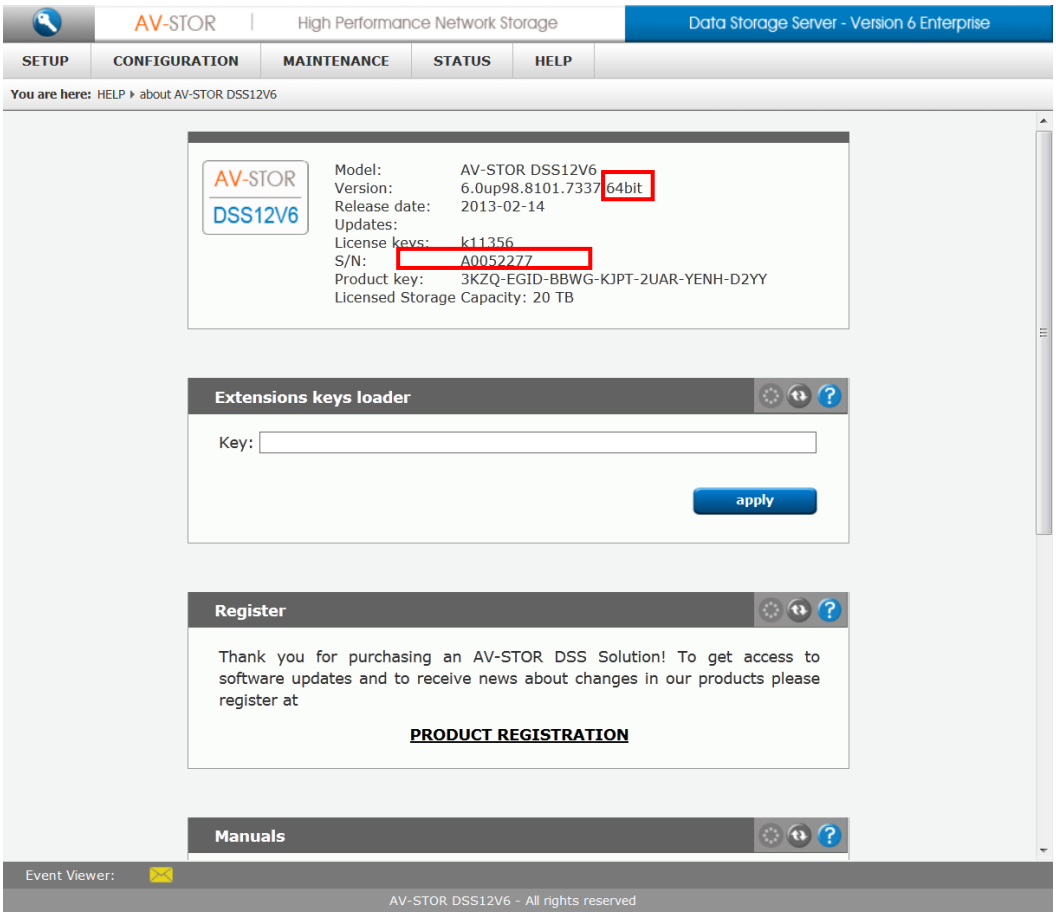
15.3.3 How to Obtain the Firmware Files

All files can be downloaded from our website or requested from VisualSoft at Visualsoft.Support@f-e-t.com.

Before contacting VisualSoft, please send us the information described in section 15.3.4 below. This allows us to determine your requirements faster.

15.3.4 Finding Serial Number, Firmware Version and Checking bit mode

You will need to find out what version of the DSS firmware you have. To do this you please login to the DSS interface by following the procedure detailed in section 2.1. From the page that appears when you login you can see the Firmware Version, Serial Number and Bit mode (32 or 64bit) of the NAS.



Before applying the Upgrade, you must send us these details and allow up to 24 hours for us to obtain a Licence Key that matches your Serial Number. The licence key is required in case the DOM flash memory becomes corrupt or unusable during the upgrade. You should never attempt a firmware upgrade without first obtaining the correct license key otherwise you risk losing or damaging your data.

15.3.5 Creating a Bootable USB Memory Stick

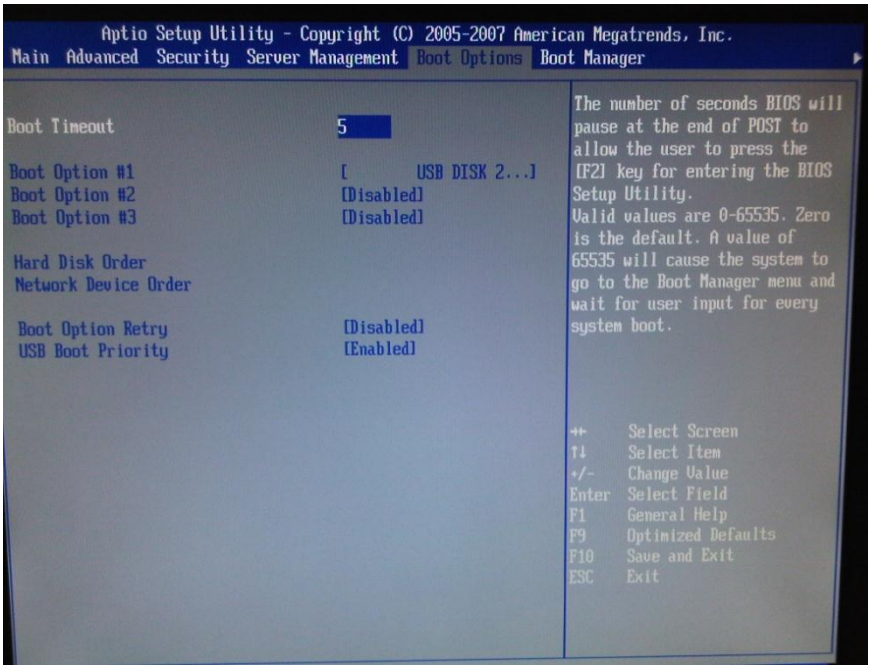
A .zip file will be issued to you for the upgrade (USB BOOT-DSS_XXXX.zip). Before unzipping the file to a USB Memory Stick, you must format the USB Memory Stick as either FAT or FAT32 (please ensure the Stick is at least a GB in size). Once the Stick has been formatted, do the following:

- Unzip the USB BOOT-DSS_XXXX.zip file on to it.
- Right-click the 'bootinst.exe', located in the boot folder, and select Run as Administrator
- Press any key to run installer

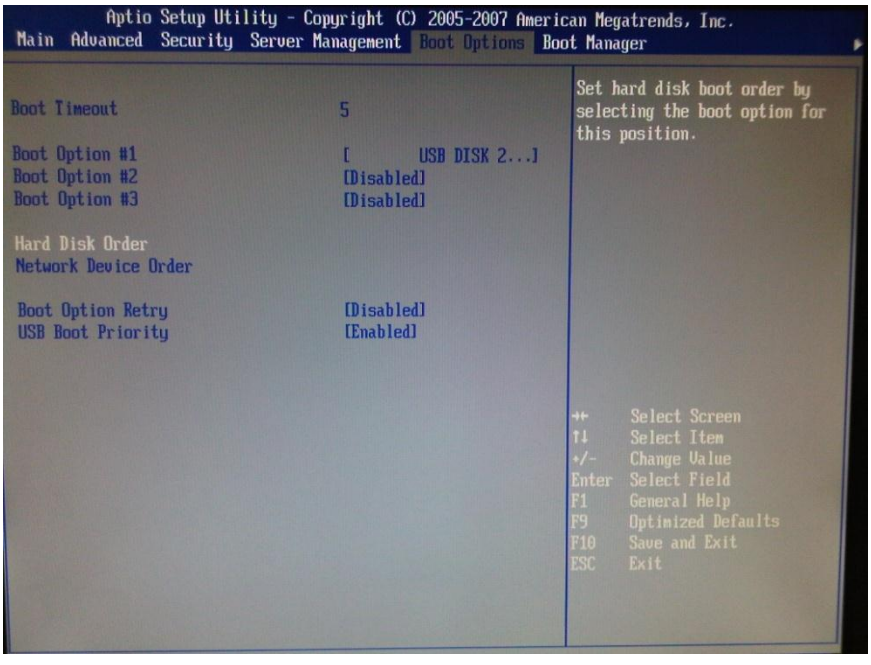
15.3.6 Changing the Boot Order

The boot order of the NAS must be changed to boot from the USB Memory Stick.

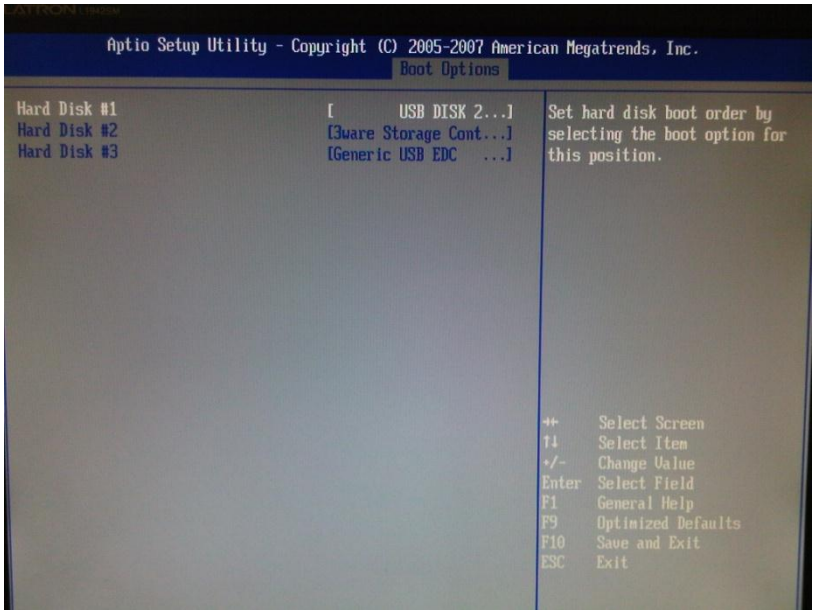
- Press F2 to enter the BIOS of the NAS
- Select the Boot Options screen using the right and left arrow keys.



- Scroll down to Hard Disk Order and Press return.



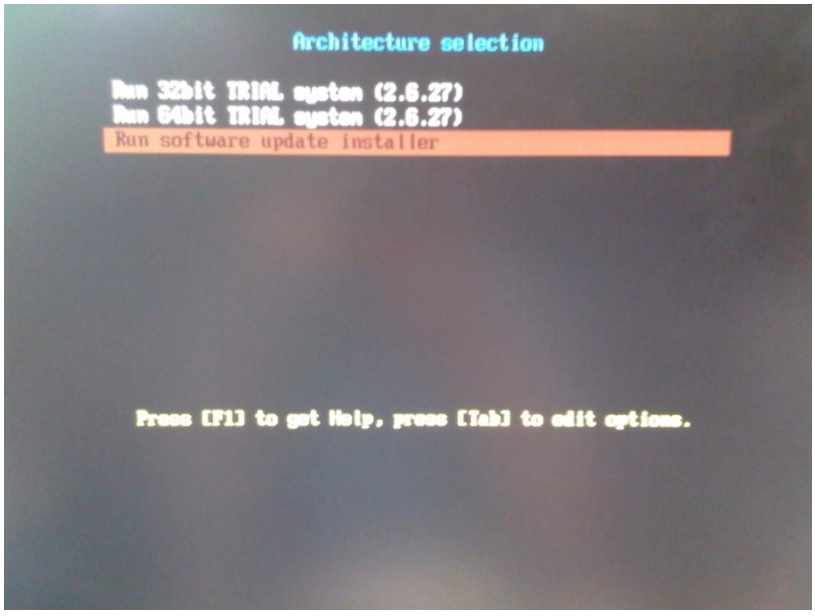
- Press enter on Hard Disk #1 and make sure you select USB DISK 2.0, you can press + and – to change the boot order.



- Press F10 to save the settings and Exit.

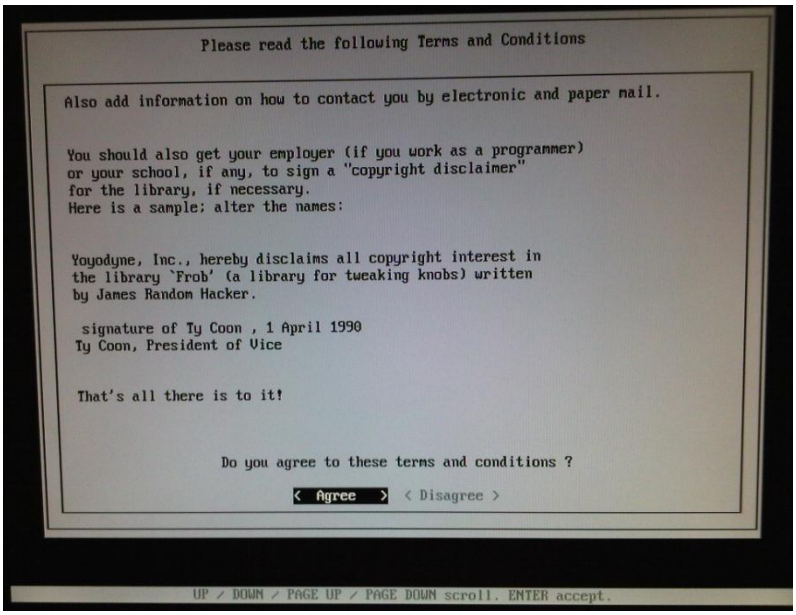
15.3.7 Applying the Update

- When the unit boots you will be presented with the options as shown in the image below. You should select 'Run Software Update Installer'.

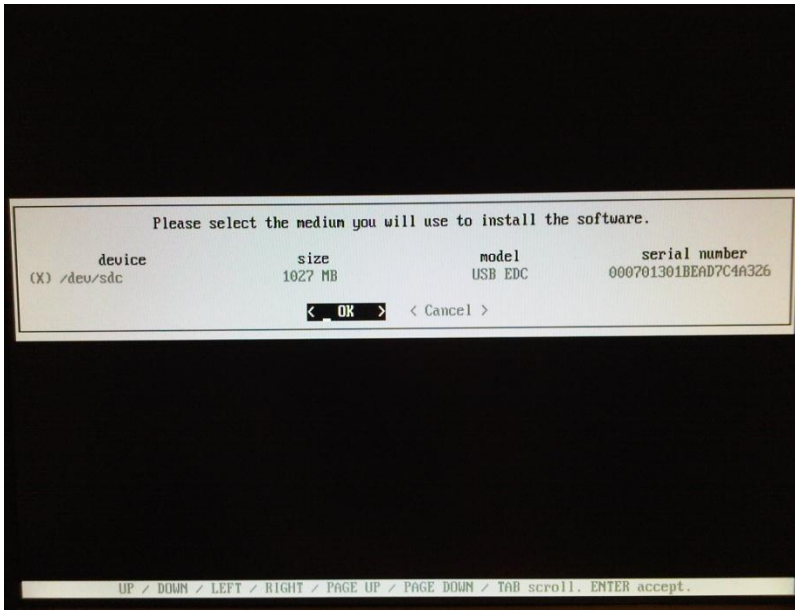


- Allow the unit to continue booting

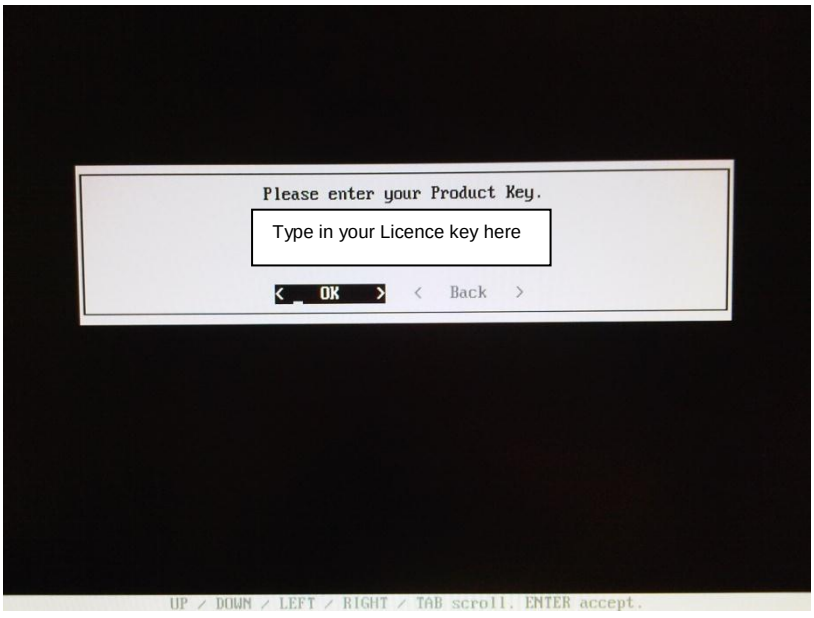
- On the next screen that is displayed scroll down to the bottom of the page using Page down button on the keyboard and press Enter



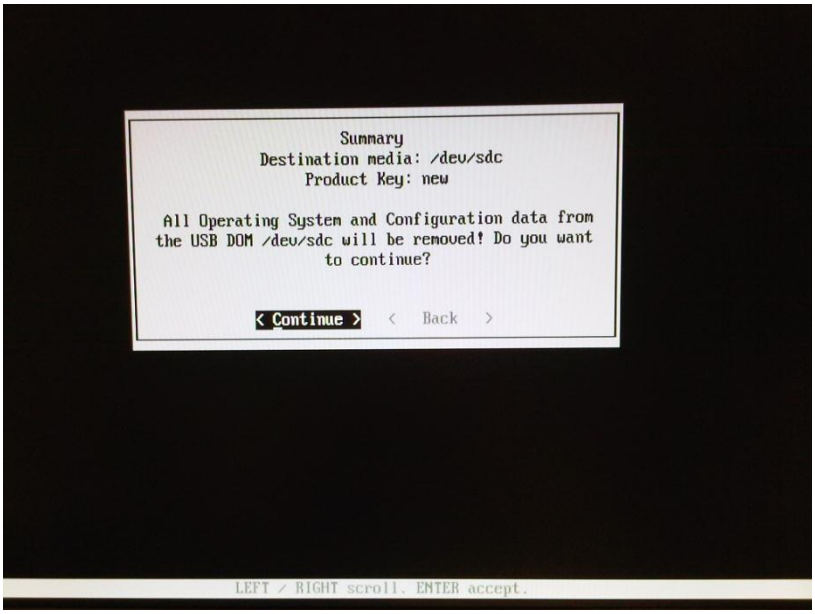
- Press ‘Space Bar’ to select the device you wish to install the Operating System to. Press ‘Tab’ to highlight ‘OK’ then press ‘Enter’.



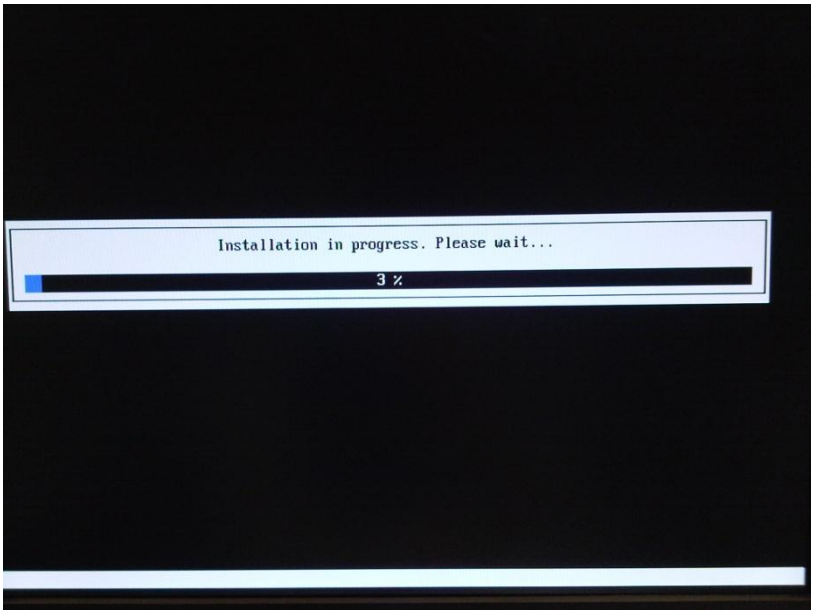
- Enter the licence key that has been provided by VisualSoft. Please leave out any hyphens and be careful to distinguish between the number 0 and the letter O.



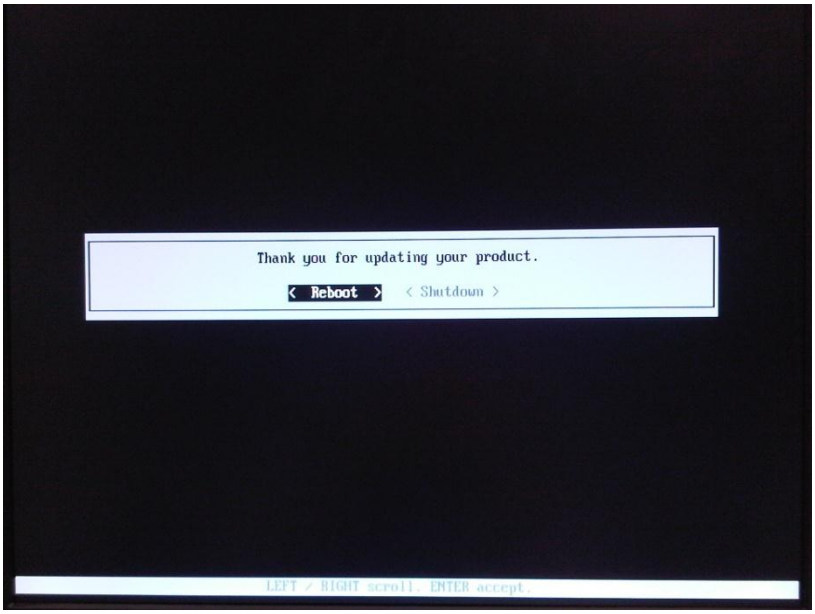
- Press ‘Enter’ to continue



- The update will take ten to fifteen minutes to complete.



- You will be prompted to reboot the unit when the update is complete.



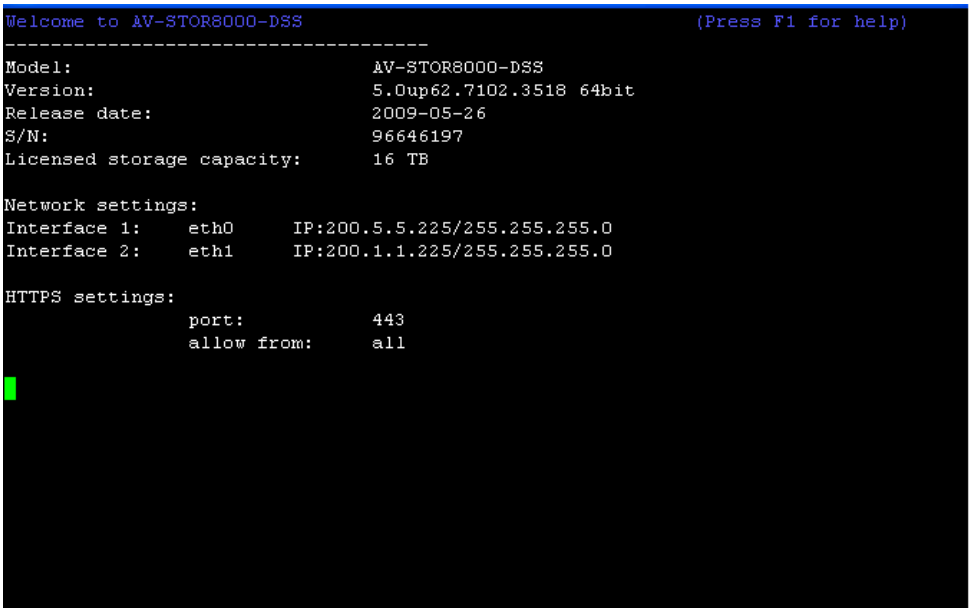
- Please check that the firmware has updated correctly by checking the ‘About’ page as detailed in section 15.3.4.

15.3.8 Selecting the Correct System Architecture

You will have to make sure that the NAS is booting in the correct system architecture. If you have created your volume in 32-bit mode but have booted the NAS in 64-bit mode, you will be unable to view the system volume and shares.

To change the System Architecture you will have to do the following.

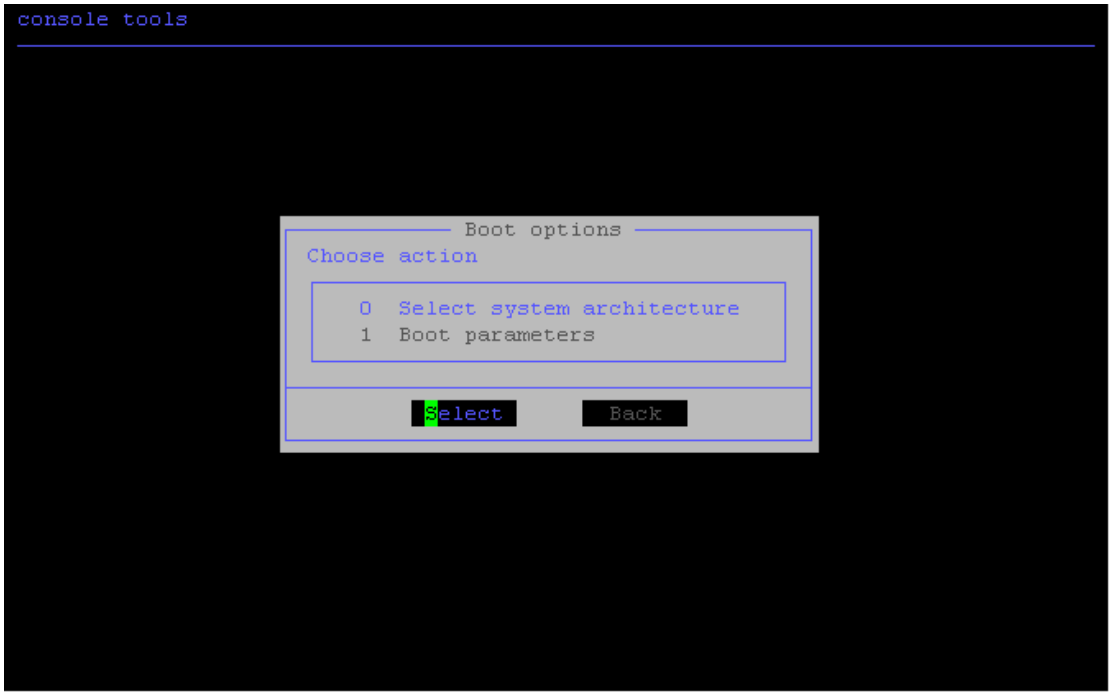
- Click CTRL+ALT+T in the main screen below.



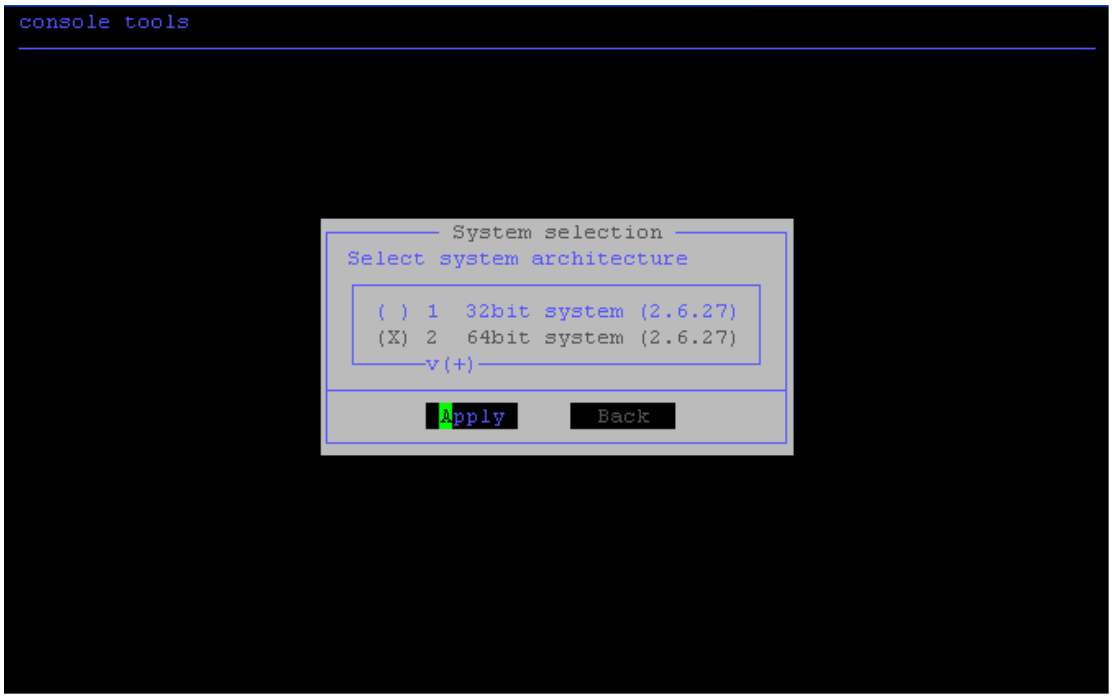
- Select Option 9 ‘Boot Options’.

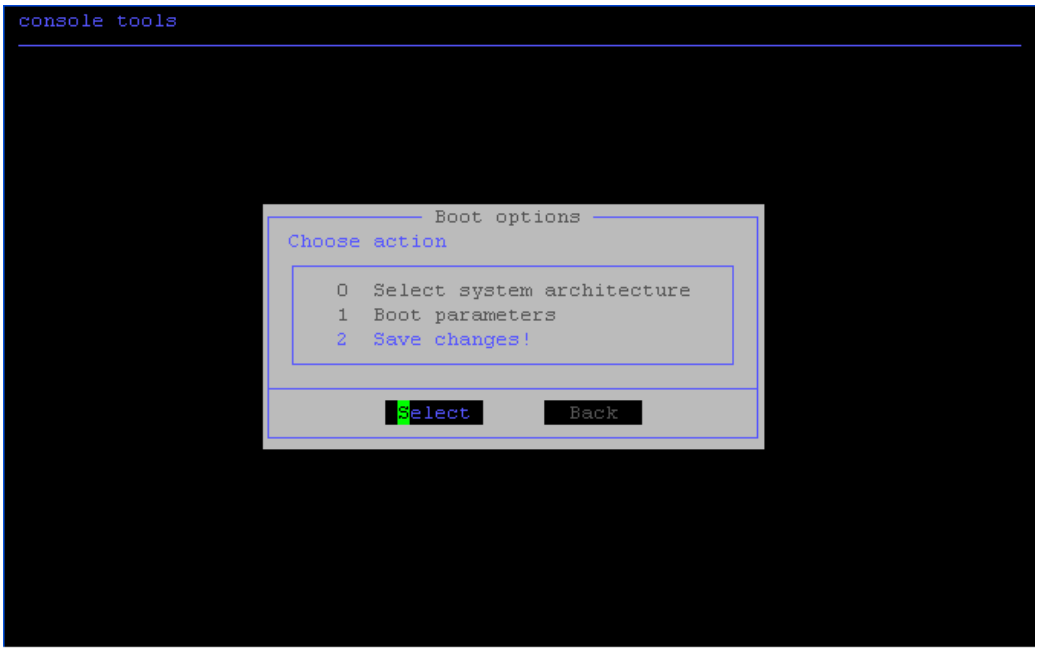
- Click ‘Next’ to proceed.

- Select Option 0 ‘Select System Architecture’

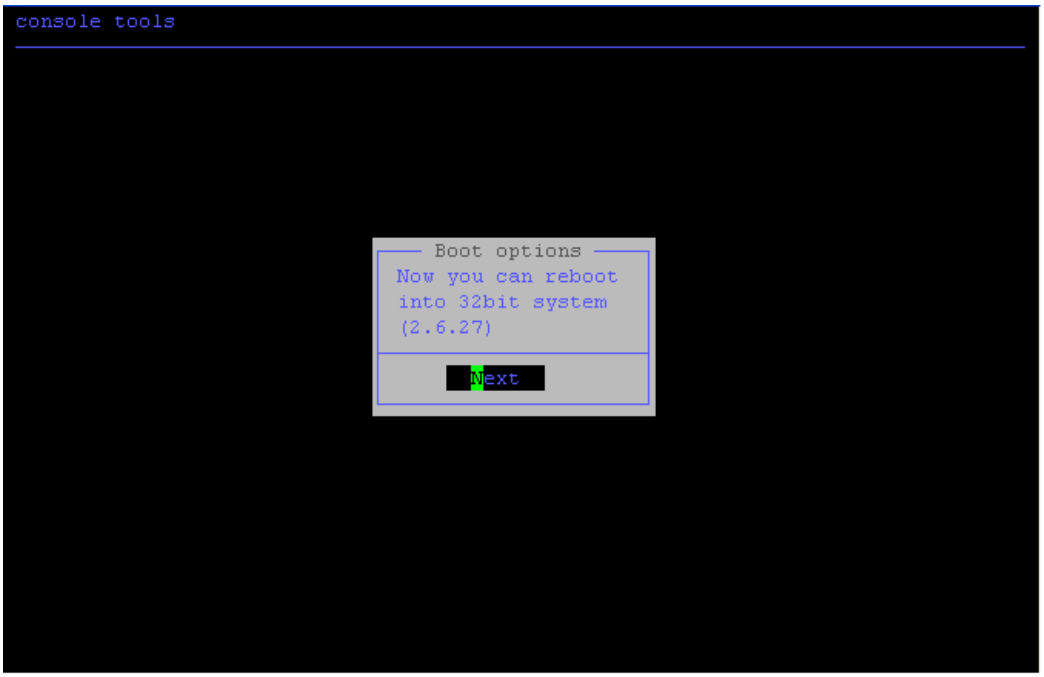


- Please select the System that you took a note of in Section 12.3.2, Click ‘Apply’ and reboot the NAS.





- Select option 2 and ‘Save any changes’.

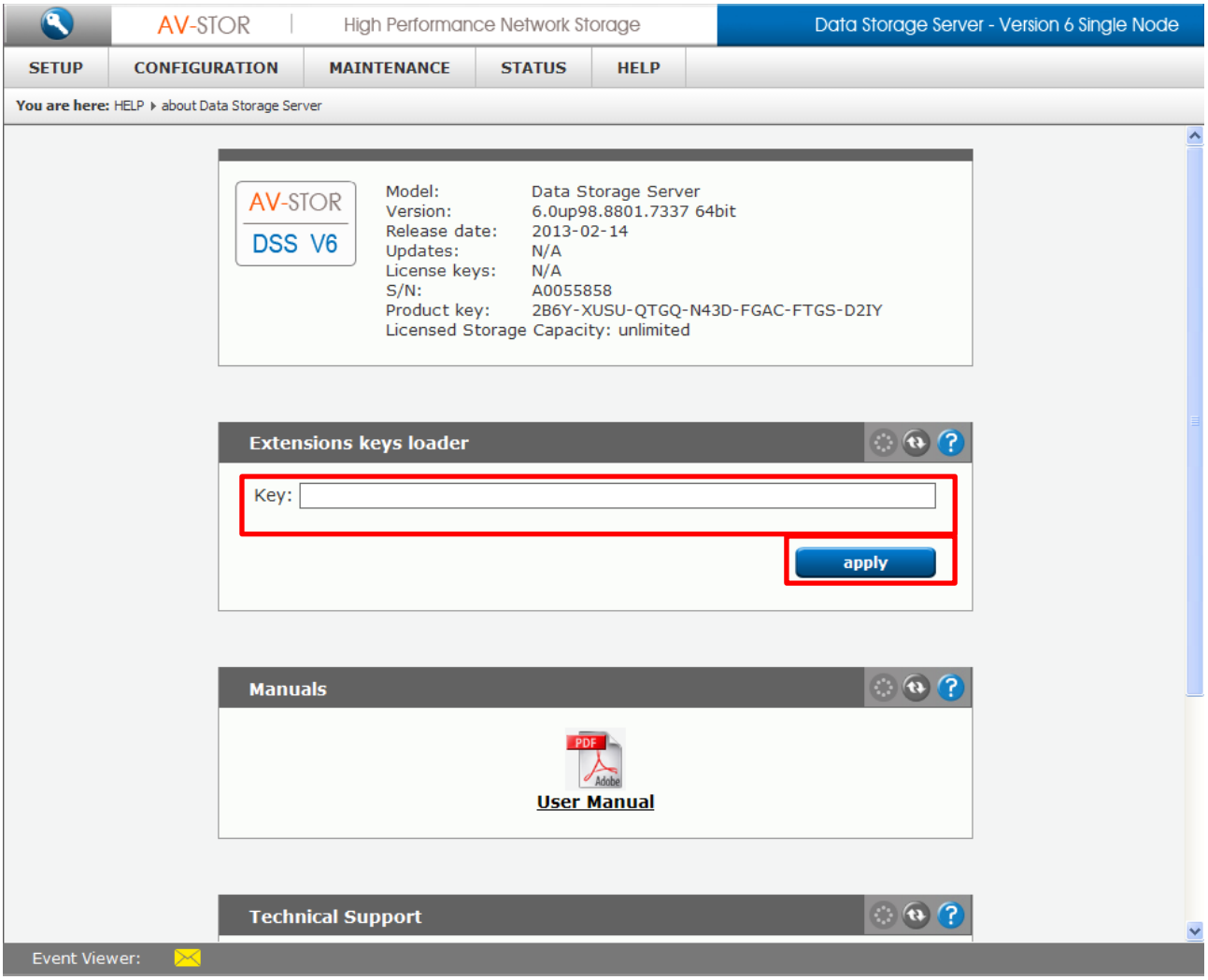


- After rebooting the NAS, we would recommend saving your settings see ‘Section 8.1’.

15.3.9 Activating your new licence

Once the upgrade is complete, you will be asked to activate your new licence. You must apply an extension key and restart the storage unit. Contact VisualSoft Support for details on how to obtain an extension key. See section 16 of this guide for contact details.

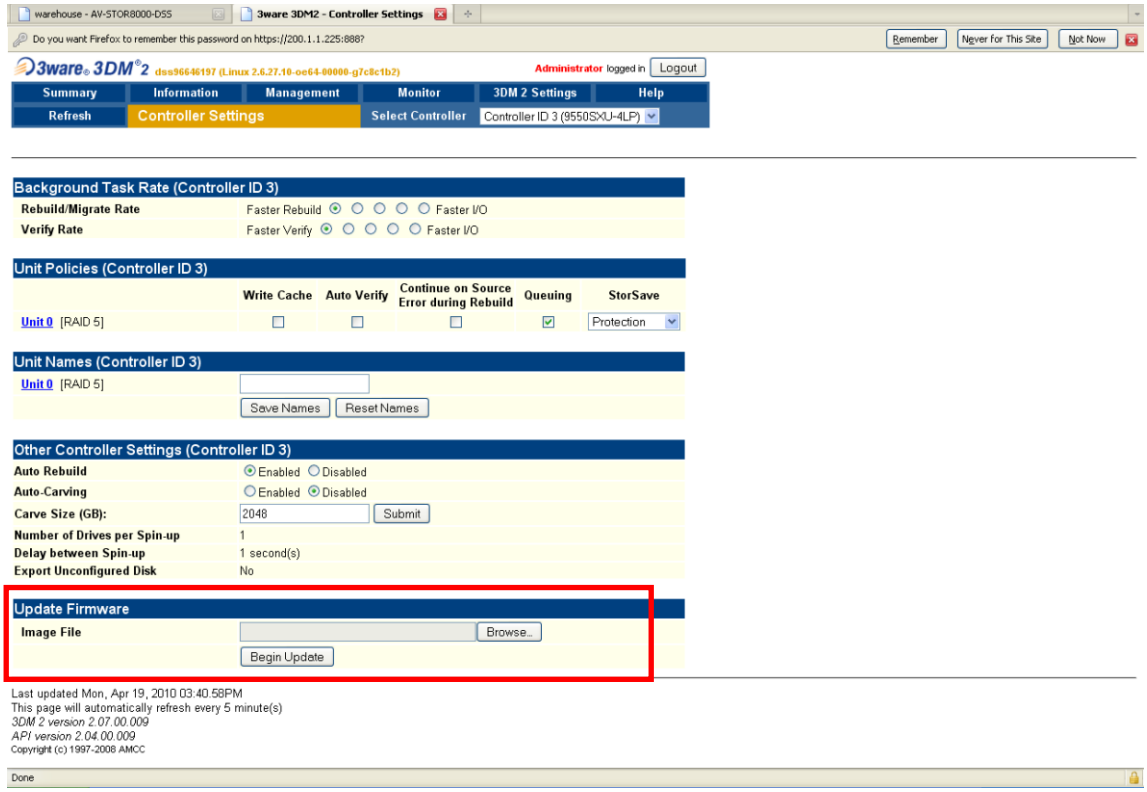
You apply the licence key by navigating to Help > about DSS



- Paste the licence key in the extension loader and click ‘Apply’
- You will be asked to reboot the NAS.

15.4 3ware Image Upgrade Using a Browser

In Management > Controller Settings at the bottom of the page, you will find a Update firmware option. Please browse to the .img file provided by Visualsoft and press 'begin update'. Restart the NAS when prompted.



16 VISUALSOFT SUITE SUPPORT

If you are unable to find the answers to your questions within this document please contact **VisualSoft** for further help and advice.

By Email:	**visualsoft.support@f-e-t.com**
By Telephone:	
Office Hours:-	**+44 (0) 1224 766-000**
Out of Hours:-	**+44 (0) 1224 363-999** This is an automated phone system, operating from 17:00 until 08:30 UK time each night, and from 17:00 Friday until 08:30 Monday at weekends. The system will automatically route your call to an on-call support operator.
By Fax:	**+44 (0) 1224 279-737**
Address:	**FET – VisualSoft** **Concorde House** **Endeavour Drive** **Arnhall Business Park** **Westhill** **ABERDEEN** **AB32 6UF** **U.K.**
Website:	**www.f-e-t.com/visualsoft**