



NAS Server

StorIQ System v. 2.3.0

User Manual

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Ref. NAS-MAN

Version: 2.0

Last updated: 9/1/08

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1 – Introduction

1.1– presentation

Welcome! This documentation will help you to install, setup, administrate and use your new NAS server StorIQ NAS StorIQ at its best.

StorIQ NAS servers come in several packages, but be it a 120GB NasStart or a huge 60 TB rackable machine, all share the same system software and functionality.

The Operating System is based upon Debian GNU/Linux 4.0 we chose for its stability, its security and efficiency. Debian is used as a base for many other well known Linux distributions : Ubuntu, Knoppix, Linspire...

1.2 – functionality

StorIQ NAS systems support all network setups authentication directories and file sharing protocols. Extensible and scalable, modular and robust, a StorIQ will never be obsolete.

Furthermore, you may aggregate in different ways several StorIQ servers in clusters, to manage them simultaneously, provide high availability or aggregate several servers volumes into only one.

File sharing :

- Windows file sharing: SMBFS (from 3.11 to NT4) and CIFS (Windows 2000 and newer), extended ACLs (access control lists) support.
- Unix file sharing : NFS versions 2, 3 and 4, extended ACLs (access control lists) support.
- Apple file sharing : AppleShare protocol over AppleTalk and Appleshare IP, support big volumes and files (more than 2TB).
- Web and FTP file sharing : Apache web server 2.0 and ProFTPd Ftp server are installed.

Authentication and directories :

- ActiveDirectory
- Microsoft Windows Domain
- Novell NDS / eDirectory
- Kerberos
- LDAP
- NIS
- NIS+

RAID and iSCSI :

- iSCSI target (server) with thin provisioning
- iSCSI initiator (client)
- Software RAID 0,1,3,4,5,6,10
- Hardware RAID 0,1,10,5,6,50,60
- SATA, SAS and SSD disk drives.

1.3 - installation

The StorIQ servers come fully installed and configured. However a system CD is provided, which allows you to reinstall the system entirely. Furthermore, in case of an emergency, you may boot the system from the CD to perform maintenance or even run services.

The software is provided both in English and French, but any keyboard layout may be used. The keyboard and mouse can be connected through PS/2 or USB connectors indifferently.

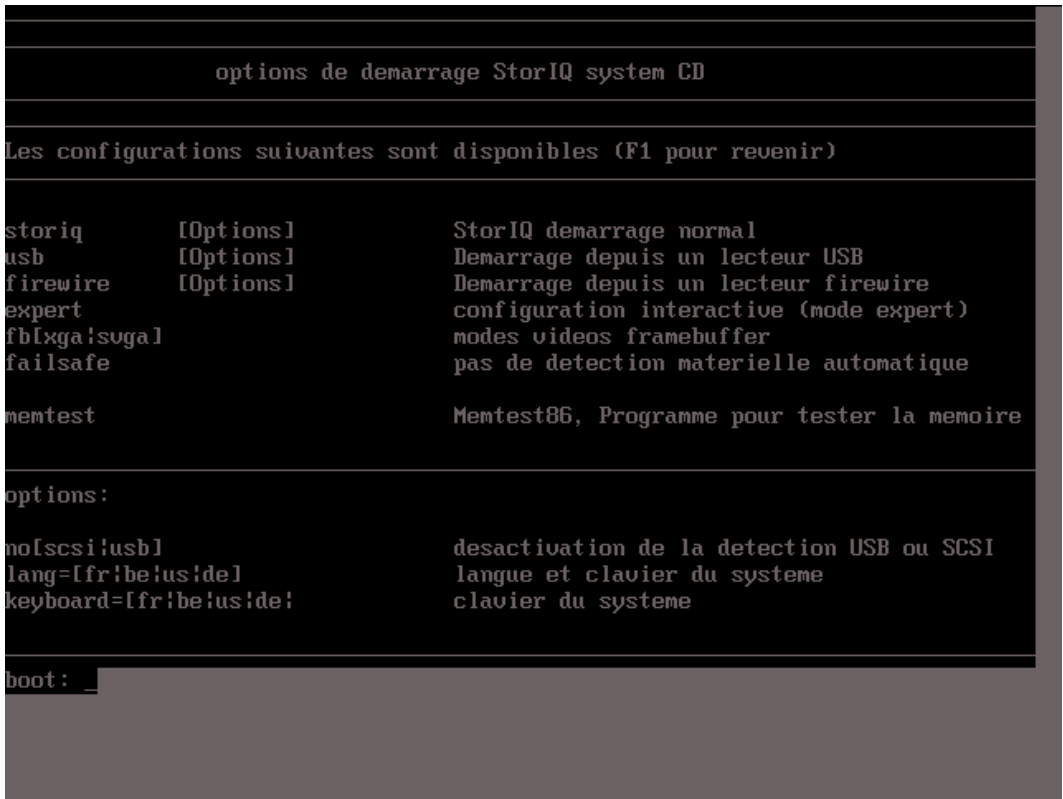
To boot from CD, power up the StorIQ server and insert the CD. You'll see the following display :



If you're using an USB CD drive, type in

usb

at the prompt. To see a list of all boot options, press F2 key :



The options are :

storiq	Normal boot
usb	Normal boot from USB drive
firewire	Boot from firewire drive
expert	Expert boot mode (interactive)
fbxga, fbsvga	Force video mode to xga, svga
failsafe	Fail safe mode, no hardware detection
memtest	Thorough memory testing

Simply press “Enter” to boot the default entry (“storiq”).

Once the operating system is up, you'll see a login prompt (see below).

There are two default system users available : "storiq" and "root", the system administrator.

For standard installation, logging in as "storiq" is recommended.



Once logged in, you may start installation by double-clicking the "StorIQ Installation" icon on the desktop :



You'll be prompted for the "root" password. If you don't remember it, please contact Intellique support.

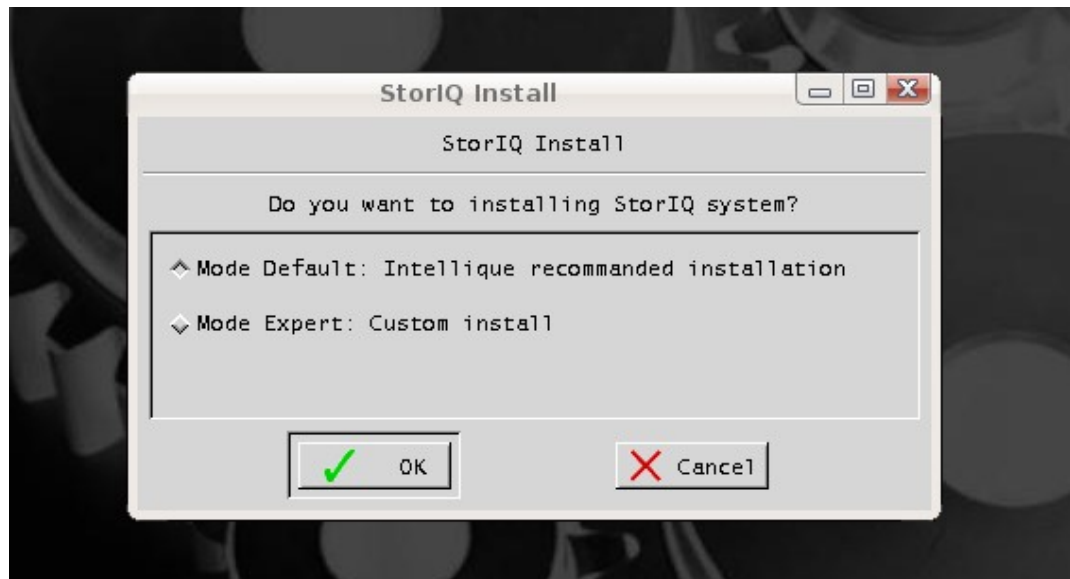
Then you'll be asked to choose between "standard" installation ("Default mode") and "advanced" installation ("Expert mode").

Please see the "StorIQ System – Advanced administration" for the advanced installation procedure.

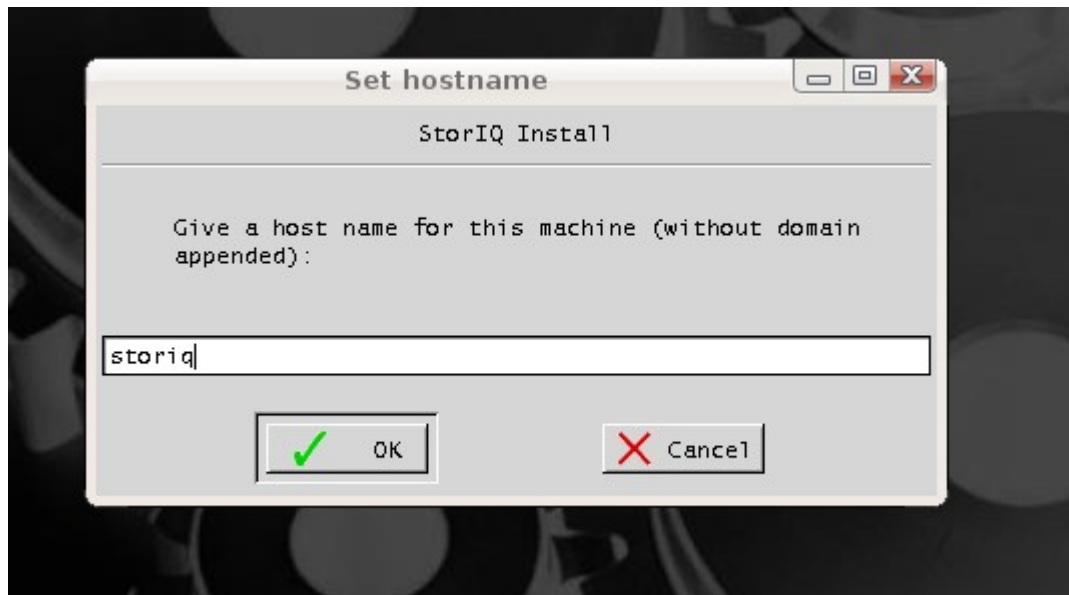


Caution : Standard installation will DESTROY ALL DATA on all drives.

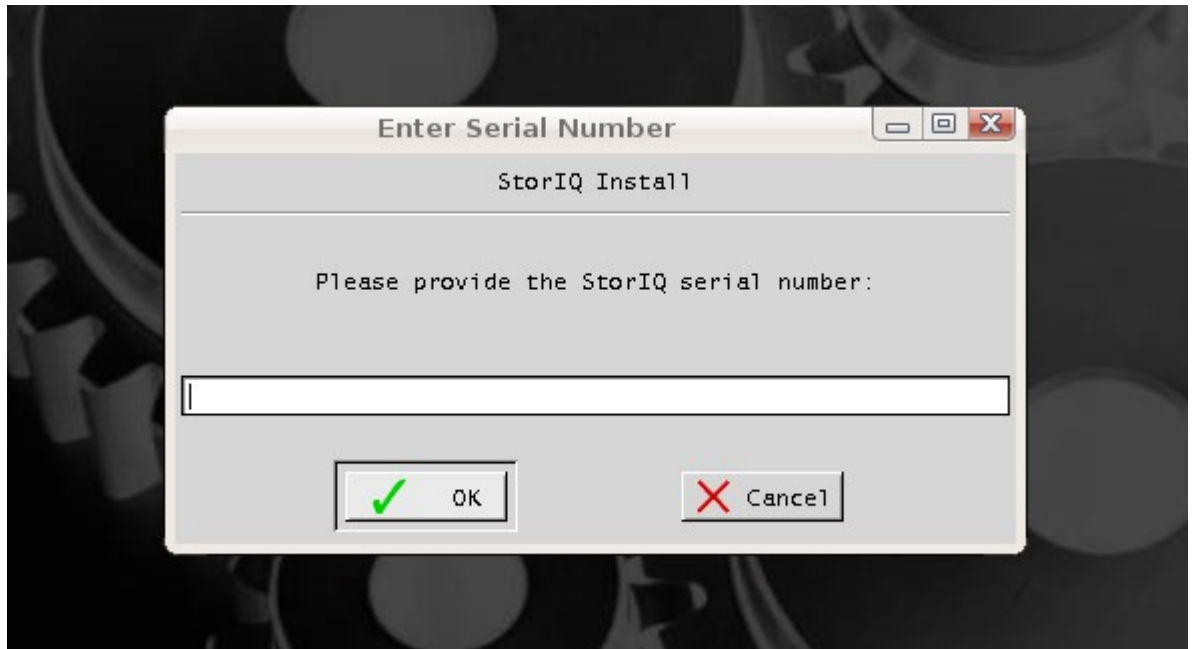
Follow up on-screen instructions for standard installation.



You'll only have to type in two informations : the name you want to give to your StorIQ server :



Then the StorIQ serial number (it's written on the invoice, the delivery order and the back of the StorIQ system).



1.4 - administration interface

The StorIQ system can be entirely managed through a web interface. You can access it locally from the StorIQ session : start the browser from the "StorIQ» (Start) menu, or click on the following icon in the task bar :



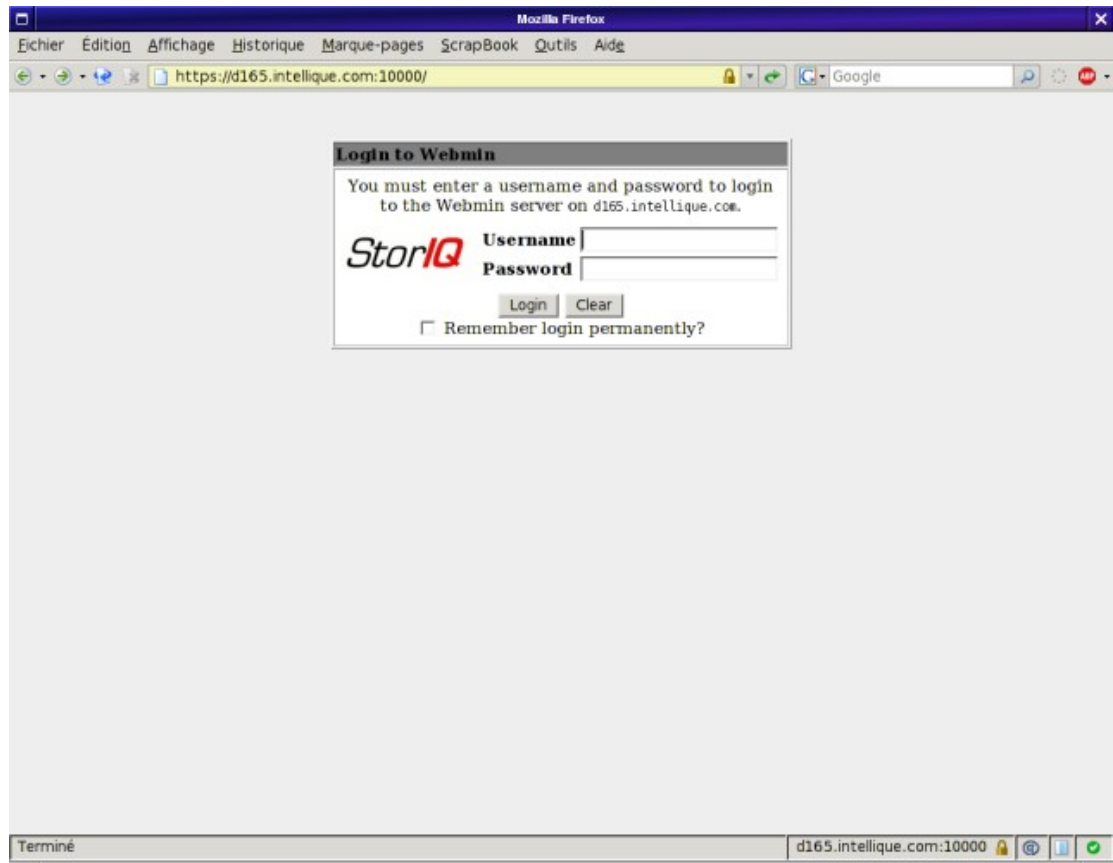
From another machine on the network, use :

http://<machine name>:10000

or

http://< IP address>:10000

You'll get the following login prompt :



You can use three different accounts to access the administration interface :

User	Usage
"storiq"	Common tasks : <ul style="list-style-type: none">-storage and raid management-network configuration-file sharing
"admin"	Advanced administration : <ul style="list-style-type: none">-software upgrades-hardware management-other services
"root"	All parameters

2 – Configuration

2.1 – disk drives configuration

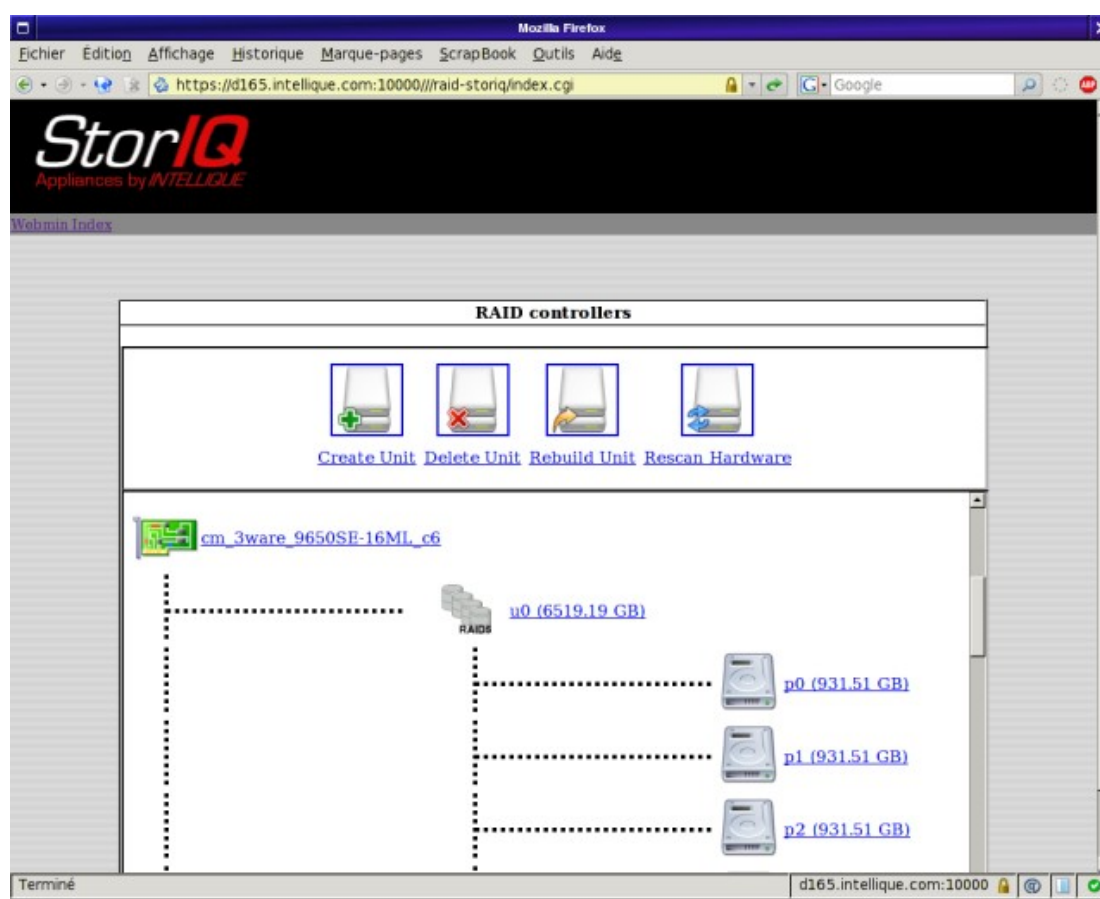
Disk drives base configuration may vary accordingly to the number of drives and RAID controllers installed. Disk volume partitioning is adapted to the configuration too, but it may be changed as you need. Here are the standard shipping configurations :

RAID Controllers	Disks	RAID level	Partitioning
None	2	0 or 1	<ul style="list-style-type: none">- 1 system partition on each disk drive.- 1 system partition on each disk drive.- 1 RAID volume across the remaining space on both drives.
None	4	0 or 10	<ul style="list-style-type: none">- 1 system partition on each disk drive.- 1 system partition on each disk drive.- 1 RAID volume across the remaining space on all drives.
1 controller	2 to 16	5,6 or 10	<ul style="list-style-type: none">- 1 hardware RAID volume containing 2 system partitions, 1 swap partition and 1 data partition.
2 controllers or more	15 to 40	50 or 60	<ul style="list-style-type: none">- 1 hardware RAID volume containing 1 system partitions, 1 swap partition and 1 data partition per controller.- 1 software RAID volume aggregating all data partitions from all controllers.

Every StorIQ system has at least two bootable system partitions, at least one used as a backup of the main system. Should a problem happen (drive failure, human error..) you may always boot up the server from the backup ("rescue") system.

2.1.1 – RAID volumes administration

Two graphical tools are available to you to manage RAID volumes : the RAID-GUI software to use from the local desktop (you'll find it in the "Start" menu), and the "RAID controller management" module available from the web administration interface, usable remotely. Both share the same functionalities :



Use "Create Unit" to build a new RAID volume. The software will allow you to choose among available controllers, disks and partitions, and the possible RAID levels for the selected devices :

- minimum 2 disks or partitions to build a RAID 0 or 1 volume
- minimum 3 disks or partitions to build a RAID 5 volume
- minimum 4 disks or partitions to build a RAID 6 volume

Use "Delete Unit" to remove an existing RAID volume. You won't be able to delete a volume which is in use.

Use "Rebuild Unit" to force rebuild a RAID 1, 4, 5 or 6 degraded volume. This functionality

should be used only if your RAID controller doesn't support automatic rebuild (most shipped from 2005 upwards do) or if you just added a new drive to the array.

Use "Rescan hardware" if you plugged a new drive and it's not displayed to make it available.

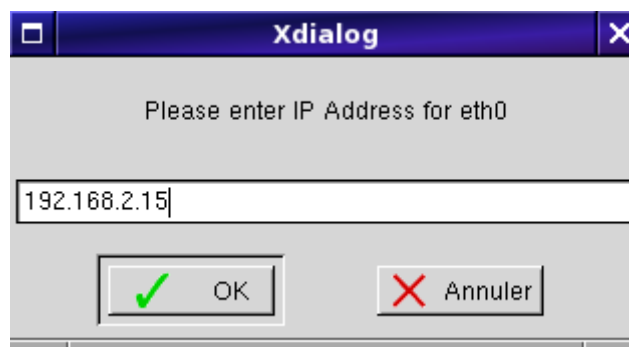
2.2 – Network configuration

Two graphic tools are provided to configure networking : the "netcardconfig" application (available from the "start" menu), or the "Network Configuration" tool the Web administration interface. The main network interface is shown as "eth0". The additional interfaces are thus "eth1", "eth2", etc.

Netcardconfig

Select the network interface you wish to configure and type in the parameters as asked, one by one. The following information are mandatory : IP address, network mask and broadcast address. These parameters are optional : default router and name servers.

To define the broadcast address, the usual rule of the thumb is to use the system IP address with 255 as the last value. For example, if the IP address is 172.0.0.1 and the network mask is 255.255.255.0, then the broadcast address is 172.0.0.255.



Web Interface "Network Configuration"

The tools displays four icons :

- "Network Interfaces" is used to configure network addresses, masks and broadcast address for every interface.
- "Routing and gateways" allows you to define the default gateway (optional).
- "Hostname and DNS Client" allows you to define the name servers (DNS) and your machine name to resolve network names (optional).
- "Host addresses" allows you to edit the system list of hosts (/etc/hosts).

[Network Interfaces](#)[Routing and Gateways](#)[Hostname and DNS Client](#)[Host Addresses](#)[Apply Configuration](#)

Click this button to activate the current boot-time interface and routing settings, as they normally would be after a reboot. **Warning** - this may make your system inaccessible via the network, and cut off access to Webmin.

The “Network Interfaces” tool presents you with a list of the existing network interfaces on the system and their parameters. Interfaces currently in use have an IP address in the “Active IP” column.

Interfaces	IP at Boot	Active Ip	Inactive Ip	Mode
eth0		10.0.4.153 / 16		
lo	loopback			loopback

[Create a new interface](#)[Return to network interfaces](#)

Click on an interface name (for instance *eth0*) to modify its settings. You may either modify the stored configuration **without applying it now** but only after a reboot, either store it and apply it right now (“apply now and at boot” button), or apply it without saving parameters (“Apply now” button).

Name	eth0	IP Address	<input type="radio"/> From DHCP <input checked="" type="radio"/> 10.0.4.153
Netmask	<input type="radio"/> Automatic <input checked="" type="radio"/> 255.255.0.0	Broadcast	<input type="radio"/> Automatic <input checked="" type="radio"/> 10.0.255.255
Apply now Apply at boot Apply now and at boot			
Disable now Disable at boot Disable now and at boot Delete interface			

[Return to network interfaces](#)

2.3 – Alarm management

Alarm management is available through the web administration interface when logged in as “admin” or “root”, from the “System” tab, entry “StorIQ alarms configuration”.

The system will send out alarm messages using email, SNMP and a beeping sound.

There are two alarms level : “alert” and “information”. The “alert” level send out messages in case of a failure of a disk drive, a RAID controller, a CPU or an enclosure part (fan failure, temperature too high, power supply failure).

“Information” level sends out a status report at defined times.

The screenshot shows the Webmin 1.390 interface for StorIQ appliances on Debian Linux 4.0. The browser is Mozilla Firefox, and the URL is https://d153.intelligence.com:10000/. The left sidebar contains various system management links: Information System, LDAP Client, LDAP Users and Groups, Read User Mail, Running Processes, Scheduled Cron Jobs, StorIQ Alarms Configuration (highlighted), System Logs, System Time, and Users and Groups. The main content area is titled "Alarm Configuration" and is divided into two sections: "Mail alert configuration" and "Snmp Configuration".

Mail alert configuration

Specify the e-mail recipient: (ex: Pseudo <example@intelligence.com>)

Specify the e-mail sender: (ex: Pseudo <example@intelligence.com>)

Specify SMTP server:

Send a message in case of emergency: ☐ yes ☒ no

Send an information message: ☐ yes ☒ no

Activate sound alarm: ☐ yes ☒ no

Snmp Configuration

Host manager:

UDP Port:

Community:

SNMP version:

OID version:

Send a message in case of emergency: ☐ yes ☒ no

Configuring Mail alert :

- “e-mail recipient” : type in the the address you wish to send alerts to. You may define several recipient, separated with commas. Type in a name followed by the e-mail address between angle brackets <>, for example :
support <support@intelligence.com>, test <confirm@intelligence.com>
- “e-mail sender” : type in the address from which the messages will appear to originate from. For instance use the StorIQ serial number as the name.

- "SMTP server" : specify which SMTP server to use to send messages. An SMTP server is installed in the system ("exim"), so it's possible to use "localhost" or "127.0.0.1" as an SMTP if necessary, after configuring the SMTP program.

Configuring SNMP alerts :

You should use default parameters if possible. However you may need to adapt them to your SNMP configuration. Default parameters are :

- "Host manager" : name or IP address of the host catching up SNMP traps.
- "Port UDP" : 163
- "Community" : public
- "SNMP Version" : SNMPv2
- "OID Enterprise" : 1.5.6.9.8.4

Proxy configuration :

If your network is using a proxy for internet access, insert its address here. It will then be used for system updates and Intellique support remote monitoring.

Controllers :

Select controllers and drives you wish to monitor.



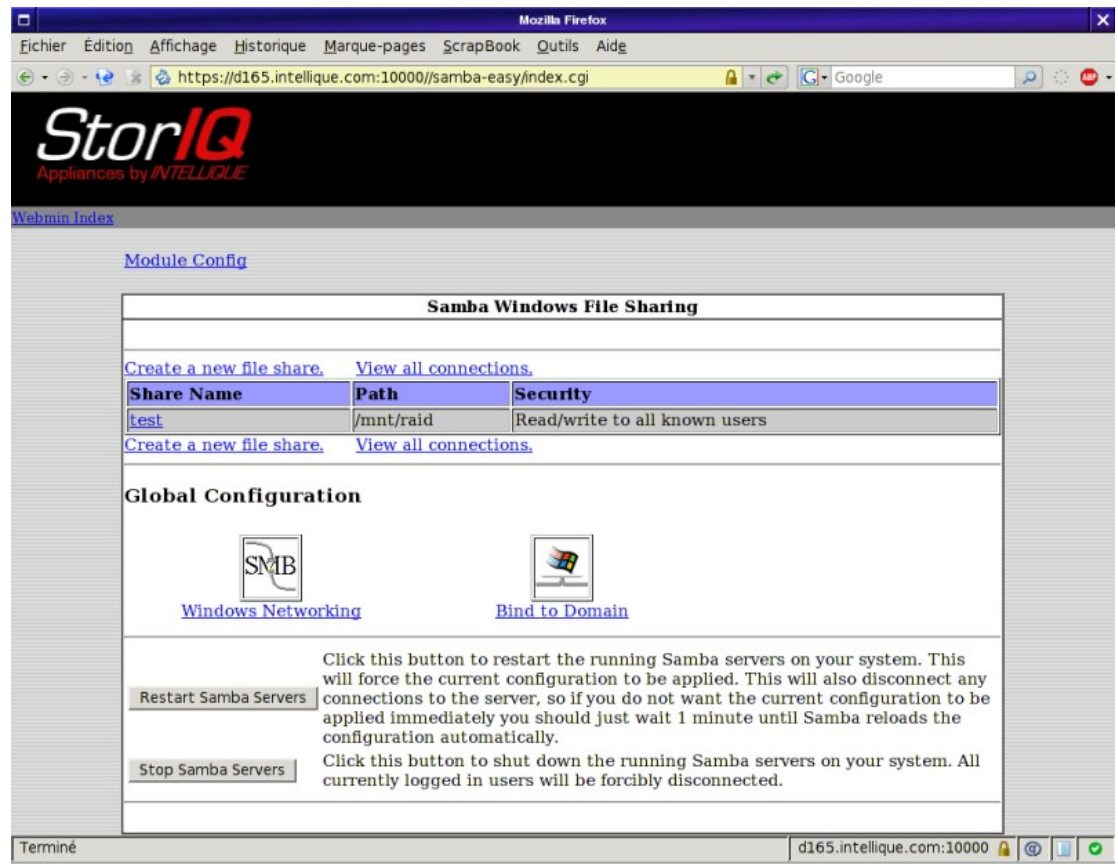
If you need to remove a disk drive from the system, first remove it from monitoring or you'll receive alerts!

3 – File Sharing

3.1 – Windows File Sharing

Two Windows File Sharing modules are available, the “Simple” and “Advanced” versions. The “Advanced Windows File Sharing” module is described in the “StorIQ System – Advanced Administration” manual.

To gain access to the “Simple Windows File Sharing”, log in as “storiq” or “admin” and click the corresponding icon. You'll see the following display :



Windows Networking

First of all, it's necessary to configure the global Windows networking settings, to match the actual configuration of your existing network.

Click the “Windows Networking” icon. You'll get the following display to enter your Windows network parameters :

Mozilla Firefox

Fichier Edition Affichage Historique Marque-pages ScrapBook Outils Aide

https://d165.intelligence.com:10000/samba-easy/conf_smb.cgi

Google

StorIQ
Appliances by INTELLIGENCE

[Webmin Index](#)

Windows Networking Options

Security Modes

Security

Windows Networking Options

Workgroup ☐ Default ☒ WORKGROUP

Server description ☐ Default ☒ %h server (Samba %v)

Password server

new folders inherit permission from parent folder ☐ Yes ☒ No

Save

[← Return to share list](#)

Terminé

d165.intelligence.com:10000

First of all, select the appropriate authentication policy accordingly to your network configuration :

Workgroup

if you're using a peer to peer network without a master server (Windows98 type), choose "Share level" (access rights are defined separately for every share) or "User level" (access is granted to local system users).

Don't forget to enter the local workgroup name you're actually using, too.

You may enter here a description for your StorIQ server. Access permissions inheritance ("ACLs, Access Control Lists") are described farther below.

Domain

If you're using a Windows NT 4 Domain, select "Domain". You'll then have to enter the Domain name in the "Workgroup" entry box and the Primary Domain Controller (PDC) address in the "Password Server" entry box to authenticate access.

You may enter here a description for your StorIQ server. Access permissions inheritance ("ACLs, Access Control Lists") are described farther below.

Active Directory

If you're using an Active Directory network, select the corresponding entry. Mandatory parameters are the local domain (or "leaf") name in the "Workgroup" entry, the main Active Directory Server (ADS) name in the "Password Server" entry box, and the "Kerberos realm" for authentication (Root Domain Name).

You may enter here a description for your StorIQ server. Access permissions inheritance ("ACLs, Access Control Lists") are described below.

Access permissions inheritance (Access Control Lists)

Unless specified, access rights work the "POSIX" way : file permissions are defined at creation time from the user settings. However you may enforce the "Windows way" by clicking the "folder inherit permissions from parent" radio button : then new files will inherit permissions from their parent folder.

Binding to Domain

When you configured and saved all your Windows network settings, you must bind the system to domain (i.e. get it enrolled into then domain by the domain controller or the master server).

Click the "Bind to domain" icon, then enter the name and password for a user who is a member of the "Domain Administrators" group, then push the "Bind now" button.

Sharing files and folders

To share a folder, click "Create a new file share". From top to bottom, first select if you'll share an user home directory, or some other folder.

To share all home folders, simply select the option, don't enter any target directory. Simply enter a "Share comment" if you wish.

To share any other folder, type in a share name, pick a folder to share either by typing in its complete path in the "Directory to share" text box, or by navigating the system by clicking the following button :



Choose appropriate options (see the following table) then click "Create".

Option	Function
Automatically create directory	If the path doesn't exist, the directory will be created.
Available	The share is usable.
Browsable	The share is visible when manually browsing the network.
Writable	The share isn't read only.

To modify an existing share, click its name in the share list.

Caution : when creating or modifying a share, changes aren't immediately visible from client systems on the network and may take up to a couple of minutes to actually apply.

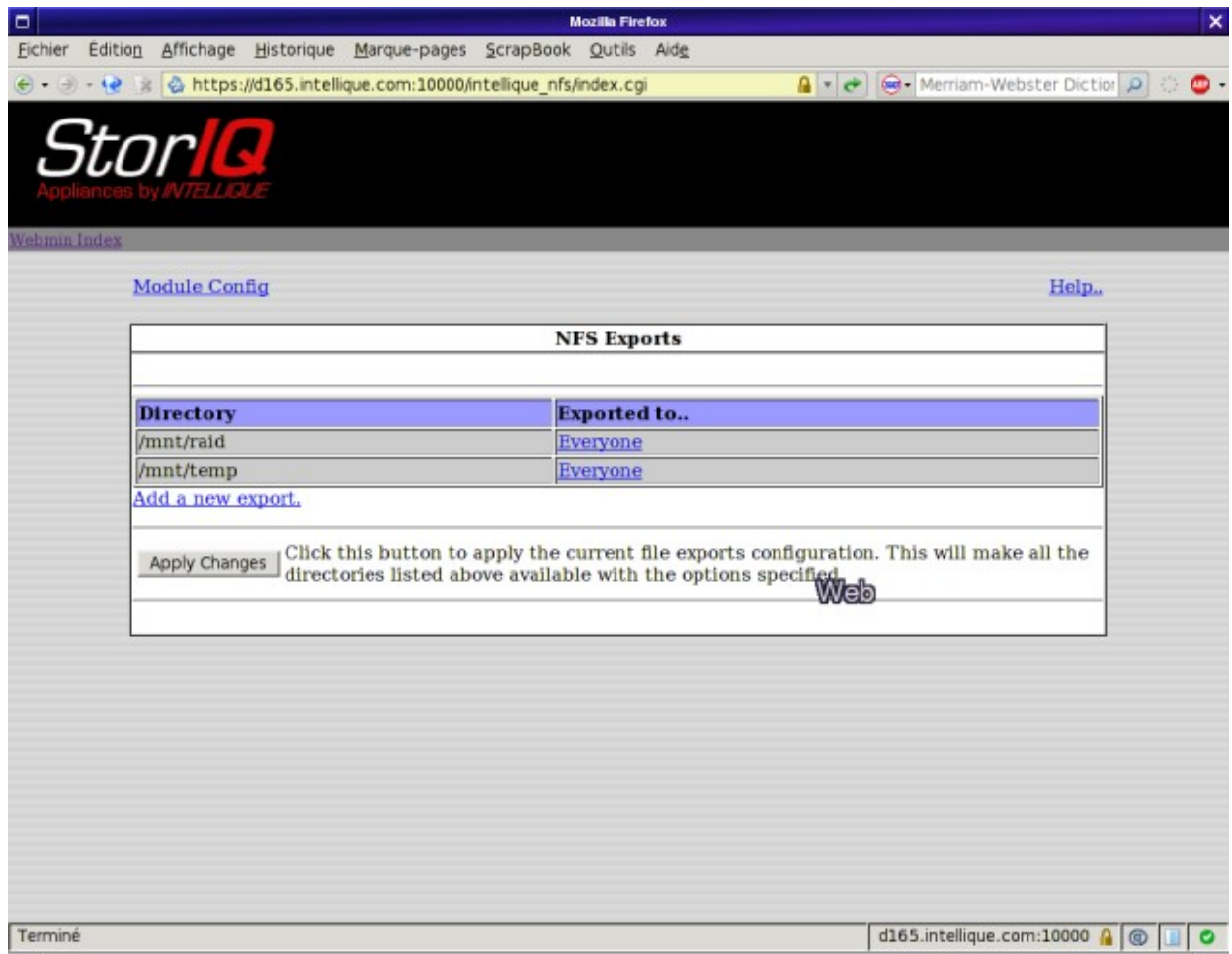
Viewing connections

You can control users connections on all shares by clicking "View all connections" from the share list.

You can also check connections for a specific share by clicking the share name, then "View connections".

3.2 – NFS file sharing (Unix)

To configure this service, click the “NFS Exports” icon. You'll see the following display :



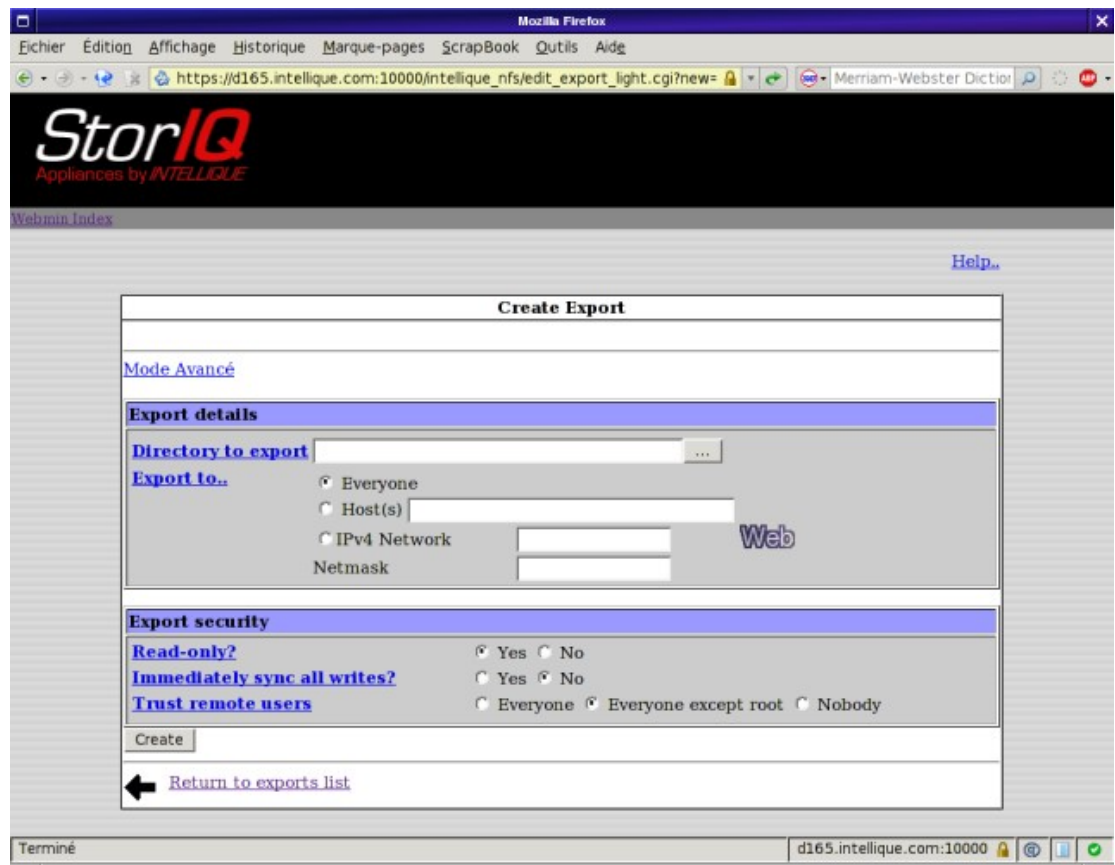
To modify a share, click the share clients list (in the “Exported to...” column).

When you're done adding or modifying shares, click “Apply changes” to use the new configuration.

Caution : If the NFS services are down, clicking “Apply changes” will start them up.

Sharing files and folders

Click the “Add a new share” (or an existing share to modify it) and you'll obtain the following display :



The screenshot shows a Mozilla Firefox browser window displaying the StorIQ Webmin interface. The page title is "Create Export". Below the title, there is a link for "Mode Avancé". The form is divided into two main sections: "Export details" and "Export security".

Export details:

- Directory to export:** A text input field with a browse button (three dots).
- Export to:** A section with three radio button options:
 - ☒ Everyone
 - ☐ Host(s): A text input field.
 - ☐ IPv4 Network: Two text input fields for "Netmask" and "Web".

Export security:

- Read-only?** ☒ Yes ☐ No
- Immediately sync all writes?** ☐ Yes ☒ No
- Trust remote users:** ☒ Everyone ☐ Everyone except root ☐ Nobody

At the bottom of the form, there is a "Create" button and a link "Return to exports list" with a left arrow.

“Advanced mode” is described in the "StorIQ System – Advanced Administration" manual.

Type in the path for the directory you'd want to share, or navigate to it by clicking the following button :



Select which client systems will be allowed to access this share by choosing one of “Everyone”, “Hosts”, “Ipv4 Network”, then fill in the text fields if applicable :

- “Everyone” : all systems can connect to this share;
- “Hosts” : type in a list of host names or IP addresses separated with commas ;
- “Ipv4 Network” : type in a network address (usually ending with a 0) and a network mask to grant access to a whole network or subnetwork.

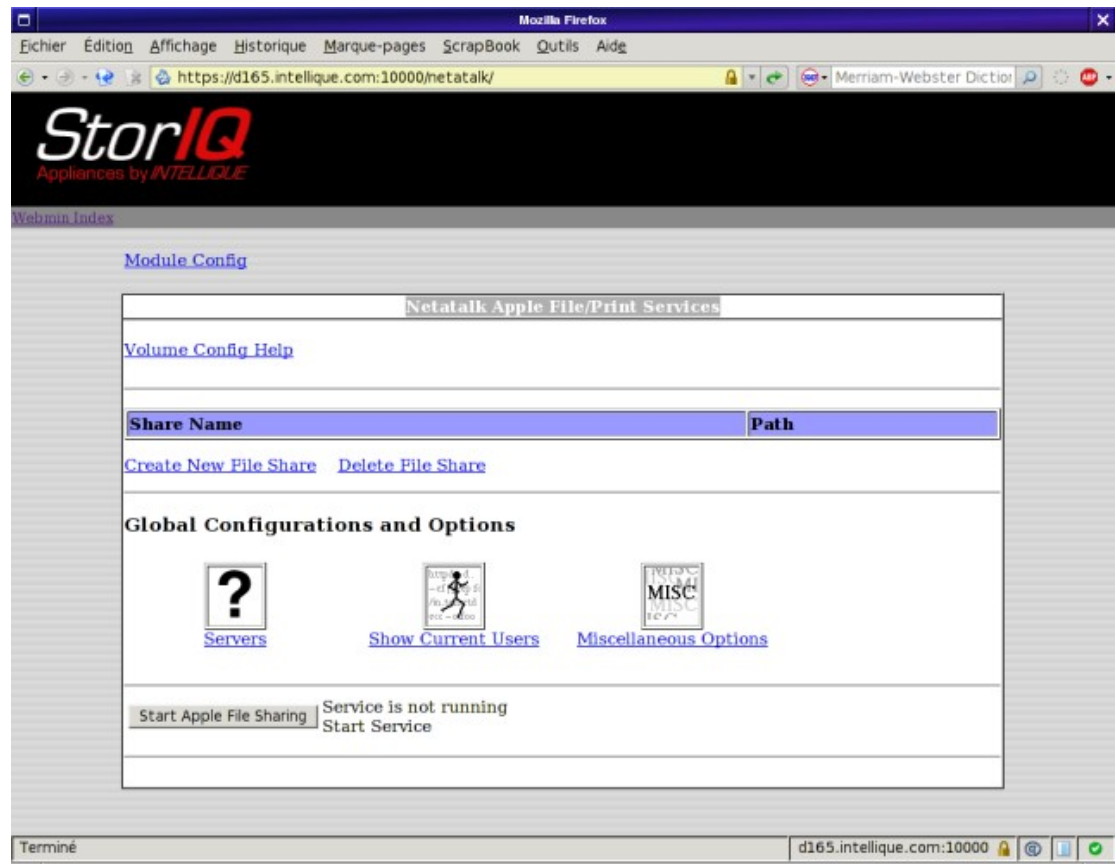
Lastly, choose the appropriate security options, as listed below :

Option	Function
Read only	The share isn't writable.
Immediately sync all writes	Insure data coherency but degrades significantly performance.
Trust remote users	Everyone : All remote users are trusted like local users. Everyone except root: same thing but the super-user. Nobody : only local users are allowed.

3.3 - Mac OS File sharing (Netatalk)

Nota Bene: Appletalk filesharing is considered deprecated under Mac OS X 10.3 and better. For Mac OS X 10.3 higher, NFS is to be preferred.

To configure this service, click the “Netatalk Apple File/Print Services” icon. You'll see the following display :



To modify a share, simply click its name.

Global Configurations and Options

This section has three icons :

Servers

Allows you to define virtual servers. Your server StorIQ then may appear under different server names, on different Appletalk networks.

Show Current Users

This screen displays the list of connected users. You may also force disconnection from there.

Caution : Forcing an user deconnection may cause of data corruption.

Miscellaneous Options

This option is of no use in the current version.

Sharing folders

Click the "Create new file share"(or an existing share to modify it) and you'll obtain the following display :

The screenshot shows a web browser window titled 'Mozilla Firefox' with the address bar displaying 'https://d165.intelligence.com:10000/netatalk/edit_fshare.cgi'. The page content is titled 'Create New Apple File Share' and includes a 'Module Config' link and a 'Help..' link. The main form is titled 'Share Infos' and contains the following fields and options:

- Share name:** A text input field and a radio button labeled 'Home Directories share'.
- Directory:** A text input field with a browse button (three dots).
- Casefold Options:** A group of radio buttons: 'default' (selected), 'tolower -> lowercases names in both directions', 'toupper -> uppercases names in both directions', 'xlatelower -> client sees lowercase, server sees uppercase', and 'xlateupper -> client sees uppercase, server sees lowercase'.
- Code Page:** A dropdown menu set to 'default'.
- Miscellaneous Options:** A group of checkboxes: 'prodos -> make compatible with appleII clients', 'crif -> enable crif translation for TEXT files', 'noadouble -> don't create .AppleDouble unless a resource fork needs to be created', 'ro -> mount the volume as read-only', 'mswindows -> enforce filename restrictions imposed by MS Windows', 'nohex -> don't do :hex translations for anything except dot files', 'usedots -> don't do :hex translation for dot files', 'limitsize -> limit disk size reporting to 2GB.', and 'guest users 0 -> Allow guest users'.
- Database Path:** A text input field with a browse button (three dots).
- Password:** A text input field.
- Allow Users:** A text input field with a browse button (three dots).
- Groups:** A text input field with a browse button (three dots).
- Deny Users:** A text input field with a browse button (three dots).
- Groups:** A text input field with a browse button (three dots).
- RO Users:** A text input field with a browse button (three dots).
- Groups:** A text input field with a browse button (three dots).
- RW Users:** A text input field with a browse button (three dots).
- Groups:** A text input field with a browse button (three dots).

At the bottom of the form are 'Create' and 'Reset' buttons. Below the form is a link 'Return to Share List' with a left arrow icon. The browser's status bar at the bottom shows 'Terminé' and the address 'd165.intelligence.com:10000'.

You may choose to share either Users home directories, either some other folder.

To share user home directories simply check the option. Don't type in anything in the Directory entry box.

To share any other folder, type in a share name, pick a folder to share either by typing in

its complete path in the "Directory" text box, or by navigating the system by clicking the following button :



then simply click "Create". Usually you won't need any of the advanced options. However these are described in the "StorIQ System – Advanced administration" manual.

3.4 iSCSI disk sharing

iSCSI sharing is different from other sharing modes : instead of sharing files and folders, you're sharing either physical devices (hard drives, partitions, logical volumes) either virtual disks (disks images). The shared device is seen as a local SCSI device from the initiator (client) point of view.



You must usually consider **impossible** to use the same iSCSI device with **write** access on two different initiators simultaneously.

You can export devices in three different modes :

- nullio : test mode. All write inputs are discarded, and reading returns random data.
- Blockio : the device is accessed directly, block size is made accordingly to the initiator settings, there isn't any disk cache on the target.
- Fileio : the device is accessed through the target VFS layer. It goes through the file cache on the target, but block size is constrained to 4KB (cache page size).

Choose the mode to use to match usage : nullio allows to test network performance; blockio minimizes latency and is better for very big or very small I/Os (example of applications : database, audio editing); fileio is better at sequential access (example : video broadcasting).

Creating an iSCSI target

iSCSI target name is free, made of letters, numbers, points, colons and hyphens. However the iSCSI norm defines the name format as following :

iqn . Year-month of domain depot . Top level domain . Domain : host name . Target name

example:

`iqn.2001-04.com.intelligence:storiq.target1`

The target name itself (the part following the colon :) is free and must be unique.

Each target has its own connection settings. However several Logical Units (devices) may be shared from a single target and used by many initiators.

[Module Config](#)

iSCSI Target Configuration

| [Create a new Target](#) | [View Current Sessions](#) |

Target Name	Target alias	Logical Units	LUN type	LUN device	
iqn.2001-04.com.intelligence:storiq.target1	target1				Edit Delete
		1	blockio	/mnt/raid/lscsi02.img	Edit Delete
					Add a Logical unit

Service status: not running

[Start service](#)

Creating a Logical Unit (iSCSI device)

When creating an iSCSI Logical Unit, you must define access mode (block or file I/O), which file to use as a LUN which is either a system device (for instance a disk like `/dev/sda`, a partition like `/dev/hda5`, an LVM logical volume like `/dev/vg0/lv1` ...) either an ordinary disk file.



The iSCSI target use is exclusive : the initiator will overwrite whatever previous content the LUN file may have. Be careful!

You may define some optional parameters, like the SCSI ID and serial number, which are needed by some applications. Last, select the access mode : with write cache (Write Back), with read cache only (Write thru), or read only.

[Module Config](#)

Create a new Logical Volume

LUN Type		Block device
LUN device file	<input type="text" value="/mnt/raid/iscsi01.img"/>	<input type="button" value="..."/> Create a new LUN file
SCSI ID	<input type="text"/>	
SCSI Serial No	<input type="text"/>	
Access mode	<input type="radio"/> Write Back <input checked="" type="radio"/> Write thru <input type="radio"/> Read only	
<input type="button" value="Apply"/>		

[Go back.](#)

Creating a LUN file

This function allows you to create a new empty file to use as a LUN device from your iSCSI target.

[Module Config](#)

LUN file creation

Create a new LUN file

LUN file path

LUN size megabytes

LUN Quick initialisation ☒

Choose a file path and name (you may browse the directory to store the file into with the usual button), a LUN size and unit and how to initialize the file.

“Quick Initialization” is an essential tool : first it avoids you long waits any time you create a file of more than a couple of gigabytes size; then it gives you access to the latest and the greatest feature of the storage industry, “thin provisioning”.

When “quick initialized”, an iSCSI LUN actually uses only so much actual space as the initiator filled it up. It's so perfectly possible to create arbitrarily large LUN files, even bigger than the containing filesystem, as long as the actually used space is inferior to the containing filesystem capacity.

Used space as reported from the “Partitions on local Disk”, “System Information”, the “df” command, etc. on the StorIQ server is indeed accurate.



With volumes bigger than a couple of gigabytes, complete initialization can take a really long time. Use “Quick initialization” whenever possible.

If you plan to use “thin provisioning” intensively, allocating way more space than you actually have available, monitor carefully available storage space on the StorIQ server. An unplanned “out of disk space” error makes way to unpredictable initiator failures.

4 - Administration and maintenance

4.1 - Restarting services

To shutdown the StorIQ server, simply press briefly the power button. Each administrative web interface module allows to start, stop or restart the corresponding service.

However two special modules are available to manage services and running programs globally : “Running Processes” available to all users, and “Bootup and Shutdown” available to “admin” and “root” users.

Running Processes

This module displays a list of all processes running on the system. Processes which name is enclosed into square brackets are uninterruptible kernel level processes.

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Module Config

Help..

Running Processes

Display : [PID](#) [User](#) [Memory](#) [CPU](#) [Search](#) [Run..](#)

CPU load averages: 0.07 (1 mins) , 0.03 (5 mins) , 0.00 (15 mins)
CPU type: Dual-Core AMD Opteron(tm) Processor 2214 (2194 MHz)

Process ID	Owner	CPU	Command
19953	root	0.7 %	/usr/lib/webmin-1.390/proc/index_cpu.cgi
1	root	0.0 %	init [4]
2	root	0.0 %	[kthreadd]
3	root	0.0 %	[migration/0]
4	root	0.0 %	[ksoftirqd/0]
5	root	0.0 %	[watchdog/0]
6	root	0.0 %	[migration/1]
7	root	0.0 %	[ksoftirqd/1]
8	root	0.0 %	[watchdog/1]
9	root	0.0 %	[events/0]
10	root	0.0 %	[events/1]
11	root	0.0 %	[khalner]

Terminé

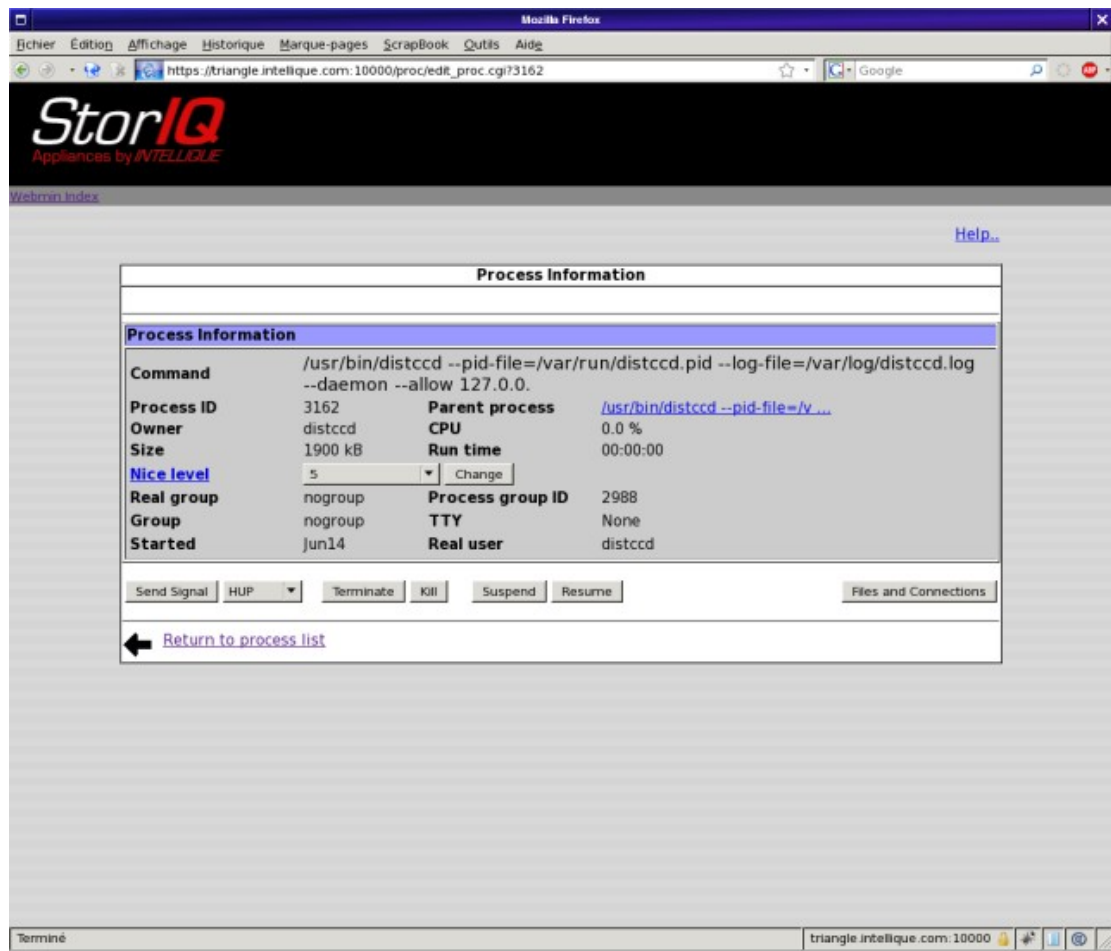
triangle.intelligence.com:10000

Click on the “Display” line entries to change sorting behaviour:

- PID : ordered by PID number (Process ID)

- User : ordered by the process owner user name
- Memory : ordered by total memory usage
- CPU : ordered by CPU usage
- Search : allows you to search for a process according to several criteria
- Run : allows you to start any command manually by name. You may either wait for the command completion, in which case its output will be displayed into the browser, or run it in the background.

When clicking on a process PID you'll access the screen below, which gives control to several parameters :



Available commands are :

- **Send Signal** : Send any signal to the process. Default is set to "HUP", which force a process to reload its configuration.
- **Terminate** : ask a program to quit.
- **Kill** : force a program to quit.
- **Suspend** : pause program execution.

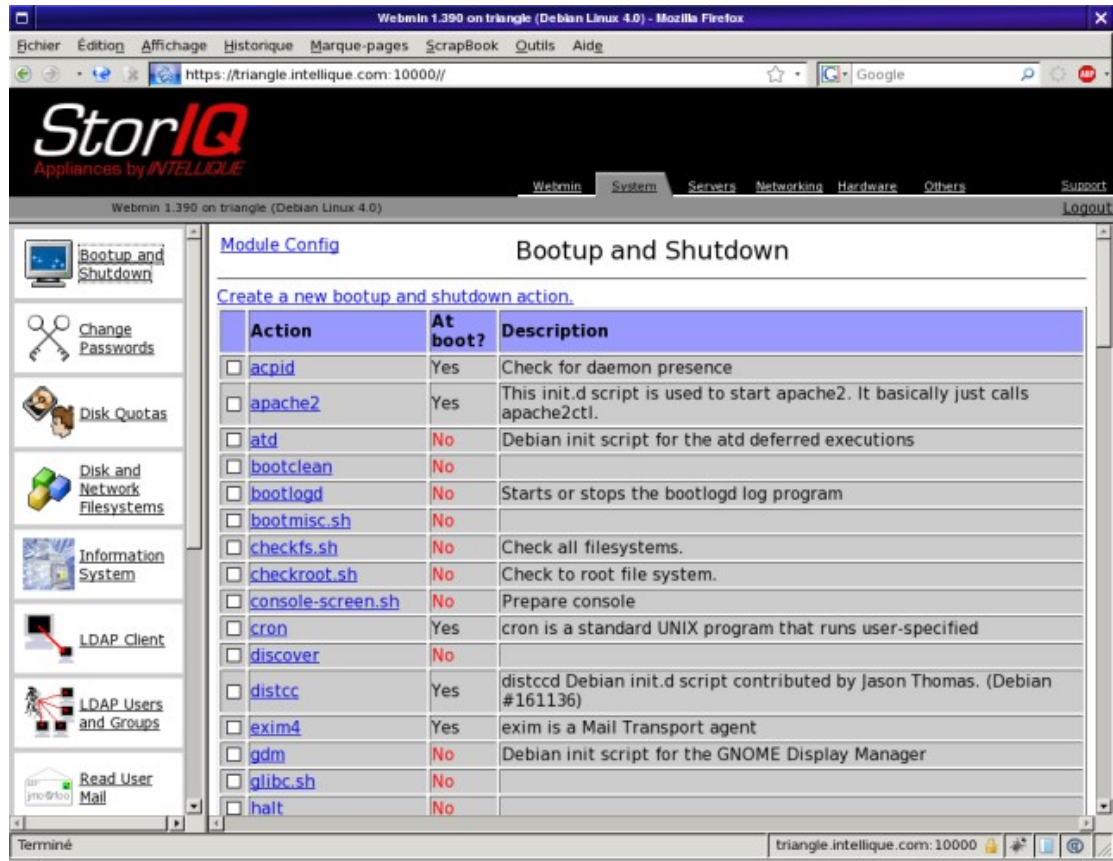
- **Resume** : resume execution of a paused program.
- **Files and Connections** : show a list of files and ports currently in use by the program.

Bootup and Shutdown

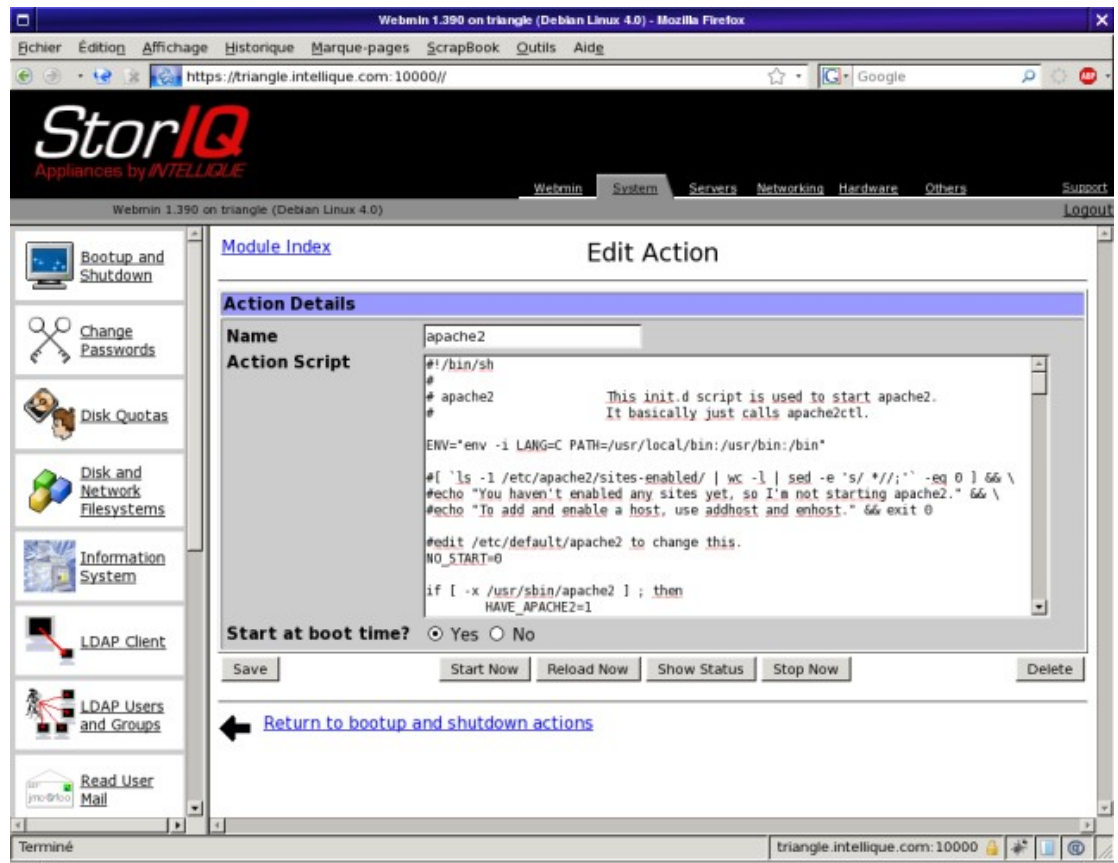
This module provides you with a list of boot time and shutdown services, allows you to activate and deactivate them, and start and stop them at will.

You can also stop or restart system from there, and add or remove boot services.

You'll find this icon under the "System" tab :



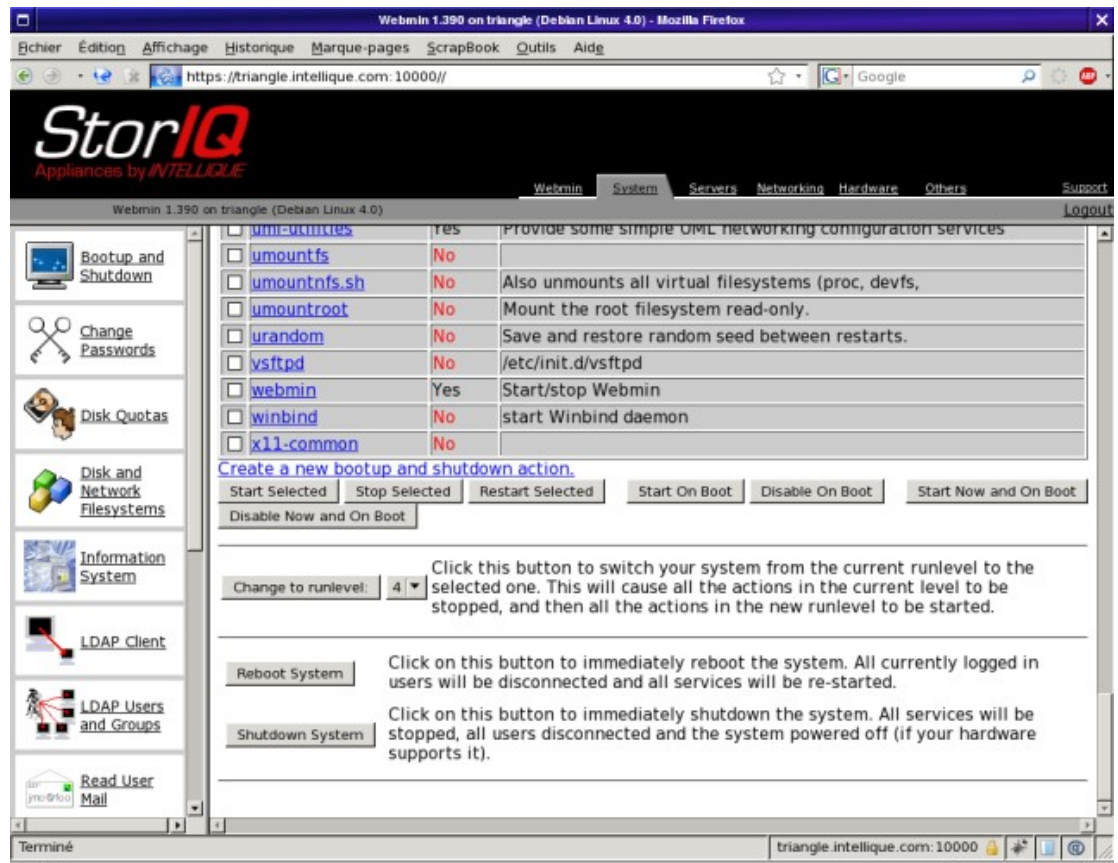
Click on a service name to access and modify its parameter. The screen below will be displayed :



This screen displays the startup script for the selected service to edit (don't modify this script unless you know exactly what you're doing). You can also enable or disable the service at startup, start, stop or restart it or remove it altogether from the list.

You can control several services at once from the main screen : check the boxes for several services, then use the commands at the bottom of the screen to act on all of them at once.

Below the services list you'll find the system shutdown and restart commands too :



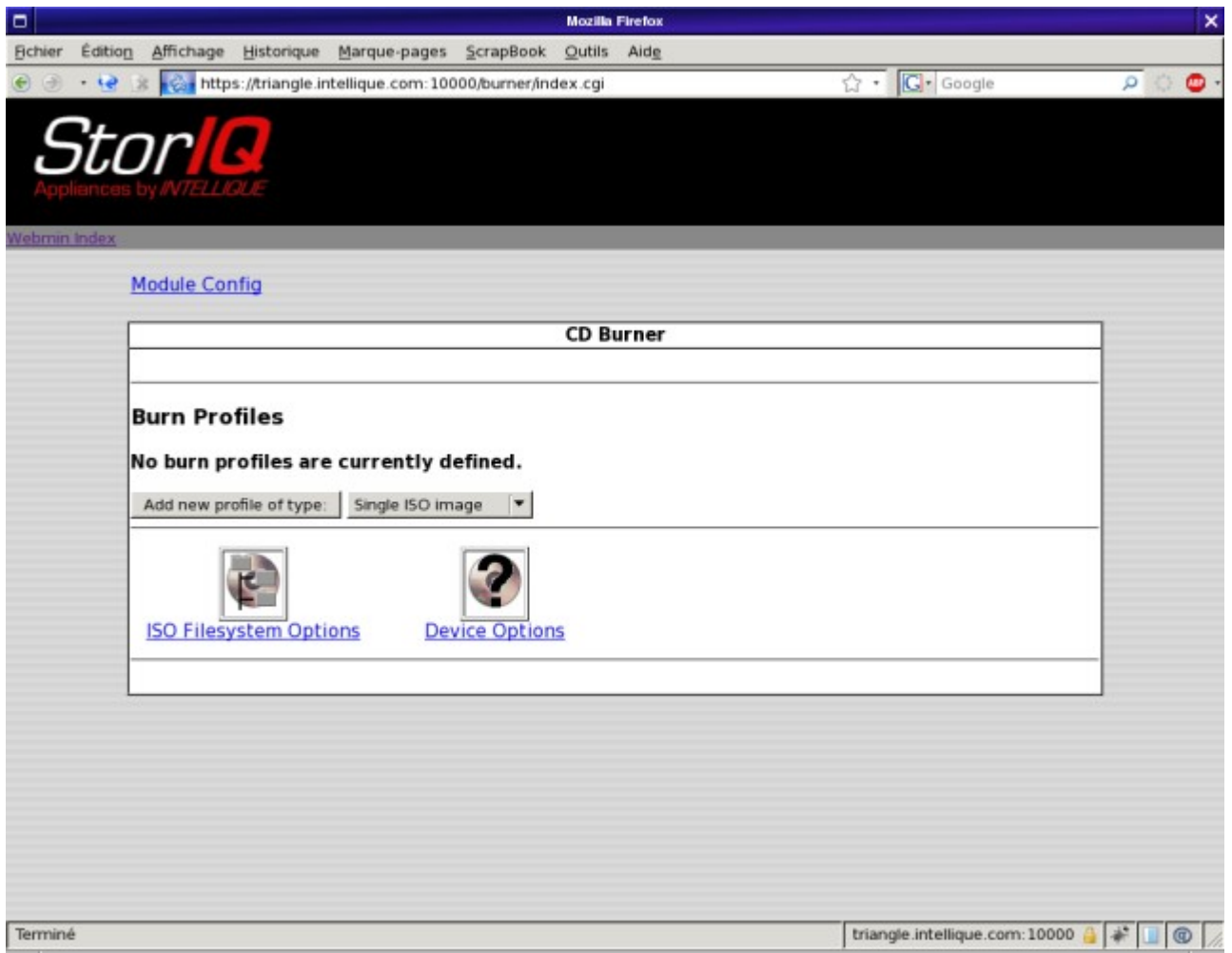
"runlevels" are the main operating modes of the system.

- 0 : shutdown.
- 1 : single user mode. For administration of maintenance.
- 2 : multi-user mode. Not used.
- 3 : multi-user mode. Not used.
- 4 : multi-user mode without graphical user interface.
- 5 : multi-user mode with graphical user interface.
- 6 : reboot.

Switching to "runlevel 0" will power off the system. Switching to "runlevel 6" will reboot.

4.2 - CD and DVD burning

You can burn CDs and DVDs directly from the web administration interface.



Configuring the application

The application is set up for CD burning. To burn DVDs instead, enter module configuration and modify the following settings :

- change "CD burning command" from "cdrecord" to "dvdrecord".
- Change "ISO filesystem building command" from "mkisofs" to "growisofs".

Configuration	
For module CD Burner	
Configurable options for CD Burner	
CD burning command	cdrecord
ISO filesystem building command	mkisofs
MP3 decoding command	mpg123
SOX command for WAV and OGG decoding	sox
CD copying command	cdrecord
Temporary files directory	<input checked="" type="radio"/> Webmin's temp directory <input type="radio"/>
<input type="button" value="Save"/>	
Return to index	

Then follow on with device configuration : click on "CD burner device options", select a CD burner from the list and the burning speed. To use automatically the highest possible speed, enable "Other" and enter "99" in the text box.

If the CD burner is connected to an ATA (IDE) bus, enter "dev=ATA" in the "Extra cdrecord options" field.

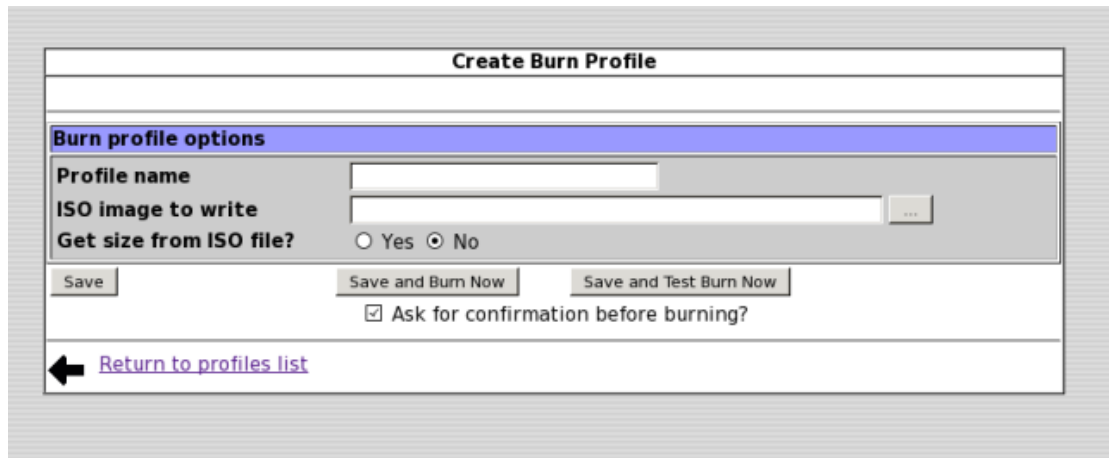
Device Options	
CD burner device options	
Burner device	<input type="button" value="v"/>
Write speed	<input type="radio"/> 1x <input type="radio"/> 2x <input type="radio"/> 4x <input type="radio"/> 8x <input type="radio"/> 16x <input type="radio"/> 32x <input type="radio"/> 48x <input type="radio"/> Other.. <input type="text" value="99"/>
Extra cdrecord options	dev=ATA
<input type="button" value="Save"/>	
Return to profiles list	

Creating a Burn profile

Next step consist in the creation of a burn profile. You'll define what to burn : either an existing ISO image, some files and folders, or sound files (we won't cover this last case). Each profile can be stored to be used later. For instance, you may create a directory called "/mnt/raid/cdburning" and create a generic profile that will burn everything in this directory. Then you'll simply add files to this folder when necessary, and simply start burning CDs.

Burning an ISO image

Simply name a profile and enter the path for the ISO image to burn in the text entry box, or browse the system to the image with the button

A screenshot of a 'Create Burn Profile' dialog box. The title bar says 'Create Burn Profile'. Below it is a section titled 'Burn profile options' with a blue header. Inside this section, there are three labels: 'Profile name' with a text box, 'ISO image to write' with a text box and a browse button (three dots), and 'Get size from ISO file?' with two radio buttons, 'Yes' and 'No', where 'No' is selected. Below these are three buttons: 'Save', 'Save and Burn Now', and 'Save and Test Burn Now'. At the bottom, there is a checked checkbox labeled 'Ask for confirmation before burning?'. At the very bottom, there is a back arrow icon and a link that says 'Return to profiles list'.

Burning files and directories

Burning files and directories allows you to enter multiple source to copy to the CD :

Create Burn Profile

Burn profile options

Profile name

Directories to include

Source file or directory	Directory on CD
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Generate RockRidge (unix) extensions? ☐ Yes, with sensible permissions ☐ Yes ☒ No

Generate Joliet (windows) extensions? ☐ Yes ☒ No

Include NETATALK Macintosh files? ☐ Yes ☒ No

Generate TRANS.TBL file? ☐ Yes ☒ No

Allow long filenames? ☐ Yes ☒ No

Include CAP Macintosh files? ☐ Yes ☒ No

CD volume ID

☒ Ask for confirmation before burning?

[Return to profiles list](#)

After naming the profile, choose which directories to burn by typing in their path on disk, and the path you want them to have on the CD.

Select the appropriate burning options among the following :

- **RockRidge** : support Unix long filenames (if you plan to use the CD or DVD on a Unix/Linux/Mac OS X ... system).
- **Joliet** : support Microsoft Windows long filenames.
- **Include Macintosh Netatalk files** : if your directory tree contains AppleTalk files (.AppleDB, .AppleDesktop, .AppleDouble) and you plan to use this CD or DVD on a Macintosh computer.
- **Generate TRANS.TBL file** : this file lists the real file name and the ISO9660 file name (limited to 8+3 characters). It hasn't any actual use if you're using Joliet or RockRidge, unless you want your CD to be usable on an old system like MS-DOS.
- **Allow long filenames** : ISO9660 filenames are limited to 8 characters and an extension of 3. When selecting this option, also select RockRidge or Joliet.
- **Include Macintosh CAP files** : Same thing as NetaTalk files above. It has no use here because the StorIQ system doesn't use CAP (Columbia AppleTalk Package).

We recommend that you select “RockRidge”, “Joliet” and “long filenames” as default.

5 - Frequently Asked Questions

Windows File sharing problems

- **The system can't join or connect the ActiveDirectory.**
 - If the system clock is more than a couple of minutes away from the Active Directory Server clock, the system won't be able to join the domain.
Correct the system clock from the administration interface : log in as "admin", go to the "system" tab, "System time" icon and correct the "System time".
- **After you've set up files of directory authorizations from Windows Explorer, changes are discarded.**
 - The Samba service isn't configured to use ACLs (Access Control Lists) or you're sharing a filesystem that doesn't support ACLs (CD-ROM, FAT32 USB disk...).
- **After you've set up files of directory authorizations from Windows Explorer, some authorizations differ from what you entered.**
 - Windows ACLs are quite different from POSIX ACLs used by StorIQ Linux. Some combinations can be rendered only approximately.
- **Though logged on as "Administrator", the user can't modify authorizations on a file or directory**
 - The "Administrator" User doesn't exist on the StorIQ system. However you can give him "root" level access by changing the Samba configuration file /etc/smb.conf :
 - Log in to the administration interface as "admin" or "root", go to "Servers", "Samba Windows File Sharing".
 - In the "Global Configuration" section, click on "Edit config file".
 - In the file [global] section, add the following line :
`winbind admin users = <domain name>+administrator`
 - save the file.
- **Some users can't connect to the StorIQ server, though they see it in the Network Neighbourhood.**
 - If your network is set up as a Domain or an Active Directory, verify that the StorIQ server is a member of the Domain.
 - If the StorIQ server isn't a domain member, restart Samba services from the web administration interface.
 - If you're using some other sharing mode, log into the web interface as "admin" (or "root"), click on the "server" tab, "Samba Windows File Sharing".
 - In the "Samba Users" section, click on "Edit Samba users and passwords".
 - Get sure that the users you want to be able to connect to the server are listed. You may eventually add or modify them, too, or redefine their passwords.

NFS File Sharing problems

- **Writing files is slower than using Windows File sharing.**
 - Get sure in the share parameters that the "Immediately sync all writes" option is not selected.
- **When you remove a share, stop the NFS file sharing or shut down the server, some client machines don't respond anymore.**
 - Default setting for NFS mounts is to be "blocking". To avoid blocking the client system, modify the mount options. For Linux clients, add "intr" to the mount options.
- **Some clients system can't access some big files.**
 - NFS v2 can't work with files bigger than 2GB. Use NFS v3 if your system is able to manage it (on Linux, add "nfsvers=3" to the mount options).
- **Client displays an error when mounting the share.**
 - The StorIQ NFS server supports extended attributes and ACLs (Access control lists). Some other systems may not support them and display a message, but it shouldn't hamper normal operation.
However, avoid as much as possible mixing clients with and without support of extended file operations on the same share : it may render some files unavailable to some systems or users, or remove extended attributes from files in unpredictable ways.

AppleShare File sharing problems

- **Some files appear of the wrong type in the Finder (incorrect icon or opened with the wrong application).**
 - If the file wasn't copied or created directly from a Macintosh, its Type/Creator attributes may be unknown to the StorIQ system. You can change the way the system identifies them by editing the "/etc/netatalk/AppleVolume.system" file.
To edit this file from the web administration interface, log in as "admin" or "root", click the "Others" tab, "File Manager" icon. Browse to the "/etc/netatalk" folder, select the "AppleVolume.system" file and click the "Edit" button.
- **Some files aren't available to MacOS 9.x and older clients.**
 - Mac OS 9.x and older releases can't access files with name longer than 31 characters.
- **The StorIQ server doesn't appear in the Network Browser (Mac OS 9.x and earlier) or isn't visible in the "Network" window (Mac OS X).**
 - Verify on the Mac OS side that AppleShare over TCP/IP is enabled. You may also try to connect using the server IP address instead.
 - Verify that the client isn't in a different AppleShare Zone than the server..

Web and FTP sharing problems

- **some big files can't be downloaded.**
 - Some web or FTP applications (Internet Explorer 5.x, FTP.EXE) can't manage files bigger than 2 GB. Use another application.

RAID problems

- **A RAID volume is “degraded” but isn't rebuilding automatically.**
 - Verify there's an available “hot spare” drive available in the array. If there isn't, add one or replace the failed drive and declare the new drive as a “hot spare” with either RAID GUI or the web administration RAID interface.
- **RAID volume rebuild fails.**
 - The “hot spare” drive may be faulty. Replace it. If you can't replace it immediately, you may try to force rebuild anyway with the “tw_cli” command line utility, using the “ignoreECC” option.
Please see the "StorIQ System – Advanced administration" for “tw_cli” usage.