



Multi-Platform Management Software
Multi-Platform Management Software
ADMIN GUIDE

3.0

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Using this document. The following conventions are followed in this document:

- Warning boxes look like this:

Warning: Potentially undesirable situation.

- The text of buttons and other user interface widgets (menus, tabs, etc.) look like this:
Click **Ok** to proceed.

- Text that you are meant to type in looks like this:

Type

```
cd /Volumes/  
into the Terminal.
```

- Messages the computer will give you look like this:

The computer will respond with ***Command completed successfully.***

If viewing a PDF version of this document, all references, including the Table of Contents, are clickable.

If you notice any typographical errors, factual errors, or omissions in this document, please contact support@studionetworksolutions.com

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Section 1 Contacting Studio Network Solutions

Section 1.1 Contact

Please visit the support section of our website (<http://www.studionetworksolutions.com/support/>) for technical support contacts and other up to date information regarding this software. The most recent electronic copy of this manual is also available there.

Section 1.2 Forum

SNS announces new products and discusses known issues at our forum. Please refer questions regarding this product to the forum. Your feedback is highly valued and appreciated. Do you have a feature that you'd like to see included in this product? If so, let us know at <http://www.snsforums.com/>

Section 2 About SANmp®

This chapter introduces SANmp and gives instructions on its installation. Before installing SANmp, read and follow the pre-installation instructions in this chapter. SANmp (Storage Area Network multi-platform) volume-sharing software enables multiple audio, video and graphics workstations to concurrently access information through a Fibre Channel or iSCSI Storage Area Network. SANmp configures, manages, shares and provides access to SAN resources, supports RAIDs, and sets access privileges at the user level. SANmp does not require a server or Ethernet connection in a Fibre Channel-only SAN. For more information on iSCSI and SANmp, see **Section 3.5.1 globalSAN and the iSCSI Protocol** on page 25. Both Mac and Windows versions of SANmp share a common user interface. SANmp is comprised of two applications: SANmp Admin and SANmp Client.

Section 2.0.1 SANmp® Admin

SANmp Admin (the administrator application) is used to configure and manage volumes and users on the storage network. It is where disks are converted to SANmp disks, where the network administrator creates users, and where one determines which user(s) will have access to each shared SANmp volume. The administrator determines whether a user can write to a particular disk, if the user may only read from that disk, or if the user has no access to a disk.

Section 2.0.2 SANmp® Client

To access a SANmp volume from any computer on the storage network, it is necessary for SANmp Client (the client application) to be installed on every connected workstation. Upon launching the client application, the user is prompted to provide a valid user name and password. SANmp Client then presents the user with a list of SANmp volumes to which the administrator has granted them access. The user can select a volume from this list and choose to mount it read-only, read/write, or write exclusive depending on their assigned privileges.

Section 2.1 Pre-Installation

Read and follow these steps before installing SANmp. Prior to installing SANmp, verify the following:

- You have reviewed the entire Administrator's Guide.
- Your computer meets the minimum requirements to run SANmp. See **Section 2.2 System Requirements** on page 8.
- A supported Fibre Channel Host Bus Adapter (HBA) is installed and functioning properly (if using Fibre Channel).

- You have inserted the provided SANmp security dongle (HASP key).
- A standard Network Interface Card (NIC) must be installed and functioning properly on each computer (if using iSCSI). We recommend that you operate SANmp with Ethernet that is at least 1 Gigabit per second. An iSCSI initiator must be configured to log in to an iSCSI target. More information on installing the iSCSI initiator is found in **Section 3.3 Installing an iSCSI Initiator** on page 9.
- You have disabled sleep or standby mode on all computers.
- All workstations have been disconnected from the storage network.
- You have performed a system backup.

You should also review the Read Me file included on the SANmp Installation CD. The Read Me file may contain information that was not available at the time this manual was released.

Warning! Before adding a computer to the SANmp network, ensure that SANmp Client is installed onto it. If you add a computer that does not have SANmp drivers installed, disk management will cause damage to the SANmp network.

Section 2.1.1 Installation Sequence

Unless otherwise instructed by SNS technical support, follow these steps to ensure successful installation of your storage network. If you have previously installed other SAN volume management or shared storage software, first perform a backup, uninstall the existing software, and convert all disks back to their native format.

You may choose to install SANmp Admin on just one machine, on every machine in the SAN, or somewhere in between. In order to run SANmp Admin, though, you must have the Admin dongle inserted. The Client dongle can run only the Client application, whereas the Admin dongle can run both Admin and Client.

1. Install SANmp Client and optionally SANmp Admin on all computers that will be connected to the storage network. After SANmp is installed, power down the computer.
2. Install all Fibre Channel disks into their enclosure(s), connect the enclosure(s) to the Fibre Channel switch, and run cables to the workstations. If you are operating at least part of your SAN on iSCSI, connect your iSCSI target at this time.
3. Connect a Fibre Channel and/or Ethernet cable to the computer on which you will run SANmp Admin to set up the SAN. If you are using HFS formatted volumes, this should be a Macintosh.
4. Power up the computer, launch SANmp Admin, and setup all disks and users according to the instructions in this guide.
5. Connect a Fibre Channel cable to one of the other computers. If you are operating your SAN over iSCSI, connect to the Ethernet network.
6. Power up the client computer.
7. Launch SANmp Client, log in and test the connection by mounting or unmounting any SANmp volume.
8. Repeat steps 5 to 7 for each computer in the SAN.

Before installing any new or non-SANmp disks, power down all computers. Then power up the administrator's computer and convert the new or non-SANmp disk(s) in the SANmp administration application. After the new disks have been converted you can power up the Client computers.

Section 2.2 System Requirements

The minimum specifications required to install and use SANmp Admin are listed below. Verify that your workstation meets the minimum requirements listed for your operating system.

- SANmp does not support the Mac OS 9 operating system.
- SANmp 3.0 does not support Microsoft dynamic disks.
- SANmp volumes must have a sector size of 512, 1024, or 2048 bytes. This is not the same as the stripe size for a RAID.

Section 2.2.1 Mac OS X

The minimum system requirements for the SANmp Admin application on Mac OS X are as follows:

- A 1.0GHz PowerPC G4 or Intel Mac.
- At least 1GB of RAM.
- At least 100MB of available disk space.
- An available USB port.
- (iSCSI) A Gigabit Ethernet card.
- (Fibre Channel) A built-in PCI interface with an approved host bus adapter.
- A screen resolution of 1024 x 768.
- Mac OS X 10.4.11 (or greater).
- An Uninterrupted Power Supply (UPS) system is strongly recommended for any device that is connected to the SAN.

Section 2.2.2 Windows

The minimum system requirements for the SANmp Admin application on Windows are as follows:

- A 1.0GHz Pentium-compatible or better.
- At least 1GB of RAM.
- At least 100MB of available disk space.
- An available USB port.
- (iSCSI) A Gigabit Ethernet card.
- (Fibre Channel) A built-in PCI interface with an approved host bus adapter.
- A screen resolution of 800 x 600.
- One of the following versions of Windows:
 - Windows XP Home or Professional with Service Pack 2 installed. Windows XP Professional is required to support the Microsoft iSCSI initiator.
 - Windows XP Professional x64 Edition
 - Windows Server 2003 Standard
- An Uninterrupted Power Supply (UPS) system is strongly recommended for any device that is connected to the SAN.

Section 3 Installing SANmp® Admin

Review **Section 2.1 Pre-Installation** on page 6 and the Read Me file located on the SANmp Installation CD before installing the Admin application. SANmp Admin should be installed on as few computers as possible. You should store the SANmp Administrator Dongle in a safe place to prevent unauthorized users from administering the storage network. Install SANmp Client on each workstation before it is connected to the SAN (Storage Area Network).

Section 3.1 Dongle (HASP key)

The SANmp USB dongle, or HASP (Hardware Against Software Piracy) key, protects SANmp and its licensed users from software piracy through data encryption engines. The dongle looks like a USB key with a short, colored plastic end. The dongle must be inserted in your computer during the operation of SANmp. The dongle should be inserted into an available USB port in your computer. If removed, the application will give a warning to re-insert the dongle within 30 seconds. SANmp will quit if the dongle is not inserted within this time. There are four types of dongles. An Admin HASP gives access to computers with either SANmp Admin or Client installed. The Client HASP gives access to all Fibre Channel and iSCSI volumes on computers that have SANmp Client installed. There are also timed versions of the Admin and Client HASP keys, which give access to these applications until a specific time and date.

If you are experiencing any problems with your HASP key driver, you can obtain a new driver from <http://www.aladdin.com/support/hasp>.

Section 3.2 Multi-Platform Environments

In an environment with mixed operating systems where cross-platform access is intended, SANmp Admin should be installed on a Macintosh computer. If your storage network has no Mac computers, SANmp Admin can be installed on a computer operating under Windows 2003 or XP. If you intend to share HFS+ partitions with Windows computers, you must first install a file system translation utility. Refer to the respective manufacturer's Web site for information on these products.

If you are installing SANmp for use with iSCSI, follow the instructions in the following section. If you are installing SANmp with Fibre Channel only, you can skip this section. iSCSI is a standard protocol for encapsulating SCSI commands into TCP/IP packets. To enable this protocol, you must install an iSCSI initiator onto all computers on the SAN. globalSAN, the iSCSI initiator for Macintosh systems, is available on our website at <http://www.studionetworksolutions.com>. For Windows systems, an iSCSI initiator is available from Microsoft. Please download the latest version of the iSCSI initiator at <http://www.microsoft.com/downloads/>.

Section 3.3 Installing an iSCSI Initiator

Section 3.3.1 Mac OS X: Installing globalSAN

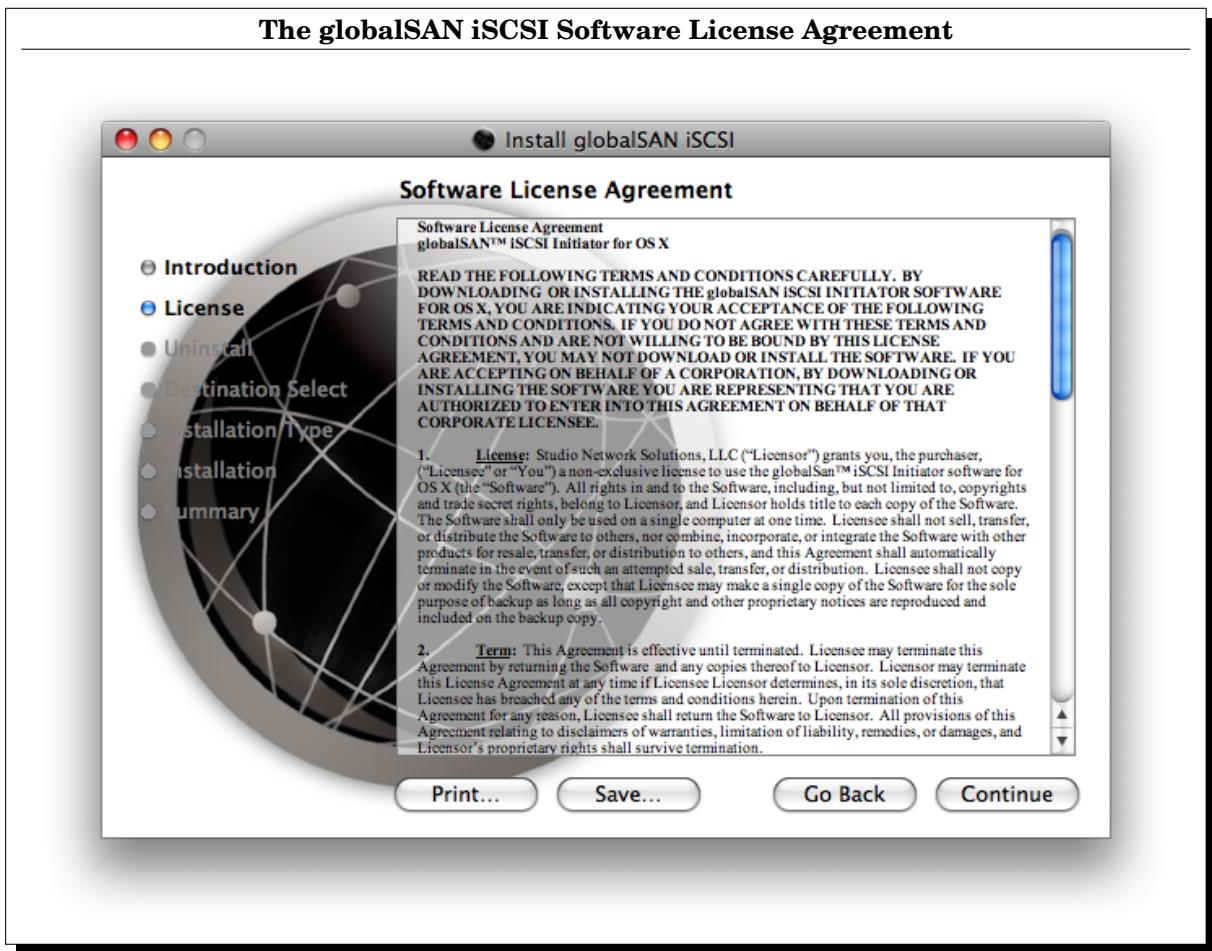
To install the iSCSI initiator onto a Mac OS X computer:

1. Double-click the installer package icon. The globalSAN iSCSI Installer screen appears.

The globalSAN iSCSI Installer screen



2. Click **Continue**. The globalSAN iSCSI Software License Agreement appears.

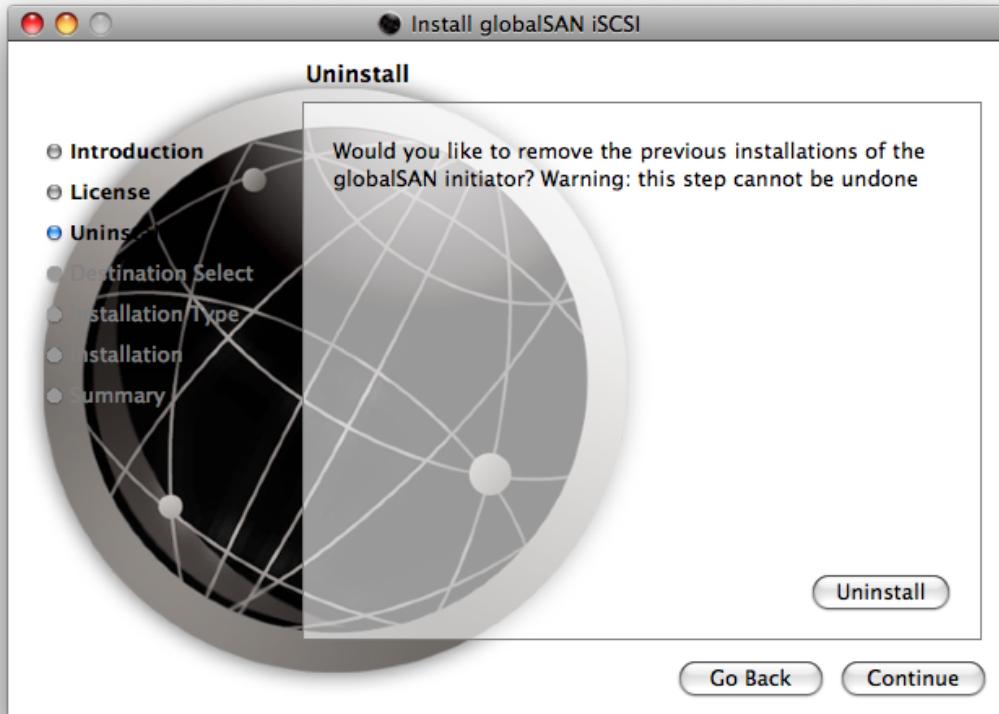


- Click **Continue**. The Software License Agreement dialog appears.



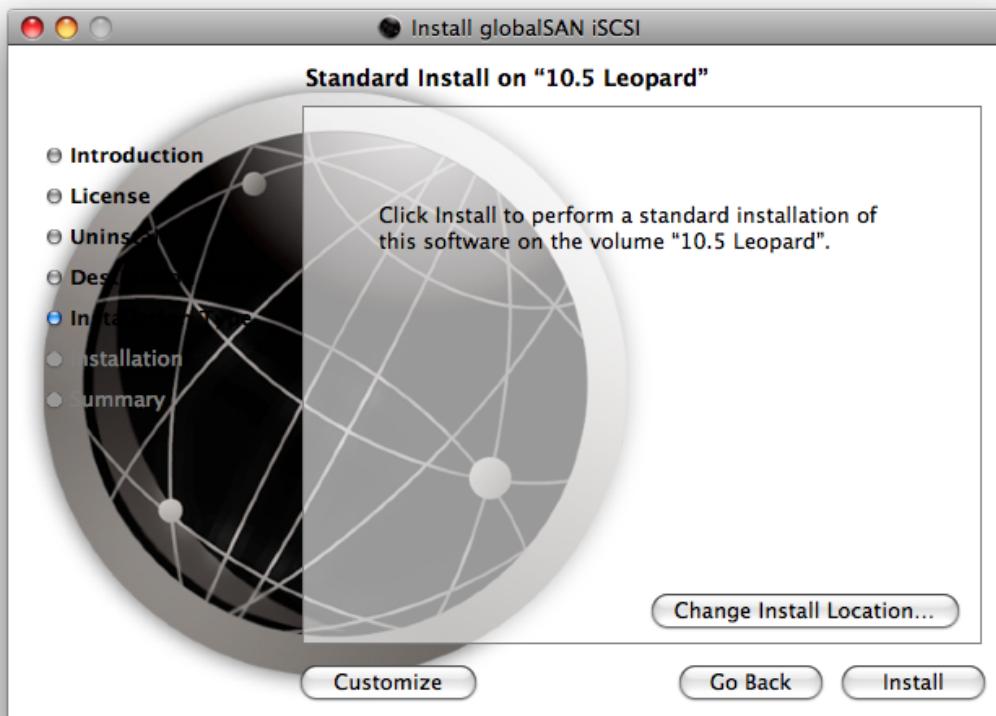
- Click **Agree** to accept the License and continue the installation. If you click **Disagree**, the installation will stop. The Uninstall screen for previous versions appears.

The Uninstall screen



5. If a previous version of globalSAN is detected, you should click **Uninstall**. Your settings will be preserved in the new version. Click **Continue**. The Standard Install screen appears.

The Standard Install Screen



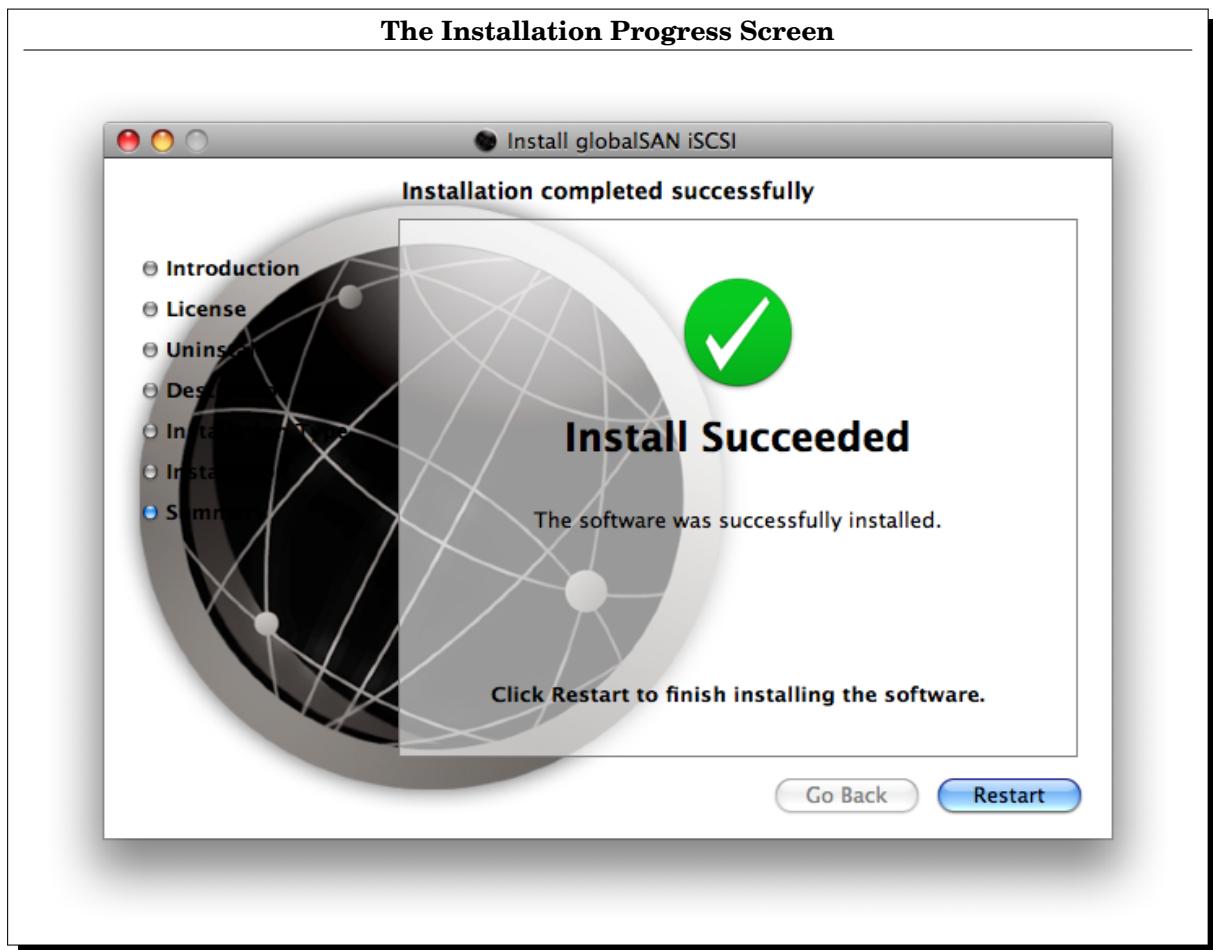
6. Click **Install**. The Authentication window appears.



7. Enter your user name and password and click **OK**. Use the administrator user name and password on your computer's operating system. A dialog appears stating you will have to restart your computer after installation.



8. Select **Continue Installation**. The installer will finish the installation process. The Installation Progress screen appears.



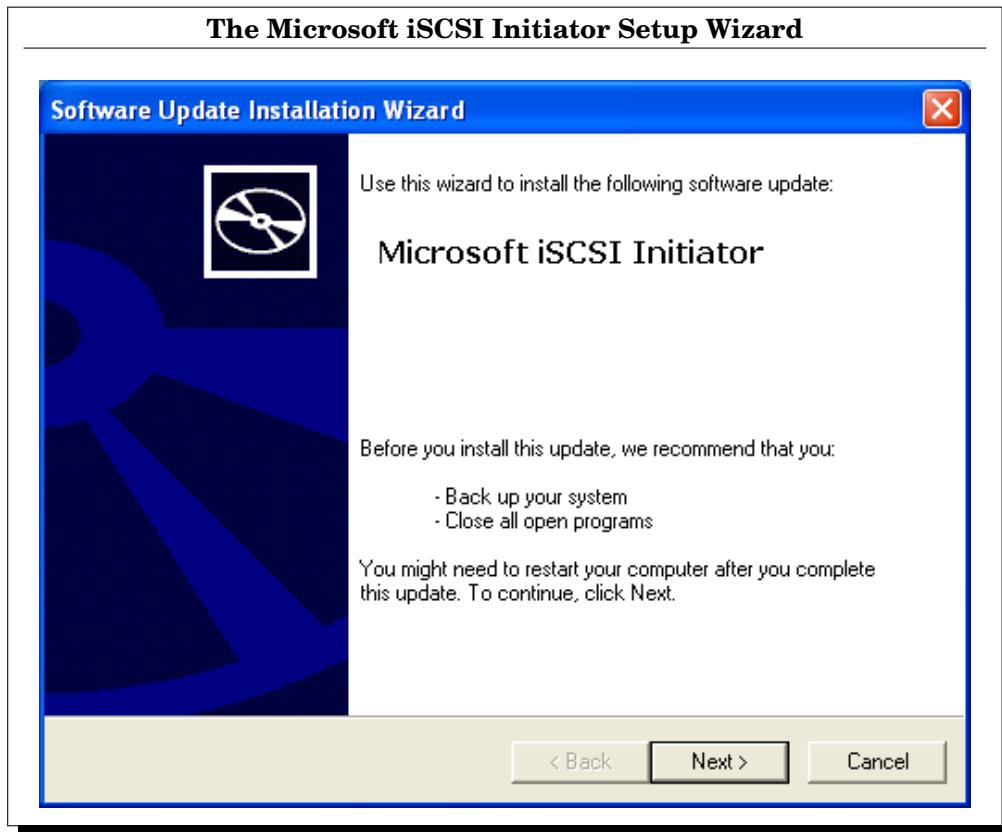
9. Click **Restart** to restart your computer and complete the installation.

Section 3.3.2 Windows: Downloading and Installing the iSCSI Initiator

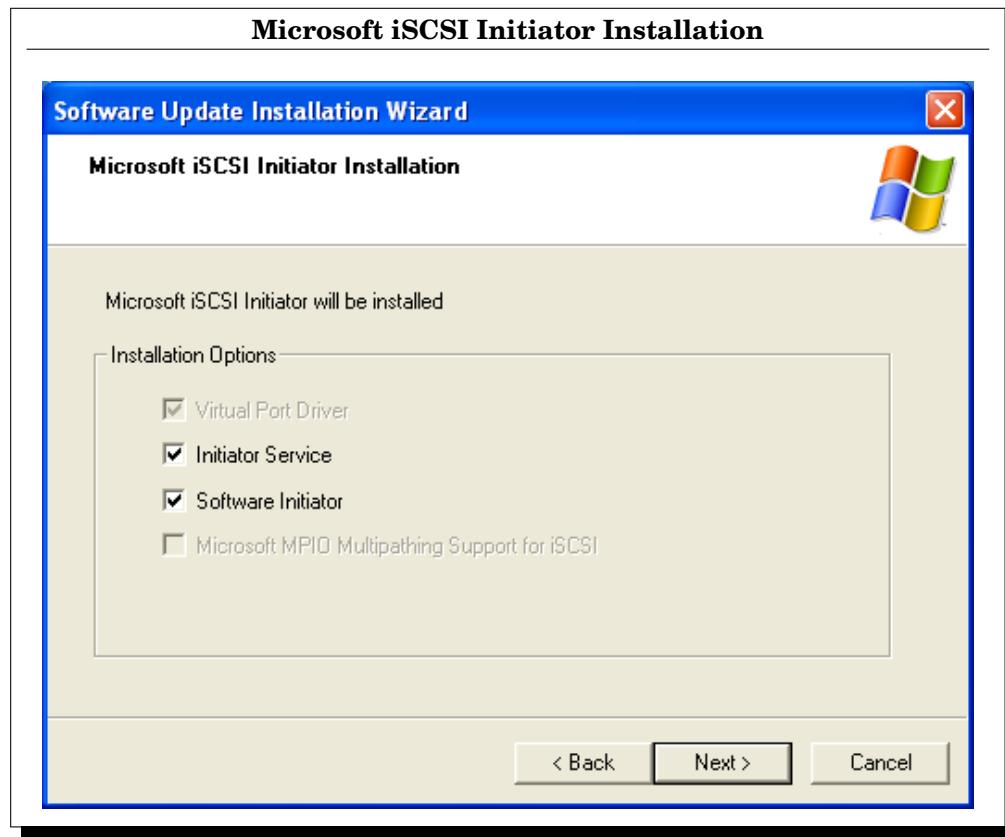
At the time of this document release, the latest version of iSCSI initiator for Windows is Microsoft's iSCSI Software Initiator version 2.08.

To download and install the Windows iSCSI initiator:

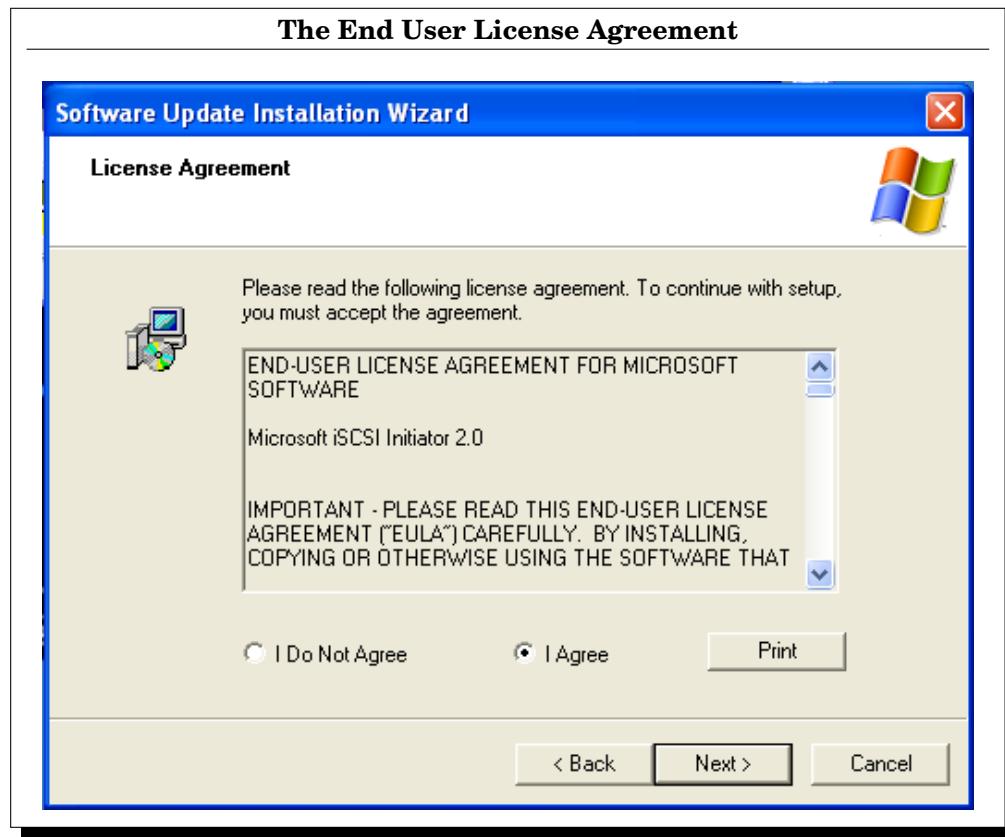
1. Go to the following URL to download the MS iSCSI initiator: <http://www.microsoft.com/downloads/details.aspx?familyid=12CB3C1A-15D6-4585-B385-BEFD1319F825&displaylang=en>
2. Download and run the initiator installer (Initiator-2.08-build3825-x86fre.exe). The Microsoft iSCSI Initiator Setup Wizard appears.



3. Click **Next**. The Microsoft iSCSI Initiator Installation Window appears.



4. Choose **Initiator Service** and **Software Initiator**. Then click **Next**. The End User License Agreement (EULA) appears.



5. Read and accept the EULA. If you do not accept the EULA, the installation cannot be completed.
6. Click **Finish** to complete the installation.

A shortcut to the Microsoft iSCSI Initiator will now appear on your desktop. Use this shortcut to access and change the iSCSI Initiator's Properties.

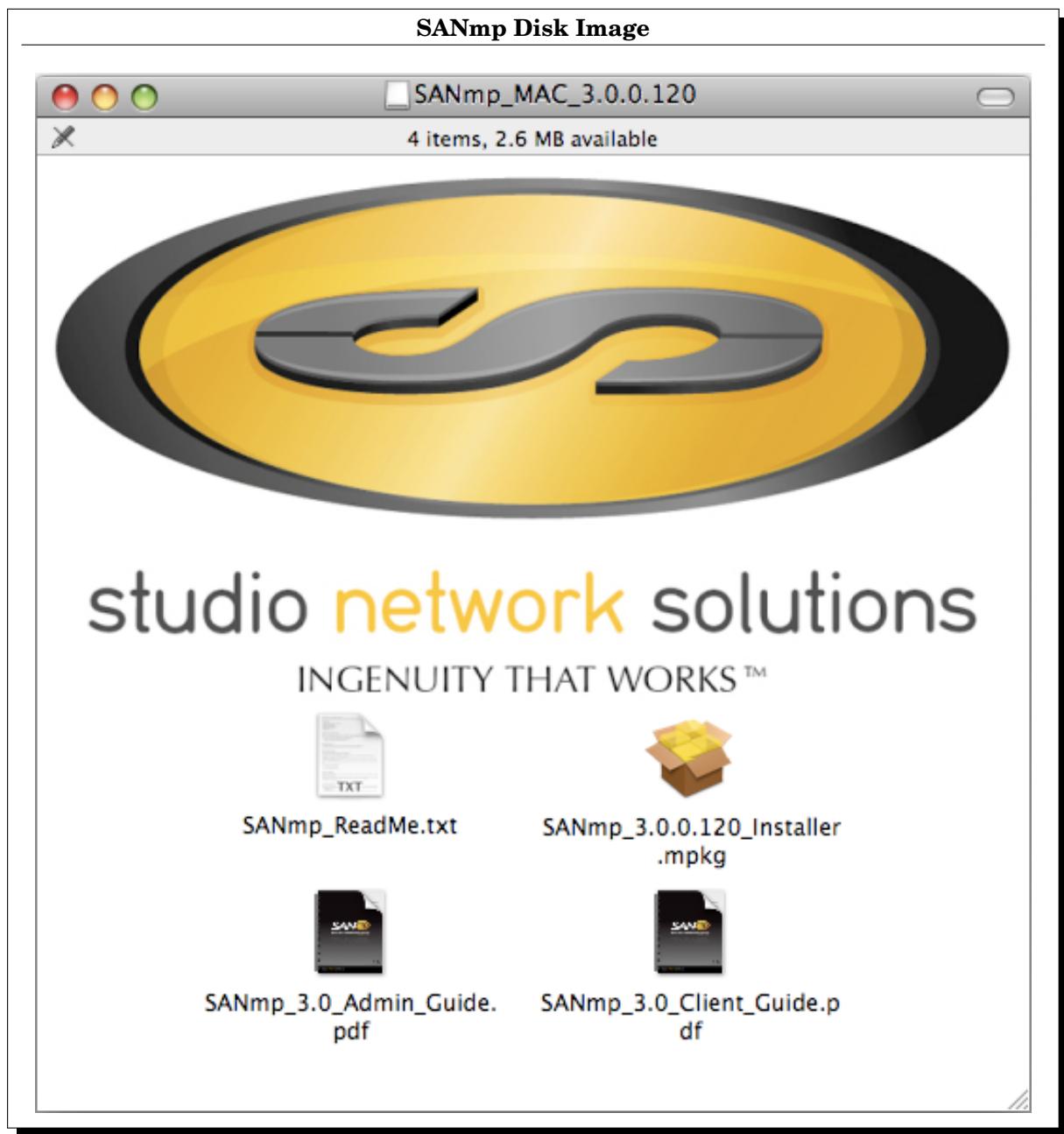
Section 3.4 SANmp® Admin Installation

The following sections describe how to install SANmp. Locate and follow the instructions specific to your operating system. If you need to access Macintosh volumes from Windows, the program MacDrive is available from <http://www.mediafour.com/products/macdrive/>.

Section 3.4.1 Mac OS X: Installation

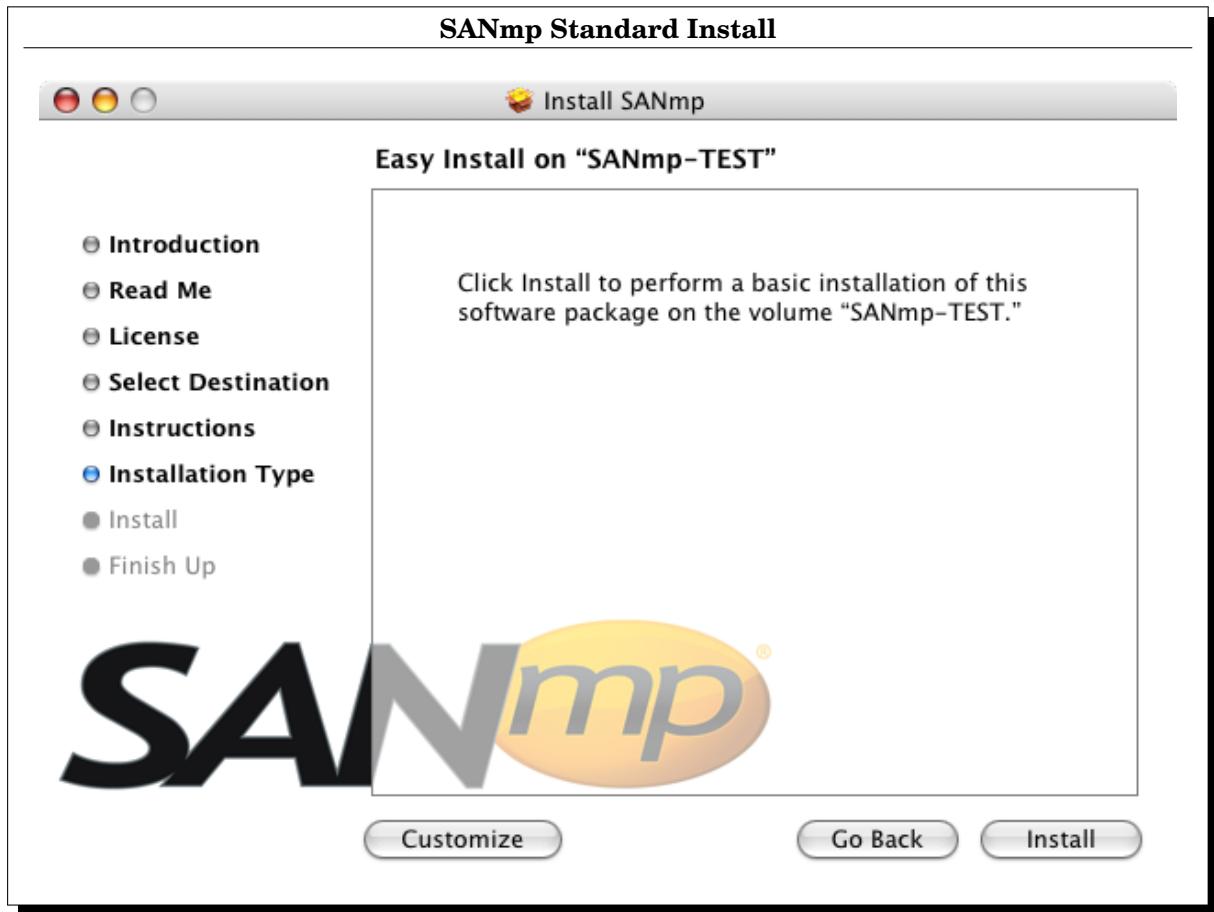
To install SANmp Admin on a Mac OS X computer:

1. Insert the SANmp Installation CD into your disc drive.
2. Double-click the SANmp disk image file (ends in .dmg). The image will mount, and a window will come up giving you four icons: SANmp ReadMe, SANmp Installer, SANmp Admin Guide, and SANmp Client Guide.

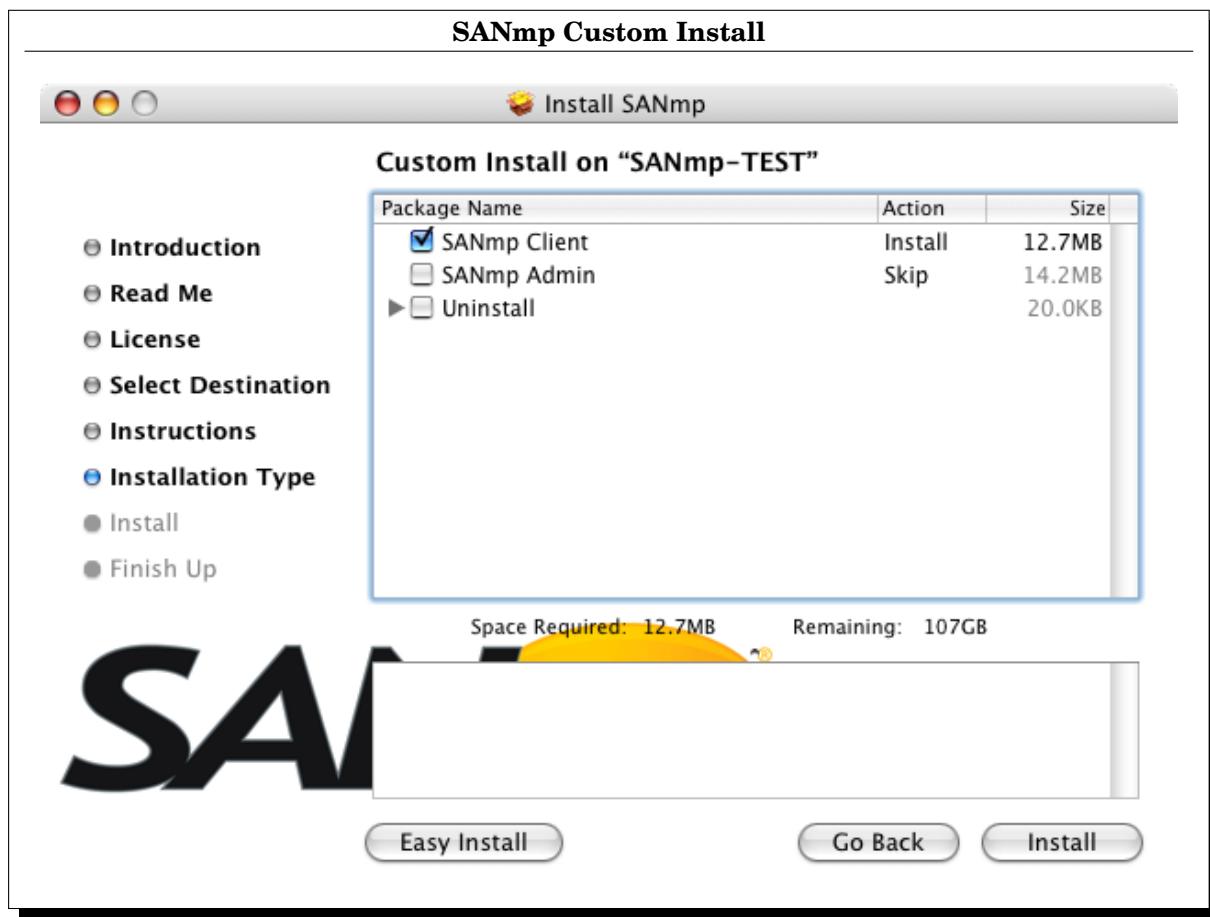


3. Double-click the SANmp Installer. Click **Continue** on the dialog box asking you about the program to determine if the software can be installed.
4. The installer will present you with several informational screens. Click **Continue** after reading each one.
5. You will be presented with the SANmp Software License Agreement.
 - If you agree to the terms of this license agreement, click **Accept**.
 - If you do not agree to the terms of this license agreement click **Decline**. The installer will not continue.

6. This screen notifies you of the options available in this universal installer/uninstaller. Click **Continue**.



7. A standard install of SANmp includes only the Client. Click **Customize** to see more options.

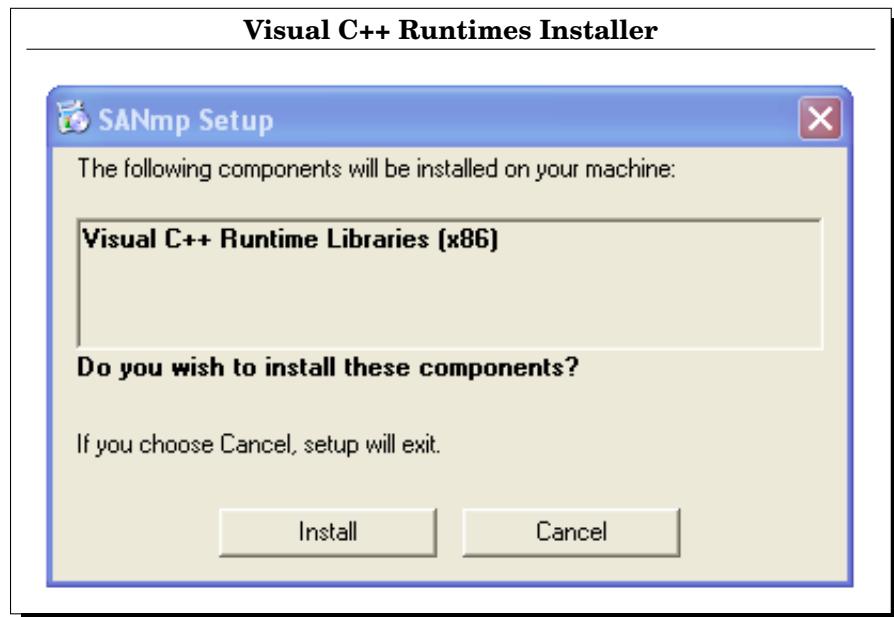


8. Check the **Install SANmp Admin** box. Click the **Install** button.
9. You will be prompted for your Mac OS X password to continue installation.
10. Click **Continue Installation**
11. You will be prompted to **Restart** your computer.

SANmp Admin and Client are installed in a **SANmp** folder in the **Applications** folder by default. To launch the Admin application, navigate to the **SANmp** folder and double-click on **SANmp Admin**.

Section 3.4.2 Windows XP Installation

1. Insert the SANmp Installation CD into your disc drive.
2. Double-click on the Setup file in the SANmp Installation CD to begin the installation process.

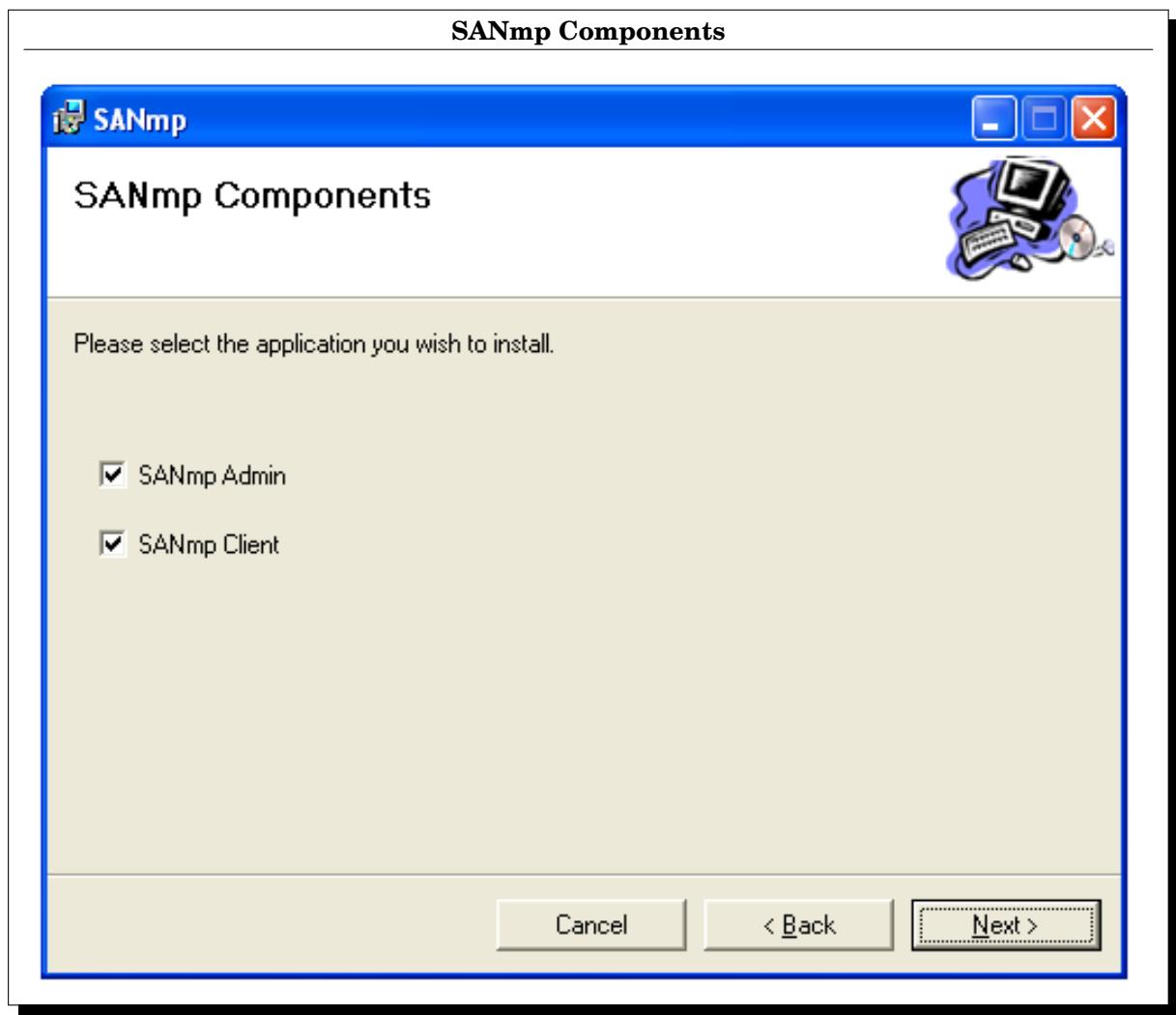


3. You will be asked to install the Visual C++ Runtimes. This is required for the operation of SANmp. Click **Install**.

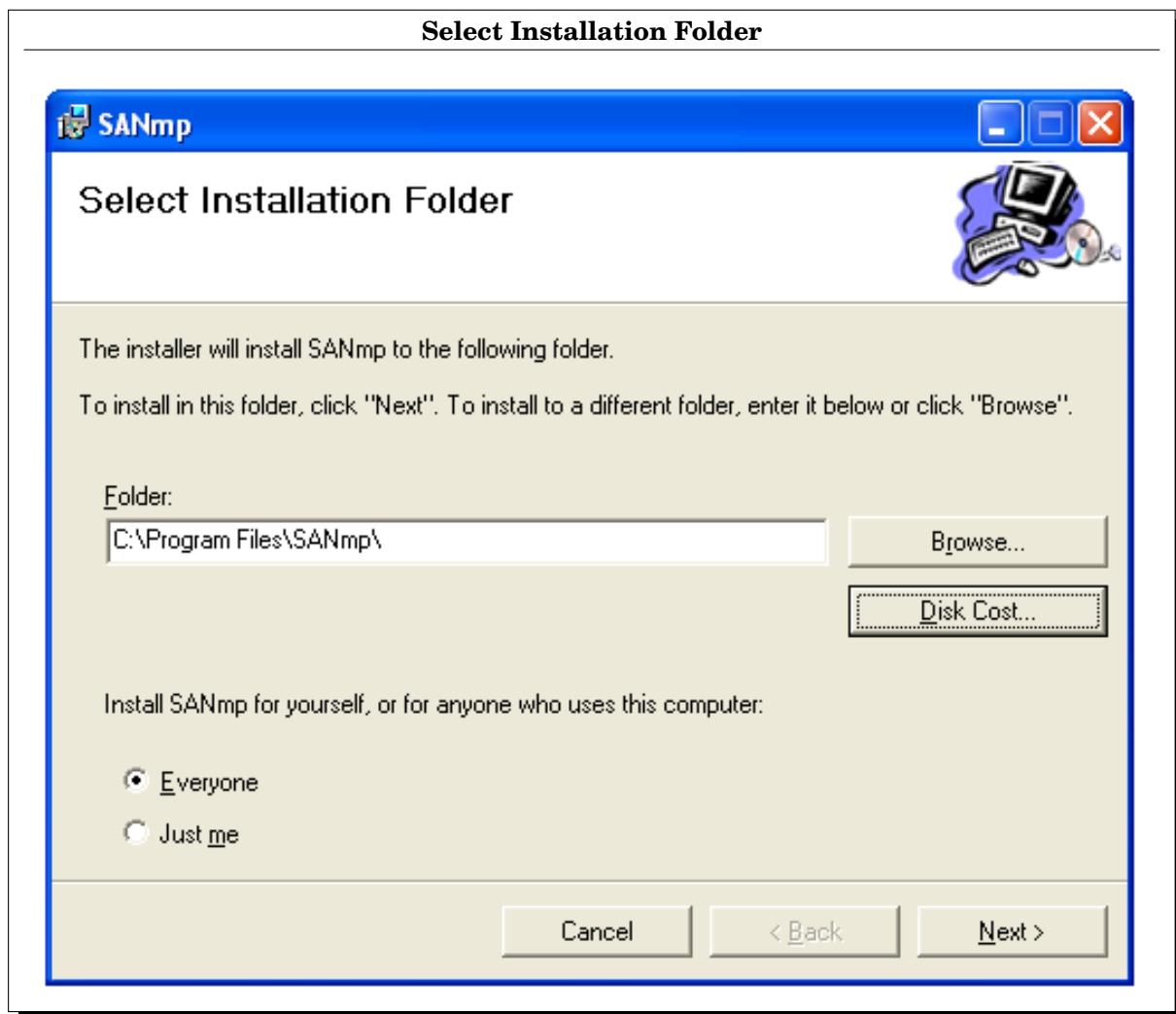


4. Click **Next** at the **Welcome to the SANmp Admin Setup Wizard** screen. The SANmp Software License Agreement appears.

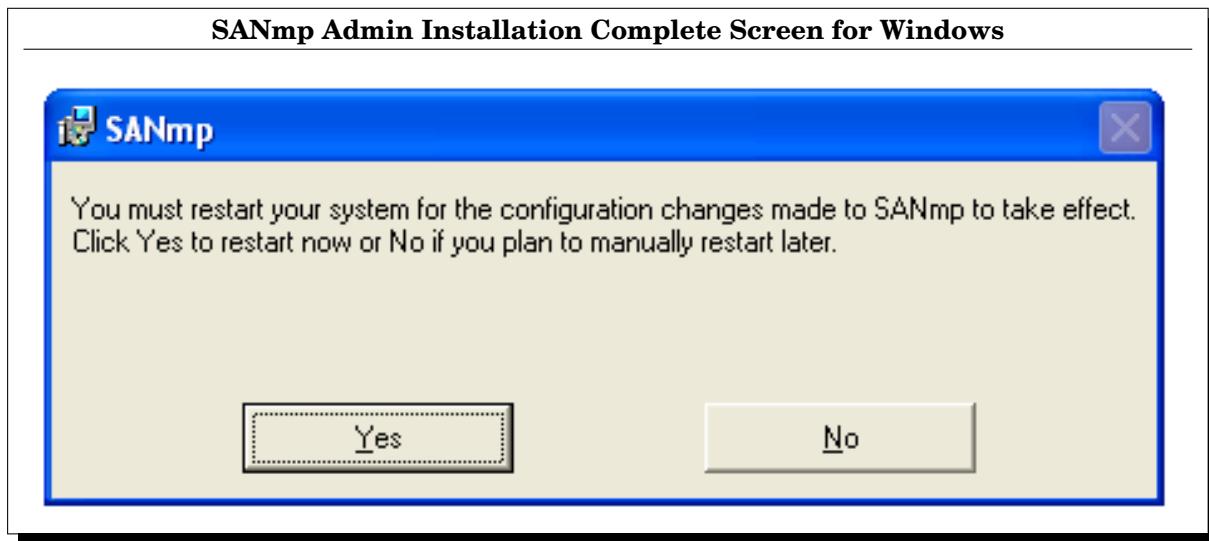
- Select **I Agree** if you agree to the terms of this license agreement. Click **Next**.
- Select **I Do Not Agree** if you do not agree to the terms of this license agreement. The installer will not continue.



5. Choose whether you want to install Admin, Client, or both by selecting the appropriate checkboxes. Click **Next**.



6. Click **Next** to install SANmp to the default location. If you want to install SANmp to a different folder or disk, click **Browse**, and choose the target location and click **Next**.
7. Click **Next** at the **Confirm Installation** screen to begin copying necessary SANmp files to your workstation. The installer will report its process as it installs the files. You will see several windows pop up and close automatically.
8. The Aladdin HASP installer will notify you it has successfully completed. Click **OK** on its dialog.
9. Click **Close** at the **Installation Complete** screen.



10. Restart your computer.

SANmp Admin can be launched from the Windows Start menu by using this menu path: **Start >All Programs >SANmp >SANmp Admin**.

Section 3.5 Using the globalSAN iSCSI Initiator

Section 3.5.1 globalSAN and the iSCSI Protocol

In addition to Fibre Channel connections, SANmp operates on a multi-platform environment that uses an IP-based Storage Area Network (SAN) built on the internet Small Computer Systems Interface (iSCSI) protocol. The iSCSI protocol is a standard for encapsulating data into packets so they can be transmitted over IP networks. With globalSAN providing an iSCSI connection, SANmp enables multiple Mac OS X and Windows workstations to share data over high-speed Ethernet.

The globalSAN iSCSI Initiator for Macintosh systems, is available on our website at <http://www.studionetworksolutions.com>. The Microsoft iSCSI initiator is required to operate SANmp with iSCSI on a Windows computer. Install and configure iSCSI initiators on all computers that will access the SAN via iSCSI.

To transfer data over the SAN, globalSAN establishes a connection between an initiator portal and a target portal. A "portal" is the combination of an IP address and a port number (usually 3260 for iSCSI). Both the iSCSI initiator and the target use a portal to access the TCP/IP network.

Section 3.5.2 Multi-path Connection

The globalSAN iSCSI Initiator automatically selects the Ethernet adapter for the SAN connection. If there are multiple adapters on a computer with the globalSAN iSCSI Initiator, it will select the adapter with the shortest path to the portal or the most available bandwidth. When multiple paths are available to globalSAN, it will automatically select all paths and maximize SANmp's connection speed by selecting all paths. This multi-path feature is always enabled in globalSAN. The Microsoft iSCSI initiator, however, can not automatically select the Ethernet adapter. If you are using the Microsoft iSCSI initiator, you must select the Ethernet adapter during the iSCSI configuration.

Section 3.5.3 RAID on globalSAN

It is recommended that you do not run a software RAID on top of globalSAN. You can run a RAID as part of the target setup. If a disk connection drops, globalSAN goes into recovery mode. If this occurs over a short

period of time, RAID will flood the pipe in an attempt to catch up. Over a long period of time, globalSAN will fail recovery and the RAID subsystem will consider the drive dead.

Warning! Ensure that you are not using a volume when you disconnect a target. When you disconnect from a target, all mounted volumes on that target are removed from the system. If you are connected, reading or writing to the volume, your connection will be terminated without warning.

Section 3.6 Configuring globalSAN

Beginning with globalSAN version 3.3, the initiator is a System Preferences pane. Open System Preferences and click on the globalSAN icon, shown here.



Configuring globalSAN consists of adding new portals, defining advanced settings, and logging onto a target. Finally, to end a session you will disconnect the target.

Section 3.6.1 globalSAN Tabs

The globalSAN interface contains the following tabs:

- Portals. Lists all iSCSI target portals that are available for presenting targets.
- Targets. Lists all iSCSI targets that are available for establishing a connection.
- Sessions. Lists all active connections between the initiator and targets.

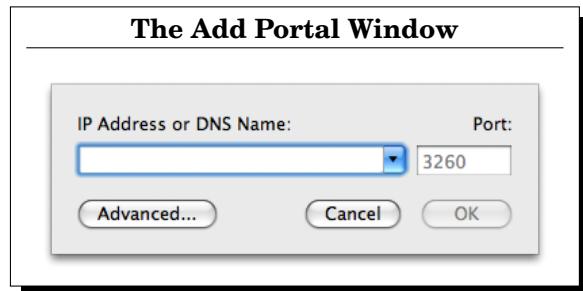
Section 3.6.2 Adding a Portal

To add an iSCSI portal:

1. Launch globalSAN from the Applications folder. The globalSAN iSCSI window appears. The default Targets tab shows. Click the Portals tab.



2. Click the plus sign (+) to add a new portal. The Add Portal window appears.



3. Enter the portal IP or DNS name and port number. Click **OK**. The portal appears in the portal list.
4. Click **Advanced...** if you want to set advanced settings. See **Section 3.6.4 Defining Advanced Settings** on page 29 for more information on advanced settings.
5. Click **OK**.

Section 3.6.3 Deleting a Portal

To delete an iSCSI portal:

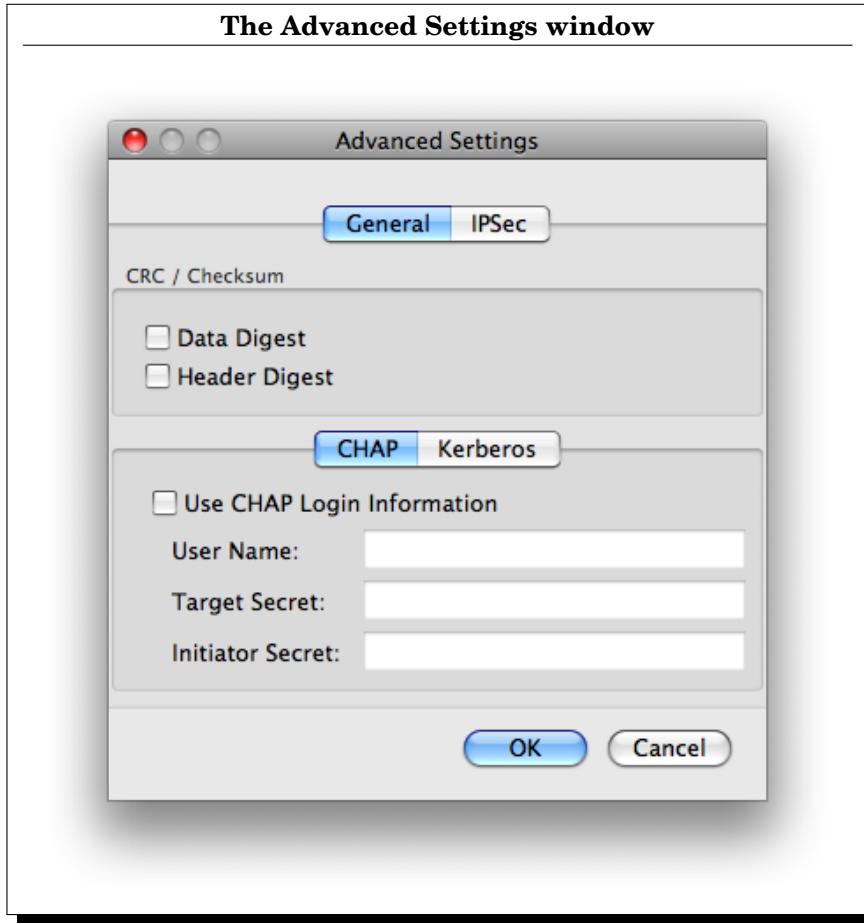
1. Launch System Preferences and choose the globalSAN icon. The globalSAN iSCSI window appears with the Targets tab selected. Click the Portals tab.
2. Select the desired portal from the list.
3. Click **the minus sign (-)** to delete a portal from the list.

If you attempt to remove a portal with connected targets, the following error message displays: ***This portal has connected targets, disconnect the targets before removing this portal.***

If you attempt to remove a portal with persistent targets, the following error message displays: ***Persistent targets are configured for this portal, clear the persistent flag for the targets before removing this portal.***

Section 3.6.4 Defining Advanced Settings

If you click **Advanced...** while adding a portal, you can define the default settings used when connecting to the portal's targets. This will save you from having to put them in as you connect to each target. The **Advanced Settings** window looks like this:



CRC/Checksum The CRC/Checksum feature is found on the General tab. With CRC/Checksum you can select Data Digest and Header Digest. Data Digest and Header Digest detect and correct data transmission errors. Data Digest provides checksums for the data packets. Header Digest provides checksums for the header packets. These two use additional bandwidth and will lower the SAN connection speed.

Challenge/Handshake Authentication Protocol Challenge/Handshake Authentication Protocol (CHAP) is an authentication protocol for remote logon between a globalSAN initiator and its target. This protocol can determine whether a user has the correct password without openly revealing that password (thereby preventing its leak to potential eavesdroppers on the network).

Section 3.6.5 Adding Manual Targets

You can add individual targets manually rather than adding an entire portal. When you add a manual target, it is indicated in the Manual column in the globalSAN Targets tab.

To add a manual target:

1. Open the globalSAN Preference pane. The Targets tab of the globalSAN iSCSI window appears.
2. Click **the plus symbol (+)**. The Add Target dialog opens.
3. In the **IP Address or DNS Name** box, type the location or name of the server where the target resides.

4. If you know your target is on a port other than 3260, type the port into the **Port** box.

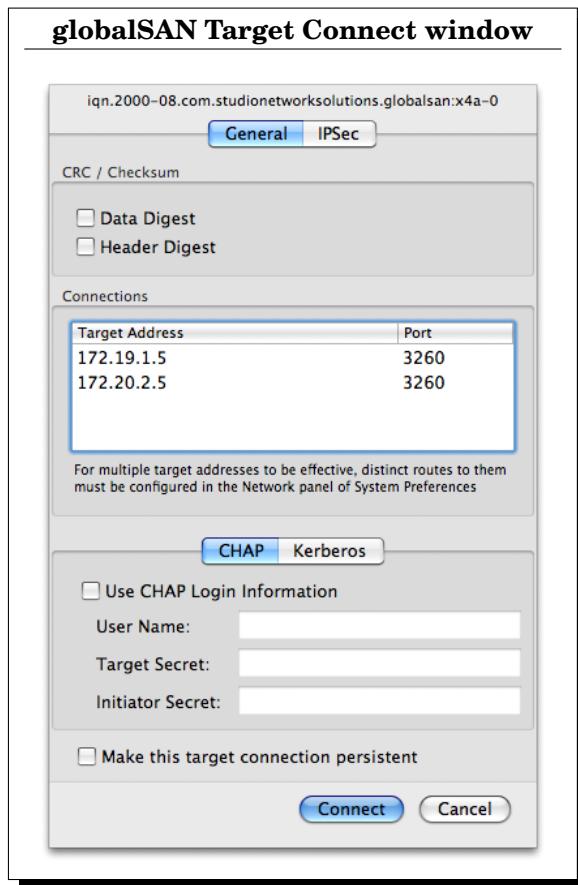
5. In the **Target name** box, type the name of the target and click **OK**.

The target appears in the globalSAN iSCSI window on the Targets tab. The target contains a check mark in the Manual column.

Section 3.6.6 Logging onto a Target

To log onto a target:

1. Open the globalSAN Preference pane. The globalSAN iSCSI window appears. The default Targets tab shows.
2. All available targets are displayed in the list.
3. Select a target and click **Log On...**. The Target Connect window appears.



4. Enter the settings and click **Connect**. The target connects. You can see the connection in the Sessions tab.

Section 3.6.7 Multiple Connections

You can increase your transfer rate by connecting to the target via multiple IP addresses in the Connections area of the Target Connect window. You must have a physical network connection for each IP you select in the Connections list.

Section 3.6.8 Creating Persistent Targets

When you start your computer, globalSAN will automatically re-establish a connection to all targets marked persistent. It can take anywhere between 5 to 15 seconds after the desktop appears before all the necessary network elements are ready. If the connection to a persistent target fails, SANmp will be unable to mount the volume, and the connection to that target will no longer be indicated as persistent.

There are two ways to make a target connection persistent:

1. In the Targets tab, check the box in the **Persistent** column.
2. In the Target Connect window, check the **Make this target connection persistent** box.

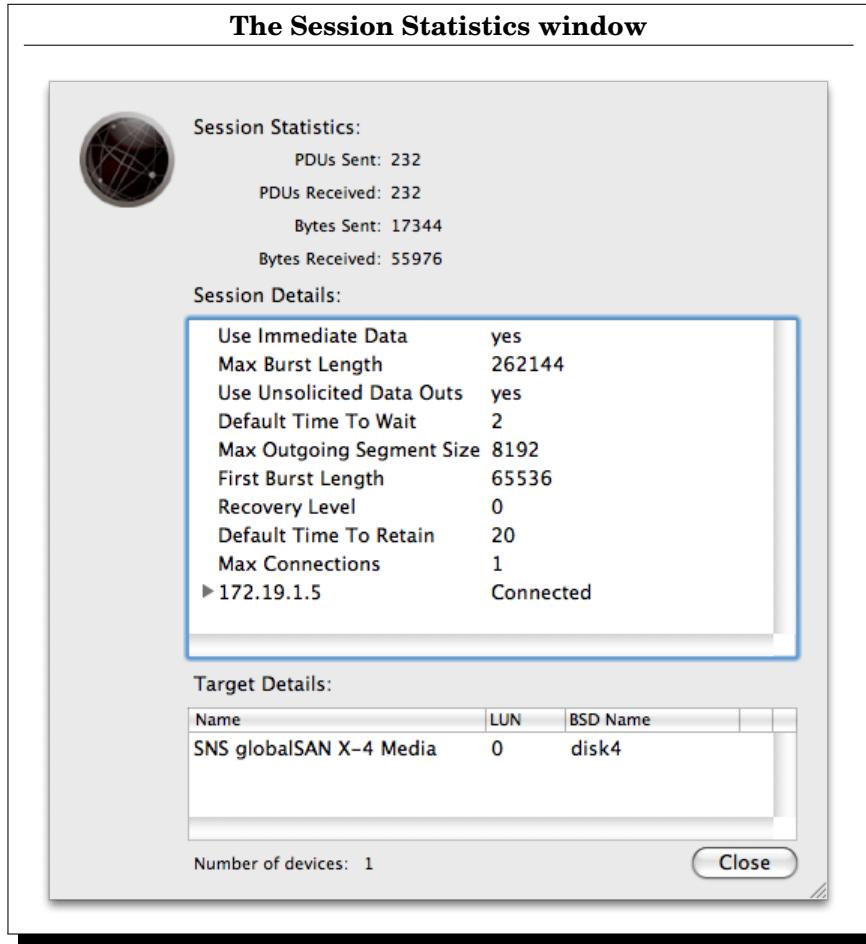
Section 3.6.9 Logging off from a Target

To disconnect a target, select the session which you want to disconnect from and click **Log Off**. The session will disconnect and be removed from the sessions list.

Warning! Ensure that you are not using a volume when you disconnect a target. When you disconnect from a target, all mounted volumes on that target are removed from the system. If you are connected, reading or writing to the volume, your connection will be terminated without warning.

Section 3.6.10 Obtaining Session Information

You can obtain extended information on a target that is logged on from the Sessions tab. Select the active session about which you want the information, and click **Info**. The Session Statistics window comes out.



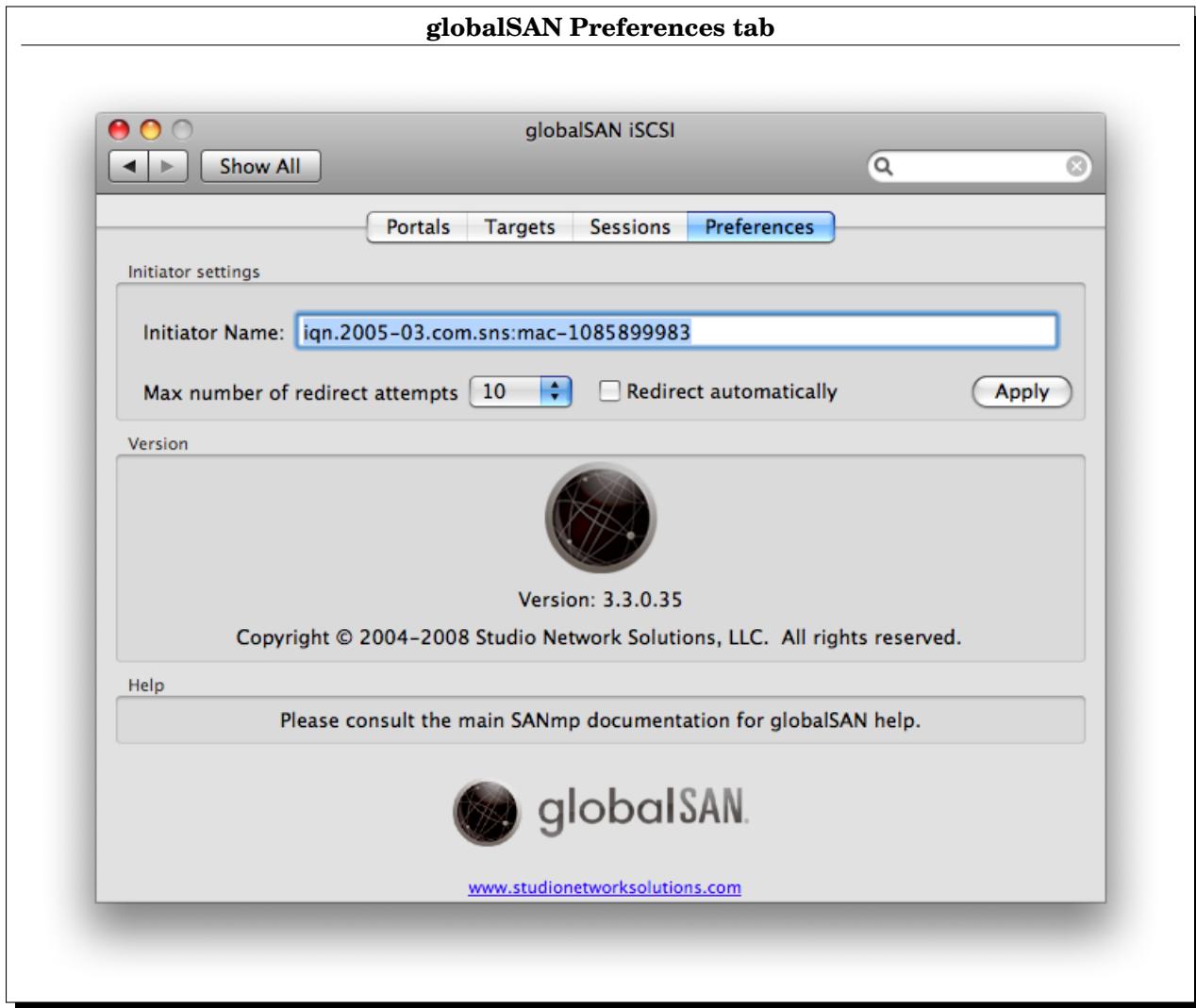
- Session Statistics, including:
 - **PDUs sent and received:** The PDUs (packet data units) sent and received during the session.
 - **Bytes of data sent and received:** The volume of bytes sent and received during the session.
- Session Details, including:
 - Immediate Data Usage
 - Maximum Burst Length
 - Unsolicited Data Outs Usage
 - Default Time To Wait
 - First Burst Length
 - Recovery level
 - Default Time To Retain
 - Maximum number of connections
 - Target IP addresses in use
- Target Details, including:
 - Name :** This field gives the name of the target.

LUN : The LUN (logical unit number) gives the address of the disk drive and the disk device.

BSD name : The BSD name is the UNIX-style name of a disk (i.e. /dev/disk0)

- Number of devices in use

Section 3.6.11 Initiator Preferences



You can view and change the Initiator Name on the Preferences tab. Since iSCSI has fairly strict naming conventions, it is recommended to leave this as it is unless you have a specific reason to change it.

Some iSCSI targets require Login Redirection, which is a part of the iSCSI protocol designed for letting the initiator know that a volume has moved. If you are trying to use such a target with the globalSAN iSCSI Initiator, check the box that says **Redirect logins automatically**.

Section 4 Using SANmp® Admin

Section 4.1 Configuring the Storage Area Network

As the system administrator it is important to understand the functionality of SANmp Admin as well as SANmp Client. You should review the SANmp Client Guide in addition to this manual before administering your storage network. It is also important to note that active users may be immediately affected by the changes you make while you are administering the SAN. Some changes will not be apparent to the users until they perform an operation that causes the volume list to be refreshed or until they have logged out and back in. In general, you should avoid making changes to a user that is currently logged in. The navigational elements in SANmp Admin are essentially the same regardless of your operating system. Any differences will be noted within this document where appropriate.

Section 4.1.1 Using Earlier Versions of SANmp®

We strongly recommend that you do not mix software versions of SANmp. Later SANmp versions may change the format of the SANmp database which stores users, permissions, and other settings. Depending on the magnitude of the change, some features may not work, or the SAN may become unstable if the database is accessed by an older version of SANmp. For this reason, mixing versions of SANmp on a SAN is not supported.

Section 4.2 Launching SANmp® Admin

SANmp can be launched from the following locations:

- Mac OS: **Mac HD -> Applications -> SANmp -> SANmp Admin**
- Windows: **Start Menu -> Programs -> SANmp -> SANmp Admin**

After launching SANmp Admin you will be presented with a **Log In** dialog box. At this dialog box you will be asked to enter the administrator's password. The default password is:

adminpw111

You will not be able to proceed until the proper identification has been supplied. The administrator password is not case sensitive. It may take several seconds to log in depending on the number of drives on your storage network.

Section 4.2.1 Changing Your Password

The administrator's password is stored locally on the Admin computer. If you have installed SANmp Admin on other computers you will need to change the password on each of those systems as well.

You may change your password by using the menu: **Administrator > Change Password**. As a security measure, you must provide the current password in order to change it. It is also recommended that the Admin dongle be stored in a secure place.

Section 4.2.2 Multiple Administrators

It is possible to have SANmp Admin installed on more than one computer. We recommend that you install the Admin application on as few computers as possible. Ideally, it should only be installed on a single computer, and the Admin dongle should be stored in a secure location. If your installation has more than one Admin dongle, it is possible that two administrators would attempt to run SANmp Admin at the same time. When this happens, the second administrator will receive the following warning:



It is also possible to receive this message if your workstation quit unexpectedly while you were running SANmp Admin. If you receive this message, be sure to verify that there are no other administrators administering the SAN before you override the warning. Overriding this warning may cause concurrent administrators to overwrite each other's changes and could potentially corrupt the SANmp Database.

Section 4.3 The SANmp Admin Window



At the top of the SANmp Admin window are two tabs: **sharing** and **erase**. SANmp Admin on Windows also has a **partition** tab. The **sharing** tab provides the interface for configuring users and the permissions each user has on each volume. The **erase** tab is used for erasing and renaming volumes. On Windows, the **partition** tab is used to split disks into volumes and convert them to SANmp disks.

On the left is the **Disk/Volume** list. Disks are left-justified in the list. Volumes display in an indented list immediately below the disk on which they reside.

The bottom shows the status information display, which shows detailed information on disks and volumes.

Section 4.3.1 Obtaining Information on a Disk



SANmp Admin provides helpful information about each disk.

The following information is shown for disks:

Disk Description Gives a description of the physical disk. This value is read directly from the disk and cannot be modified by SANmp.

Connection Bus Shows the method under which the physical disk is presented to the operating system.

SANmp Disk Indicates whether the disk has been converted to a SANmp disk or not.

Total Capacity Indicates the total storage capacity for the selected disk.

Section 4.3.2 Obtaining Information on a Volume

SANmp Admin also provides helpful information about each volume. Simply select the volume you wish to investigate.

If a volume is in active use, you may need to perform a rescan to obtain the most current information about a volume. To rescan a volume, select the volume and then select **File > Rescan**.



If a volume is selected, the following information is shown:

Format Shows the volume type. For example, NTFS or HFS/HFS+.

SANmp Volume If this volume belongs to a SANmp disk, this will say **Yes**.

Active Mounts The number of users who currently have this volume mounted.

Capacity The total capacity available on this volume.

Available The amount of available space remaining on this volume.

Used The amount of space already used on this volume.

Automatic Write Sync Automatically synchronizes a volume that is mounted read/write.

Automatic Read Sync Automatically synchronizes a volume that is mounted read-only.

Volume Sync Interval Sets the time interval for automatic synchronization.

Section 4.4 Disk Operations

Disk Operations are permanent and should only be performed when all other workstations are powered down. When performing disk operations, only the administrator's computer should be powered up. It is safe to power up the Client computers after all disk operations have been completed and all SAN disks have been converted to SANmp disks.

SANmp 3.0 is no longer compatible with Windows Dynamic Disks. If your installation requires Dynamic Disk support, you must upgrade to a supported 64-bit version of Windows or continue using SANmp version 2.

Section 4.4.1 Accessing a SANmp Volume through Disk Management (Windows)

Disk operations through disk management (such as partitioning, initializing, converting to dynamic disks) will fail on SANmp disks. On computers with SANmp installed, the Microsoft Windows disk utility cannot modify or damage the contents of SANmp disks.

Section 4.4.2 Partitioning a Disk (Mac)

If you are using SANmp Admin for Mac, all disk partitioning must be done within the Mac Disk Utility (OS X). Partitioning will delete all data on the disk.

- The minimum volume or partition size that SANmp will support is one gigabyte.
- Journaling must be turned off for each volume partitioned with this operating system. Journaling is a Mac OS X function located in the native Disk Utility application.
- The partition scheme must be set to Apple Partition Map in Disk Utility. Newer Intel Macs will have the default set to GUID, so be sure to always check this.

For more information about setting up disks with Disk Utility refer to the online help within OS X. Refer to **Section 4.4.3 Converting a Disk (Mac)** on page 39 when you have completed setting up your disks with Disk Utility.

Section 4.4.3 Converting a Disk (Mac)

This function converts native disks to SANmp disks. This section is not applicable to administration from Windows. SANmp Admin for Windows will convert disks as they are partitioned into volumes. All workstations except the administrator's computer must be powered down. Review **Section 2.1.1 Installation Sequence** on page 7 before installing any new or non-SANmp disks to your storage network.

Note: Converting a disk is a permanent action!

To convert the native disks to SANmp disks:

1. Click the **Sharing** tab.
2. Select the physical disk (or RAID set) to be converted.

3. Click the **Convert Disk** button.



Section 4.4.4 Partitioning / Converting a Disk (Windows)

When a disk is partitioned in Microsoft Windows SANmp Admin, it is also converted to a SANmp disk. Partitioning a disk will also delete any existing volume scheme and all data on the selected disk. During the conversion process SANmp performs a Quick Format of a disk's volume(s) and allows Windows to pick the Allocation Unit size based on volume size. If you need to perform a standard format and/or make modifications to the Allocation Unit size, you will first need to mount the volume with SANmp Client and then right-click on the drive's icon to format it.

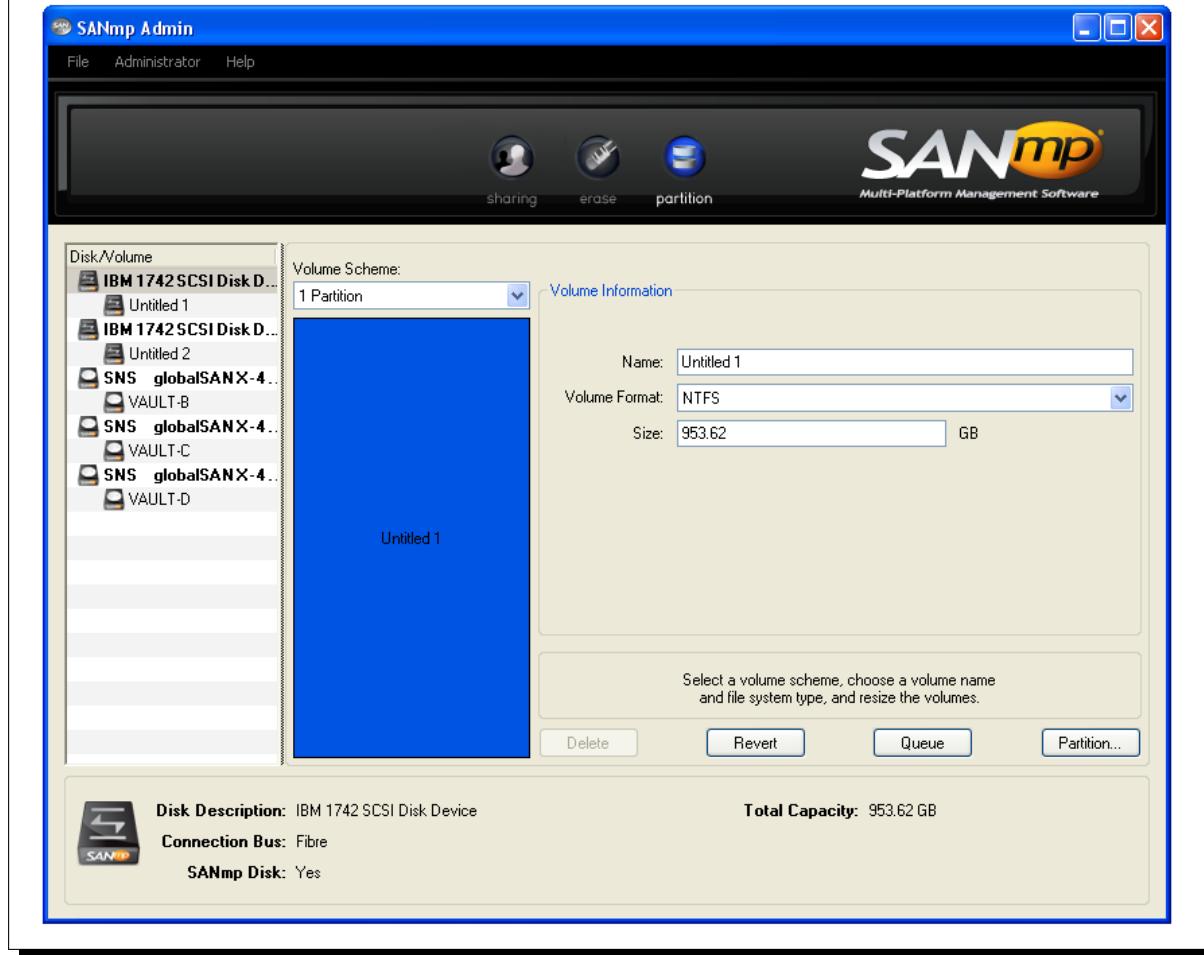
Warning! Partitioning or converting a disk is a permanent action!

To partition a disk, all workstations except the administrator's computer must be powered down. Review the Installation Sequence section on page 7 before installing any new or non-SANmp disks to your storage network.

To partition or convert a disk within SANmp Admin for Windows:

1. Select the physical disk (or RAID set) to be partitioned or converted from the available disks.
2. Click the **partition** tab.

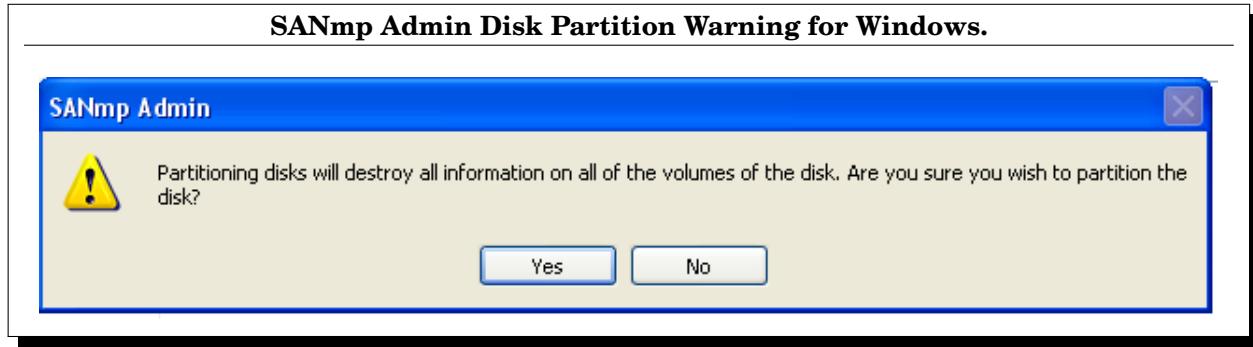
SANmp Admin Partition Tab for Windows.



3. Select the desired number of partitions (up to 30) in your volume scheme.

If you do not name a partition, it will automatically be labeled Untitled x, where x denotes the sequence of the partition on a disk. You should adhere to a logical naming convention for the shared SANmp partitions on your storage network.

4. Click **Revert** if you have changed your mind and do not want to continue partitioning. Click **Partition** when you have selected your volume scheme and named each volume. A warning dialog will come up asking if you are sure. If you click **Yes** here, you can no longer **Revert**.

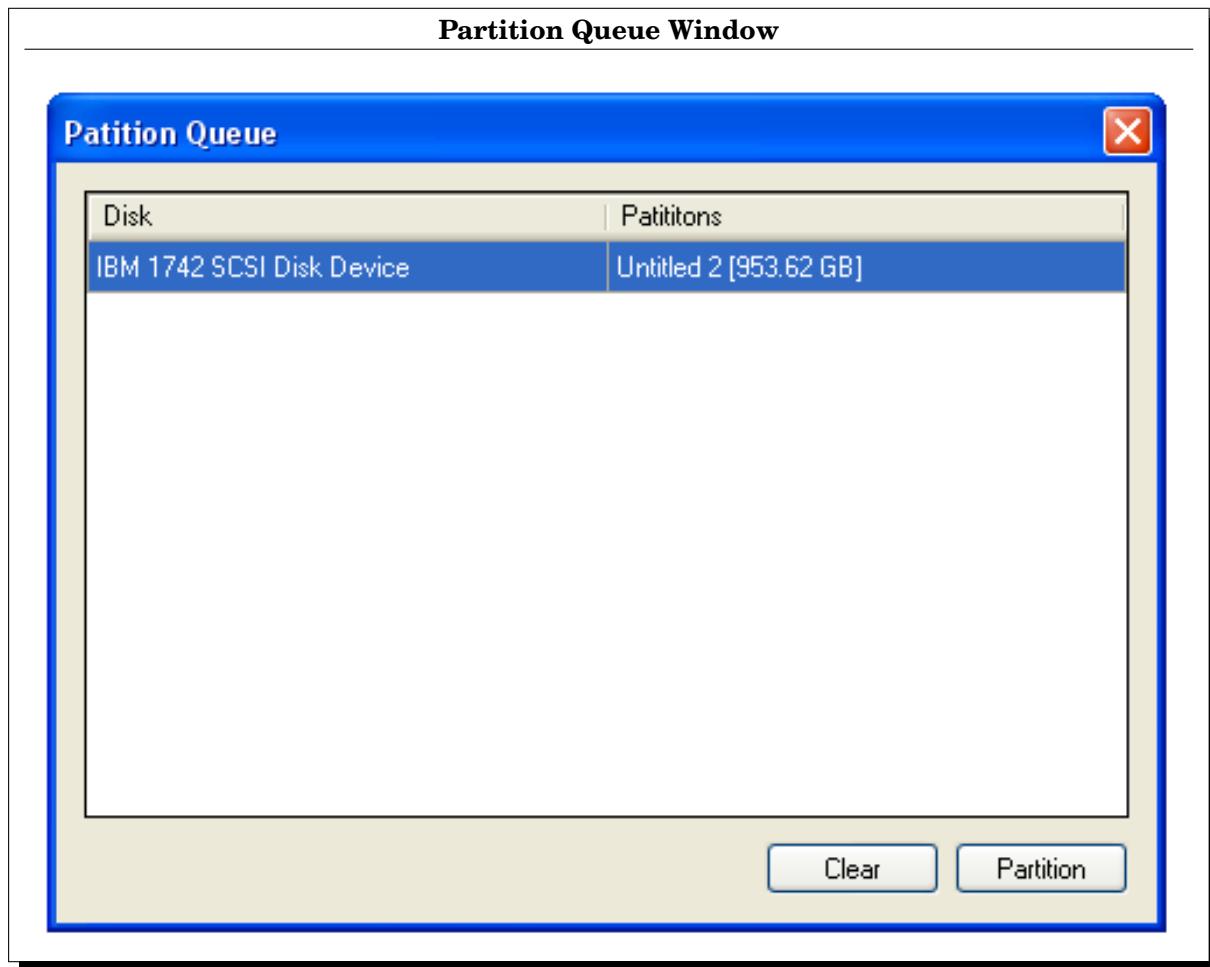


Depending on the size of your disk, you may need to wait several seconds while SANmp prepares the disk.

When a disk has been successfully converted, its icon will change to a SANmp icon in the disk hierarchy and each volume or partition will be listed under the disk. See **Section 4.5.1 Creating a User** on page 49 if you do not have any users set up. If you have existing users, see **Section 4.5.4 Copying Users to Disks** on page 50.

To Partition/Convert Multiple Disks (Windows)

1. Click the **partition** tab.
2. Select a disk (or RAID set) you want to partition or convert from the list of available disks.
3. Select the desired number of partitions (up to 30) in your volume scheme.
4. Click **Queue** when you have selected your volume scheme and named each volume.



5. The **Partition Queue** window displays.

The **Partition Queue** window must remain open while queueing multiple volumes.

6. Select the SANmp Admin window again.
7. Repeat steps 2 to 4 for each disk you want to partition.
8. Click **Partition** in the **Partition Queue** window when you have added all disks.

Note: To clear all items in the partition queue, click Clear.

Section 4.4.5 SANmp Periodic Drive Maintenance

We recommend that users reinitialize their SAN volumes on a six to twelve month cycle. This helps maintain a reliable file system on the disk and keeps the SAN running at peak performance. Also, it is our experience that HFS+ drives exhibit irregular behavior when operated too close to maximum capacity. We recommend that users always maintain free space on each drive equal to at least 15% of that drive's total formatted capacity (i.e. a 100GB volume should always have at least 15GB free). HFS+ (Mac OS) volumes should be maintained from a Macintosh running SANmp Admin, NTFS (Windows) volumes should be maintained from a Windows workstations running SANmp Admin. If your drives are currently accessible and working normally please follow these directions:

SANmp Periodic Drive Maintenance Procedure for NTFS (Windows) formatted SAN volumes.

1. Shut down all other workstations.
2. Launch SANmp Client and mount one drive.
3. Back up and verify all data on the drive as the following steps will completely erase it.
4. Unmount the drive and quit SANmp Client.
5. Launch SANmp Admin.
6. Select the volume/partition then choose the **Erase** tab.
7. You may change the volume name at this point if you wish. Then click the **Erase** button, and confirm after reading the dialog box.
8. Test access to the volume using SANmp Client. Return to step 2 if you have additional SANmp volumes to maintain.

SANmp Periodic Drive Maintenance Procedure for HFS+ (Mac OS X) formatted SAN volumes.

1. Shut down all other workstations.
2. Launch SANmp Client and mount one drive.
3. Back up and verify all data on the drive as the following steps will completely erase it.
4. Unmount the drive and quit SANmp Client.
5. Launch SANmp Admin.
6. Select the volume then choose **Unconvert Disk** from the **Administrator** menu. This will restore the disk to a standard OS volume and it will mount on the desktop.
7. Launch Apple **Disk Utility**.
8. In **Disk Utility** choose the volume from the list, then choose the **Erase** tab. Set **Volume Format** to **Mac OS Extended (Non Journaled)** and un-select **Install OS 9 drivers** if the checkbox appears. If you are using an Intel Mac you should also check the **Options** button to confirm that Apple Partition Map is selected. Click on the **Erase** button, then **Confirm**.
9. After successfully erasing the volume, launch SANmp Admin. Choose the volume, click on the **Sharing** tab, then click on the button to **Convert** the disk into a SANmp volume.
10. After successfully converting the volume select all members of the volume list, then select all members of the user list. You can then click the **Copy User to Disk** button.
11. Select the volume again and assign access permission for each user.
12. Test access to the volume using SANmp Client. Return to step 2 if you have additional SANmp volumes to maintain.

Section 4.4.6 Unconverting a Disk

Unconverting a disk will cause the entire disk to become a non-SANmp disk. This means that the disk will no longer be under the control of SANmp. All workstations will have unrestricted access to any volume on the unconverted disk. When a disk is unconverted, the SANmp disk signature and the SANmp database will be removed from each and every volume contained on the disk. The unconverted disk will be in Apple Partition Map format.

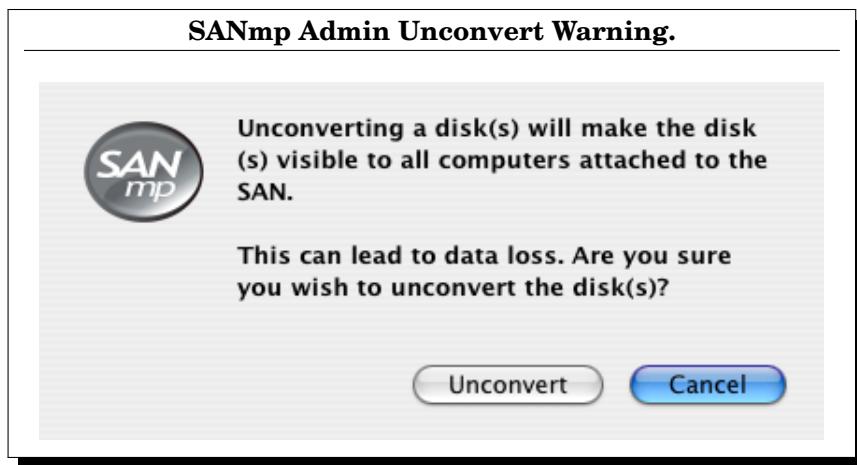
Microsoft Windows has a limited number of letter drives that can be assigned to unconverted volumes. When uncovertting a disk that has more than 20 partitions or volumes, in Windows, therefore, some of the partitions or volumes may not be accessible.

When a SANmp disk has been unconverted all hidden SANmp information will be removed from that disk and all of its volumes. However, all non-SANmp data and all volumes will remain intact on the unconverted disk. It is not possible to selectively unconvert a specific volume.

Warning! Never unconvert a disk before all workstations (except the administrator's computer) have been shut down or disconnected from the SAN. SANmp Client should not be running on any computer when uncovertting a disk. Failure to ensure this may cause data corruption and data loss.

To unconvert a disk:

1. Select the disk to be unconverted.
2. From the menu, choose **Administrator > Unconvert Disk**.
3. When prompted, click **Unconvert**. Click **Cancel** if you do not want to unconvert the disk.



Section 4.4.7 Erasing a Disk

Erasing a disk will delete all volumes on that disk and all users on that disk. SANmp will not allow you to erase a disk if it has active mounts. To verify that the disk has no **Active Mounts**, select each of the disk's volumes, and verify that **Active Mounts** is zero in the status information section at the bottom of SANmp Admin.

It is not possible to erase an entire disk with the SANmp Admin for Macintosh. If you want to erase an entire disk, use Apple's Disk Utility. You will then need to re-convert the disk with SANmp Admin and add users to it.

It is not possible within SANmp to change the name of a physical disk. This value is read directly from the physical device and is set by the manufacturer.

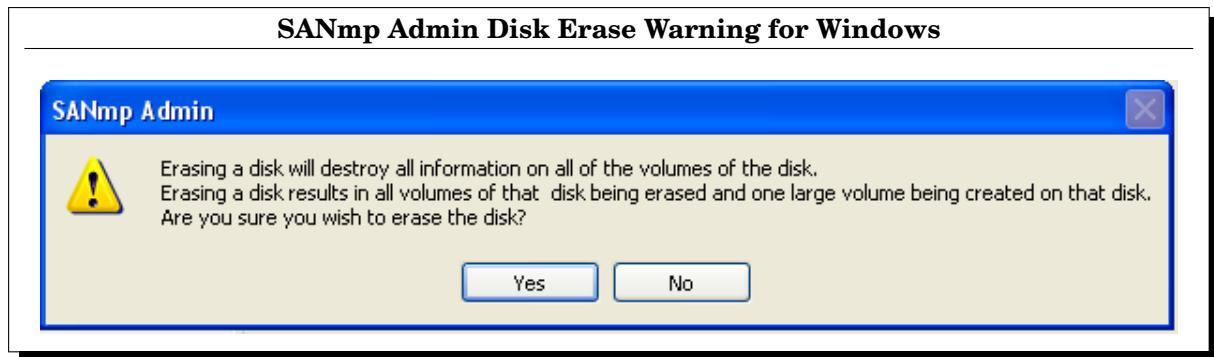
Note: Erasing a disk is a permanent action!

To erase a disk:

1. Select the disk to be erased.
2. Click the **Erase** tab.
3. Enter a name for the first volume in the Name field.

Refer to **Section 4.4.4 Partitioning / Converting a Disk (Windows)** on page 40 if you want to erase a disk that contains multiple volumes.

4. Click **Erase**.



Proceed to **Section 4.5.1 Creating a User** on page 49 if you do not have any users set up. If you have existing users on other disks, proceed to **Section 4.5.4 Copying Users to Disks** on page 50.

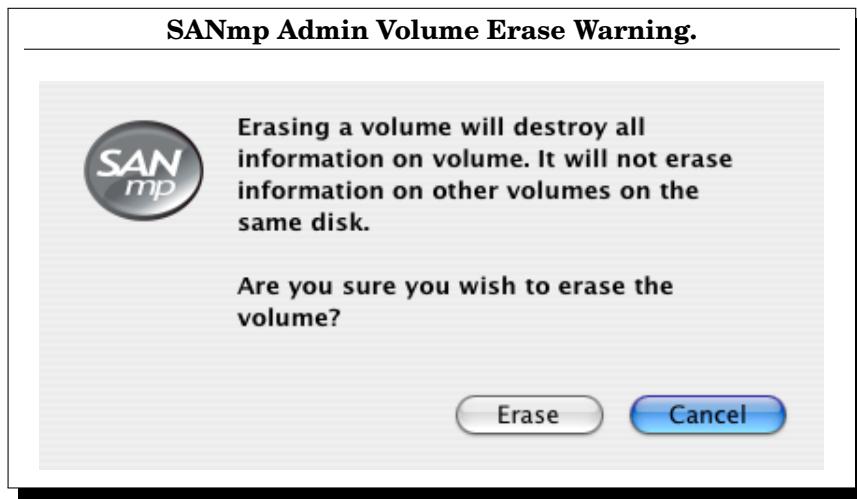
Section 4.4.8 Erasing a Volume

Erasing a volume will not affect other volumes on the same disk and will not delete users from that volume. SANmp will not allow you to erase a volume if it has active mounts. You can verify that the volume has no Active Mounts by selecting the volume, and verifying that **Active Mounts** is zero in the status information section at the bottom of SANmp Admin.

Note: Erasing a volume is a permanent action!

To erase a single volume:

1. Select the volume to be erased.
2. Click the **Erase** tab.
3. Enter the new name in the **Name** field if you want to rename the volume.
4. Click **Erase**.



Section 4.4.9 Disabling a Volume

Disabling a volume prevents users from mounting that volume, in essence, taking a volume temporarily offline. A disabled volume will display in the **Volume List** in SANmp Client, but it will be displayed with red text. If a user already had this volume mounted, this setting will not affect the user until they unmount the volume.

To disable a volume:

1. Click the **Sharing** tab.
2. Select the volume.
3. Mark the **Disable Mounting Volume** checkbox.

Users will not be able to mount this volume until mounting is re-enabled.

Section 4.4.10 Installing New Disks

When you install a new disk for use on the storage network it will not be protected against sharing violations until it has been converted to a SANmp disk. A disk that is not yet under the control of SANmp is a stray disk. This means that each computer on the SAN will attempt to claim that disk. Any workstations that attempt to access a stray or unconverted disk will risk the likelihood of corrupting the data contained on that disk. Therefore, it is very important that all workstations, with the exception of the Admin computer, be powered down until the disk has been converted to a SANmp disk.

To install a new disk:

1. Power down all computers before installing any new or non-SANmp disks.
2. Install the new disk(s).
3. Power up the administrator's computer.
4. Convert the new or non-SANmp disk(s) in the SANmp administration application.

After the new disks have been converted you can power up the Client computers. Windows SANmp Client computers will visibly install drivers for the new SANmpdisk(s) or volume(s). Refer to **Section 2.1.1 Installation Sequence** on page 7 for more information.

Section 4.4.11 Database Reset

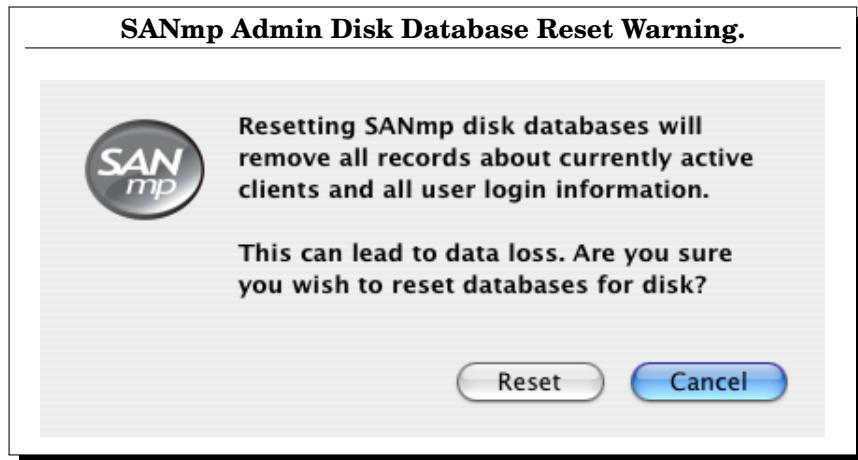
Resetting a disk's database will delete all hidden SANmp data from the disk and its volume(s). This function will also remove all users, user permissions and mount flags from any volume(s) on the selected disk. Resetting a disk's database will not remove the SANmp signature from the disk. This means that, unlike the Unconvert feature, the disk will still be under the control of SANmp.

You should never reset a disk's database until all workstations except the administrator's computer have been shut down and/or disconnected from the SAN. The SANmp Client application should not be running on the administrator's computer when resetting a disk's database.

When a SANmp disk's database has been successfully reset all hidden SANmp information except the SANmp disk signature will be removed from that disk and all of its volumes. However, all non-SANmp data, partitions, and volumes will remain intact. If you want to convert a SANmp disk to a non-SANmp disk, refer to **Section 4.4.6 Unconverting a Disk** on page 45. It is not possible to selectively reset the database on a specific volume.

To reset a disk's database:

1. Select the disk to be reset.
2. Use this menu path: **Administrator > Reset Databases for Disk**.



3. Click **Reset** only if you are sure you want to do this.

Refer to **Section 4.5.4 Copying Users to Disks** on page 50 in this guide to copy existing users back to this disk.

Section 4.4.12 Auto-Synchronizing a SANmp® Volume

Autosync enables you to see a file in its current state as it is being updated. With Autosync, each computer that has the volume mounted writes to or reads from the SAN at specific time intervals. Autosync requires additional bandwidth and system overhead on those intervals. The Autosync setting is checked only when mounting a volume, so if you change this setting while a user has the volume mounted, that user will not notice a change until the volume is unmounted and remounted.

Note: To use synchronize with the Mac OS X 10.4 (Tiger) operating system, you must be running a minimum of Mac OS X version 10.4.6.

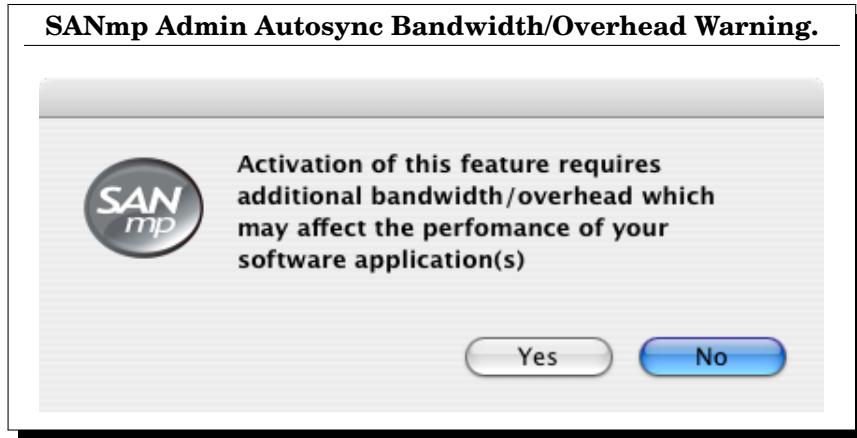
To enable Autosync:

1. Select a volume from the **Volume List**.

2. Select one of the following checkboxes in the status information section at the bottom of the SANmp window.

- **Automatic Write Sync:** writes cache to the SAN disk.
- **Automatic Read Sync:** refreshes cache for any user who is mounted as readonly.

Upon enabling Autosync, the following dialog appears:



3. Click **Yes** to continue.
4. Enter a time interval in which Autosync will repeat its refresh or write.

When administering autosync, a time interval of 0 is equivalent to disabling autosync for that volume

Section 4.5 User Operations

Section 4.5.1 Creating a User

To create a new user:

1. Click the **sharing** tab.
2. Click the **New User** button. The following rules apply to new users:
 - User names must be unique.
 - User names are not case sensitive.
 - Passwords are not case sensitive.

After you have created a new user, the user name will automatically be added to all available converted disks or volumes. A newly created user has no access to mount a volume from SANmp Client until you define the user's access privileges. To grant a user's access privileges see the section **Section 4.5.5 Assigning User Privileges** on page 51.

Section 4.5.2 Modifying a User

SANmp stores information such as user names and passwords on each disk. A user's password can become "out of sync" if, for example, the user changes his password while the administrator has a disk removed. If this happens, you can resynchronize the user's password by re-assigning the user's password using the **Modify User** button within the administration application.

Users can also re-synchronize their password manually by logging in with the old password and changing the old password to the new password. If a user re-synchronizes manually, they may need to log out and log in again with the new password.

Section 4.5.3 Deleting a User

It is possible to delete a user while the user is logged into the SAN. If you delete a user that is logged in, the user's volume list will be cleared when the volume list is refreshed and the user will no longer be able to mount volumes. The user will not lose access to the volumes that were already mounted until they unmount them. Once the user logs out of SANmp they will not be able to log in again.

Note: Deleting a user is a permanent action!

To delete a user:

1. From the **sharing** tab, select the user to be deleted.
2. Click the **Delete User** button. You are prompted to confirm the deletion.
3. Select Yes to delete the user and all privileges assigned to that user from all available SANmp disks.

Section 4.5.4 Copying Users to Disks

If you have partitioned or converted a new disk, re-partitioned an existing disk, unconverted a disk, reset a disk's database or erased an entire disk SANmp will have removed any existing users from that disk.

Permissions for added users are set to **No Access** by default. To give a user access to volumes, see **Section 4.5.5 Assigning User Privileges** on page 51.

To copy existing users to disks:

1. Click on the **Sharing** tab.
2. Select the disk(s) that contains the user(s) you want to copy.

- To select multiple disks on the Mac, hold down the Command or Shift keys as you select each disk.
- To select multiple disks in Windows, hold down the CTRL or Shift keys as you select each disk.

3. Select the disk(s) to which you want to add the existing users. The Sharing tab will display all users that exist on any of the selected disks.

4. Select the user(s) to be copied.

5. Click **Copy User to Disk**:

To copy all existing users to all available disks:

1. Select everything from the first disk to the last volume.
2. Select all users.
3. Click **Copy User to Disk**.

Section 4.5.5 Assigning User Privileges

A new user will not be allowed to mount a SANmp volume until access privileges are assigned. There are four access modes:

- **Write Exclusive:** The user will be able to mount or unmount the volume, read from the volume and write to the volume exclusively. When a user has mounted the volume with Write Exclusive, they will have exclusive access to the specified volume; other users will not be able to write to or read from the volume. Assigning this mode to a user automatically grants him read/write and read-only privileges.
- **Read/Write (R/W):** The user will be able to mount or unmount the volume, read from the volume, and write to the volume. Assigning this mode to a user automatically grants the user the R/O mode also.
- **Read Only (R/O):** The user will be able to mount or unmount the volume, and read from the volume. The user will not be allowed to write data to the volume.
- **No Access:** When this mode is assigned to a user, the user will not be able to see the volume in their Volume List when they log into the Client application. The user will not be able to mount the volume, read from the volume, or write to the volume.

When selecting multiple disks or volumes, the user's access privileges for all items selected are displayed. If the user has different access privileges on the selected items, the write exclusive checkbox and the pull-down menu will show a dash.

To assign user privileges for one or more volumes:

1. Select the desired volume(s).
2. Select the user.
3. Assign or remove the desired access mode.

This operation may take a few seconds depending on the number of volumes selected.

To assign user privileges for one or more disks: Assigning user privileges for a disk will assign or remove privileges for all volumes on the selected disk.

1. Select the appropriate disk(s).
2. Select the user.
3. Assign or remove the desired access mode.

This operation may take a few seconds depending on the number of volumes on the selected disk.

To assign user privileges on all available disks: Assigning user privileges for all available disks assigns or removes privileges for all SANmp disks selected.

- Select everything from the first disk to the last volume.
- Select the user.
- Assign or remove the desired access mode.

This operation may take a few seconds.

Section 5 Command Line Interface Reference

Section 5.1 The Command Line Interface

The Command Line Interface (CLI) allows you to use a script or batch file to perform SANmp operations. Batch files and scripts are short programs that automate long tasks, and can only be run through the CLI. These programs are helpful for long processes that are performed frequently, such as adding users, setting volume privileges, and printing administration reports. Simple batch files do not require special programming skills and can usually be written with a few simple commands; however, this chapter assumes that you already know how to write a script or batch file. You can also use the CLI to manually perform sequential commands, such as adding a user and then setting volume privileges.

Section 5.1.1 CLI Commands

The following commands can be used through the Admin CLI. See the following sections for detailed instructions on using these commands. See the SANmp Client Guide for additional CLI commands.

Command	Function
SANmpAdmin login <password>	Logs in to SANmp Admin
SANmpAdmin logout	Logs out of SANmp Admin
SANmpAdmin add user <user> <password>	Adds a user
SANmpAdmin set pass <user> <new password>	Changes a user password
SANmpAdmin set volume privilege <volume> <user> <privilege>	Sets user privileges
SANmpAdmin report	Runs a simple report
SANmpAdmin report all	Runs an extended report

Section 5.1.2 Launching the CLI

To launch the CLI on a Mac:

1. Launch the Terminal from **Applications > Utilities**.
2. Type
`cd /opt/local/bin`
and press return/enter on your keyboard.

To launch the CLI on a Windows machine:

1. Click **Run...** on the Start menu.
2. Enter
`cmd`
into the **Run** window.
3. Click **Ok**. The **cmd.exe** window appears.
4. Type
`cd "\Program Files\SANmp\Admin"`
.

From here you can run CLI commands, scripts, and batch files for SANmp Admin. For information on performing specific tasks from the CLI, refer to the remainder of this chapter's instructions.

Section 5.1.3 Setting the PATH variable

If you use SANmp Admin CLI often, you may wish to set the PATH variable rather than navigating to the appropriate directory each time you use it. By doing this, you can access the CLI immediately after opening Terminal or cmd.exe. This will persist after rebooting.

To set the path permanently (Mac OS X): If you are using the bash shell (default since OS 10.3), create the file

```
.bash_login
```

containing the following command:

```
PATH=$PATH:/opt/local/bin
```

If this file already exists, simply add that line to the end of it. The next time you start the Terminal window, your new path will be active.

To set the path permanently (Windows XP):

1. Select **System** under the **Start** menu > **Control Panel**. If the **System** icon is not visible, select **Switch to the Classic View** in the sidebar on the left.
2. Select the **Advanced** tab.
3. Click on the **Environmental Variables** tab.
4. Select the **Path** variable under **System Variables** and click **Edit**.
5. Place the cursor at the end of the **Variable value** field (You want to add to what is there, without deleting anything).
6. Add to the path

```
;C:\Program Files\SANmp\Admin
```

. The semicolon acts as a separator between what was already there and this new directory.
7. Click **Ok**.
8. Reboot the system when prompted.

Section 5.1.4 Logging in

To log in to the CLI: At the CLI prompt, type the command

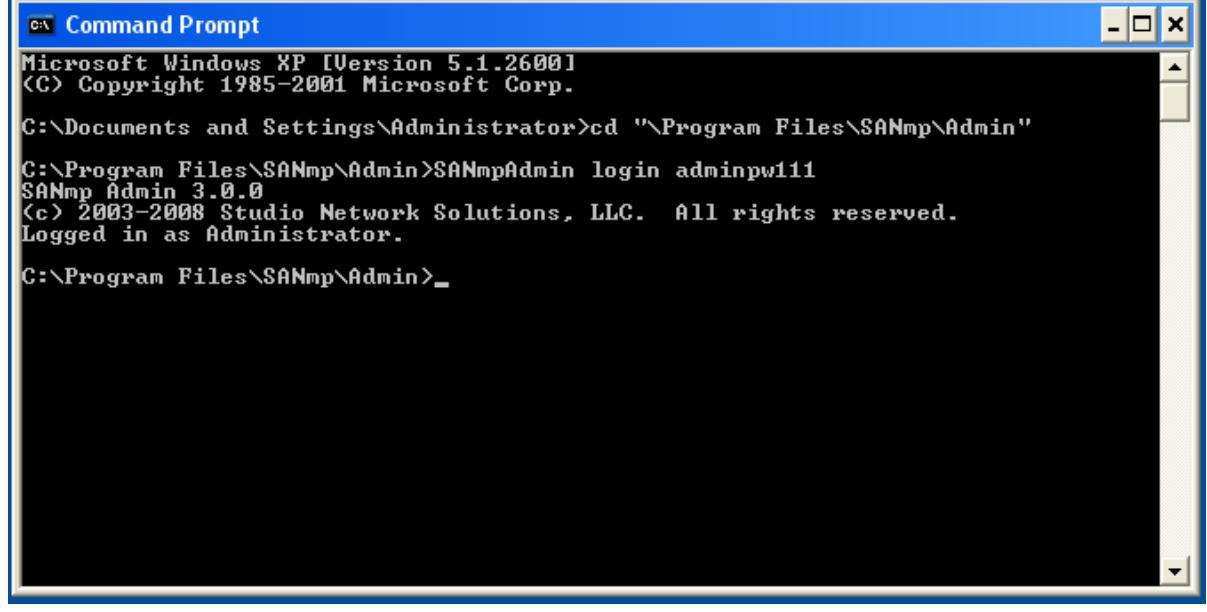
```
SANmpAdmin login <password>
```

with your Admin password. For example, if your password is “MyPassword,” you would type:

```
SANmpAdmin login MyPassword
```

After logging in, the message **Logged in as Administrator** will appear.

Windows Command Prompt showing SANmp Admin CLI Log In.



A screenshot of a Windows Command Prompt window titled "Command Prompt". The window shows the following text output:

```
C:\ Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>cd "\Program Files\SANmp\Admin"
SANmp Admin 3.0.0
(c) 2003-2008 Studio Network Solutions, LLC. All rights reserved.
Logged in as Administrator.

C:\Program Files\SANmp\Admin>_
```

Mac Terminal Shell showing SANmp Admin CLI Log In.



The image shows a Mac OS X Terminal window titled "Terminal — bash — 80x24". The window contains the following text:

```
Last login: Tue Aug 26 17:52:49 on ttys000
Welcome to Darwin!
administrators-computer-3:~ admin$ cd /opt/local/bin/
administrators-computer-3:/opt/local/bin admin$ ./SANmpAdmin login adminpw111
SANmp Admin 3.0.0
(c) 2003-2008 Studio Network Solutions, LLC. All rights reserved.
Logged in as Administrator.
administrators-computer-3:/opt/local/bin admin$
```

Section 5.1.5 Logging out

At the CLI prompt, type the command

```
SANmpAdmin logout
```

After logging out, the message **Logged out** will display.

Section 5.1.6 Adding a User

When you add users through the CLI, they will be added to all disks on the SAN.

To add a user with the CLI: At the CLI prompt, type the following command:

```
SANmpAdmin add user <user> <password>
```

where <user> is the user's name and <password> is the user's password. For example, if a user's name is Jason and his password is j4s0n, you would type:

```
SANmpAdmin add user Jason j4s0n
```

If a user's name has a space in it, such as Jason Smith, you would type:

```
SANmpAdmin add user "Jason Smith" j4s0n
```

After adding the new user, the message <user> **added** will appear. The new user will also appear on the SANmp Admin GUI user list.

Section 5.1.7 Changing a User's Password

The administrator can change a user's password through the CLI. Using this command does not require the user's previous password.

To change a user's password with the CLI: At the CLI prompt, type the following command:

```
SANmpAdmin set pass <user> <new password>
```

where <user> is the user's name and <new password> is the user's new password. For example, if a user's name is Jason and his new password is k0j4k, you would type:

```
SANmpAdmin set pass Jason k0j4k
```

The message **Password changed successfully** displays in the CLI when the new password has been set.

Section 5.1.8 Set Volume Privileges

Through the CLI, you can change a user's access privileges for a volume with the **set volume privilege** command.

To set volume privileges with the CLI: At the CLI prompt, type the following command:

```
SANmpAdmin set volume privilege <volume> <user> <privilege>
```

where <volume> is the volume name, <user> is the user's name, and <privilege> is the access rights you are assigning, which can be:

RO Read Only

RW Read / Write

WX Write Exclusive

NA No Access

Mac Terminal Shell showing successful Set Volume Privileges Command.

The screenshot shows a Mac OS X Terminal window with the title "Terminal — bash — 80x24". The window contains the following text:

```
administrators-computer-3:/opt/local/bin admin$ ./SANmpAdmin set volume privileges  
e VAULT-C Jason RO  
SANmp Admin 3.0.0  
(c) 2003-2008 Studio Network Solutions, LLC. All rights reserved.  
The privileges for 'Jason' on 'VAULT-C' have been set to RO.  
administrators-computer-3:/opt/local/bin admin$
```

Windows Command Prompt showing successful Set Volume Privileges Command.

```
C:\Program Files\SANmp\Admin>SANmpAdmin set volume privilege VAULT-C Jason RW
SANmp Admin 3.0.0
(c) 2003-2008 Studio Network Solutions, LLC. All rights reserved.
The privileges for 'Jason' on 'VAULT-C' have been set to RW.

C:\Program Files\SANmp\Admin>
```

For example, if you are changing Jason's access privileges on the disk called "ScratchPad" to read-only, you would type:

```
SANmpAdmin set volume privilege ScratchPad Jason RO
```

If you wanted to change Jason's access privileges on the volume called "bigVolume" to read-write, you would type:

```
SANmpAdmin set volume privilege bigVolume Jason RW
```

If a user's name has a space in it, you would type:

```
SANmpAdmin set volume privilege bigVolume "Jason Smith" RW
```

After changing a user's access privileges on a volume, the following message will appear: ***The privileges for <user> on <volume> have been changed to <privilege>.***

Section 5.1.9 Running an Admin Report

Running an Admin Report will give the status of all the disks and their partitions on the SAN.

To print an Admin report from the CLI: At the CLI prompt, type the following command:

```
SANmpAdmin report
```

After issuing the Report command, a report of the current disks and partitions will be displayed with the following information:

- **Name:** Indicates the name of the disk or partition.
- **Capacity** Indicates the size of the partition.
- **Format** Indicates the partition type, for example: HFS+, NTFS, etc.

- **Active** Gives the number of current mounts for this volume.
- **WriteUser** Gives the user that has the volume mounted with read/write or write exclusive access.

The Admin Report will be displayed in a table as follows:

An Admin Report as shown on in Mac Terminal Shell.

Name	Capacity	Format	Active	WriteUser
SNS globalSAN X-4 Media				
VAULT-B	249871 MB	HFS/HFS+		
SNS globalSAN X-4 Media				
VAULT-D	249871 MB	HFS/HFS+		
SNS globalSAN X-4 Media				
VAULT-C	249871 MB	HFS/HFS+		
IBM 1742 Media				
Untitled 2	976504 MB	NTFS		
IBM 1742 Media				
Untitled 1	976510 MB	HFS/HFS+		
administrators-computer-3:/opt/local/bin admin\$				

Section 5.1.10 Running an Admin Report All

Running an Admin Report All will give the status of all the disk space and users on the SAN.

To display an Admin Report All from the CLI: At the CLI prompt, type the following command:

```
SANmpAdmin report all
```

The Report All command displays all the information given by the simple Report command, and adds the following columns:

- **Available** Indicates the available space on the volume.
- **Used** Indicates the amount of used space on the volume.

- **SANmpDisk** Indicates if the volume is a SANmp disk.
- **WriteSync** Indicates if Automatic Write Sync is enabled. For more information on Automatic Write Sync, see **Section 4.3.2 Obtaining Information on a Volume** on page 38.
- **ReadSync** Indicates if Automatic Read Sync is enabled.
- **SyncInterval** Indicates the interval of time between automatic synchronizations.

Admin Report All will be displayed in a table similar to the Admin report.

Section 5.1.11 Return Codes

The following table lists the Return Codes for various commands through the CLI and gives their meanings.

Return Code	Meaning
General (1-99)	
4	Syntax error
6	This user does not exist on the SAN.
7	This volume does not exist on the SAN.
8	Duplicate volume name (there is more than one volume with this name)
9	Incorrect privileges
Admin (100-199)	
102	Log in error (wrong username or password)
103	Not logged in
104	Username already exists (when adding a new user)
105	SANmp Admin is already running.
106	SANmp Admin is not running.

Section 6 Keyboard Commands

Section 6.1 Mac OS X

Hot Key	Action
Command+R	Rescan
Command+Q, Command+W	Quit
Command+?	Help
Command+X	Cut
Command+C	Copy
Command+V	Paste
Command+Z	Undo
Command+Shift+Z	Redo
Command+A	Select All
Command+Option+T	Special Characters
Command+M	Minimize
Command+H	Hide SANmp Admin
Command+Option+H	Hide Others
Command+,	Preferences

Section 6.2 Windows

Hot Key	Action
Ctrl+R	Rescan
Alt+F4	Quit
Ctrl+X	Cut
Ctrl+C	Copy
Ctrl+V	Paste
Ctrl+Z	Undo
Ctrl+Shift+Z	Redo
Ctrl+A	Select All

Section 7 Troubleshooting

The following section addresses common questions and problems faced by SANmp users. If you are experiencing problems with SANmp, check here before contacting technical support. If the following items do not address your technical issue check our web site for the most current troubleshooting tips, known issues and patches:
<http://www.studionetworksolutions.com>

Verifying a few items will easily solve most problems related to SANmp. The quickest way to resolve your issue is to first do the following:

1. Ensure that you have followed all recommendations in **Section 2.1 Pre-Installation** on page 6.
2. Verify that your workstation is connected to the storage network and that all hardware components of the SAN are functioning properly.
3. Power down your computer and restart it.

Review the following frequently asked questions if your problem persists.

Section 7.1 Frequently Asked Questions

Q) Do I need an Ethernet connection to use SANmp?

A) No. SANmp does not require an Ethernet connection. An Ethernet connection is only needed if you are attempting to connect to iSCSI volumes.

Q) I entered an incorrect password and the Log In Dialog Box disappeared. Why can't I re-enter the password?

A) On some machines, the Log In Dialog Box may not become active again after entering an incorrect user name and/or password combination. If this happens, quit SANmp and then re-launch the application.

Q) A user had a volume mounted with write access and their workstation quit unexpectedly. SANmp continues to report that the user has that volume mounted with R/W access. What should I do?

A) SANmp has a feature that allows for automatic recovery in situations such as this. This feature helps prevent a problem that is common in similar applications where users can be locked out of a volume if a computer quits unexpectedly. To activate this feature, launch SANmp Client on any computer, select the affected volume and click Mount Read/Write. Wait approximately 15 seconds for the automatic recovery feature to enable itself. Do not click **Stop Checking** during this operation. Once the computer has mounted the affected volume, it can then be unmounted and is again available for use by any authorized user.

- Q) A user is unable to unmount volumes in Windows. What is causing this?**
- A)** Several possibilities that can cause a SANmp volume to refuse to unmount. The most likely causes are that the volume is either currently in use or its contents are being displayed on that computer. This behavior may also be caused by a lack of access privileges on the user's OS account. To perform an orderly unmount, SANmp issues several commands to the operating system that require administrative privileges. If this problem occurs in Windows, you should verify that the user is logged into Windows as a user in the administrator's group or that the user running SANmp Client as a user with administrative credentials. For more information about the administrator group or running applications with administrative credentials consult the online Windows Help and Support Center.
- Q) Should I use the Disk Management tool in Windows to modify SANmp disks?**
- A)** No. Management functions of SANmp disks or volumes should be done by the administrator in the SANmp Admin application.
- Q) I'm using Windows and I've found new SANmp devices in my Device Manager. What are these for?**
- A)** These drivers allow SANmp to control the shared volumes on the storage network. Without these drivers the computer can no longer access SANmp volumes. They should not be disabled or uninstalled unless you intend to permanently remove this computer from the storage network.
- Q) Does SANmp support hot swapping of disks?**
- A)** The answer to this question depends on the hardware you have and the way that it is configured. In general, you should first power down all computers before adding or removing physical disks. Refer to the "Installation Sequence" section for more information.
- Q) Why can't I open an Avid session directly from a Read Only volume?**
- A)** Avid writes database files to any project that is open. When you open a project, Avid checks your write privileges on the volume and will not allow you to open a project from a Read Only volume.
- Q) The following error appeared when I opened an existing Avid session: **Exception: CoreMacDirLocator cannot GetDirID, FSMakeFSRef failed.** What should I do?**
- A)** Delete msmFMID.pmr and msmMMOB.mdb in the OMFI Media Files folder. The session should open properly after you do this. You do not need to restart your computer.
- Q) To open a session when another user has write privileges on a volume, must I copy all of my media to another volume?**
- A)** No. Mount the volume as Read Only and copy the project folder that is about 50KB. The volume with the original session can be mounted with read only privileges and the files will be referenced and used without copying them over to a new drive.
- Q) When I changed the initiator's name, the initiator broadcasts something slightly different. Why is it doing this?**
- A)** globalSAN automatically changes the value you enter into a valid iSCSI protocol name. If you do not use the iSCSI naming convention, the name you enter and the one sent by the initiator will differ.

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