StarWind iSCSI SAN Software: Using DataPlow SFS to Share iSCSI Volumes

COPYRIGHT

TRADEMARKS

CHANGES

The material in this document is for information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, StarWind Software assumes no liability resulting from errors or omissions in this document, or from the use of the information contained herein. StarWind Software reserves the right to make changes in the product design without reservation and without notification to its users.

TECHNICAL SUPPORT AND SERVICES

If you have questions about installing or using this software, check this and other documents first - you will find answers to most of your questions here or there. If you need further assistance, please contact us.

Table of Contents

Guide

Introduction

Today more and more customers are willing to use a SAN for concurrent multi-initiator access to the same disk volume and the same set of files. Movie rendering farms, huge distributed databases, clusters all benefit from the performance of an IP SAN compared to NAS utilizing the same hardware. However iSCSI alone own does not solve the task of maintaining distributed write locks and keeping file caches coherent. NTFS cannot be used as a SAN file system alone so here some SAN File System (SFS) from DataPlow. This document describes how to use the StarWind iSCSI Target for Microsoft Windows together with DataPlow SFS. The Microsoft iSCSI Initiator is used for this example, however any Windows software iSCSI initiator or iSCSI HBA (Host Bus Adapter) will work.
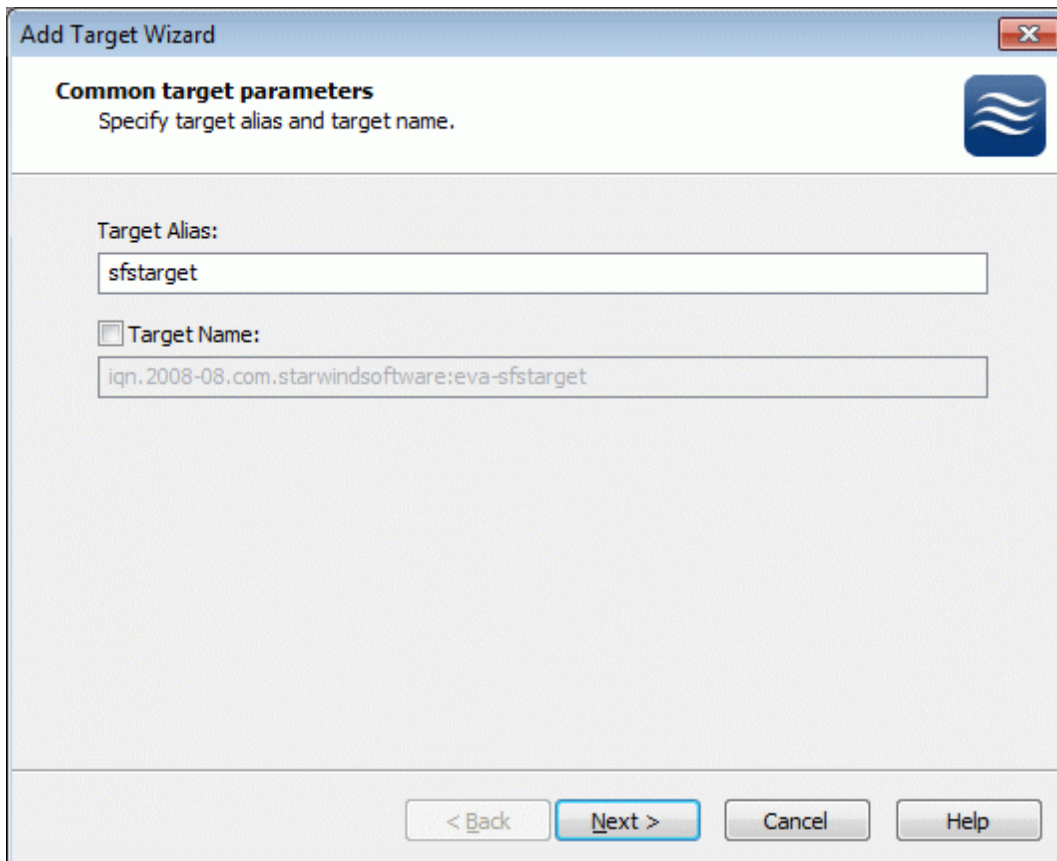
Configuring StarWind Server

Launch the **StarWind** console selecting **Start -> All Programs -> StarWind Software -> StarWind -> StarWind**. After the console is launched its icon appears in the system tray. Double click the icon with the left mouse button or single click it with the right and select **Start Management** pup-up menu item.

From the **StarWind Servers** tree please select the server you want to connect to. Press the right mouse button over the desired host and select the **Connect** popup menu item. You will be prompted to enter the login and password. Default ones are: root, starwind. You can always change them later.

Press **Add Target** button to continue.

In the Wizard that appears, specify a target name. The name must be a unique name by which the device will be declared to the iSCSI initiators connecting to StarWind over an IP network.
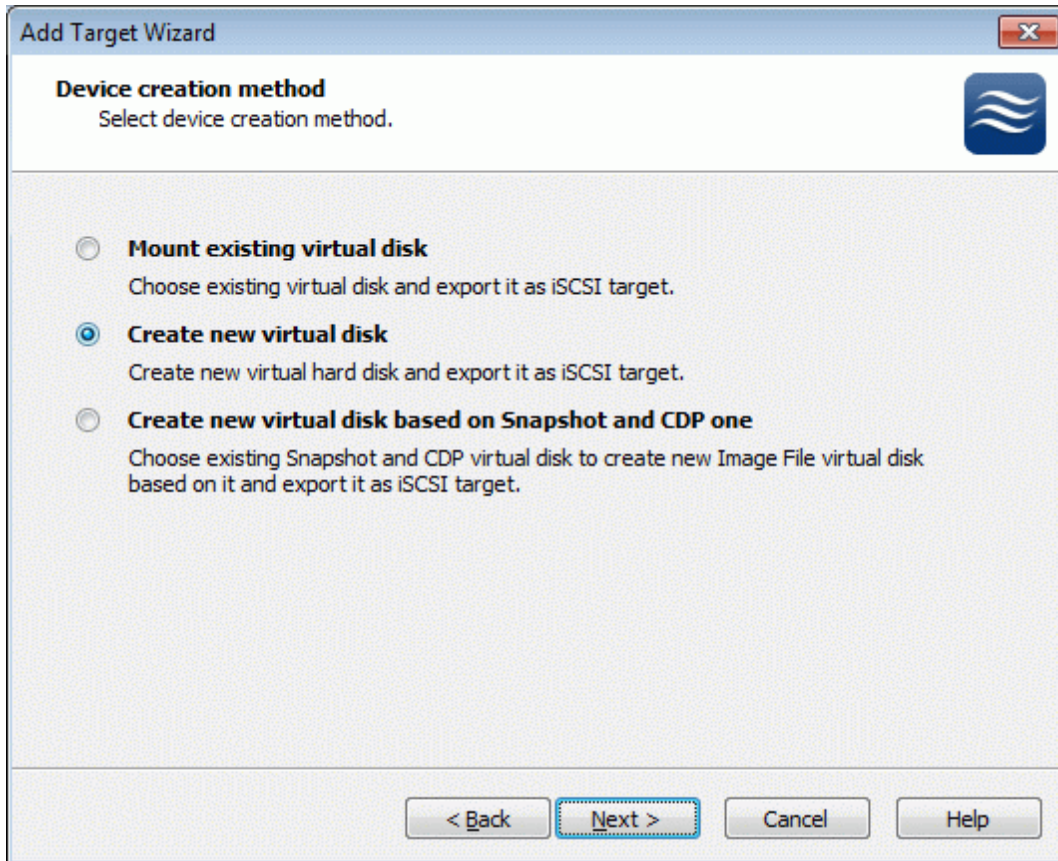
Press the **Next** button to continue.

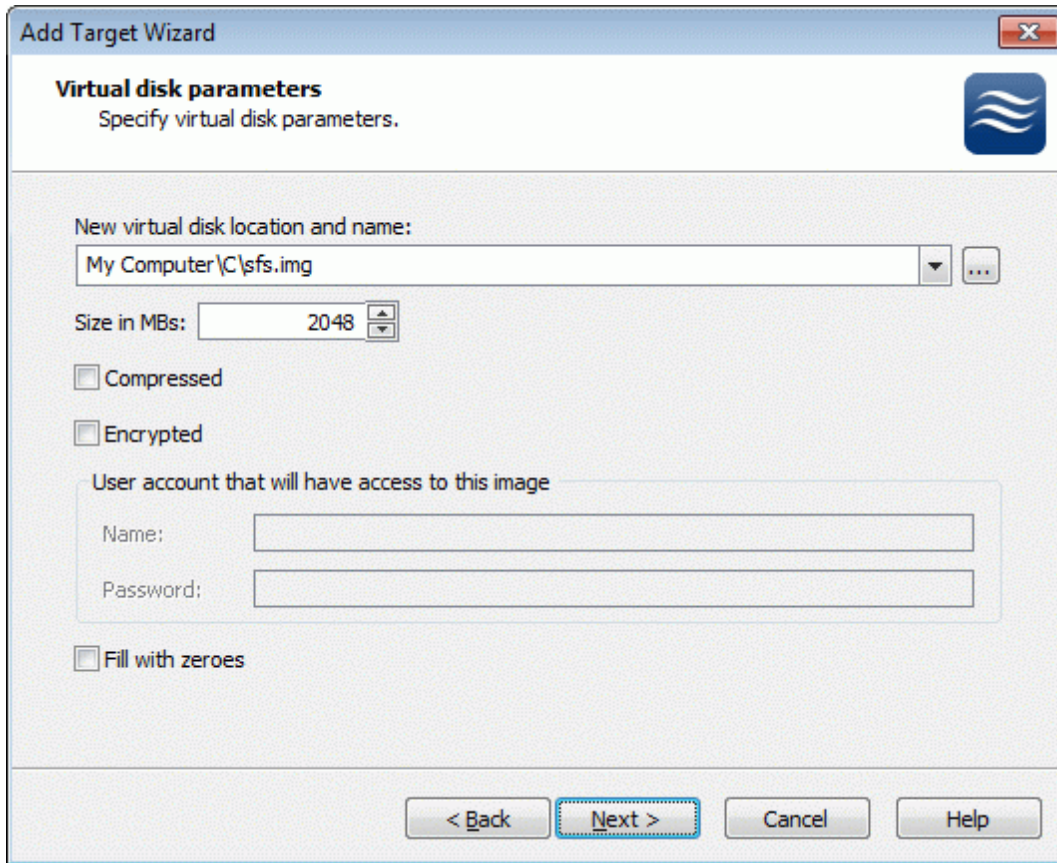Select **Image File device**.
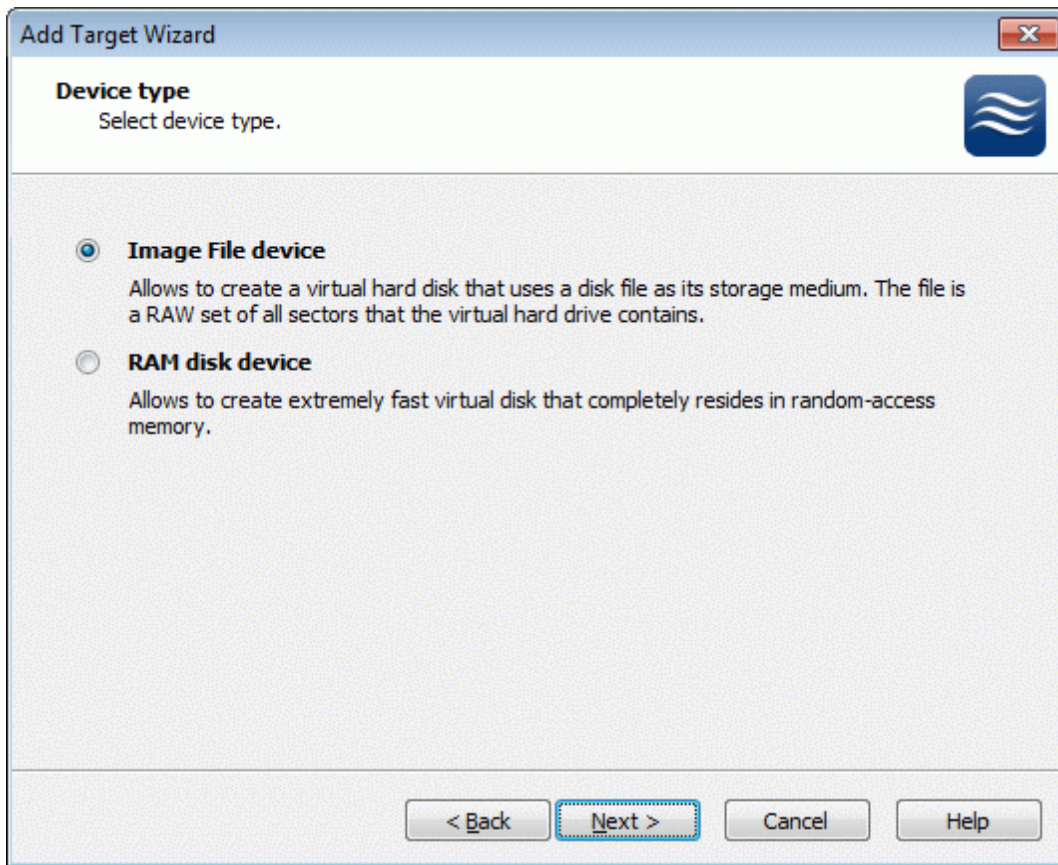
Press the **Next** button to continue.

Select **Create new virtual disk** to create a new hard disk image or **Mount existing virtual disk** to mount an existing image that you've prepared before.
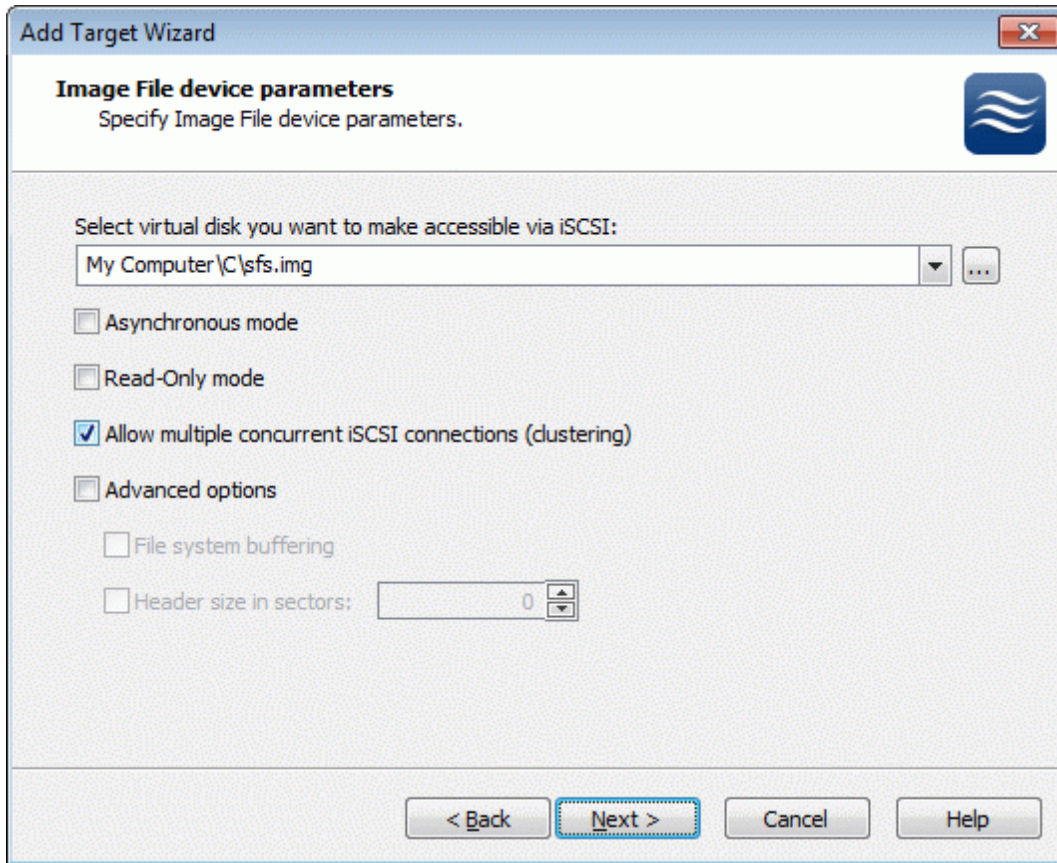

Press the **Next** button to continue.

If you have decided to create a new virtual disk, specify the location and the name of the virtual disk you want to be created. The virtual disk size is specified in megabytes. Refer to the online help for details regarding additional parameters (**Fill with zeroes, Compressed** and **Encrypted**).
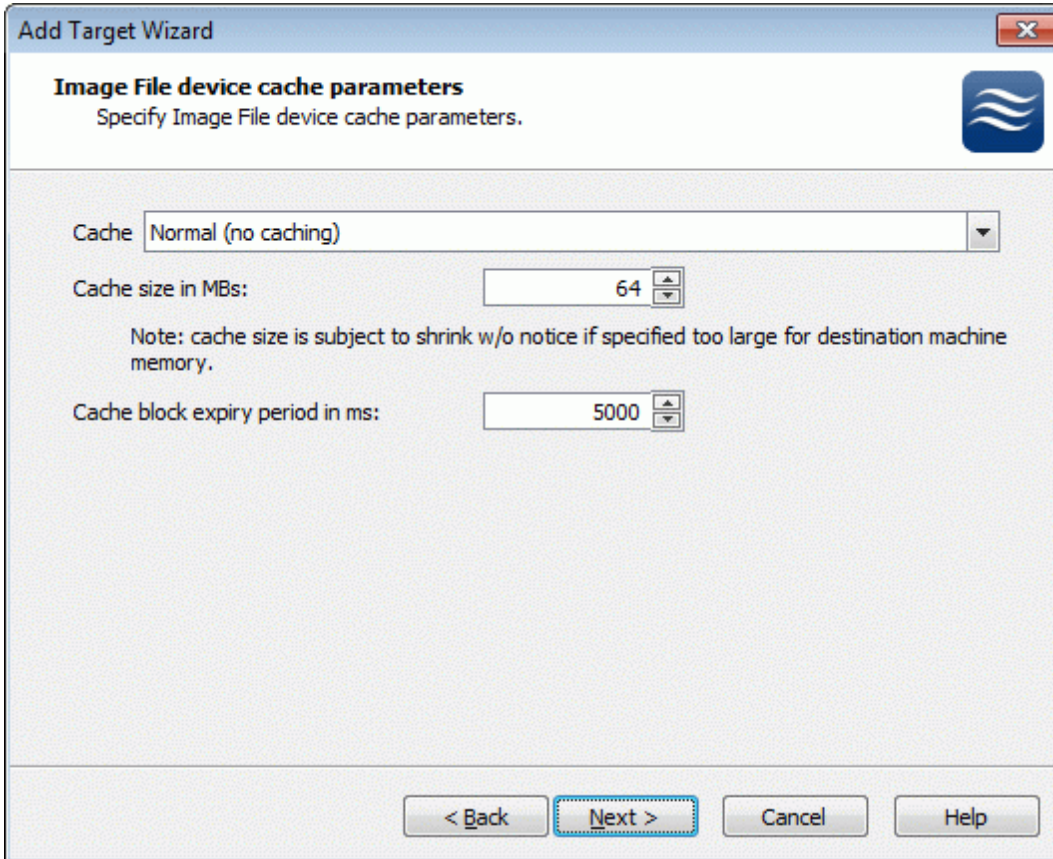

Press the **Next** button to continue.

An Image File device can have additional parameters. Refer to the online help for details regarding the additional parameters (**Asynchronous mode, Allow multiple connections (clustering), Read-only mode** and **Specify advanced options**).
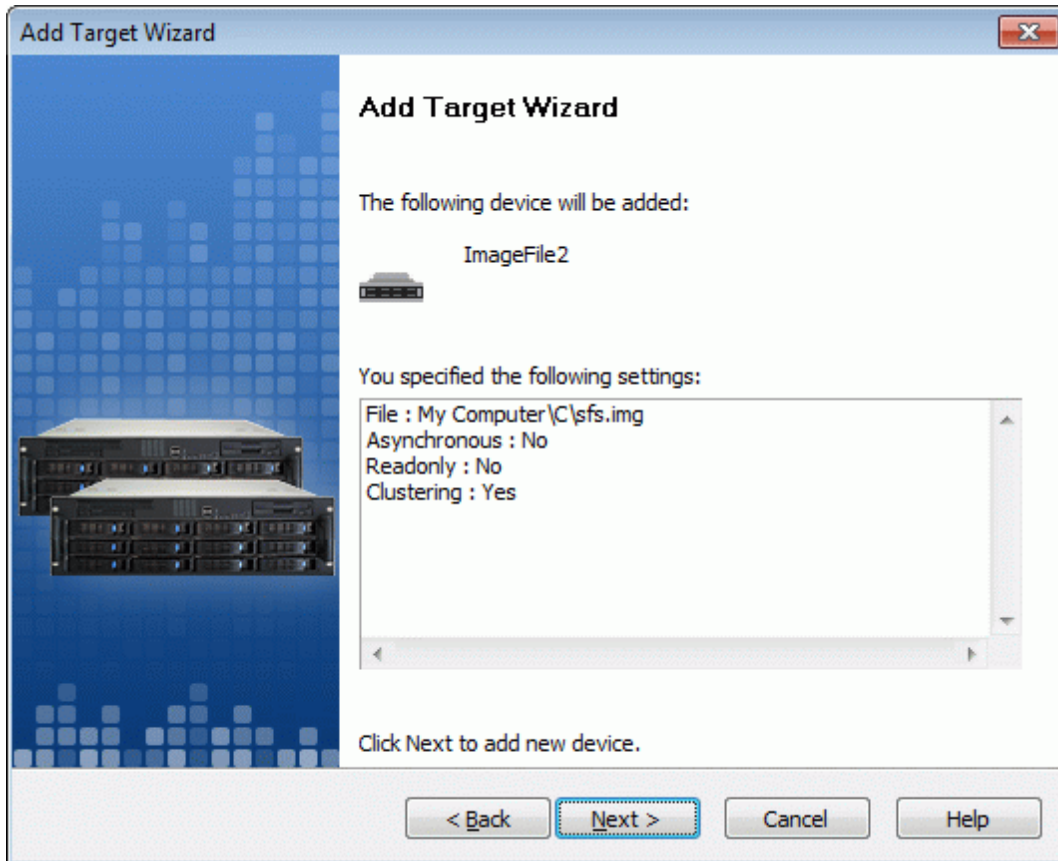

Press the **Next** button to continue.

An Image File device can have additional parameters. Refer to the online help for details regarding the additional parameters (**Cache mode, Cache size in MBs** and **Cache block expiry period in ms**).
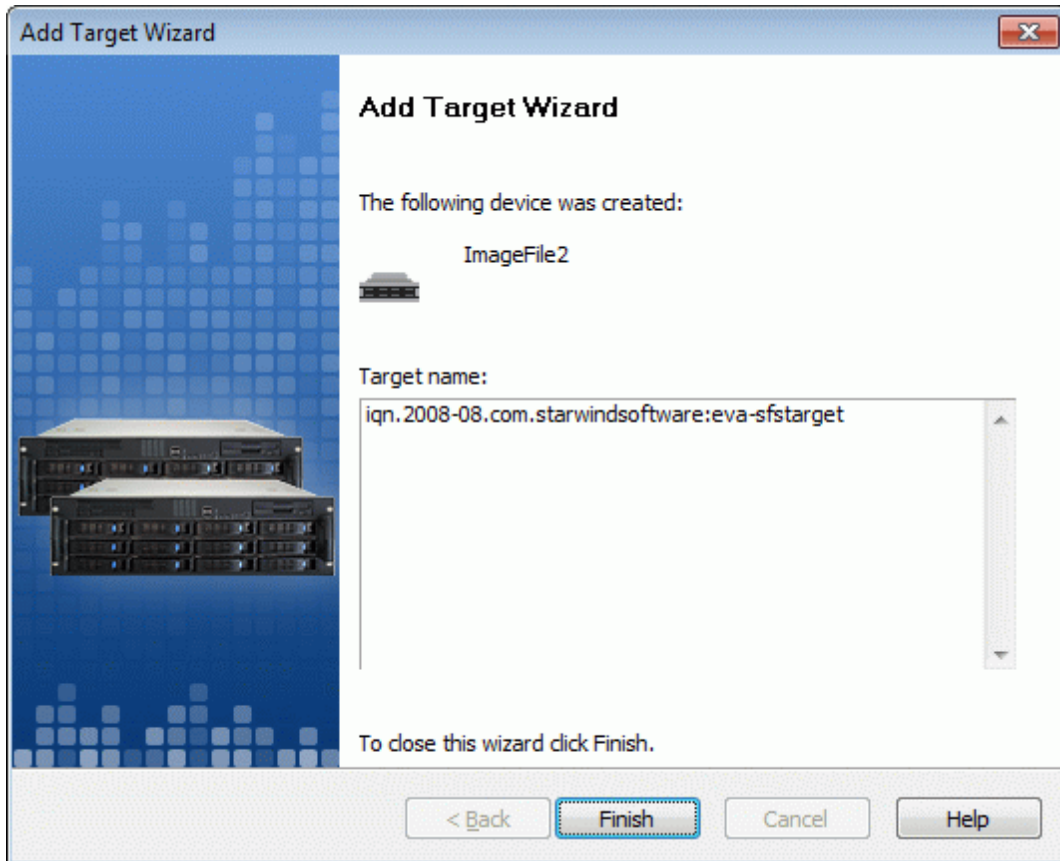
Press the **Next** button to continue.

Check the device parameters are correct. Press the **Back** button should any changes be required.
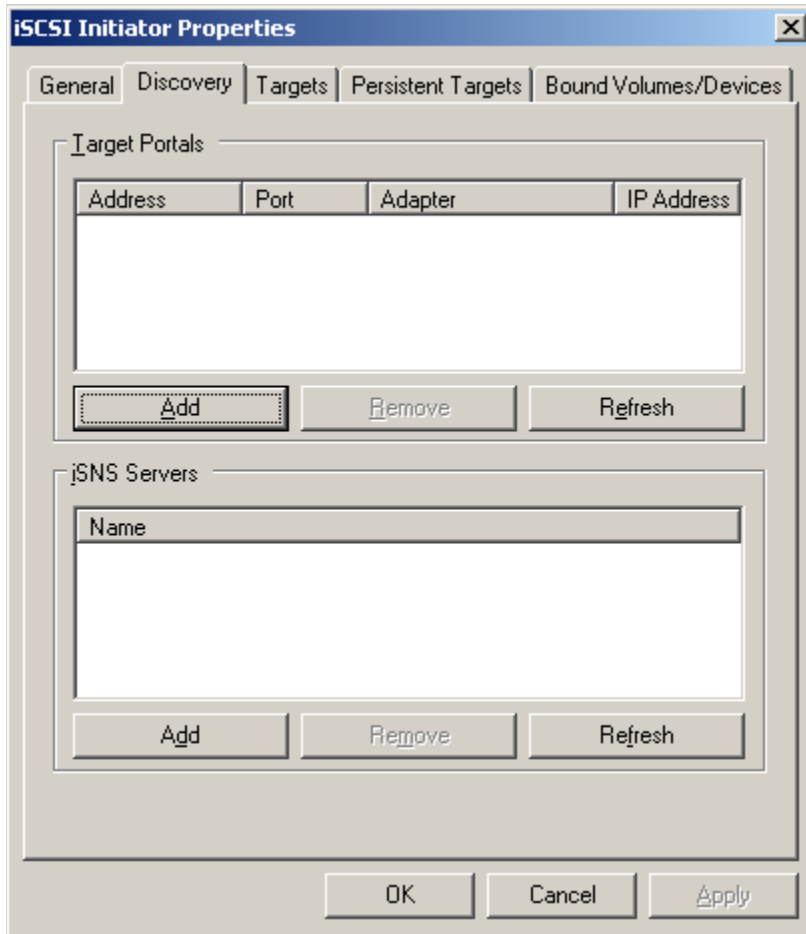

Press the **Next** button to continue.

A summary of the created device is displayed on the last wizard page (see image below).

Press the **Finish** button to close the wizard.

Connecting the Target to the Client Machines

We use Microsoft iSCSI Initiator to connect to the recently created and pre-configured iSCSI target. Choose the machine that will act as a metadata server. Launch MS iSCSI Initiator. Switch to the **Discovery** tab and specify the computer with **StarWind** installed or **iSNS** server (if there is one configured over your network).
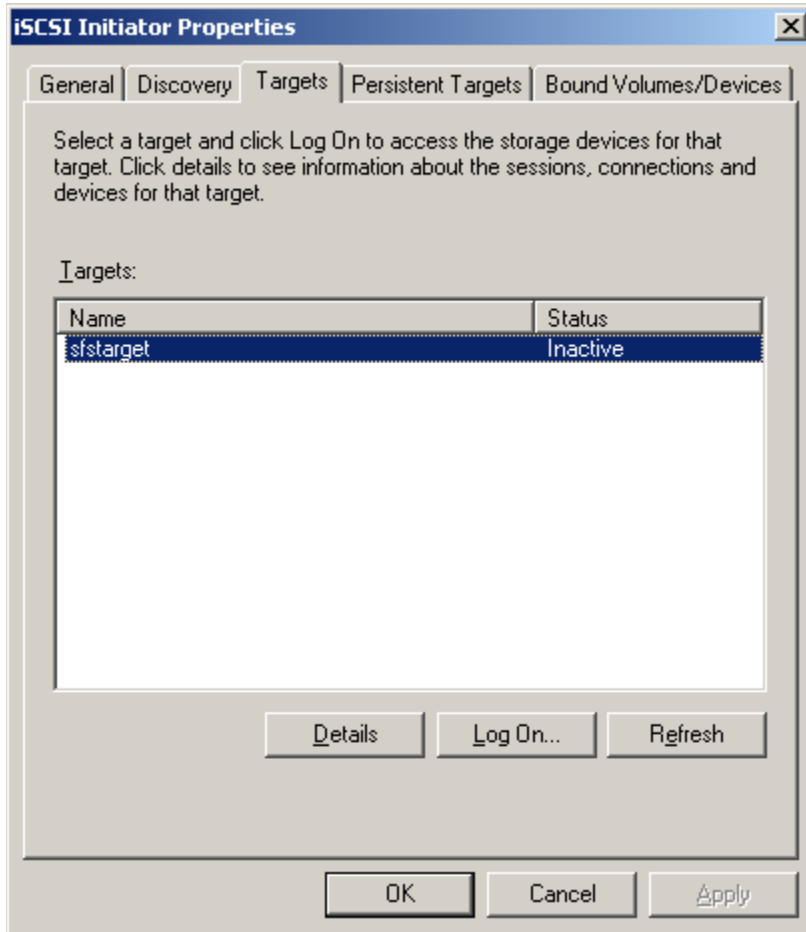

Press the **Add** button to continue.

In the dialog that appears type in the **IP address** of the computer with the **StarWind** installed and **Port** of that machine.
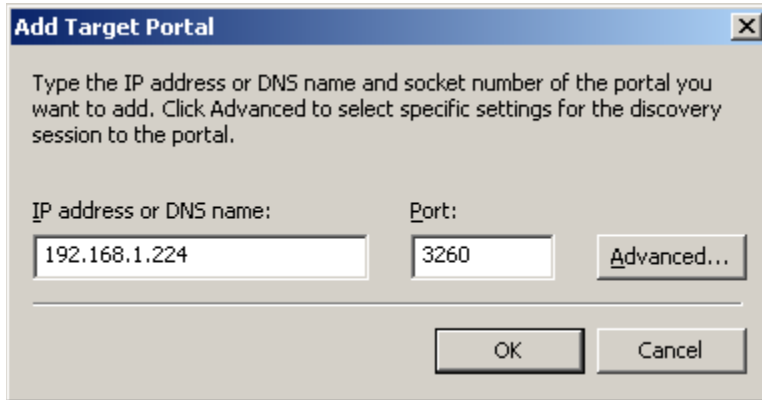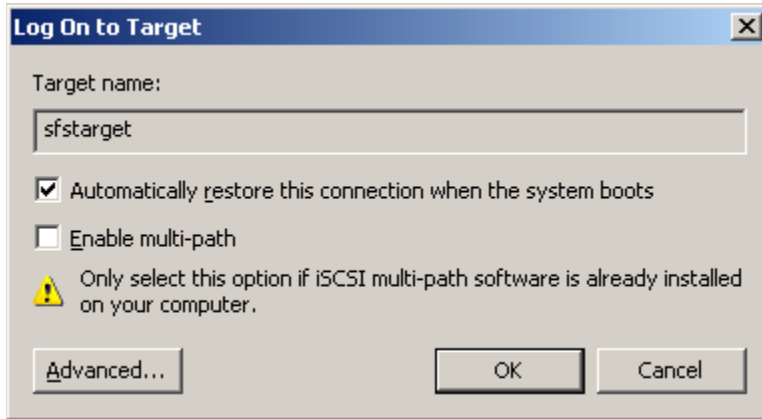

Then press **OK** button to continue.

The Target Portal is added now. Switch to the **Targets** tab. Select the target name from the list and press **Log On**.

In the Logon to Target dialog box check **Automatically restore this connection when the system boots**.

Press **OK** button to logon to the **StarWind** iSCSI Target.

After the **Image File** iSCSI target is connected you need to initialize it. Launch the Computer Management console, expand the Storage node and select the Disk Management menu item. The Initialize and Convert Disk Wizard appears. Follow the instructions of the wizard to initialize a new iSCSI disk device. When the initialization is complete, you have to create a new partition on the device by right clicking on the unallocated space and selecting the New Partition… menu item from the pop-up context menu. Follow the instructions to create a new primary partition. The **Wizard** will offer to specify formatting options. Select **Do not format this partition**.
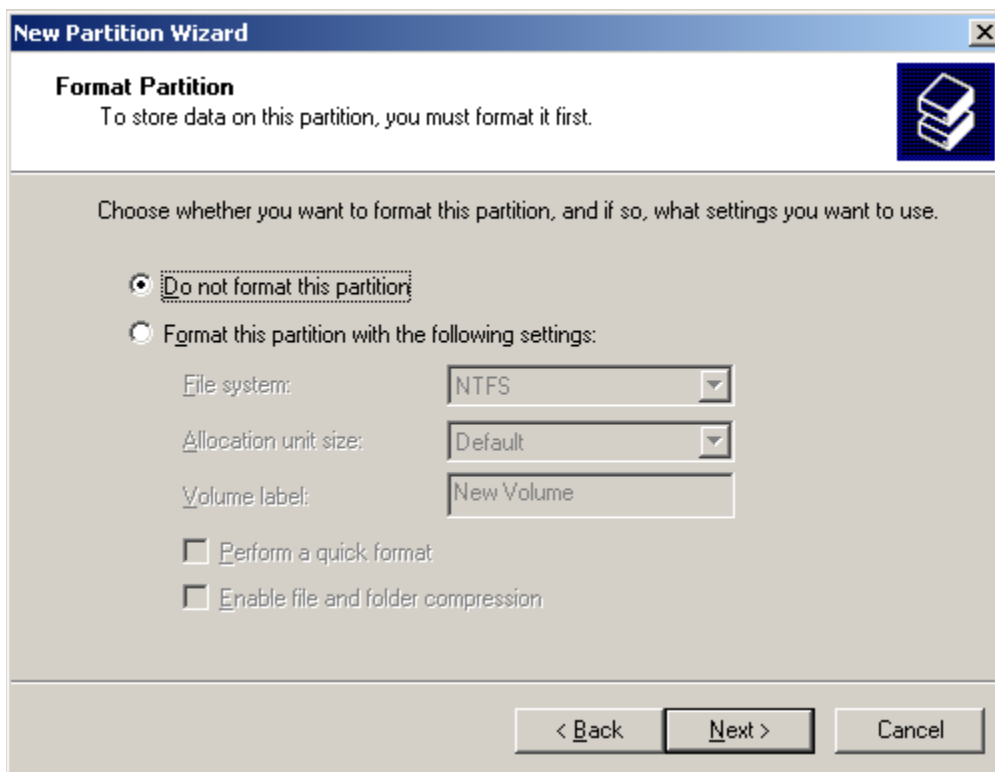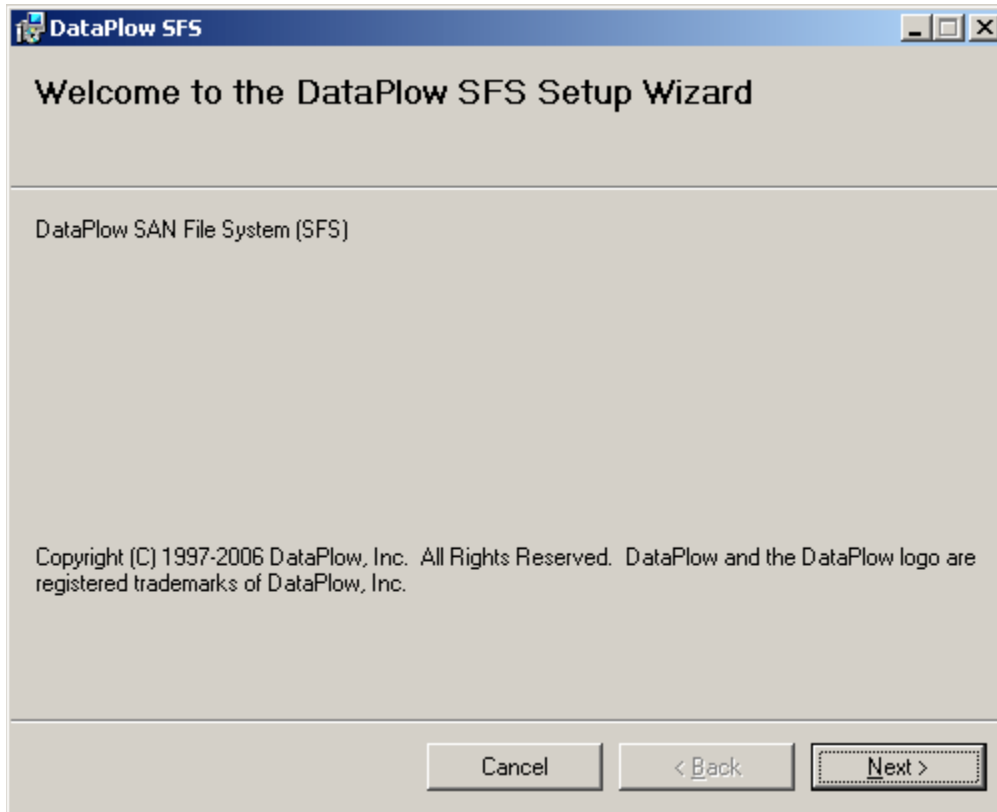

Press the **Next** button to continue. On the next page press the **Finish** to complete the wizard.

As a result of these actions a new drive with the **unformatted** volume appears on the client machine. At this step you need to connect to this target the other client machines that will use SAN volume. Perform described above steps on each machine. Those machines will discover new unformatted disk. **You do not need to format it**. Drive letter would be signed to it automatically.

Installing Dataplow SFS

Install **DataPlow SFS** on each machine that will use SAN volume. Run the DataPlow SFS installer.
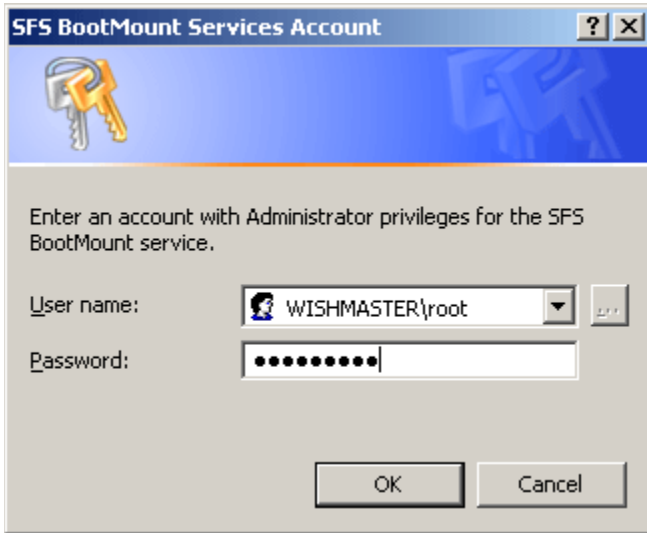

Press the **Next** button to continue.

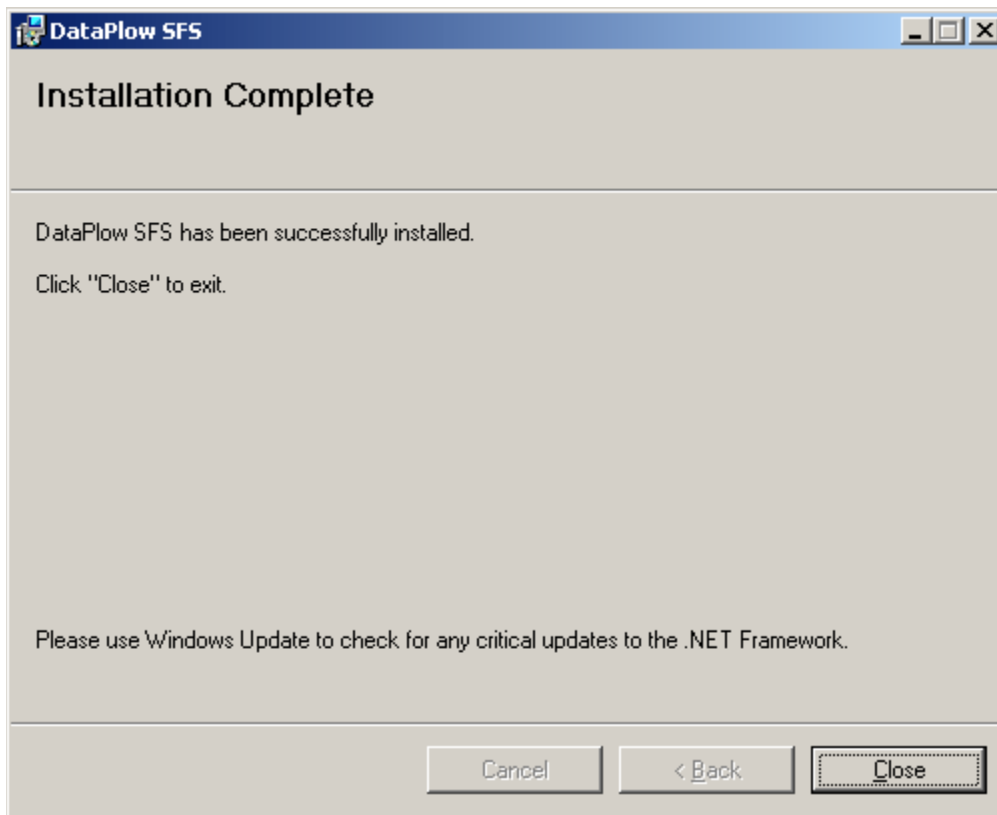≈ **StarWind**
SOFTWARE

Accept the license agreement.

Press the **Next** button to continue.

SFS **BootMount Services Account** dialog appears. Provide username and password of user with administrative privileges.
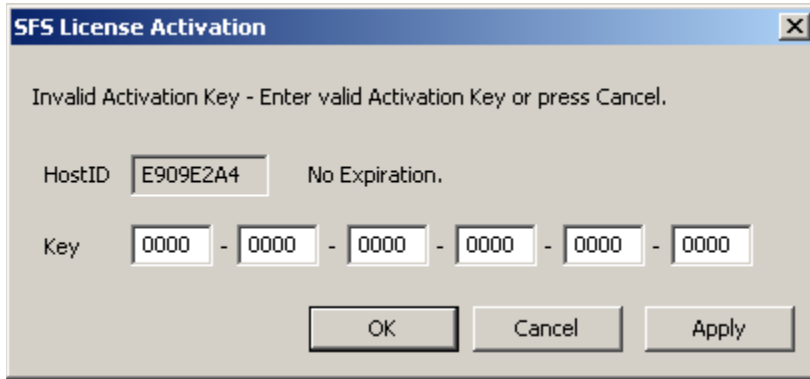
Press the **OK** button to continue.

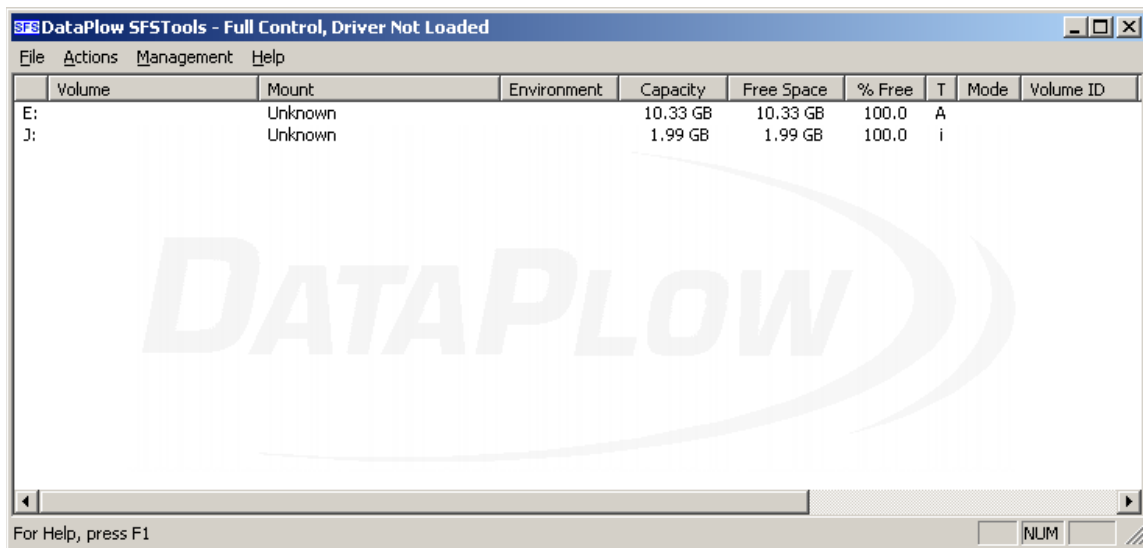The installation procedure of **DataPlow SFS** is completed.

Press the **Close** button.

Run **DataPlow SFSTools** using shortcut from your desktop. You need to provide registration key.
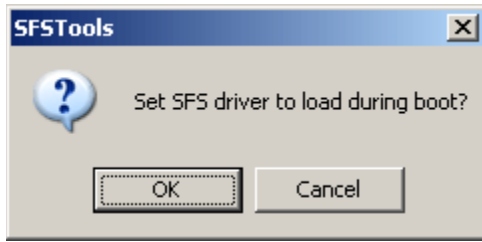

Press the **OK** button to continue.
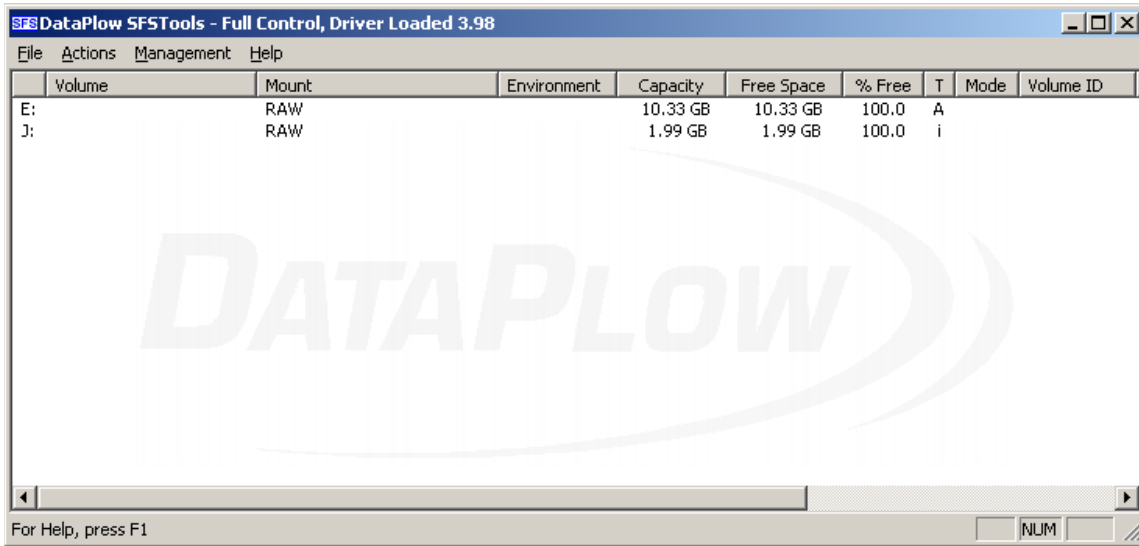
Dataplow SFSTools main window appears.

Choose **Load Driver at Boot** option from **Actions** menu.

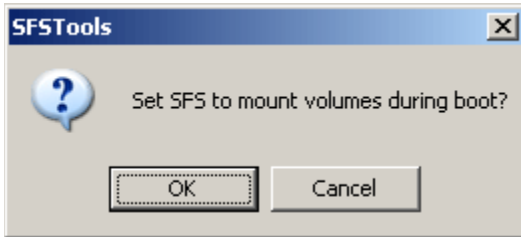**SFSTools** confirmation dialog appears.

Press the **OK** button to continue.

Choose **Load Driver** option from **Actions** menu. DataPlow SFSTools main window should change.
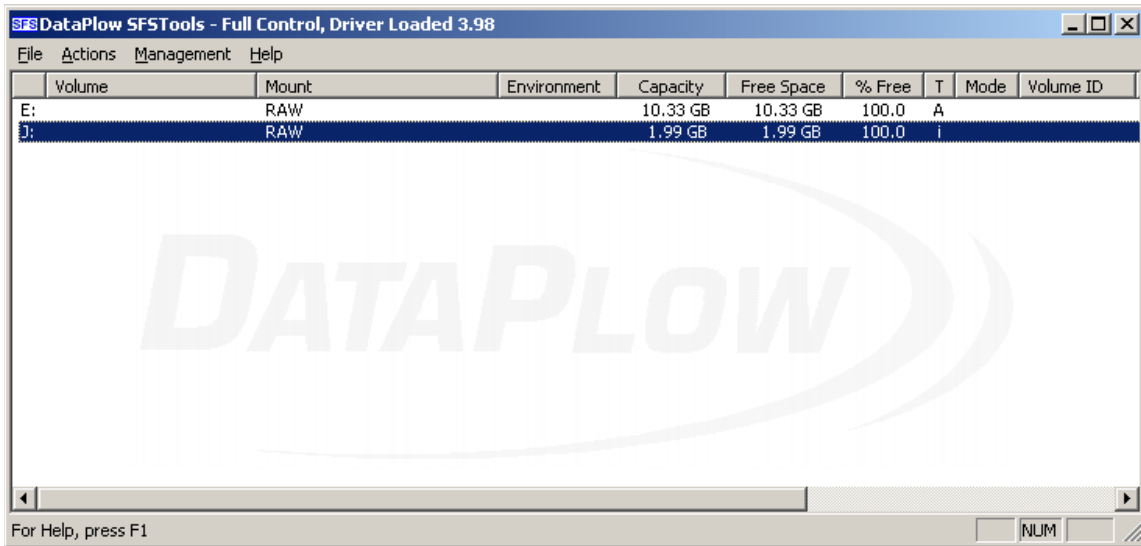
Choose **Mount at Boot** option from **Actions** menu. **SFSTools** confirmation dialog appears. Perform described above steps on all the machines that will use SAN target.
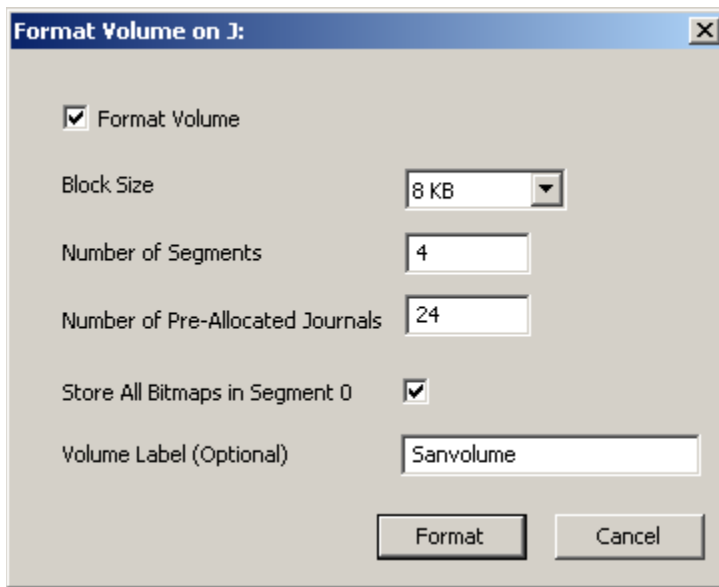

Press the **OK** button to continue.

Formatting and Sharing Disk on Metadata Server

Open DataPlow **SFSTools**. Right click over the sfsdrive (J: in our case) and select **Format**.
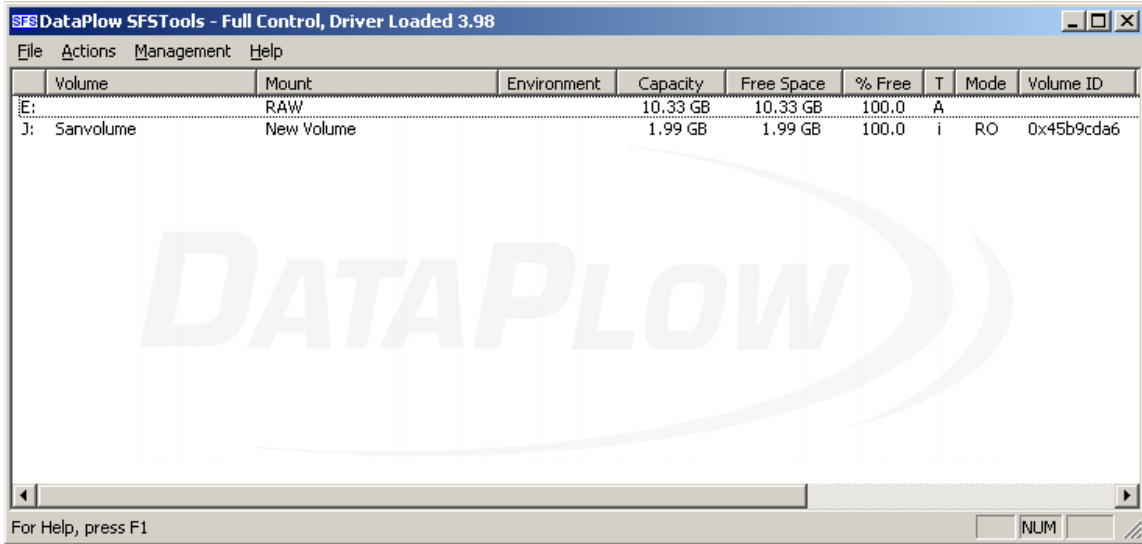
Format Volume dialog appears.

Check **Format Volume** parameter and optionally provide Volume Label (for example sanvolume). Press the **Format** button to continue.

Select **Refresh** option from **Actions** menu. Now disk becomes in RO (read-only) mode.
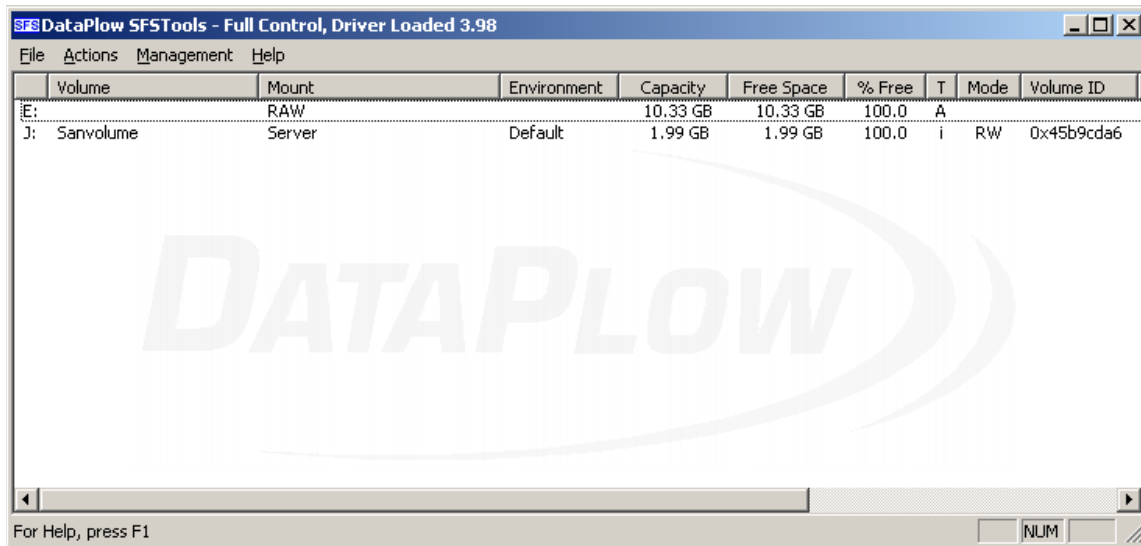
Right-click over the Sanvolume and choose the **Mount** option. Check **Mount at Boot** option. Select **Server** option in **Mount Type** group. Check **Automatically Share Volume with Full Access** option and provide share name.
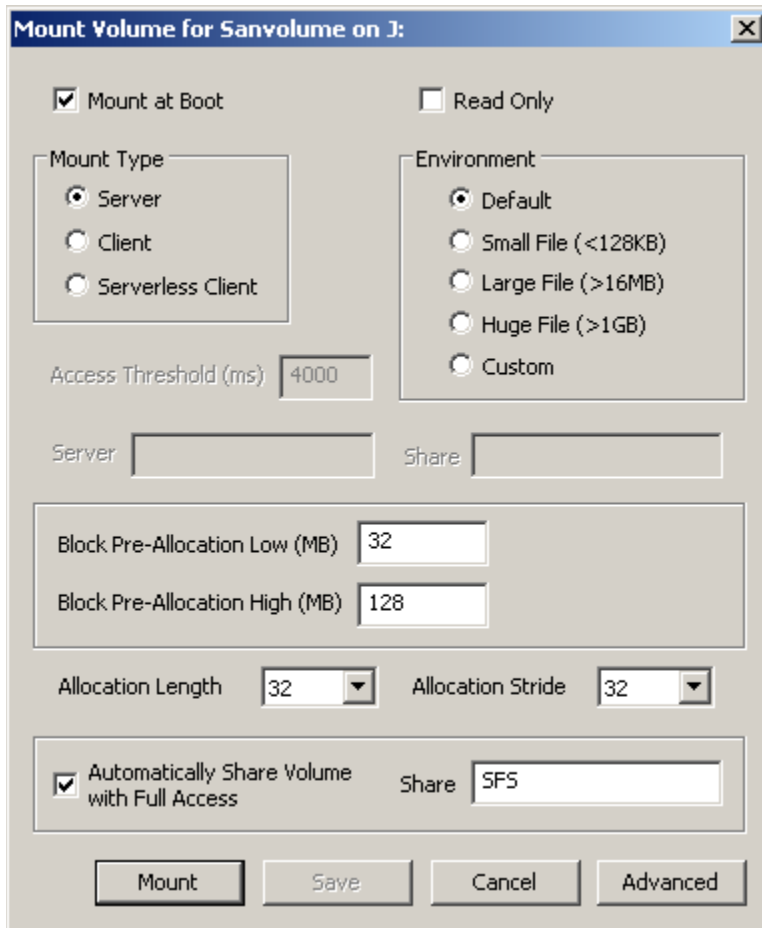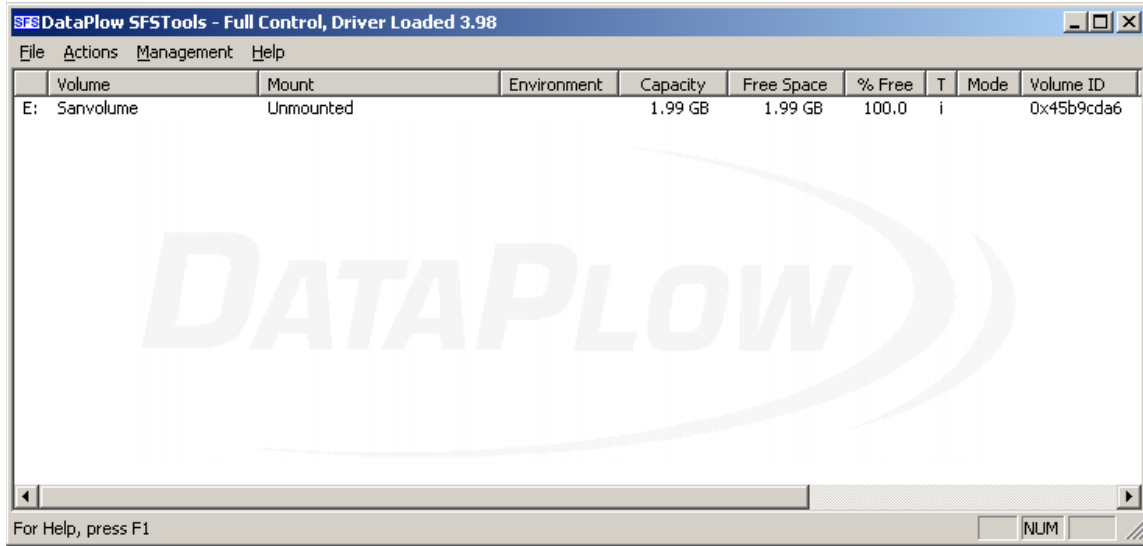

Press the **Mount** button to continue.

Now disk become in RW (read-write) mode and mounted as "Server". Now you have shared volume and it could be accessed by other network machines. Later on you need to set access rights to the shared volume. Now you need to mount it to other clients.
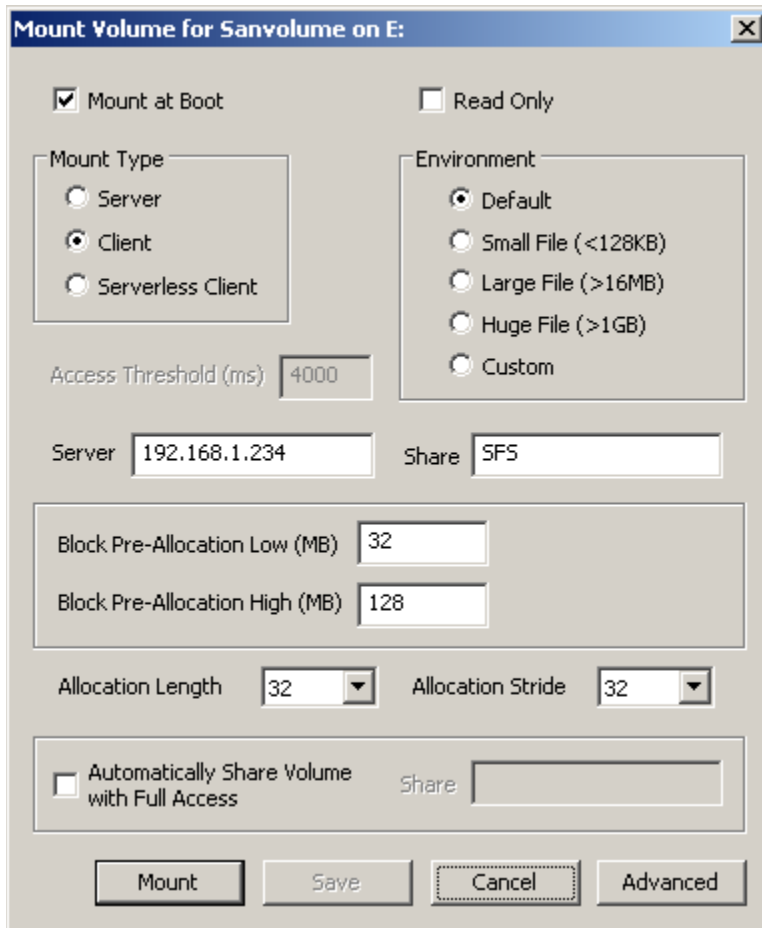
Mounting Shared Disk to Clients

Open **SFSTools**. Right-click over the "Sanvolume" disk.

Mount Volume for Sanvolume dialog appears. Check **Mount at Boot** option. Select **Client** option in **Mount Type** group. Provide IP address of the metadata server and share name of the disk.


Press the **Mount** button to continue.

Now the disk is mounted to client and it can be accessed via Explorer. Perform described above steps on each client.
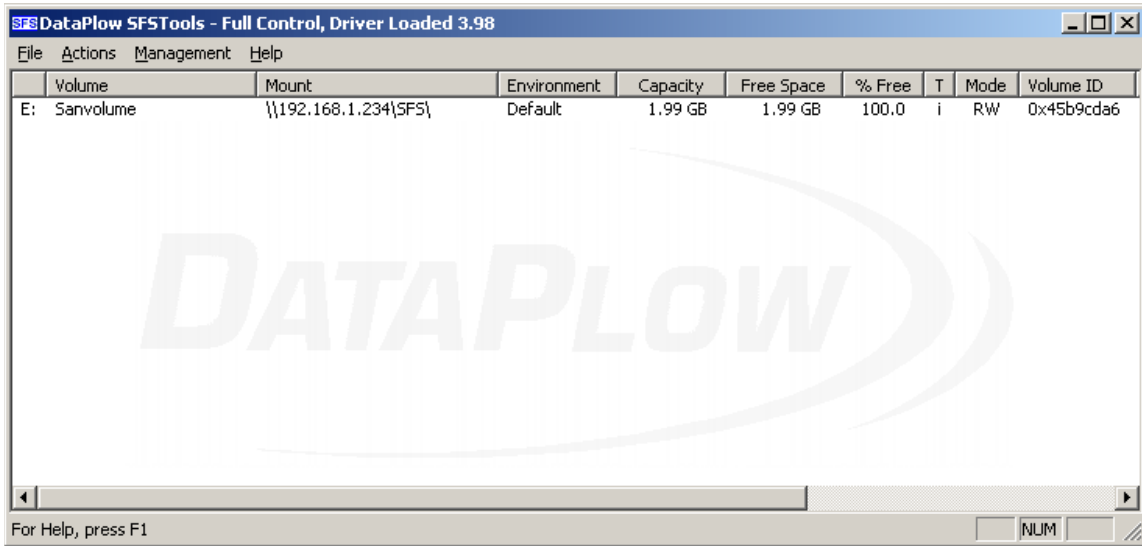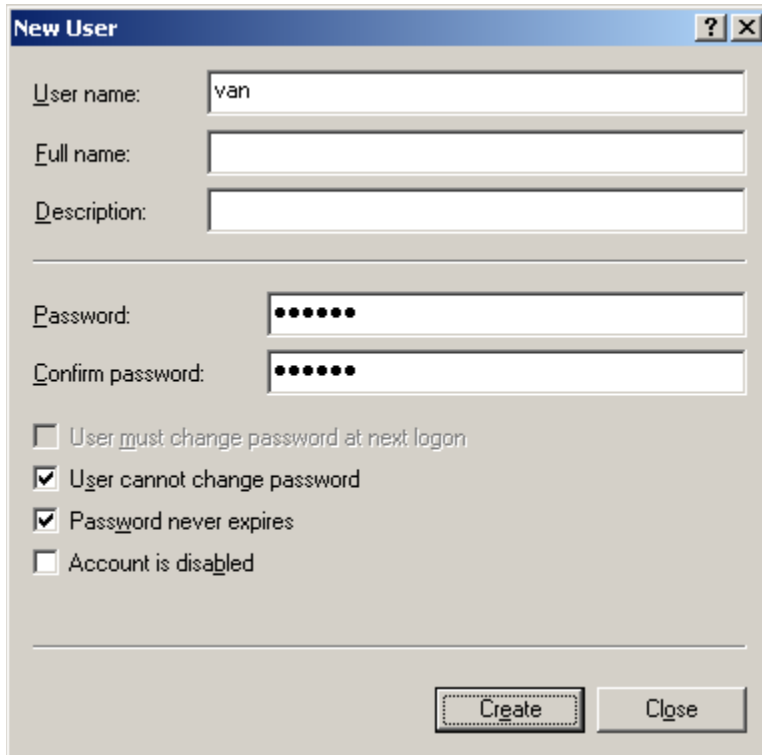
Setting Access Rights to Shared Disk

To prevent access to the shared SFS volume from the machines that do not have **SFSTools** installed you need to set access rights. First of all you need to create on metadata server user accounts for all machines that will use SFS volume(s). Right-click on **My Computer** and select **Manage** tree item. **Computer management** console appears.
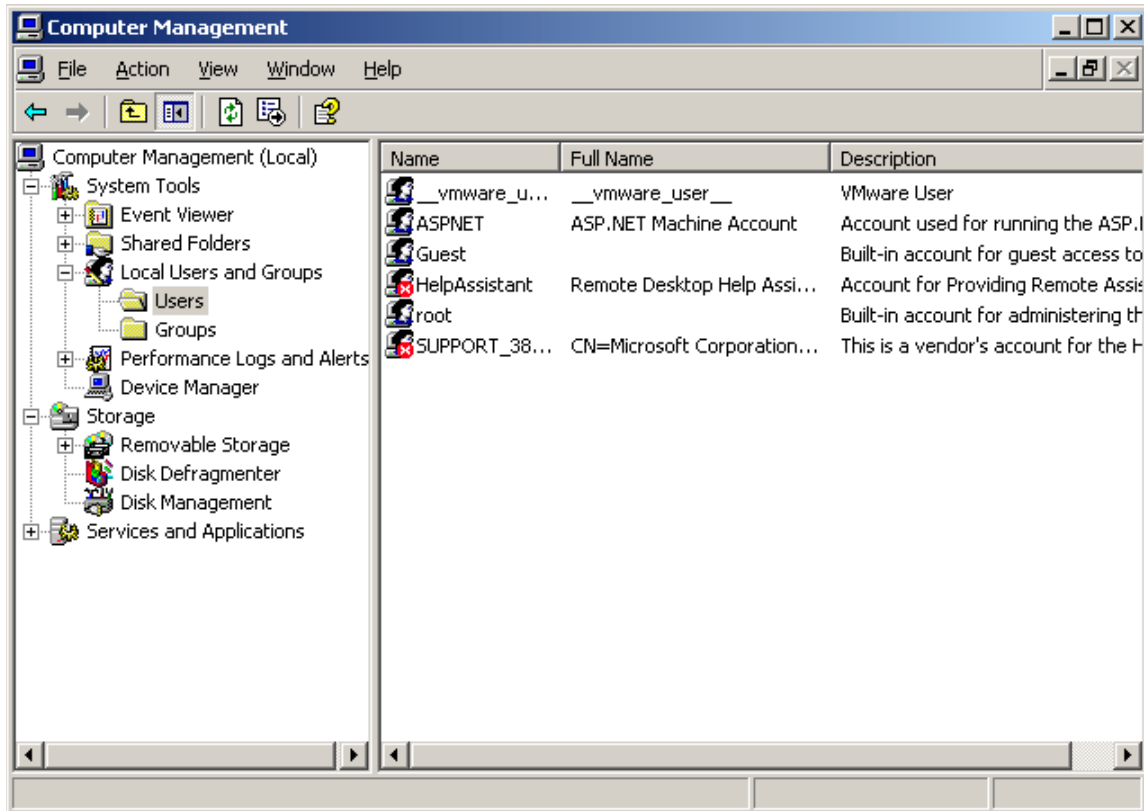
Select **Local Users and Groups** tool. Left mouse click on the **"Users"** node.

Select **New User…** from the **Action** menu. New User dialog appears. Provide **User name**, **Password**, and **Confirm password** for new user. "User name" and "Password" must be the same as on the machine that would have access to "Sanvolume". Uncheck **User must change password at next login**. Check **User cannot change password** and **Password never expires**. Repeat this step for all users you wish to have access to SFS volume.
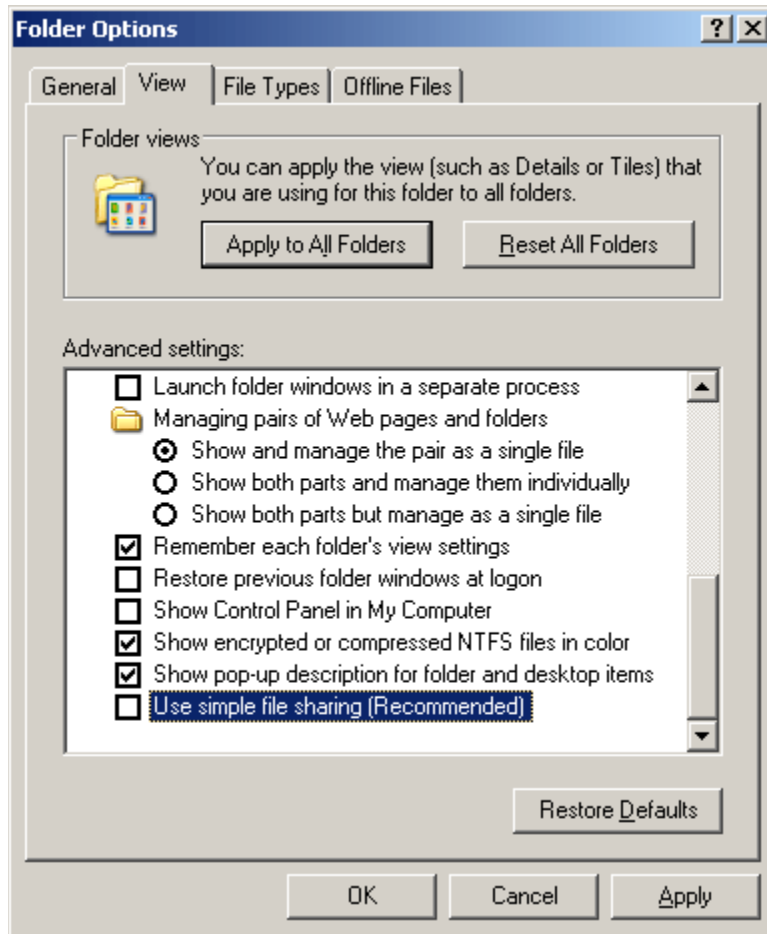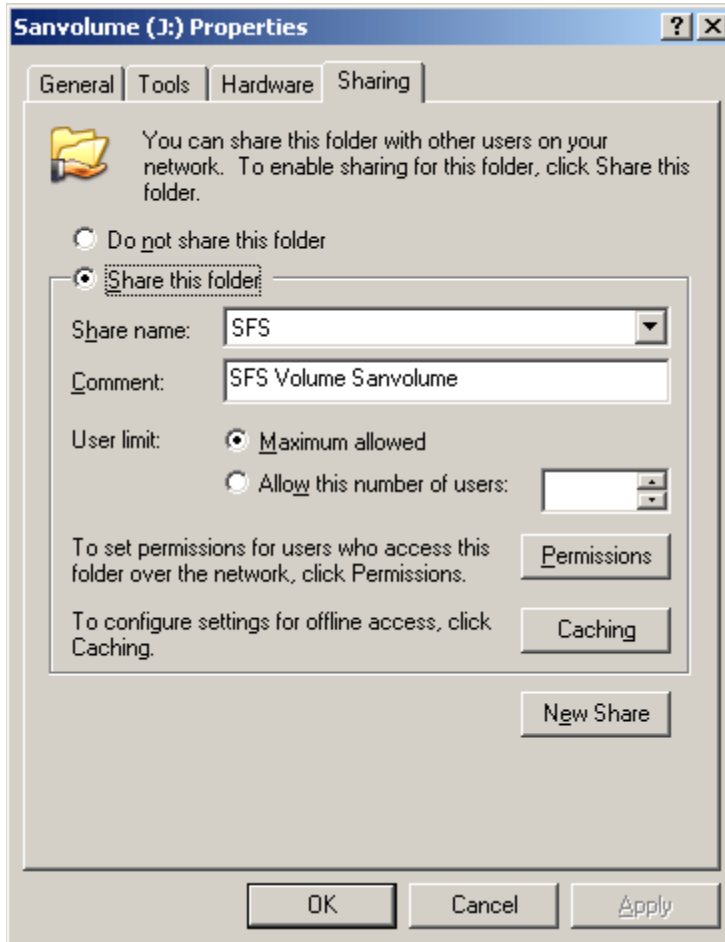

Press the **Create** button to continue. Click **Close** button. Exit the **Computer Management** console.

Now you need to assign access rights to shared volume. Open **My Computer**. Double-click the "Sanvolume". Select **Folder Options** from **Tools** menu. Switch to the **View** tab. **Uncheck Use simple file sharing (Recommended)** option.
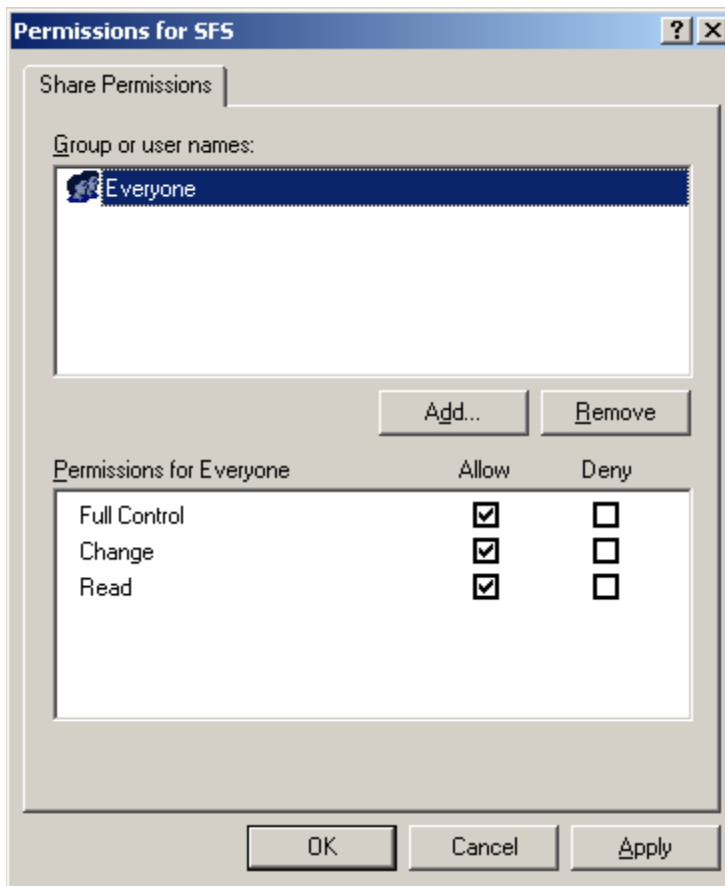

Press the **OK** button to continue.

Go back to **My Computer** and right-click on "Sanvolume". Select **Properties**.
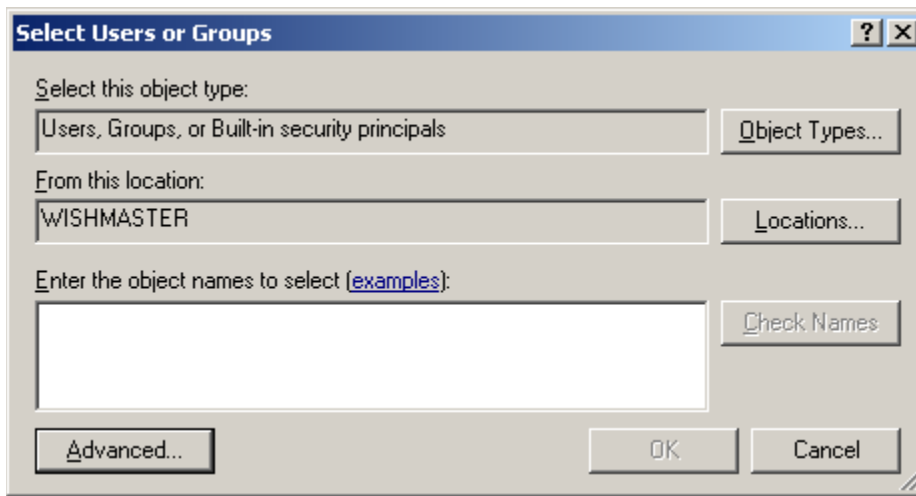Switch to the **Sharing** tab.

Press the **Permissions** button.

Permissions for SFS window appears. Select **Everyone** and click **Remove**.

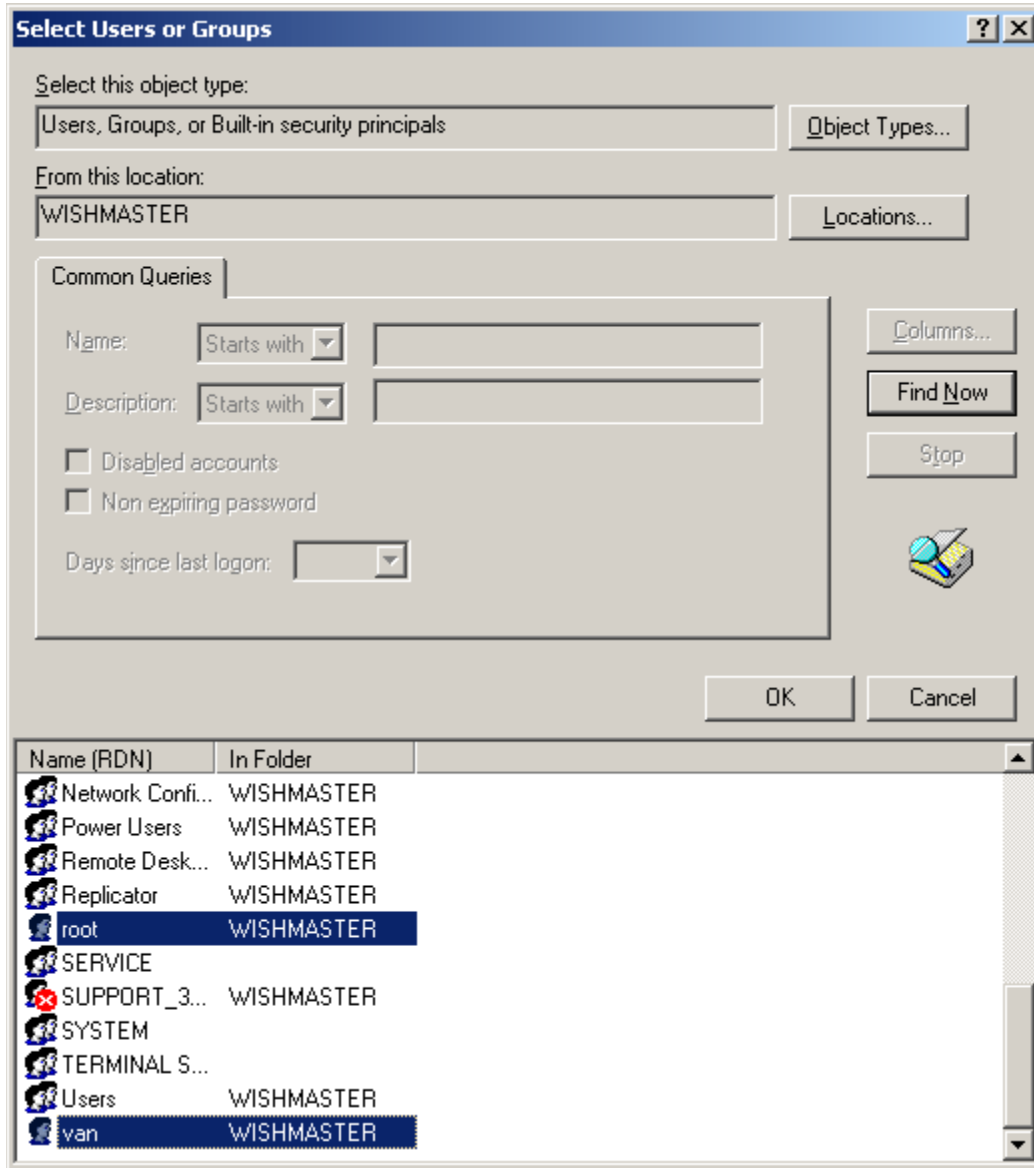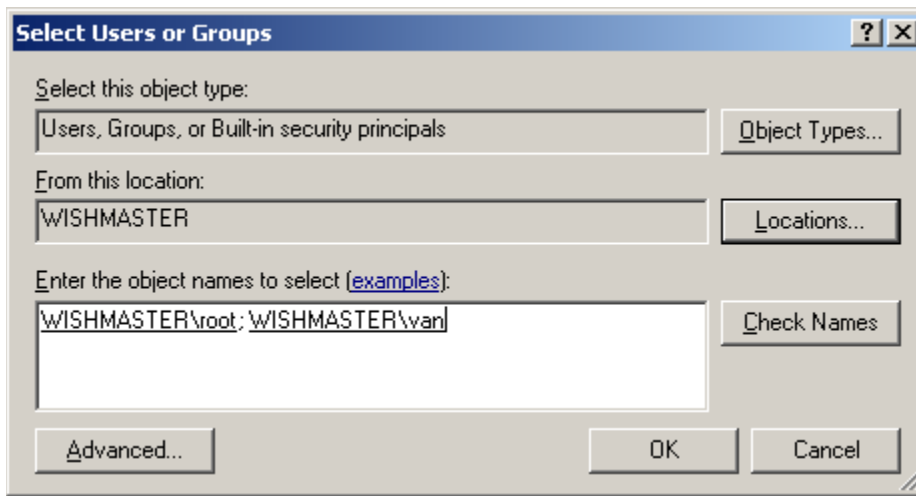Press the **Add** button.

Select Users or Groups dialog appears.

Click the **Advanced…** button to continue.

Click **Find Now**. Press **Ctrl** button on your keyboard and click on all users you wish to have access to SFS volume.
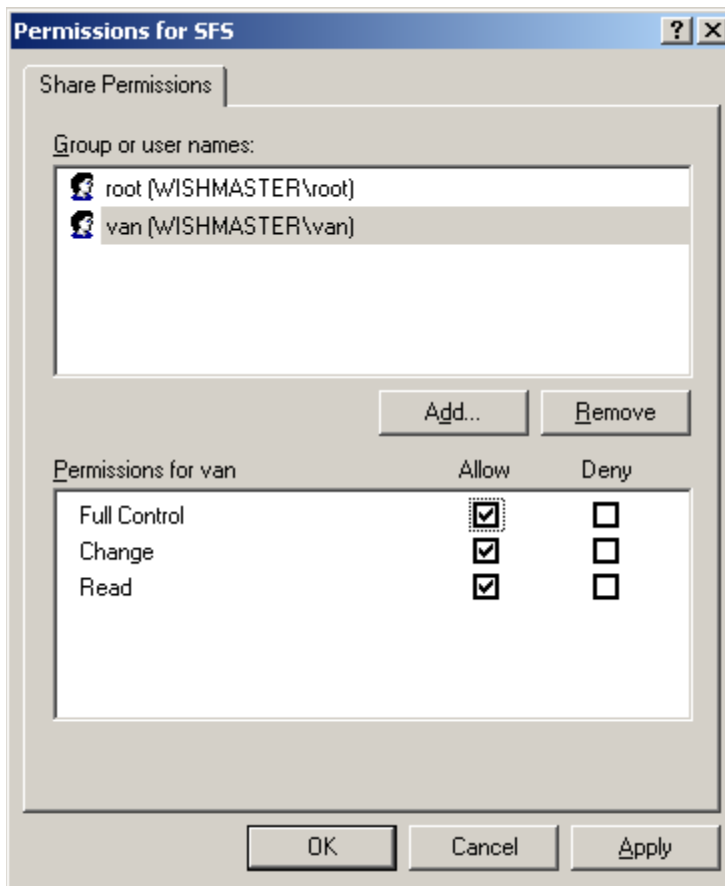

Press the **OK** button to continue.

You return to the **Select Users or Groups** dialog.

Press the **OK** button to continue.

For each user you can specify access type (Full control, Change, Read).

Press the **OK** button to continue.

Now you have shared volume that everyone can see in your network, but only SFS members have access to it.

Conclusion

StarWind iSCSI Target and the DataPlow SFS allow you to have distributed SAN volume access. In this example two machines use SFSTools working thru the established iSCSI connection for concurrent access arbitration. You can easily expand this example by adding additional shared SAN volumes to one or more iSCSI targets and increase number of the client machines.

Contacts

Support:	www.starwindsoftware.com/support
Support Forum:	www.starwindsoftware.com/forums
Sales E-mail:	sales@starwindsoftware.com

US Headquarters

Direct phone number:	1-617-449-7717
Fax:	1-617-507-5845

EMEA, APAC

Direct phone numbers:	+44-0-2071936727
	+44-0-2071936350
Voice Mail:	1-866-790-2646

StarWind Software Inc.

40 Mall Rd., Burlington

MA 01803, USA

www.starwindsoftware.com

45