# StarWind iSCSI SAN Software: Using MetaSAN to Share iSCSI Volumes

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## Guide

### Introduction

Today more and more customers are willing to use SAN for the concurrent multi-initiator access to the same disk volume(s) and the same set(s) of the files. Movie rendering farms, huge distributed databases, clusters – virtually everybody wants to benefit from IP SAN performance (compared to the slow NAS implementations utilizing the same hardware). However iSCSI itself does not solve the task of maintaining distributed write locks and keeping file caches coherent. Tiger Technologies had developed **MetaSAN**, revolutionary solution allowing NTFS to be used as a SAN file system with **MetaSAN** software acting as a metadata manager on the top of it. This manual describes how to use **StarWind** iSCSI Target for Microsoft Windows together with the **MetaSAN** from **Tiger Technologies**. We've picked up **StarPort**, our own iSCSI Initiator for Microsoft Windows however any other one should work as well.
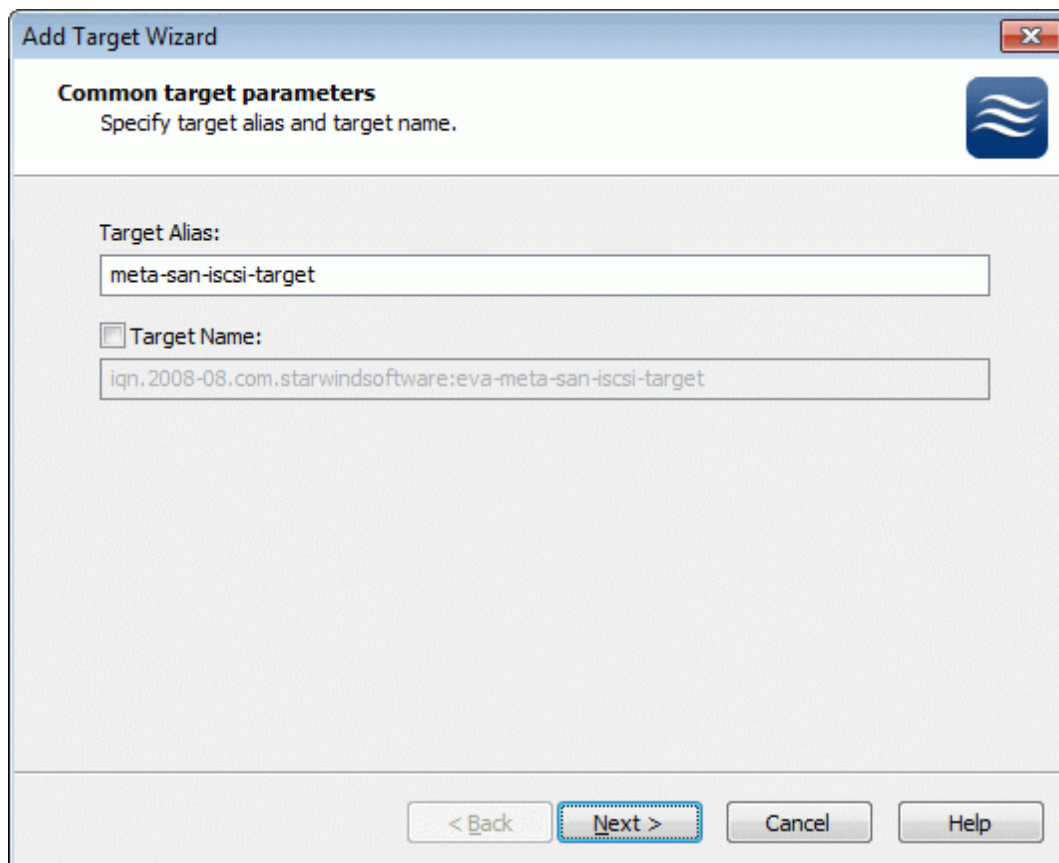
## Configuring StarWind Server

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.
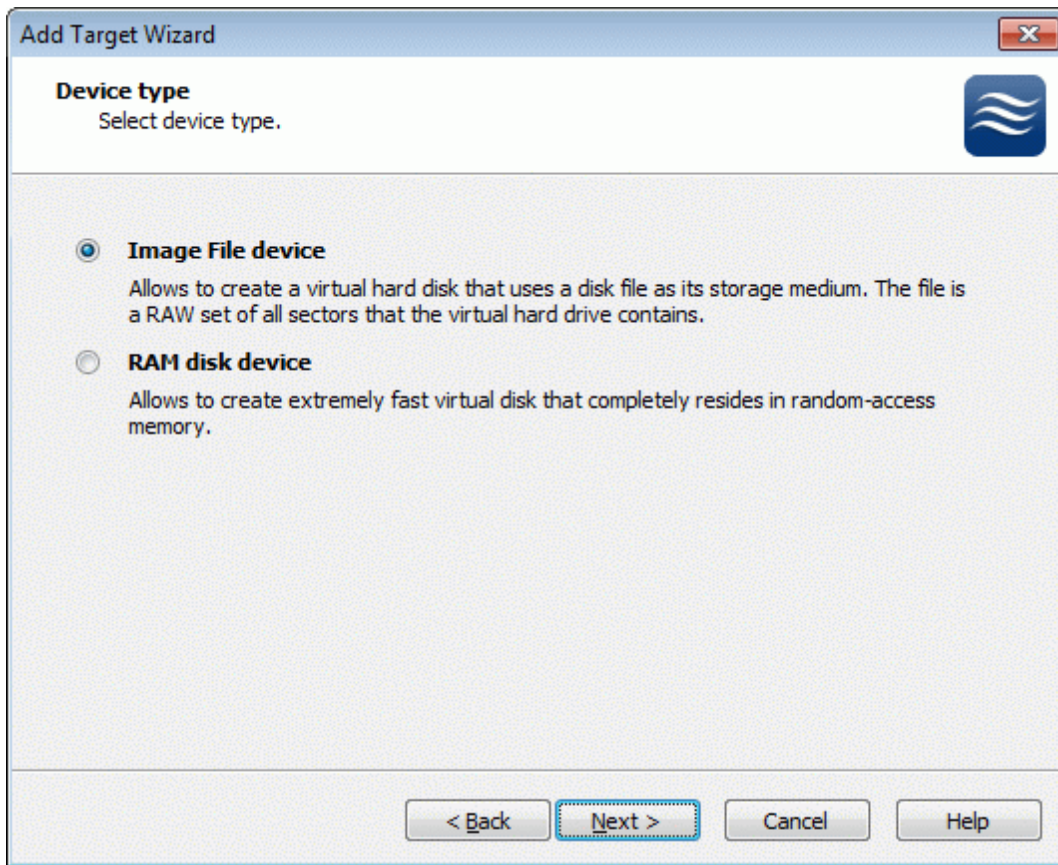
Press **Add Target** button to continue.

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.
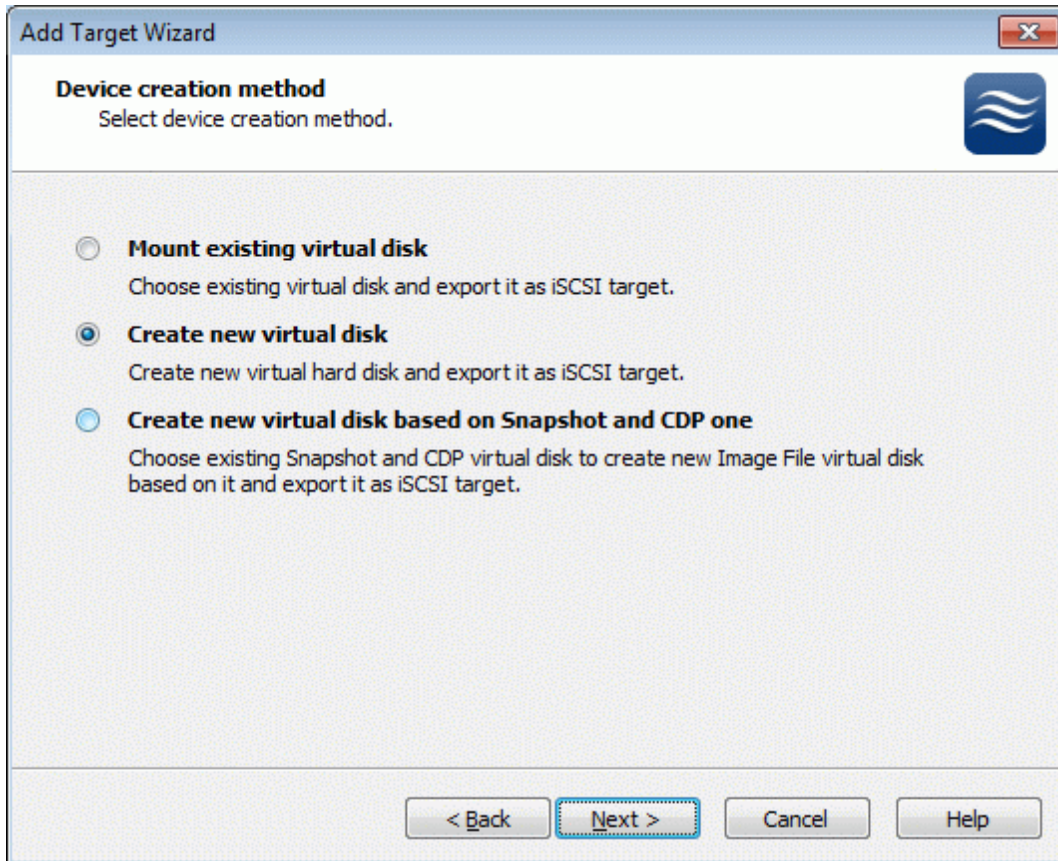


Press the **Next** button to continue.
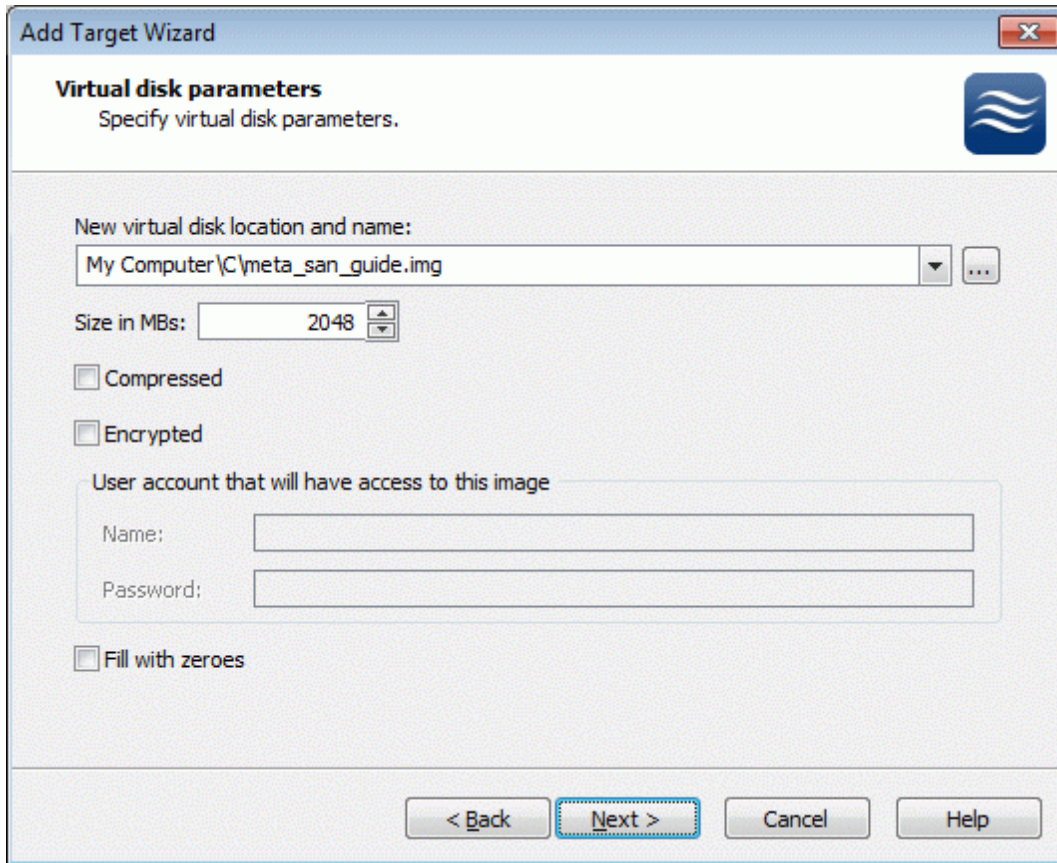
Select **Image File device**.



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.
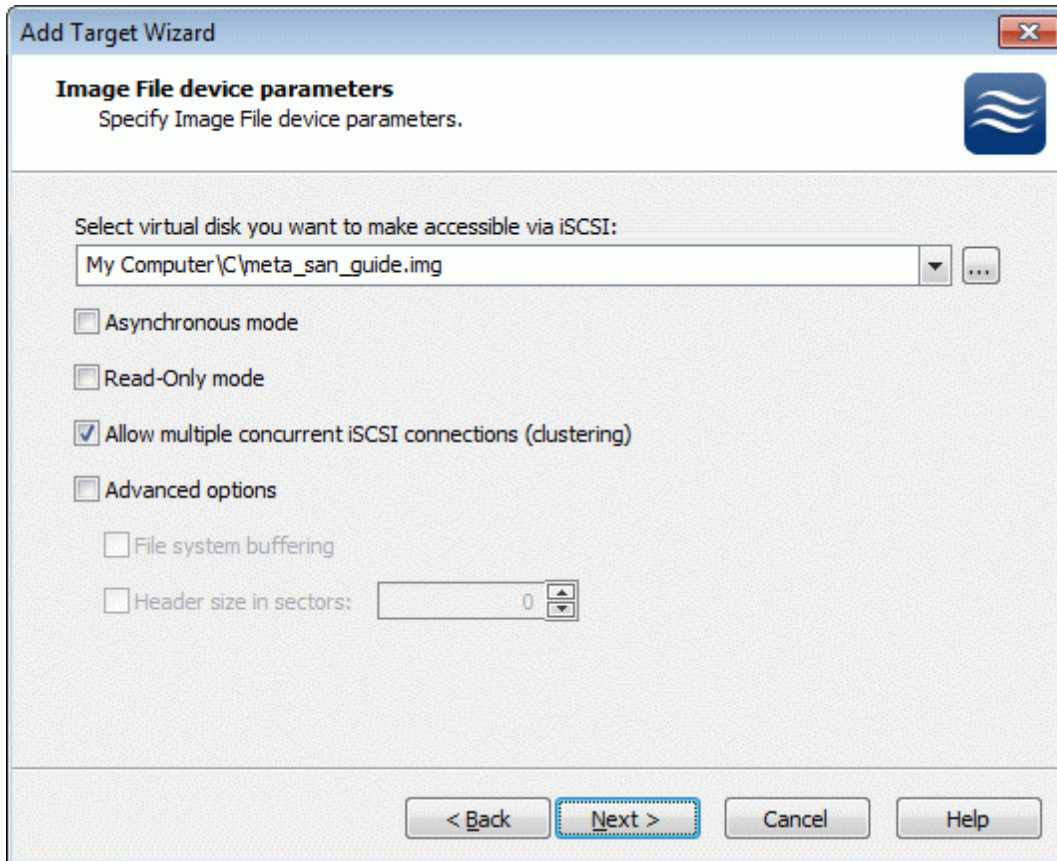


Press the **Next** button to continue.

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**).
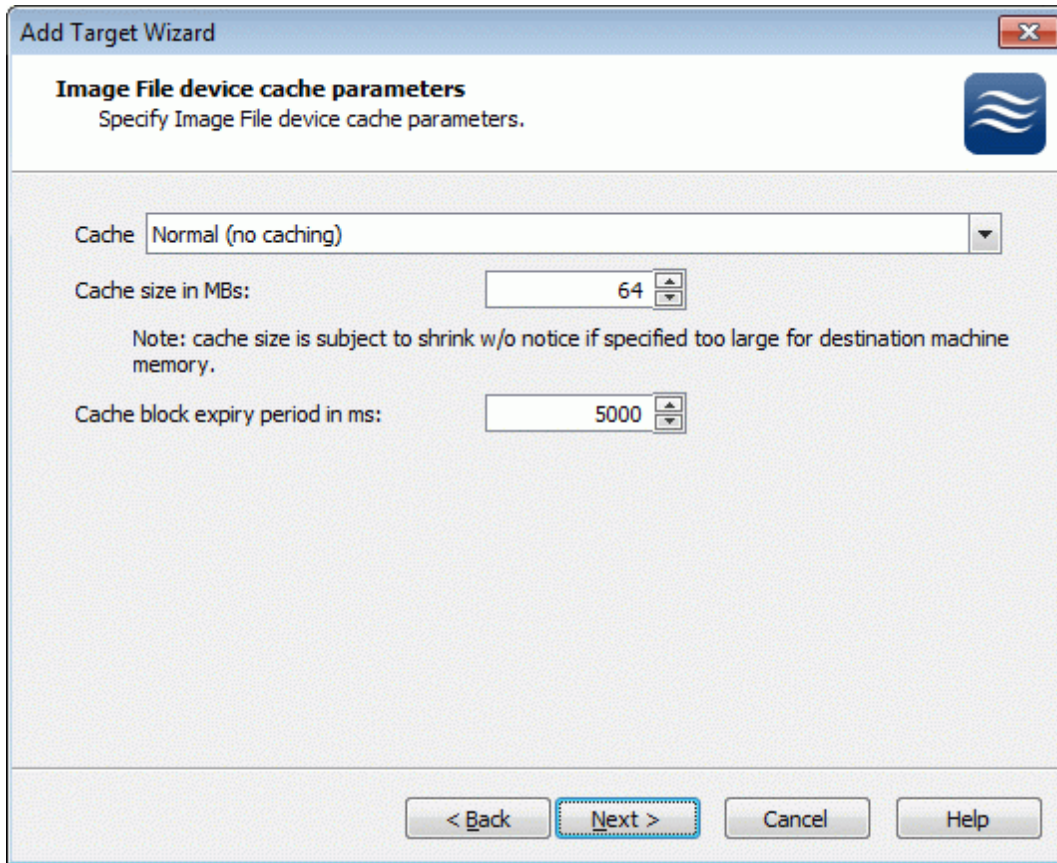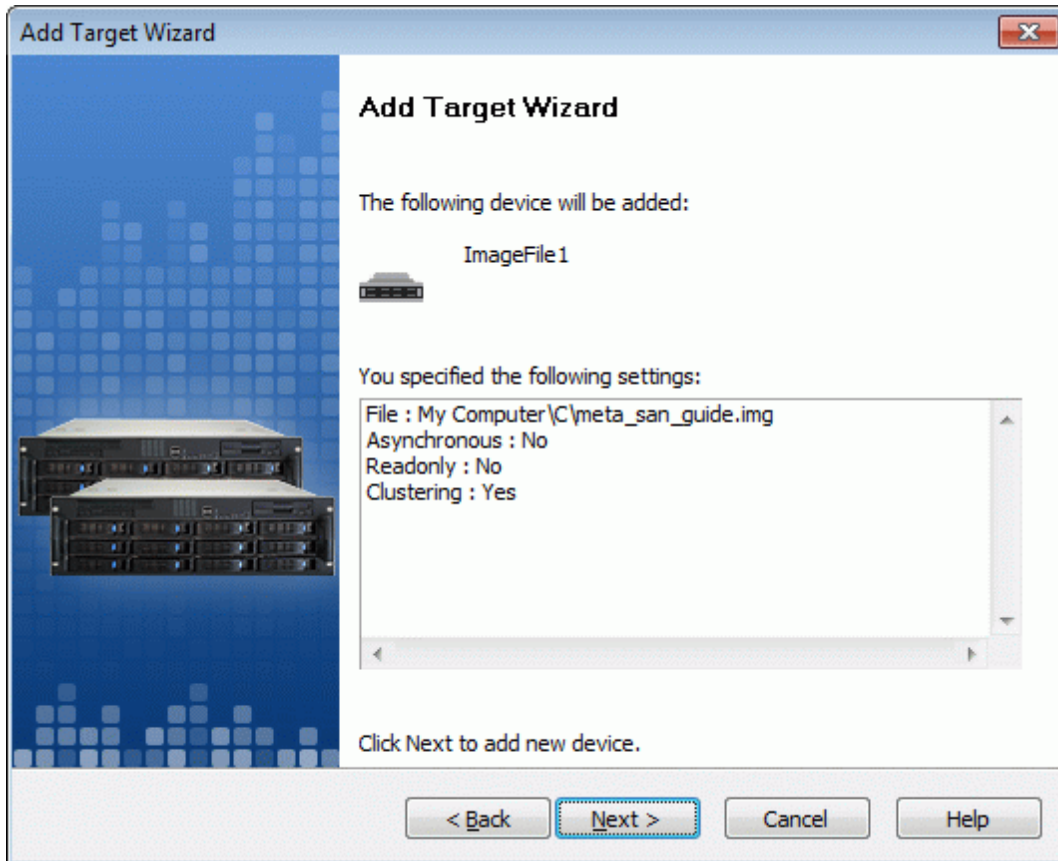


Press the **Next** button to continue.

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**).
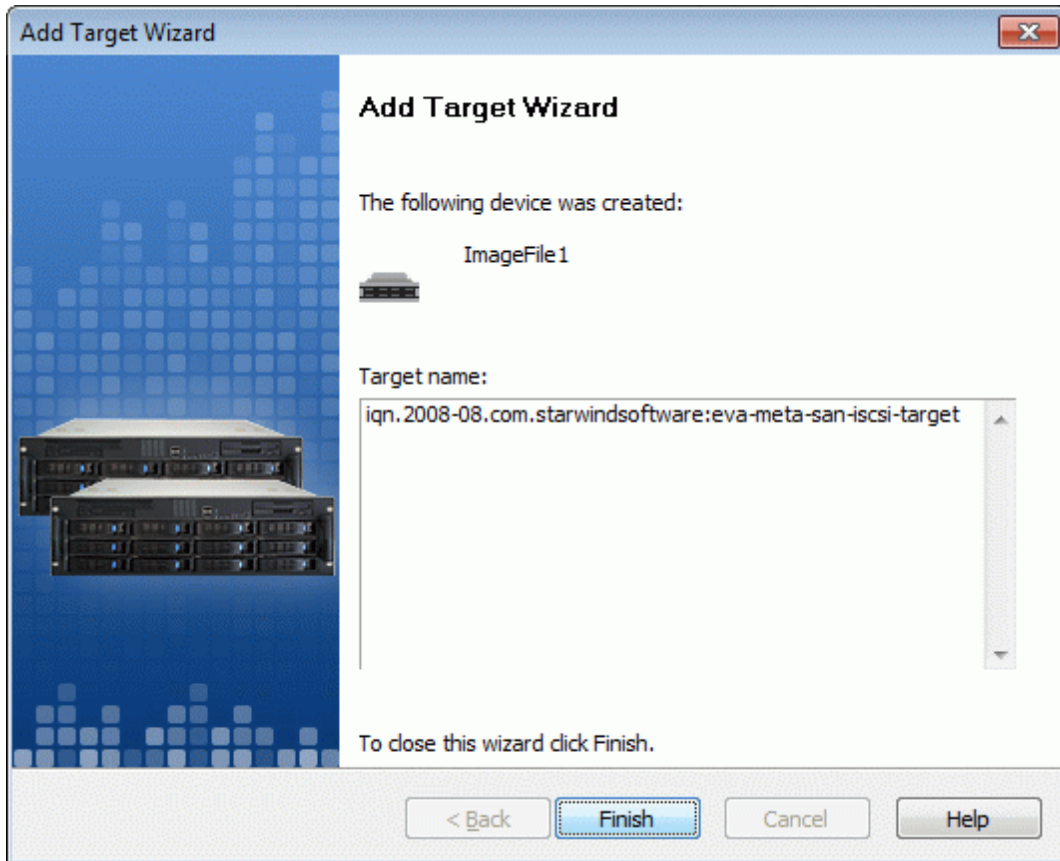


Press the **Next** button to continue.

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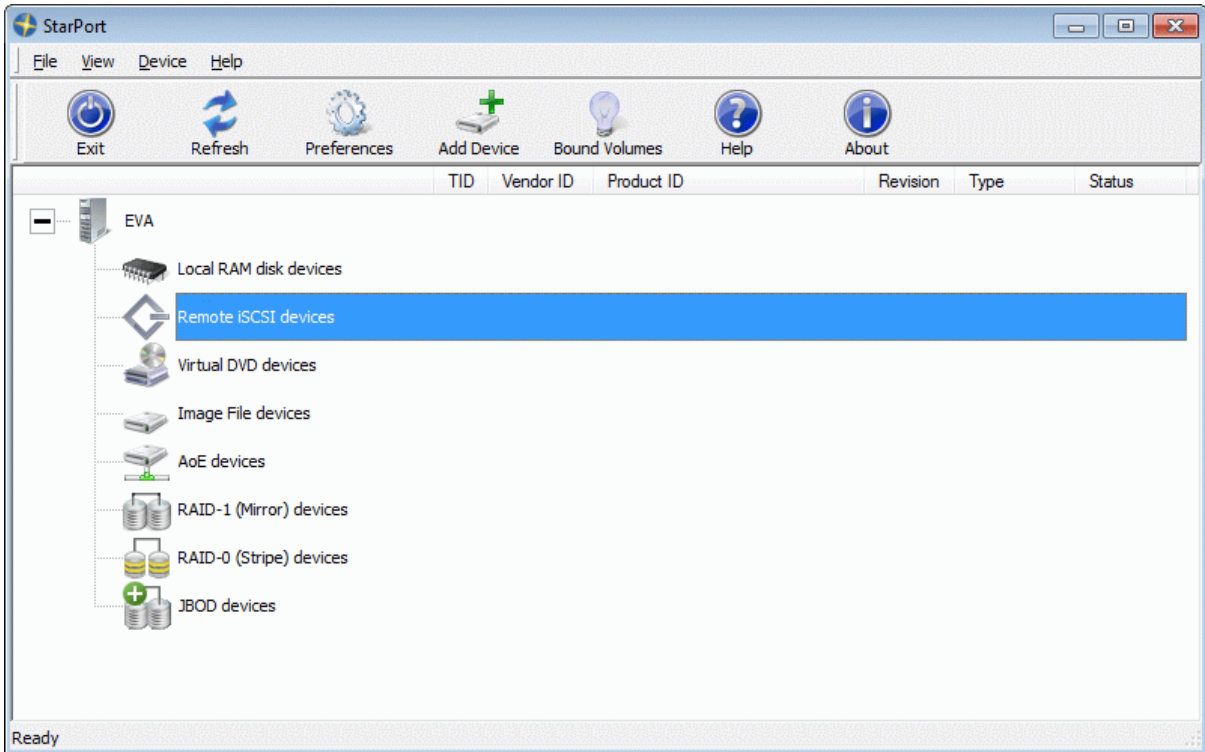


Press the **Next** button to continue.

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



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

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## Configuring the First Client as MetaSAN

Launch the **StarPort** console selecting **Start -> All Programs -> StarWind Software -> StarPort -> StarPort**. 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 menu item from the pop-up menu.
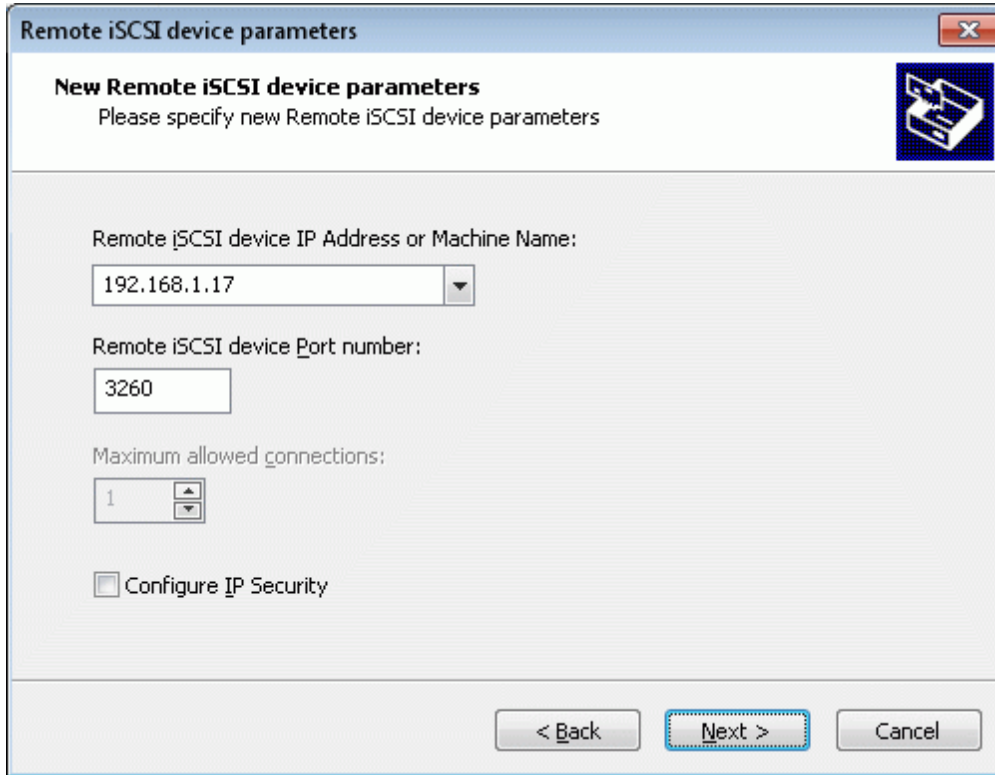


Select the **Add Device…** menu item to continue.

New device installation wizard will appears. On this step of Wizard please select **Remote iSCSI device**.
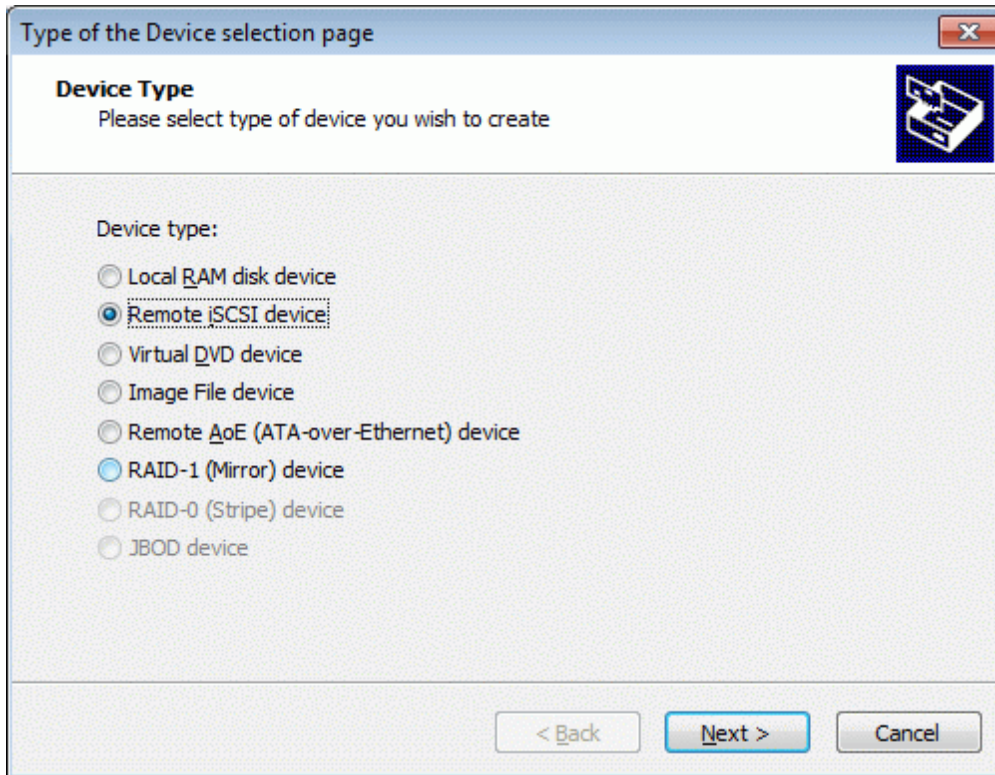


Press the **Next** button to continue.

Type in the **IP address** of the computer with **StarWind** installed and port of that machine.



Press the **Next** button to continue.

Select **"meta-san-iscsi-target"** from the list and check the **Automount This Device** checkbox.
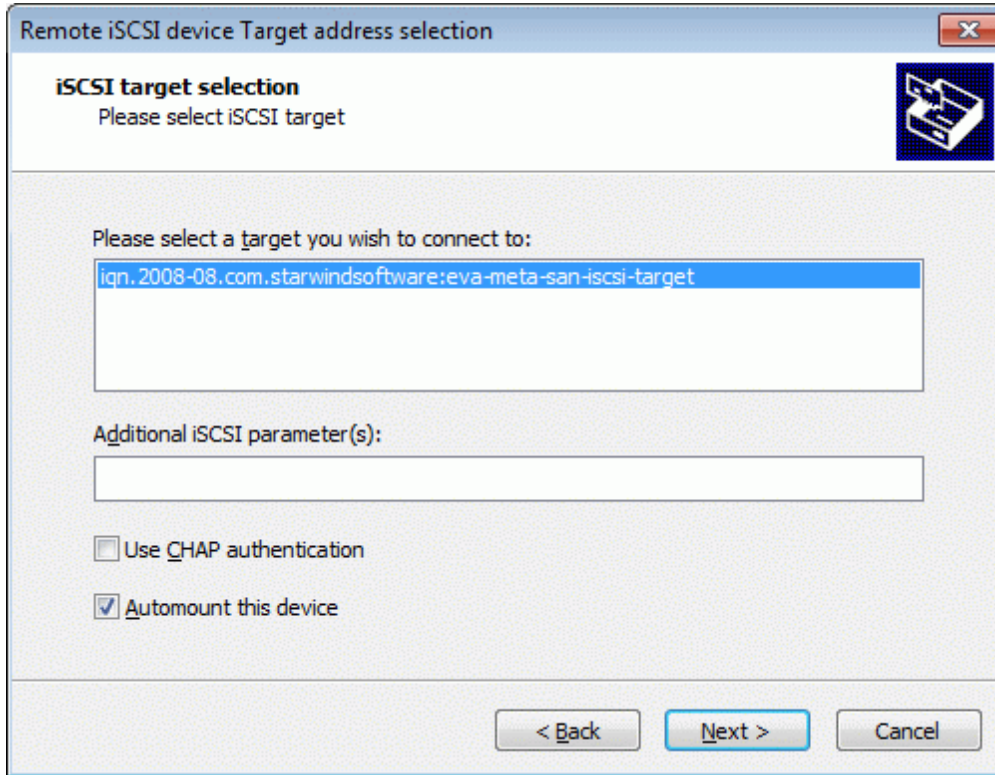


Press the **Next** button to continue.

After the target is connected you need to initialize and format 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 the **NTFS** file system and specify **MetaSAN** as the disk label. As a result of these actions a new drive with **"MetaSAN"** volume label should appear on your PC.
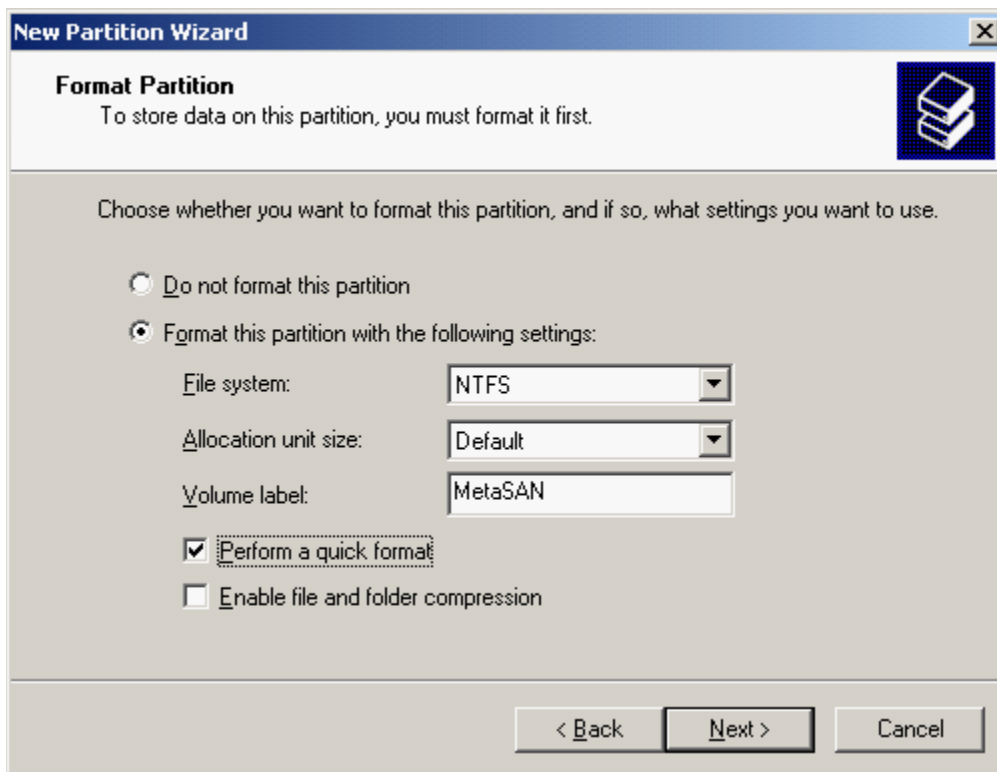


Press the **Next** button to continue. On the next page press the **Finish** to complete the wizard.

Now we install **MetaSAN** on the first client machine. Run the **MetaSAN** installer. Accept the license agreement. After the installation is completed, the "MetaSAN Configuration Wizard" appears.
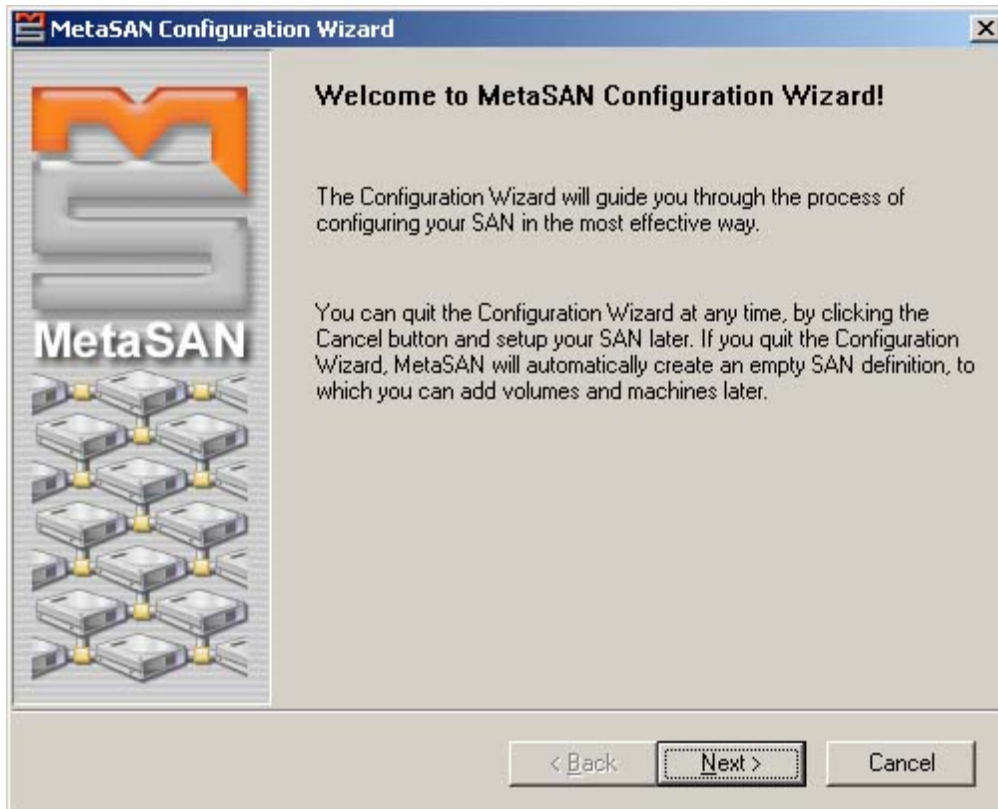


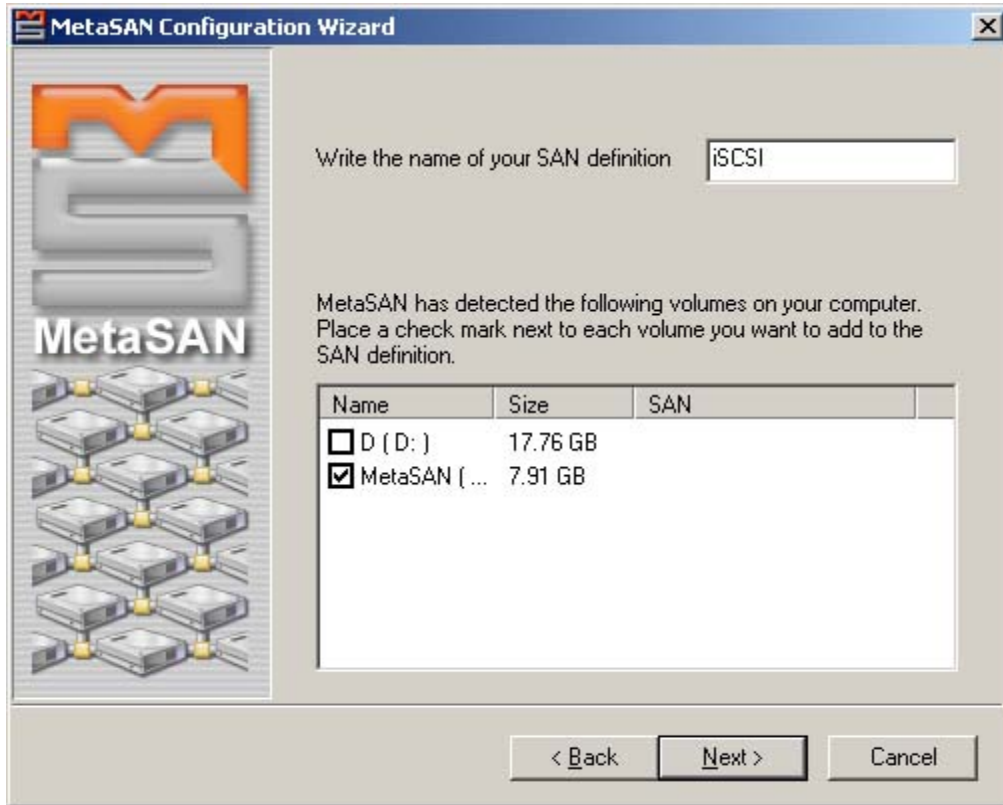Press the **Next** button to continue.

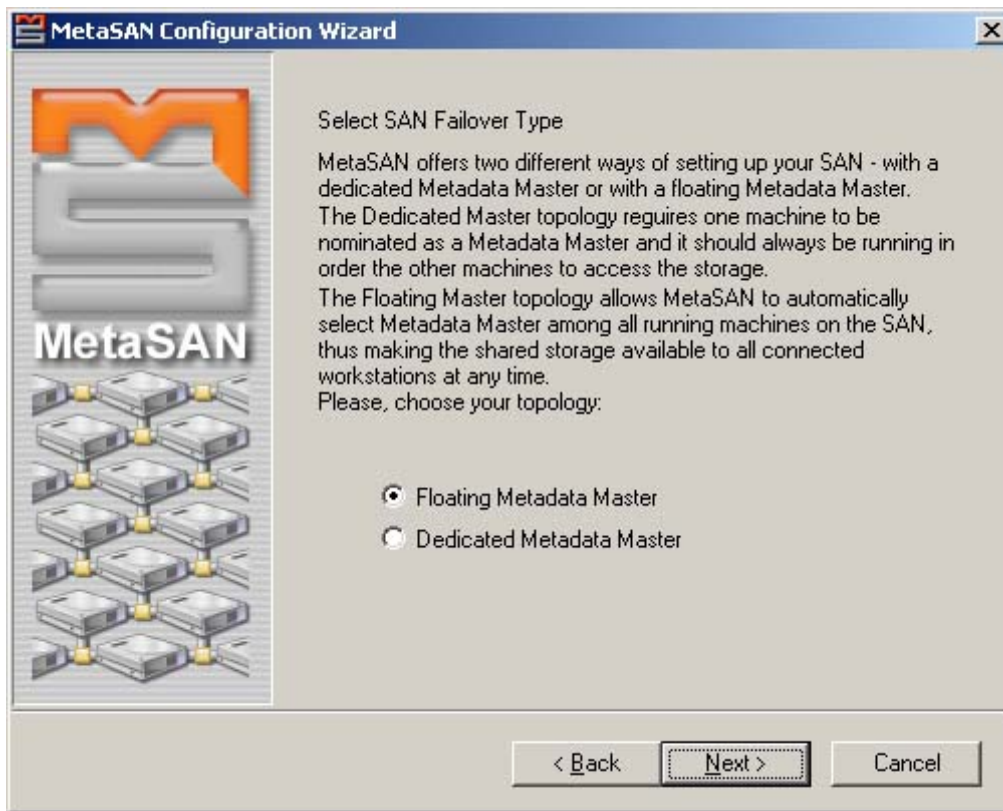Select the **Create** option to create a new profile.



Press the **Next** button to continue.

Select the iSCSI drive (uncheck the others) and assign **iSCSI** as the profile name.



Press the **Next** button to continue. Press the **Yes** button on the alert that appears.

Select **Floating Metadata Master** option.



Press the **Next** button to continue.

Now you can specify the time interval to check the Data Master availability. Leave it without changes and press the **Next** button. You will be offered to restart your PC. Accept it and press the **Finish** button. You will be offered to run optimization. Reject this offer by pressing **No** button. You PC will be restarted now. After reboot the access to the iSCSI disk is **forbidden**. To gain access to the disk you need to register you version of **MetaSAN**.

Now we register just installed copy of **MetaSAN**. Open the **Control Panel** and run **MetaSAN**. Press **Activate MetaSAN**. Select **Manual Activation** and press **Continue**. On the **MetaSAN** web site supply your serial number and obtain the activation code. Enter it in the **MetaSAN** registration window and press **OK**. Now your copy of **MetaSAN** is activated and the access to the iSCSI drive is granted.

## Configuring the Second Client as MetaSAN

Now we can proceed with the configuration of the second client on which **MetaSAN** will be installed as well. Connecting of the second client to iSCSI target is done in the same way as it was with the first client. As a result of all these actions performed new drive appears on the second PC. Now install **MetaSAN**. Run the **MetaSAN** installer. Accept the license agreement. After the installation is completed the **MetaSAN Configuration Wizard** appears.



Press the **Next** button to continue.

Select **Add To Existing SAN Definition(s)** option to join the existing profile.
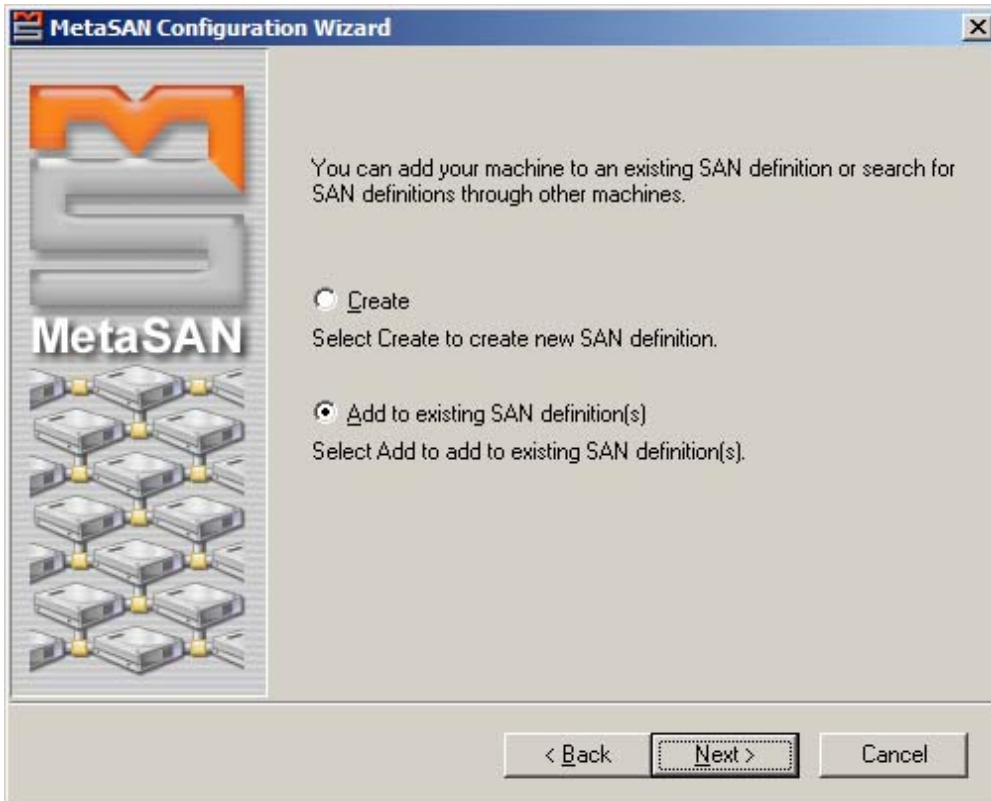


Press the **Next** button to continue.

Select **Add to SAN Definitions** option. Check the **iSCSI** checkbox profile. Remove the checkbox from all other profiles.



Press the **Next** button to continue. When offered to run optimization press the **OK** button.

You will be offered to restart your PC. Accept it by pressing the **Finish** button. Your PC will be restarted. After reboot the access to the iSCSI disk is **forbidden**. To gain access to the disk you need to register you version of **MetaSAN**. The registration is done in the same way as for the first client PC. When registration is done your copy of **MetaSAN** is ac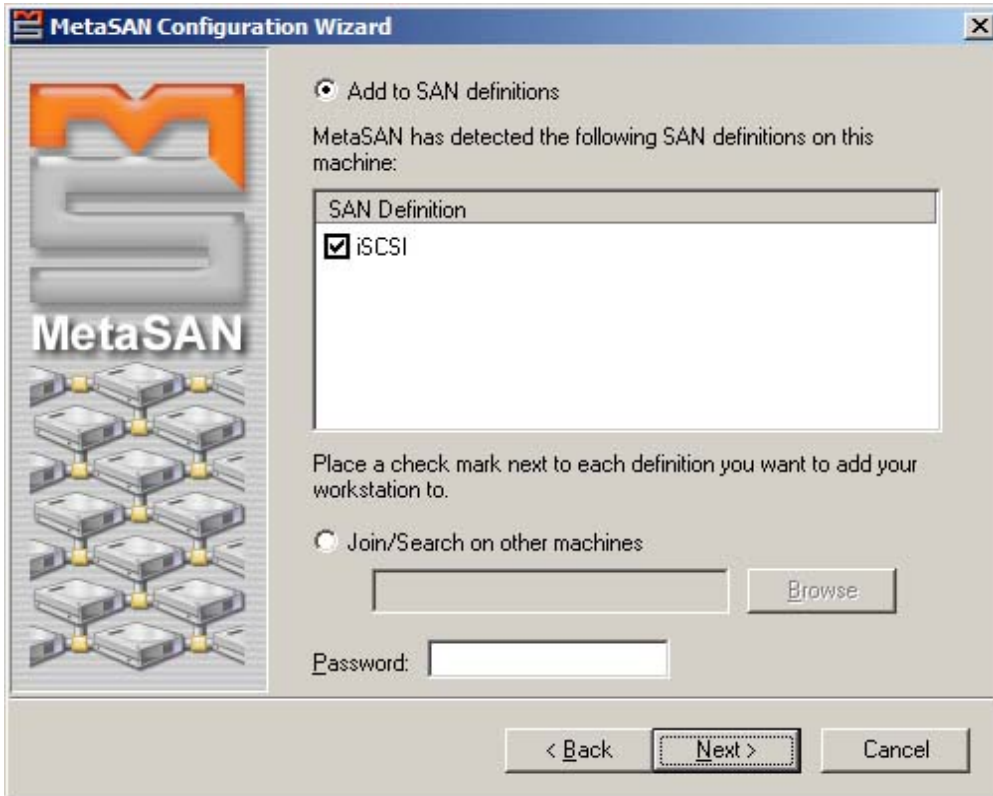tivated and the access to the shared iSCSI drive is granted. Now you have two PCs with the active connections to the same iSCSI target. Disk access arbitration is done by **MetaSAN + StarPort + StarWind**. **"Metadata Master"** access control services automatically migrate from one client to another one if a client is turned off or some malfunction occurs.

## Connecting the Third Client by Using the MetaLAN

It's possible to use **MetaLAN** to connect to the iSCSI target indirectly, w/o need of iSCSI Initiator software. Let's configure third PC to use **MetaLAN** only. Here' **MetaLAN** installation process. Run the **MetaSAN** installer. Accept the license agreement. After the installation is complete, the **MetaSAN Configuration Wizard** appears. Press **Cancel** to reject from configuring. The warning will appear – confirm your actions by pressing **Yes**. You will be offered to restart your PC. Accept by pressing the **Finish** button. Your PC will be rebooted. Now we need to use **MetaLAN** to connect the third PC. Open any **MetaSAN**-enabled client which is connected to the same local network. Configure the user connection to the **iSCSI** profile. Open the **Control Panel** and run **MetaSAN**. Open the **SAN Management** tab. Press the **Members** button. In the window that appears press **Add Member**.

Specify the IP-address of the client which you wish to add and uncheck the **Add as LAN Client** checkbox.



Press the **OK** button to continue.

As the result of that the user will be added. Press **Apply** and **Close**. Close **MetaSAN**. Now the disk is available on the third client PC as well. But the disk access is **forbidden** yet. **MetaLAN** registration process described. Let's register **MetaLAN** for the third client PC. Open the **Control panel** and run **MetaSAN**. Press the **Activate MetaLAN** button. Select the **iSCSI** profile and choose **Manual Activation**. On the **MetaSAN** web site supply your serial number and obtain the activation code. Enter it in the **MetaSAN** registration window and press **OK**. Now this particular **MetaLAN** copy is activated and the whole disk access is granted.
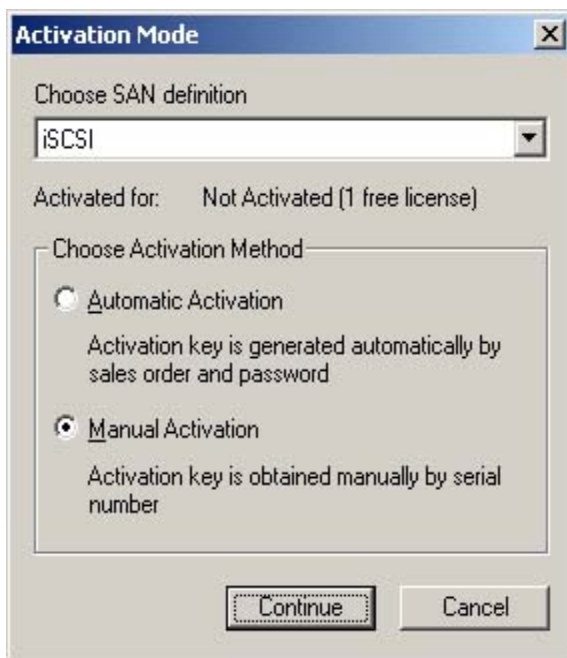
Press the **Continue** button to continue.

## Conclusion

If you had followed these advices correctly you should manage to have distributed SAN volume access at this moment. Two machines would use MetaSAN working thru the established iSCSI connection for concurrent access arbitration and third PC should use either first or second client as a "bridged router". You can easily expand listed configuration adding extra shared SAN volumes to one or multiple iSCSI targets and also increase number of clients.

## 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