

iStorage Server: iSCSI SAN for Xen Server

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KernSafe Technologies, Inc.

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Overview

iStorage Server is a network based storage virtualization software powered by KernSafe Technologies, Inc. Being a powerful, full-featured and software-only iSCSI Target SAN solution, that can quickly convert existing Windows computer into IP SAN. Storage media of iSCSI Target can include existing storage devices such as the entire hard disks or partitions, CD-RWs, tapes and USB storage devices, as well as disk image file or CD image files including ISO9660(iso), .bin, .mdf, .cdi, .b5i, .nrg, .ccd, .sub, .img, .raw and other image file formats. Furthermore, iStorage Server also supports a lot of features such as: VHD (Virtual Hard Disk) target, snapshots, STPI, RAID-1 and failover, these features are very important and popular in storage industry world and make iStorage Server is suitable for any size of business.

Citrix Xen Server™ is the only enterprise-class, cloud-proven virtualization platform that delivers the critical features of live migration and centralized multi-server management at no cost. Xen Server is an open and powerful server virtualization solution that radically reduces datacenter costs by transforming static and complex datacenter environments into more dynamic, easy to manage IT service delivery centers.

This article demonstrates how iStorage Server works under XenServer. Such powerful combination will expand the application scope of your virtual server, thereby enabling WINDOWS server to expand the storage of your virtualized server. It also allows you to directly use the storage devices of the existing Windows server for XenServer. With IP SAN solution provided by iStorage Server, you may set up operating systems, install applications and server software's, as well as store data required by your virtual machines. Your XenServer storage can be expanded in the following 3-most-commonly-used ways:

- Use Virtual Image File Disk Device to create a file-based virtual storage device for Citrix Xen Server, this allows quick data migration and backup.
- Directly use the physical disk or partition of Windows server. This enables you to make good use of resource. No additional configurations, just add the storage media to iSCSI Targets.
- Use CD/DVD/RW bridge device or Virtual CD/DVD to map physical CD/DVD drives or CD/DVD image files (iso, .bin, .mdf, .cdi, .b5i, .nrg, .ccd, .sub, .img, .raw) on your Windows server to CD/DVD devices on Citrix Xen Server virtual machine.

After iStorage Server 2.0, it supports server side mirroring, synchronous replication and failover which allows user to create a high-availability iSCSI SAN for Citrix XenServer.

Install Xen Server

You need a server running Xen Server. Xen Server must first be installed on to a suitable machine that will be used to create the virtual environment. For how to obtain or install Citrix Xen Server, please contact the Citrix supplier.

Configuring on iStorage Server

Choose the Authentication Mechanism

Decide which authentication mechanisms you would want to use: **Anonymous**, **CHAP**, **IP address** or **Mixed** authentication.

1) Anonymous:

All initiators will get full access permission without any authorization required.

2) CHAP (Challenge-handshake authentication protocol)

All initiators need to specify a CHAP user and secret to connect to the target. iStorage Server has a built-in user called “Guest”, which is used for initiators without CHAP secret specified.

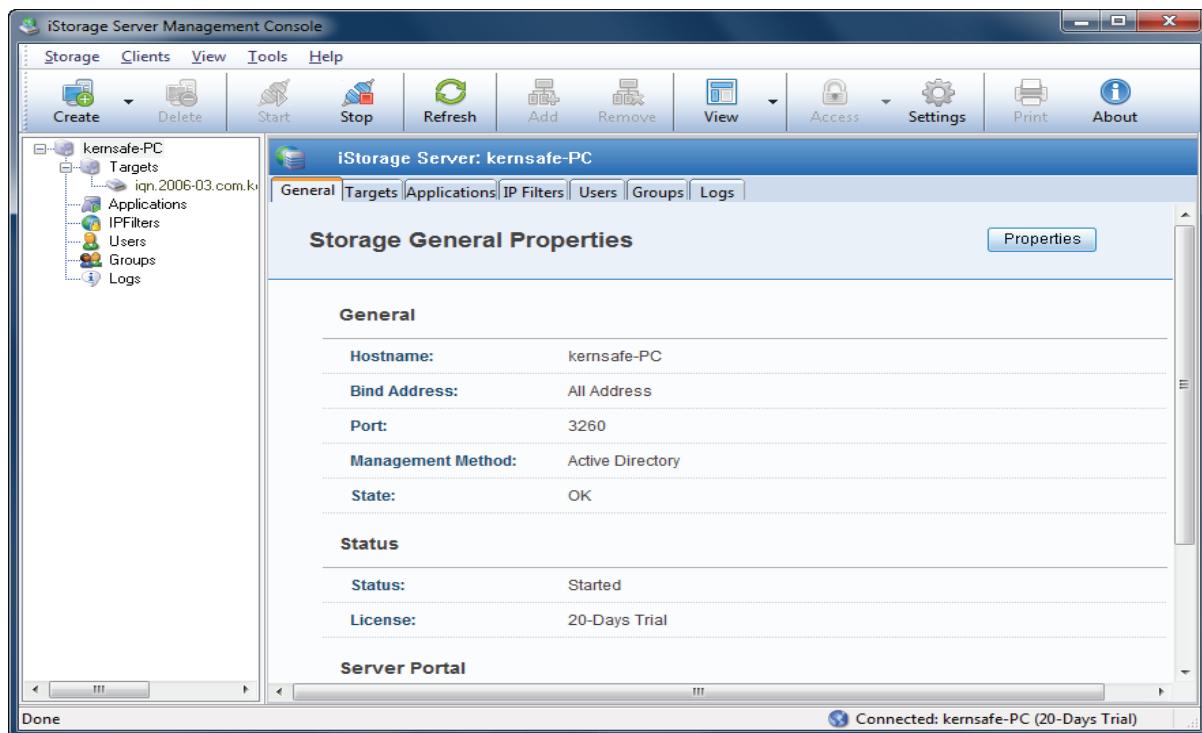
3) IP Filters

All initiators will be authorized by the incoming IP address defined by IP Filter roles.

4) Mixed

Security policy is determined by both CHAP and IP Filters.

Open **iStorage Server Management Console**.

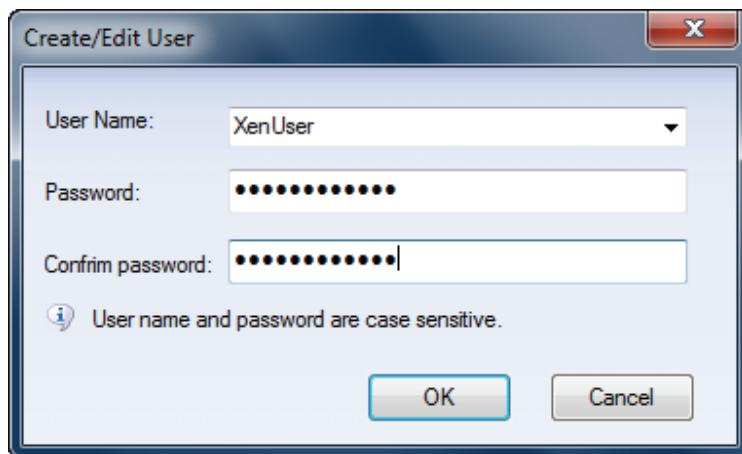


Create User

Right click **Users** Tree Node on the left tree view.

Press **Add** button in the tool bar.

Create/Edit User dialog is shown.



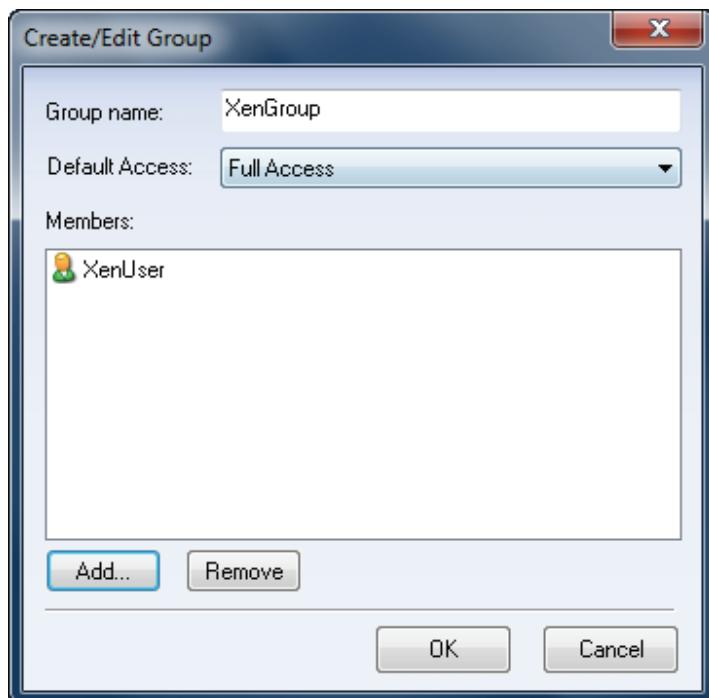
Type user name and password as you like, but we recommend that the password should be 12-16 characters. We take the user name **XenUser** and password **111111111111** as an example.
Press **OK** button to complete creating user.

Create group

After creating user, we need a group to hold this user.

Right click **Groups** tree node in the left tree view.

Press **Add** button on the toolbar, a **Create/Edit Group** Dialog is shown.

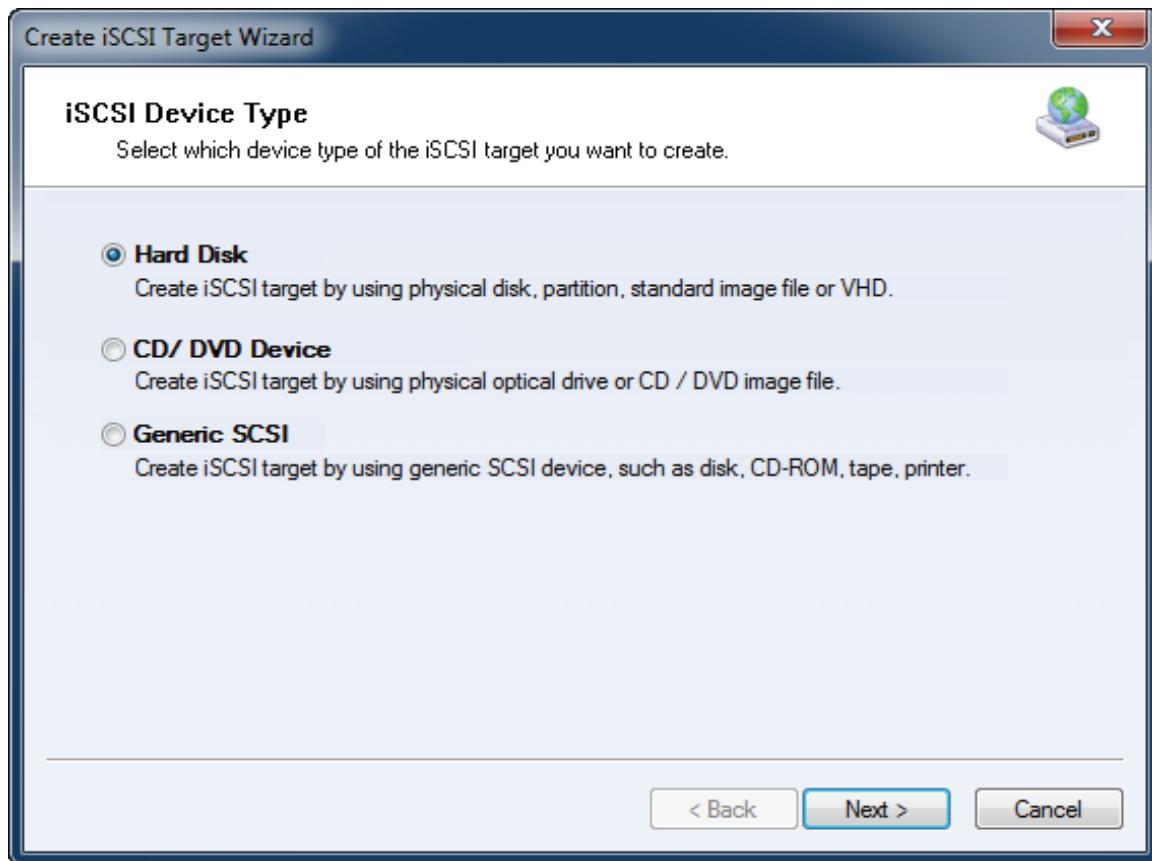


Take a group name as you like and then click **Add** button and then select the user which we just created, we take **XenGroup** as an example.

Create Target

Launch the **iStorage Server management console**, press the **Create** button on the toolbar of iStorage Server management console, the **Create Device Wizard** is shown.

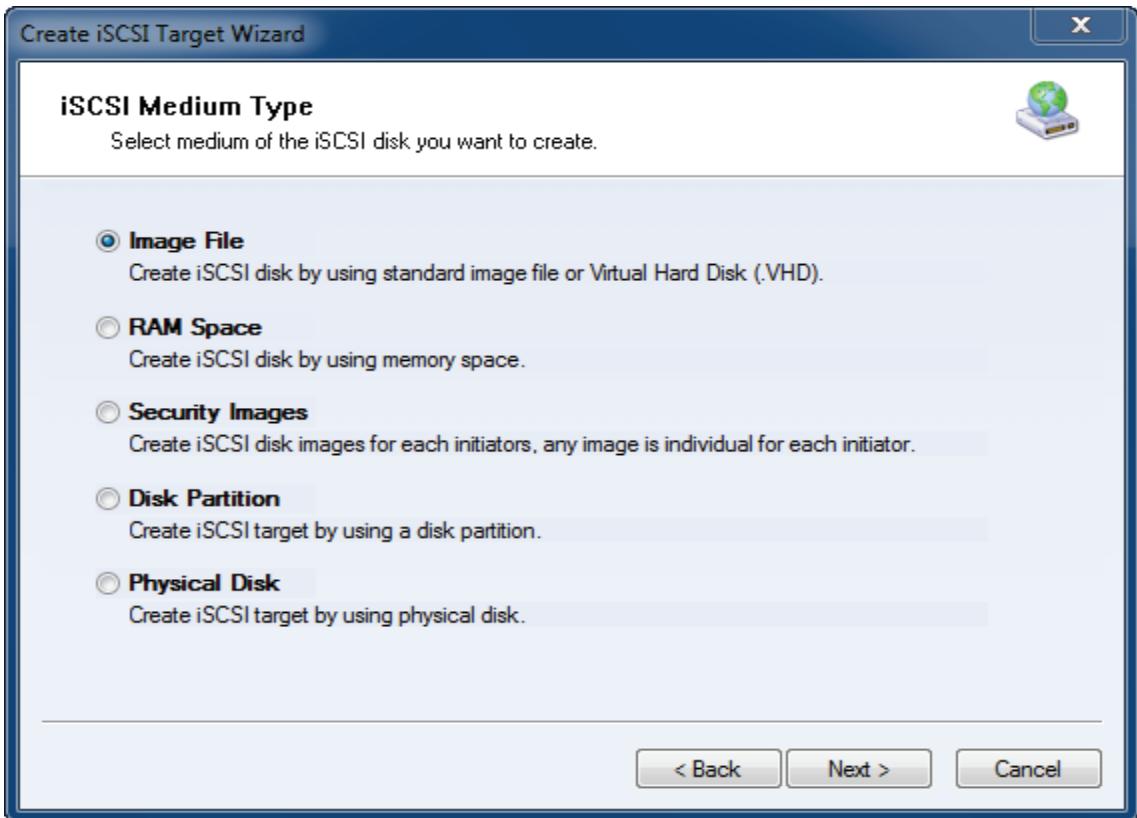
Select a device type



Choose **Hard Disk**.

Press the **Next** button to continue.

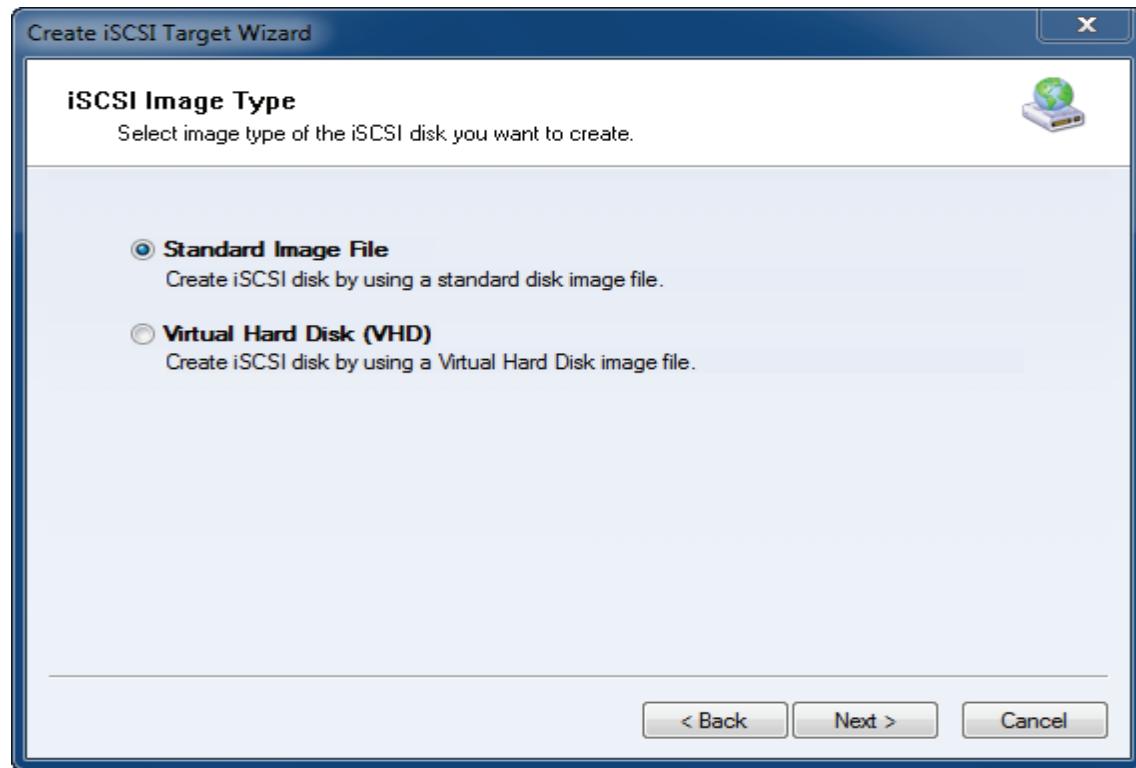
Select a medium type.



Choose **Image File** in **iSCSI Medium Type** window.

Then press **Next** button to continue.

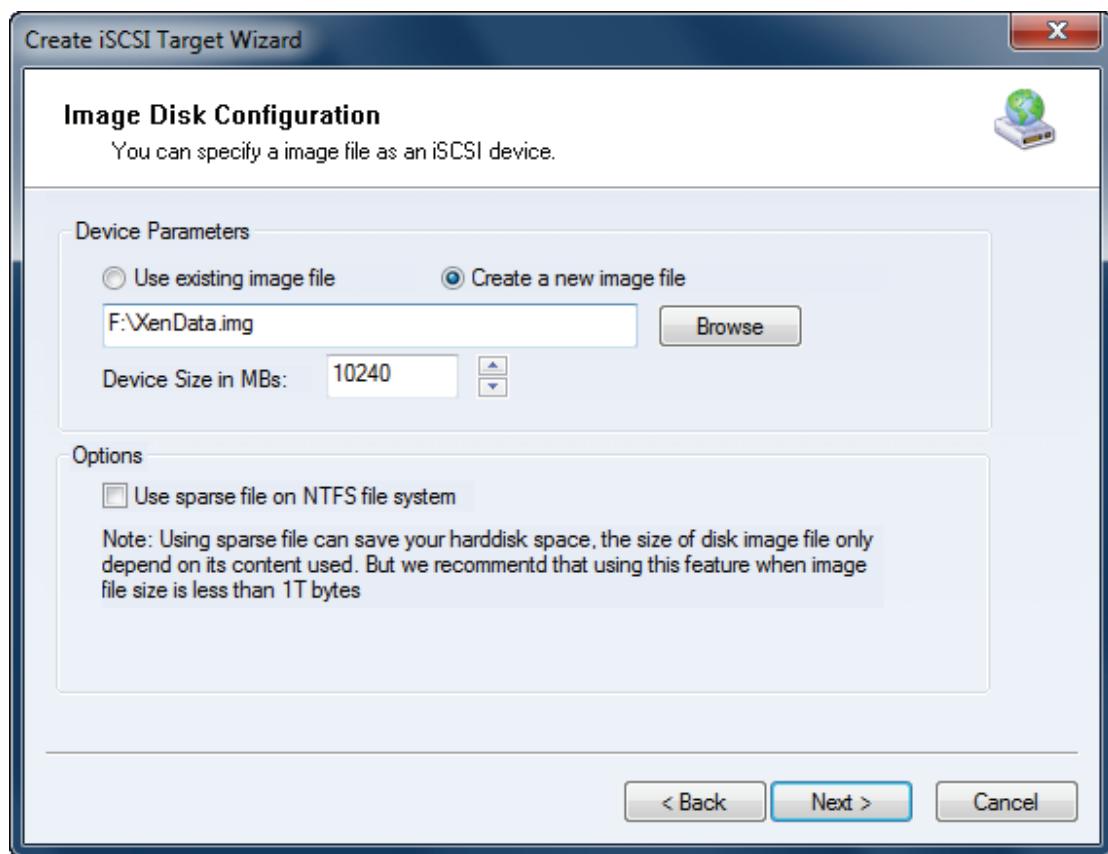
Select an Image type.



Choose **Standard Image File**.

Press the **Next** button to continue.

Specify image file path and size.



Specify the image file.

Specify the device size.

If you check **Use sparse file on NTFS file system**, the size of disk image file only depends on its content used, it can save your hard disk space.

Press the **Next** button to continue.

Set authorization mode.

Create iSCSI Target Wizard

X



Authorization

You can select an authorization mode, Anonymous, CHAP or IP filter.

Anonymous

Select this option to disable any authorization.

CHAP

Select this option to use CHAP authorization.

IP Filter

Select this option to use IP address authorization.

Mixed

Select this option to use both CHAP and IP address authorization.

Inherit security roles from global settings.

< Back

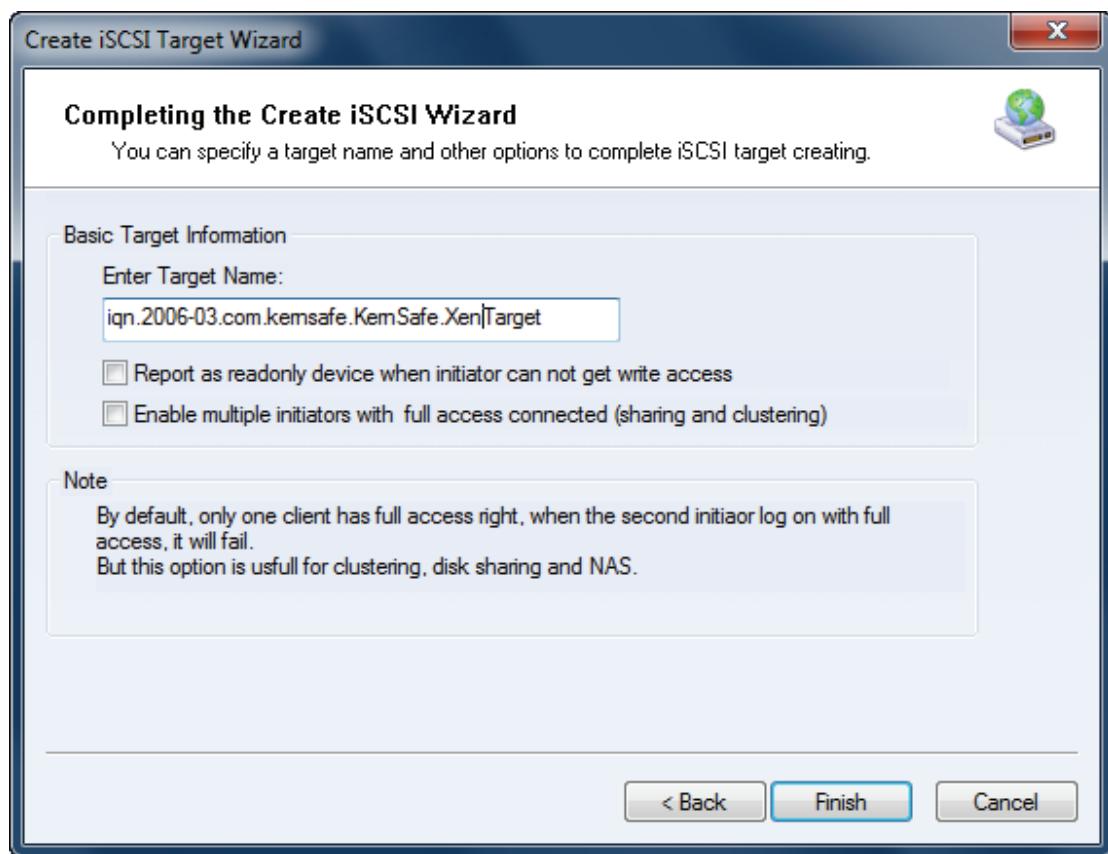
Next >

Cancel

Choose **CHAP** Authorization.

Press the **Next** button to continue.

Finish creating iSCSI Target



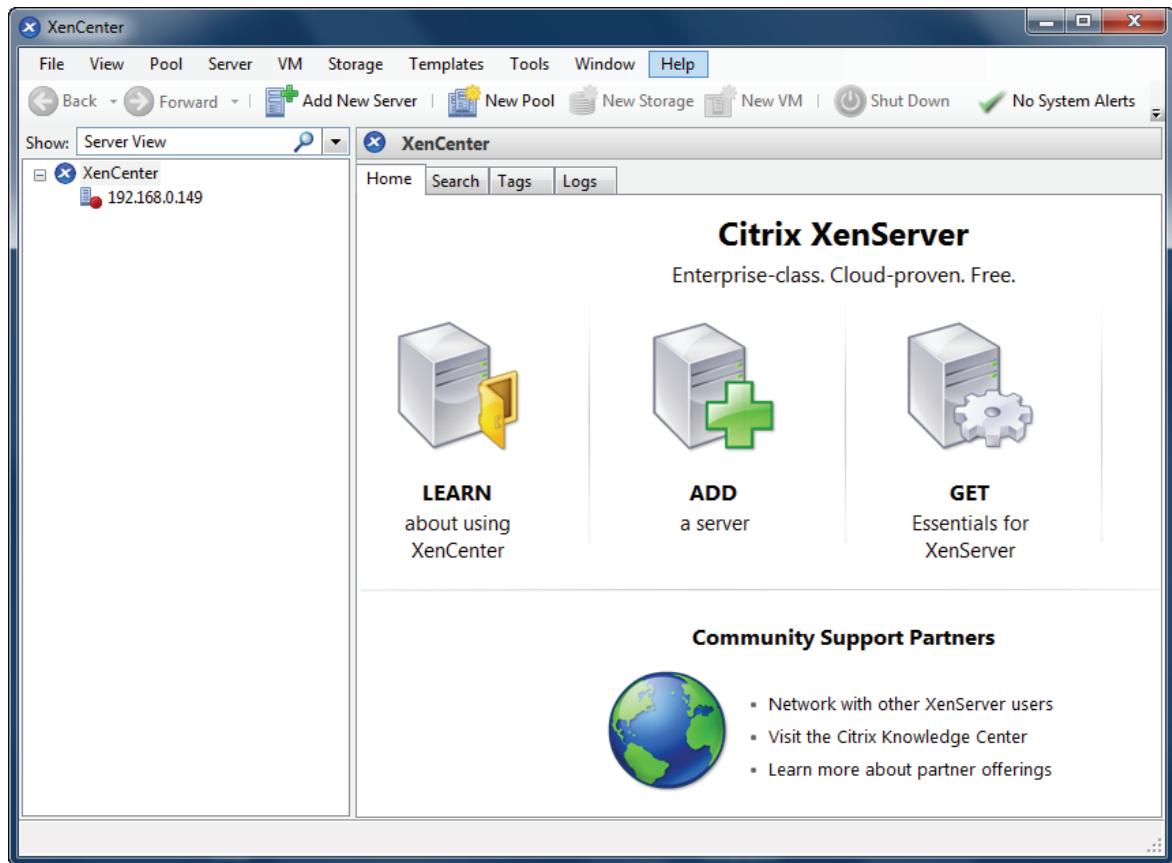
Type a target name in the Target Name field, or use the default.

Press the **Finish** button to continue.

Configure Xen Server

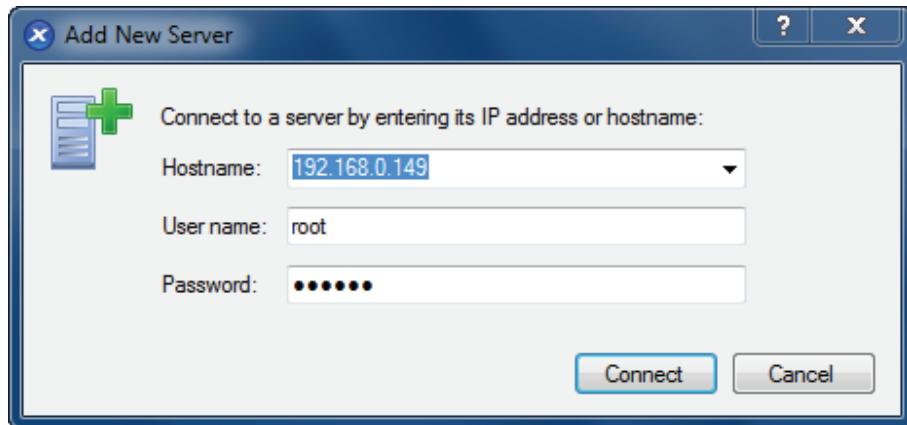
Log On to Xen Server

Open Xen Server console.



Click **Add New Server** in the tool bar.

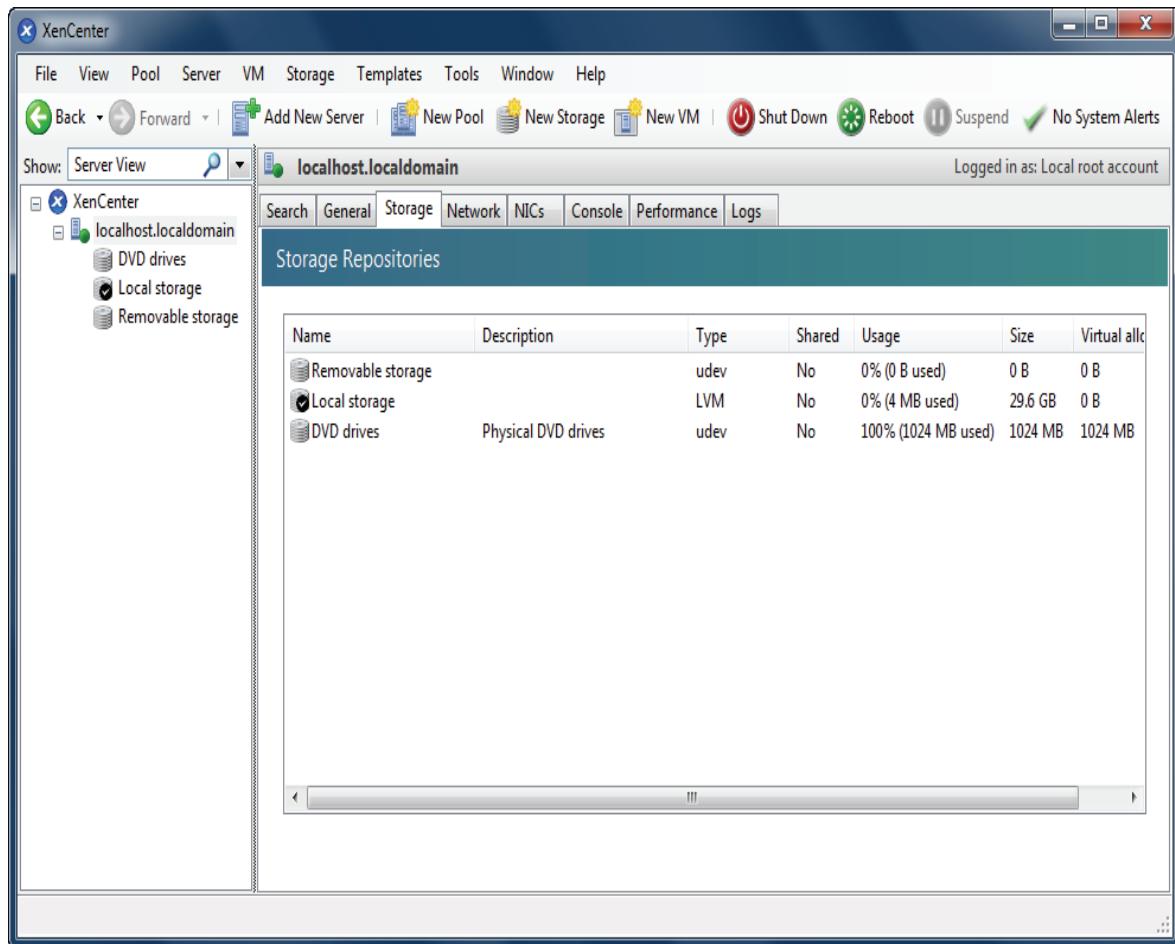
Add New Server dialog is shown.



Input IP address / Name with which running Xen Server, User name and password.

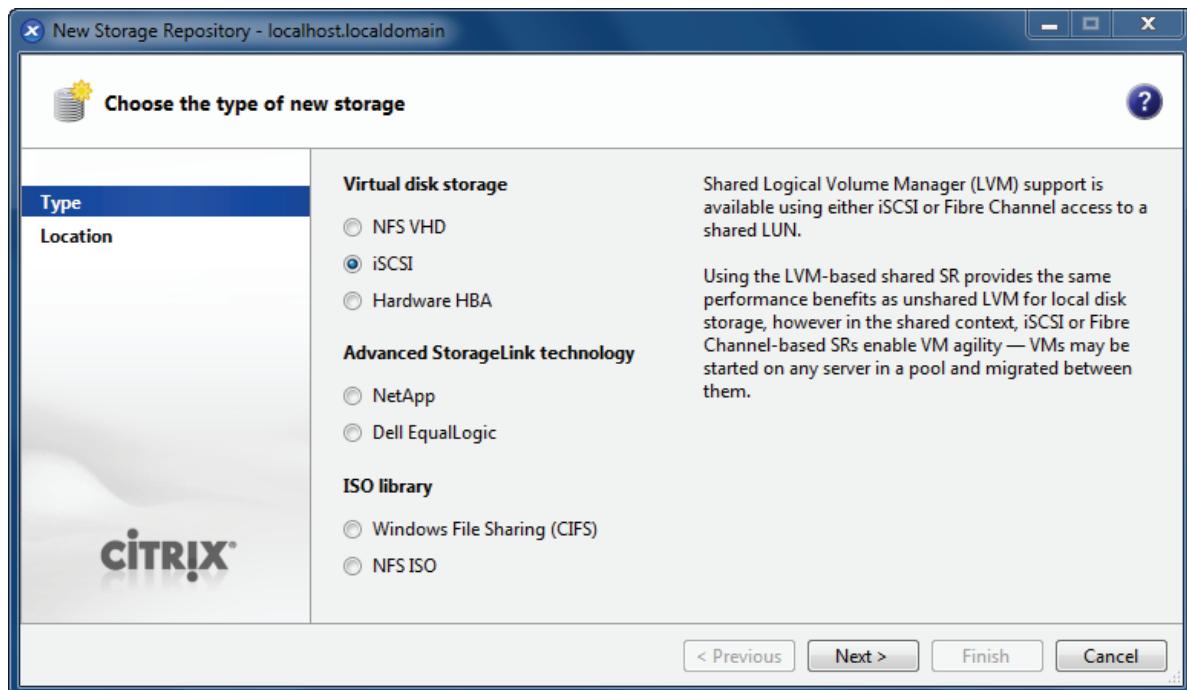
Press the **Connect** button to continue.

The XenCenter which connect to Xen Server is shown.

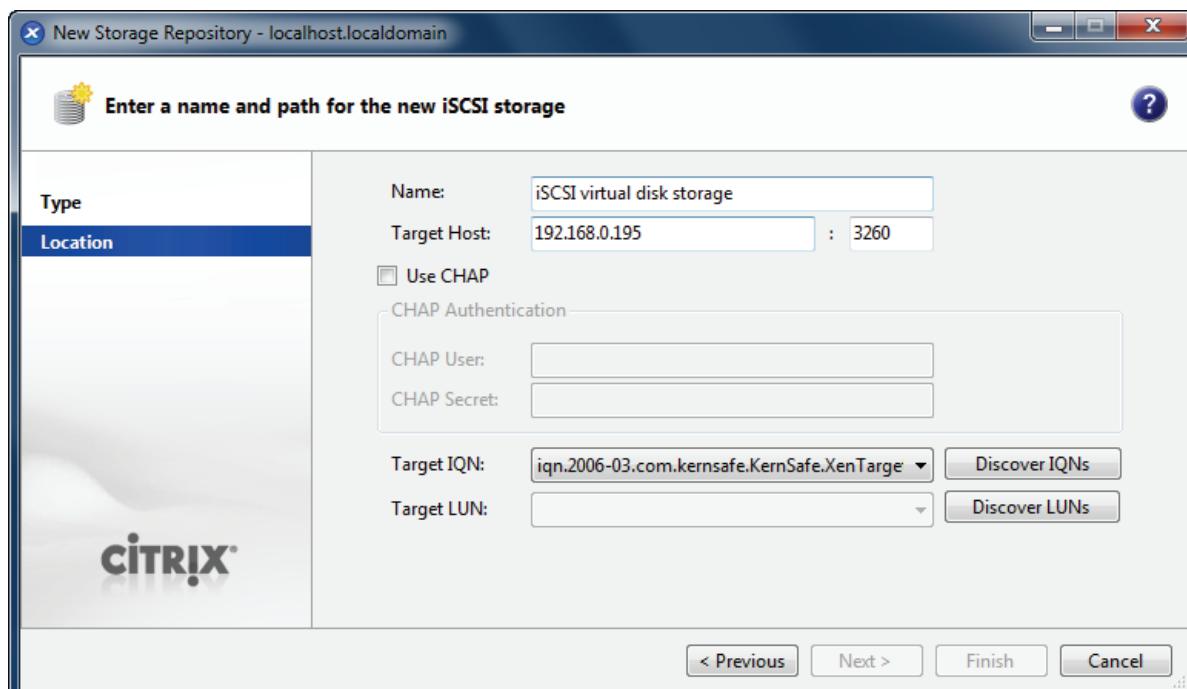


Add iSCSI storage device into Xen Server

Click **New Storage, New Storage Repository** dialog is shown.



Input IP address and port (if not 3260) of the Host that runs iStorage Server, press the **Discover IQNs** button, a list of Targets in drop-down control is shown.

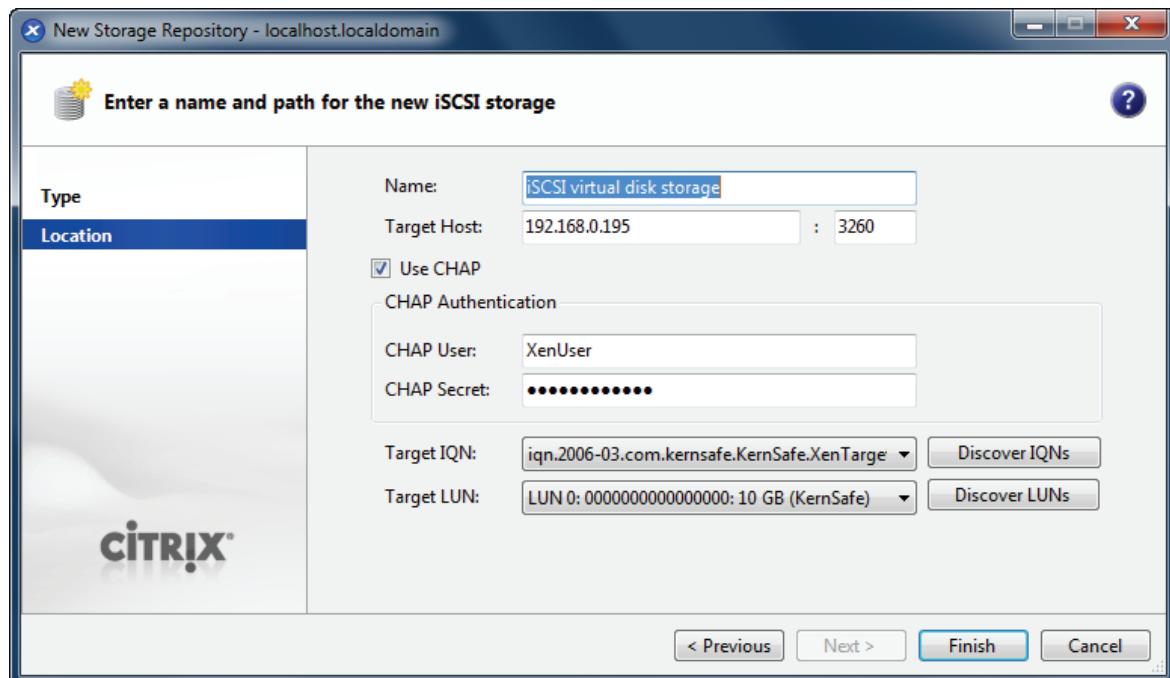


Select desired target in the list.

If the target you want to connect to has CHAP Authentication, check **Use CHAP** and input user name and secret.

Press the **Discover LUNs** button.

The iSCSI Target now contains a valid LUN. Here we create a 10G image file device as a demo.



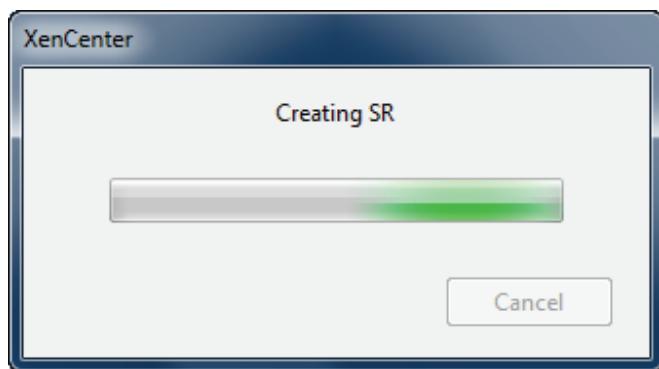
Press the **Finish** button to continue.

The following dialog is shown.

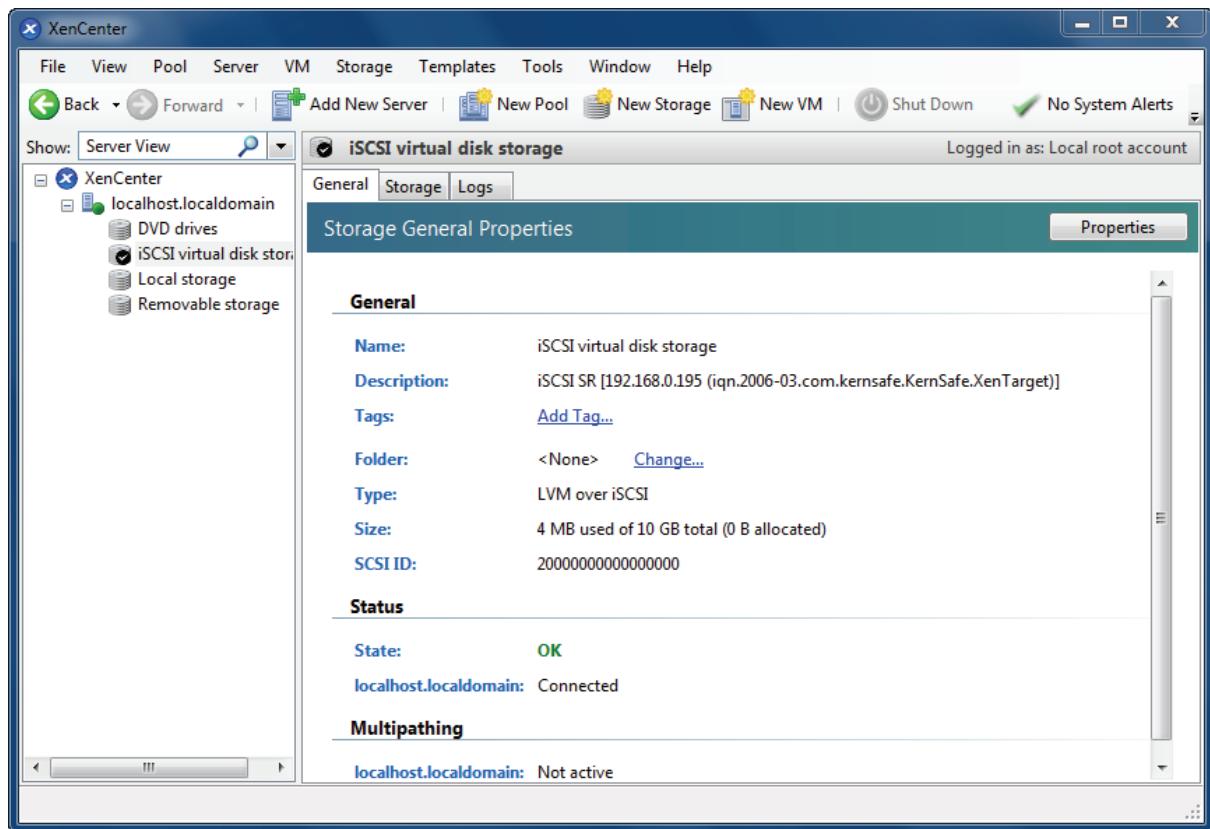


press the **Yes** button to continue.

Now Xen Server is carrying on a series of operations, such as **Creating SR**, to create data structures required by data repositories.



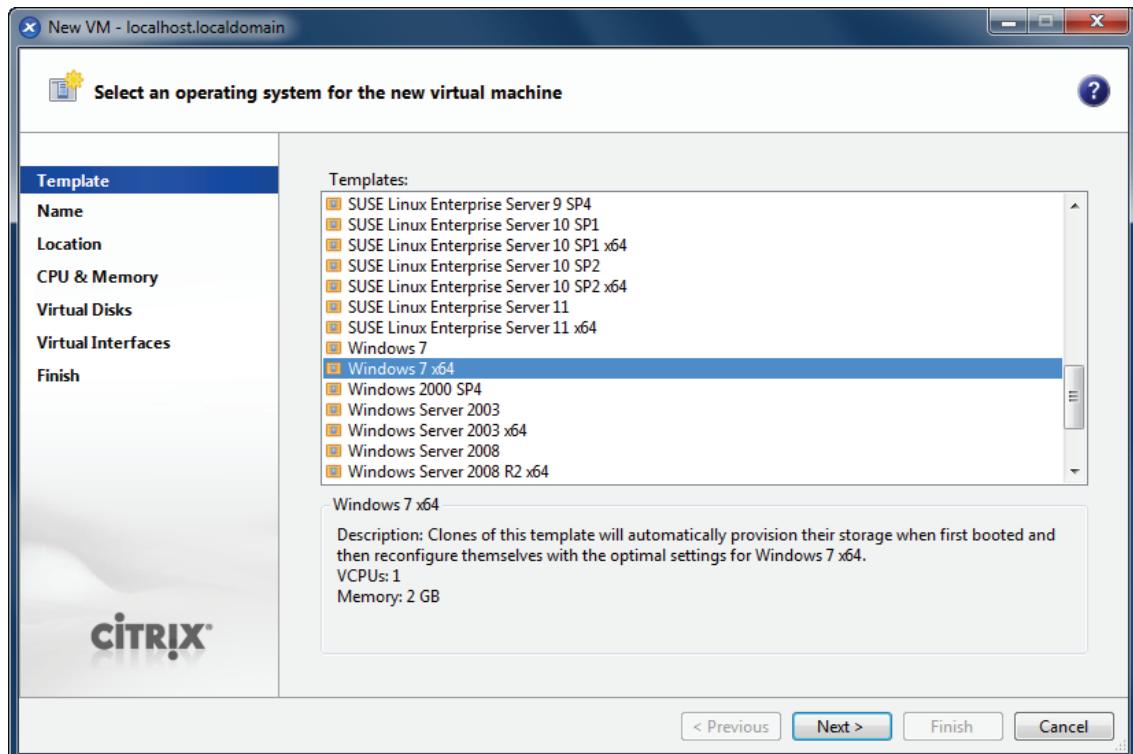
Sorted! You now see an iSCSI storage device successfully added into Xen Server.



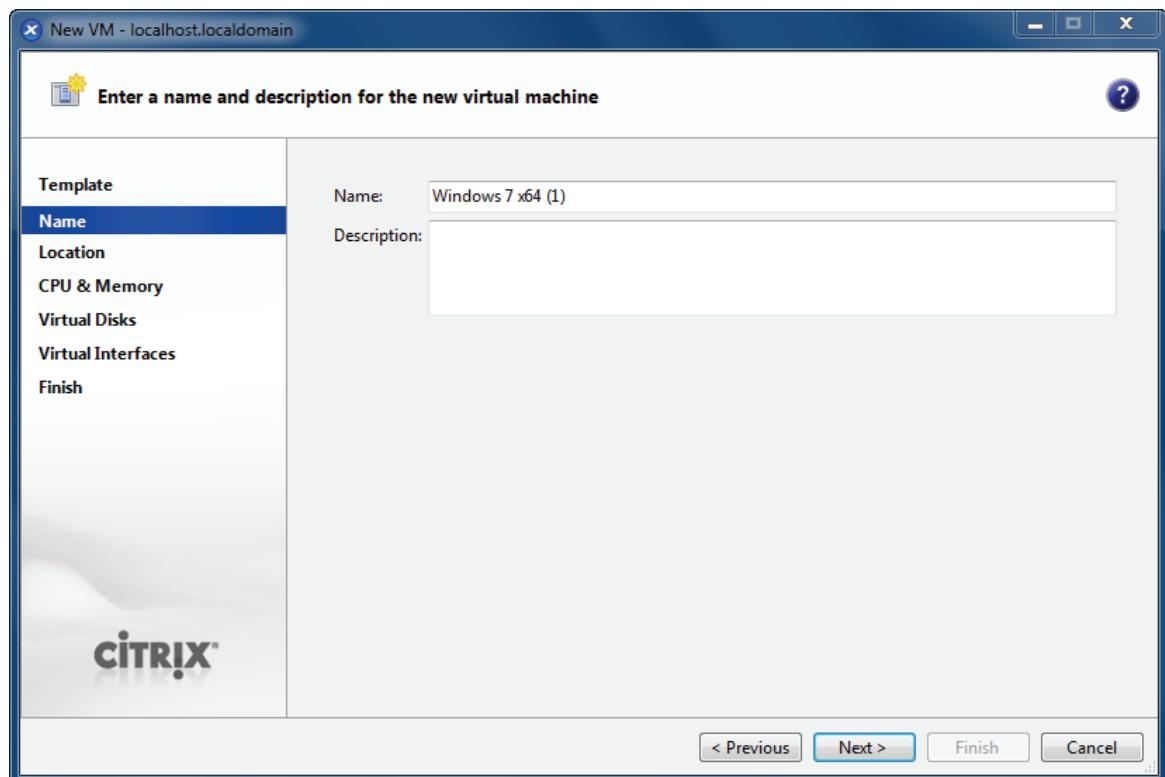
Create a virtual machine

Click **New VM** on Xen Server console.

Select **Windows 7 x64** in the following wizard.

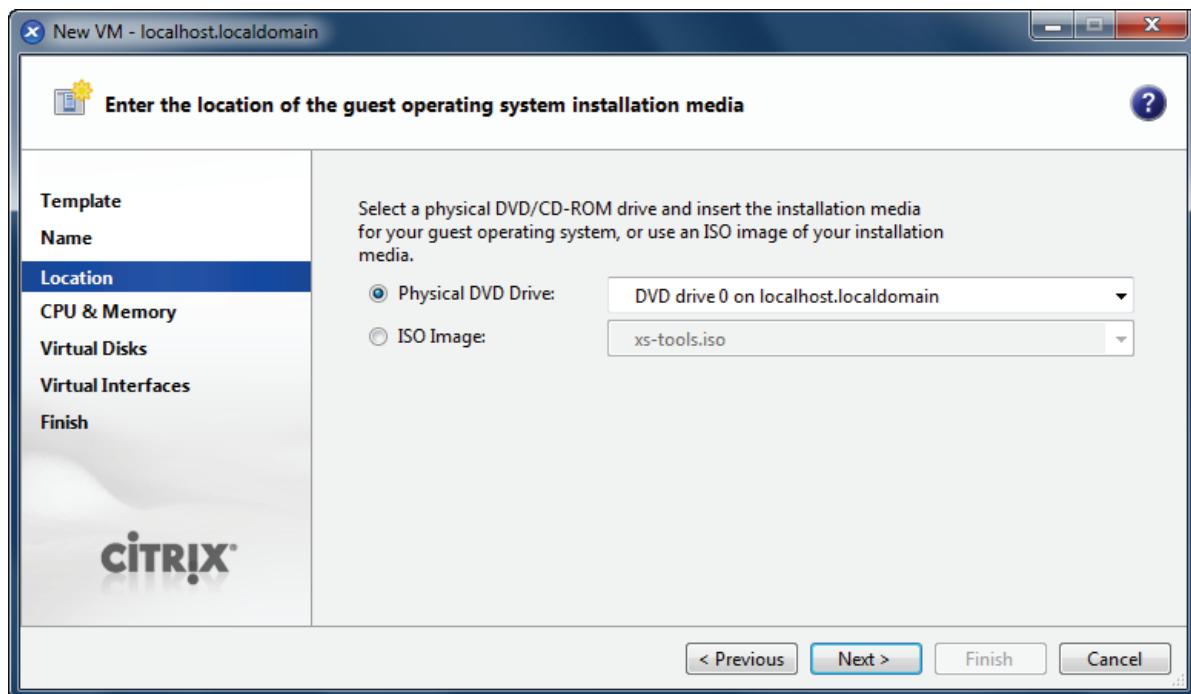


Input the desired name and description.



Press the **Next** to continue.

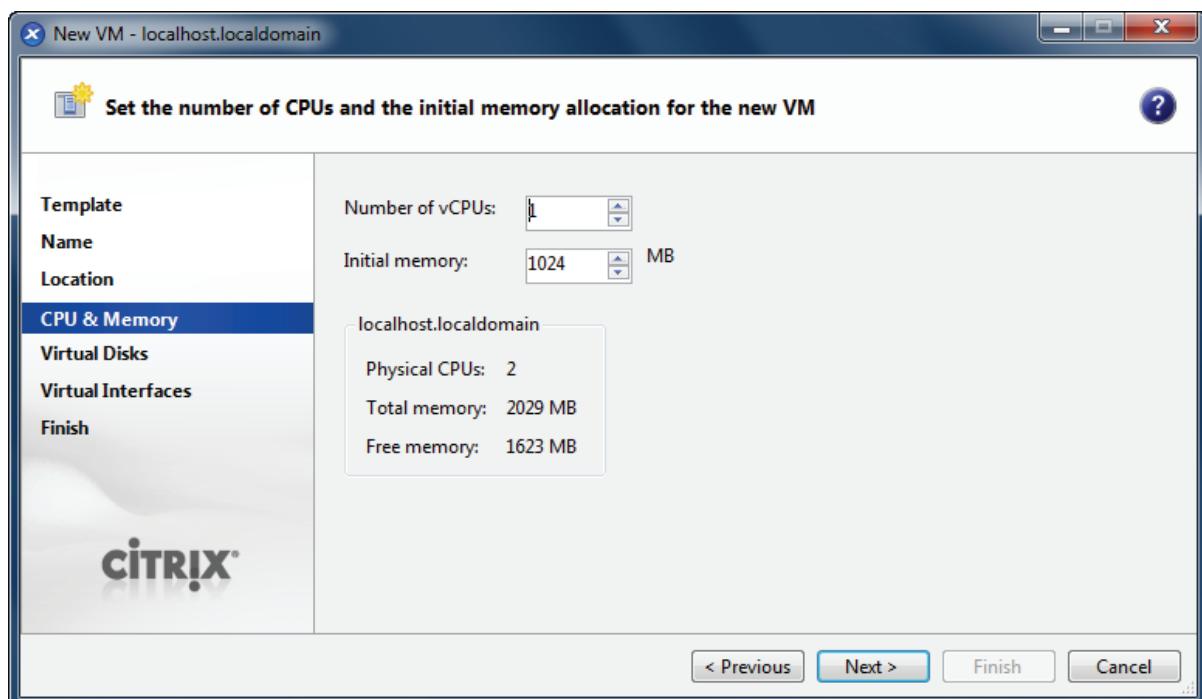
Select installation media for operating system.



Choose **physical DVD Drive** on XenServer.

Press the **Next** button to continue.

Specify the number of CPUs and memory size.

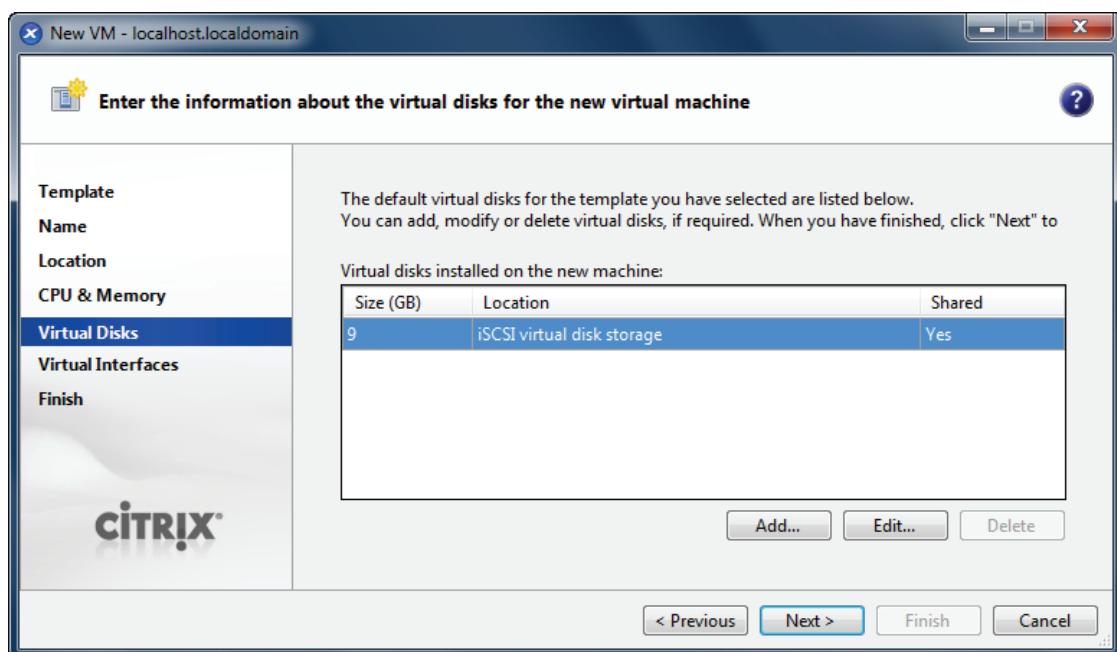


Select number of vCPUs.

Specify initial memory size.

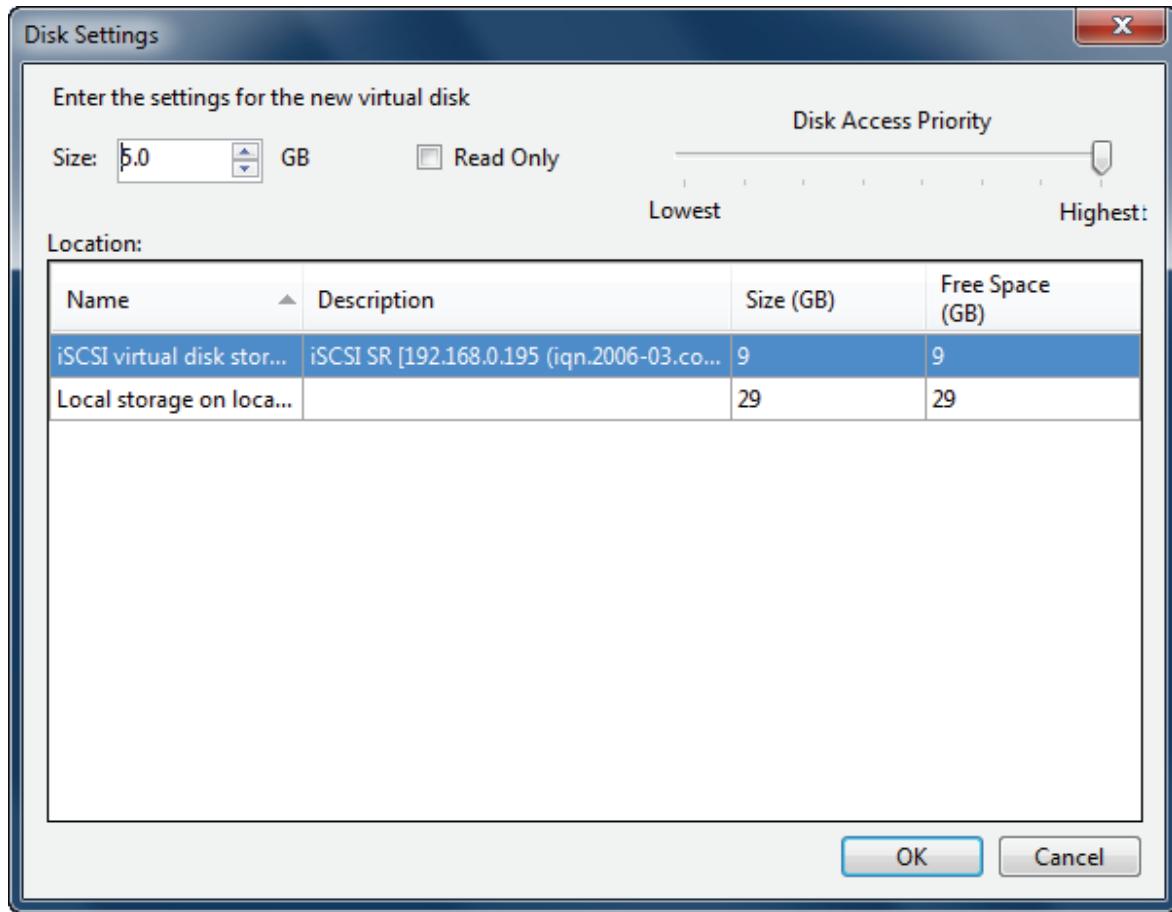
Press the **Next** button to continue.

Select storage device.



First you see an **iSCSI Virtual disk storage** device, which is previously created by iStorage Server. It is Xen Server's default storage device. If you want to add other virtual disk, press the **Add** button.

Select **iSCSI virtual disk storage...** and then press the **Next** button, the **Disk Settings dialog** is shown.



Specify the size of the new virtual disk.

Press the **OK** button to finish the wizard.

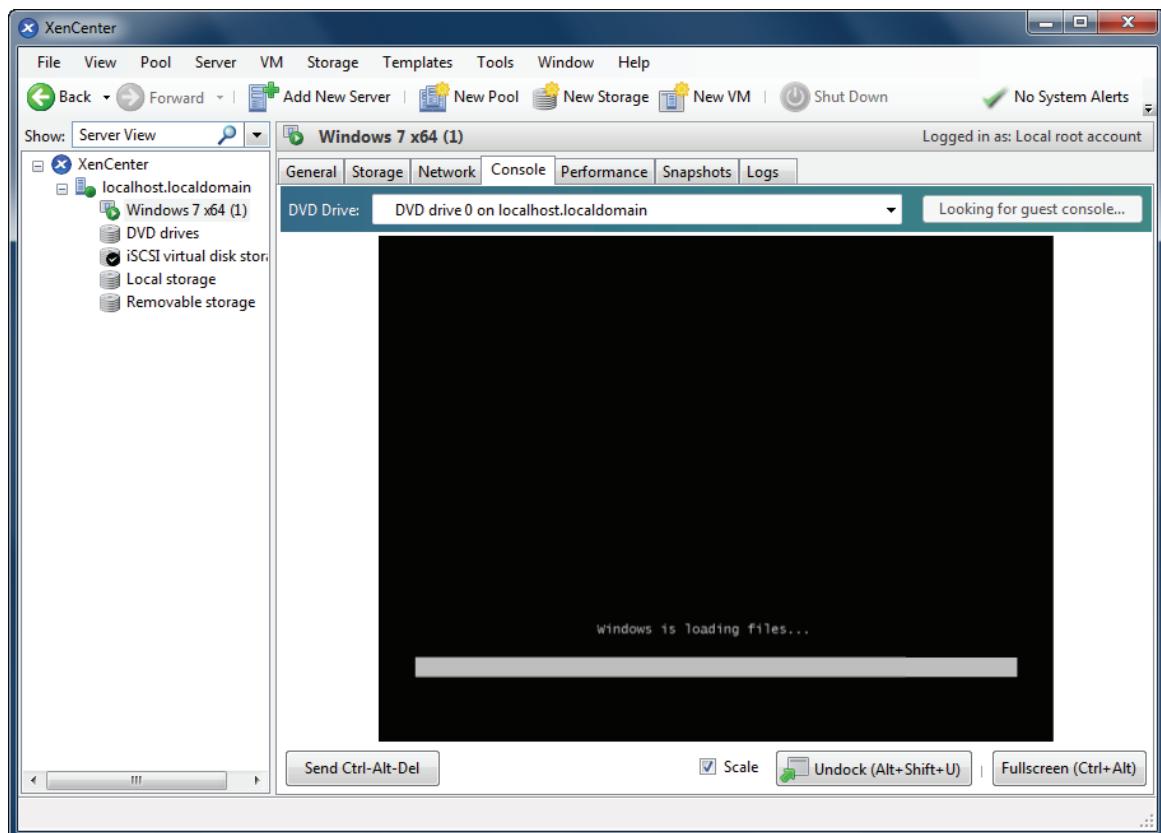
A virtual machine is built.

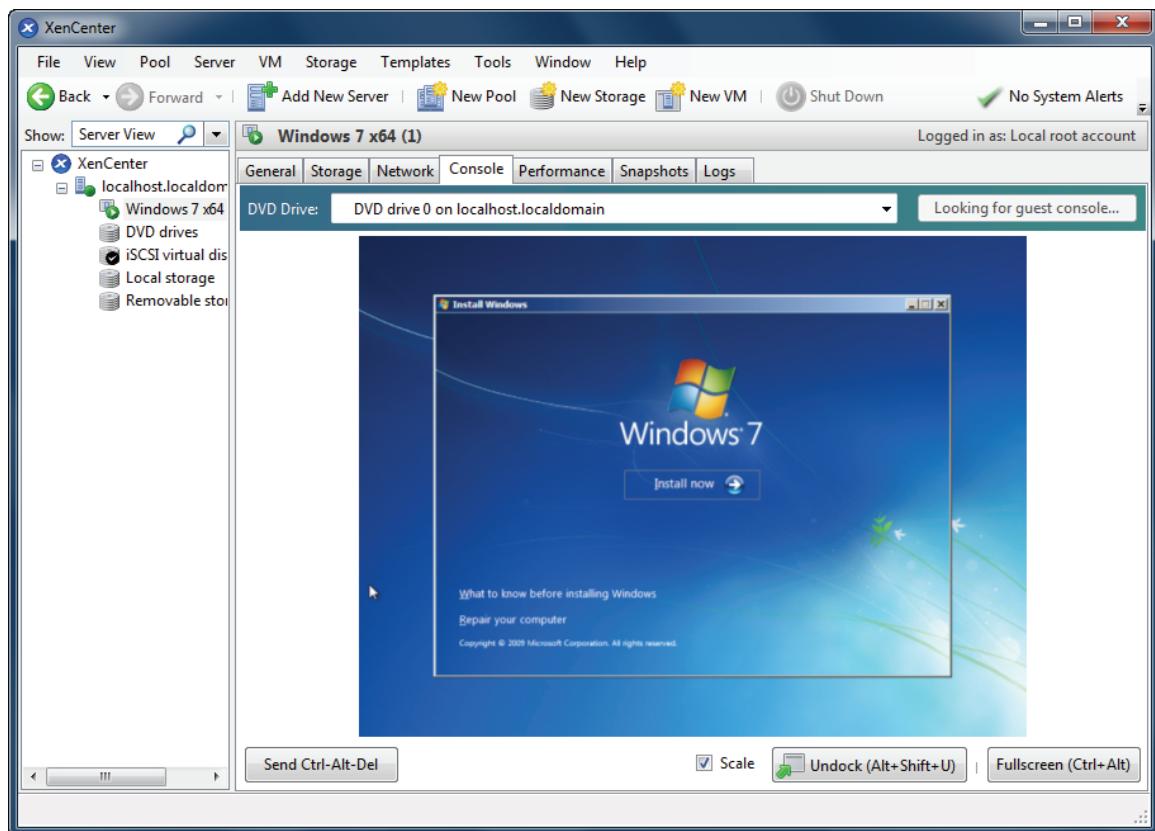
Note that before Version 5.5 update1 in the Storage labels of your virtual machine, you need to exchange the position of iSCSI Virtual Storage and Local Storage (make sure iSCSI Virtual Storage at position 0) so that the operating system can be installed on this iSCSI device.

Install Operating system

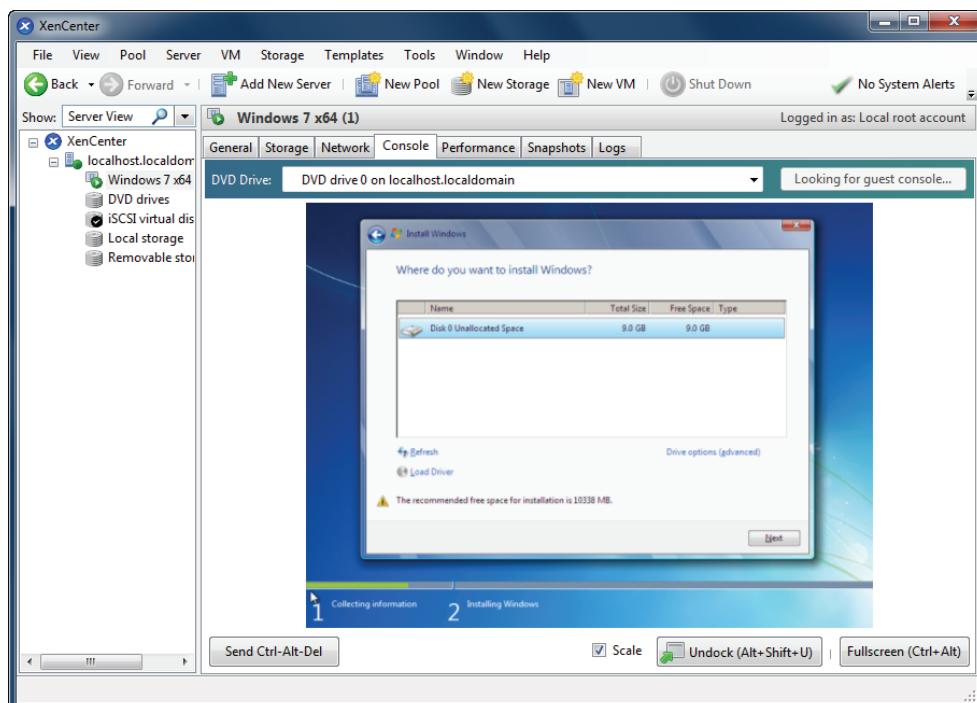
Run the virtual machine and set up the operating system.

The process is just like on real machine.



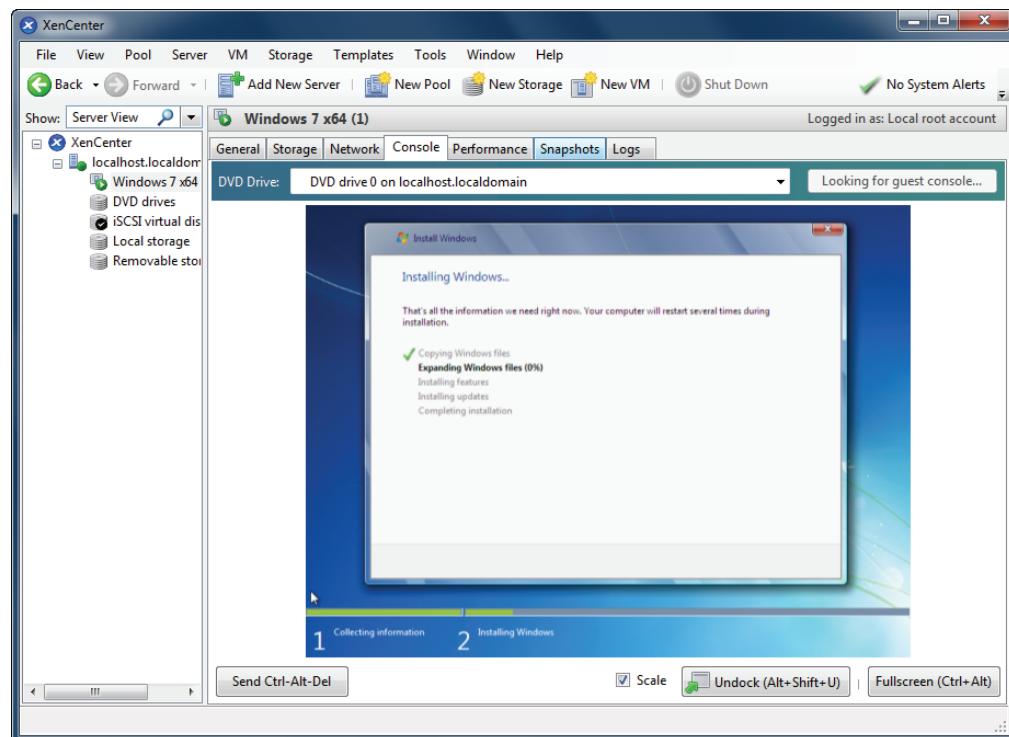


Press the **Install Now** button to install OS.

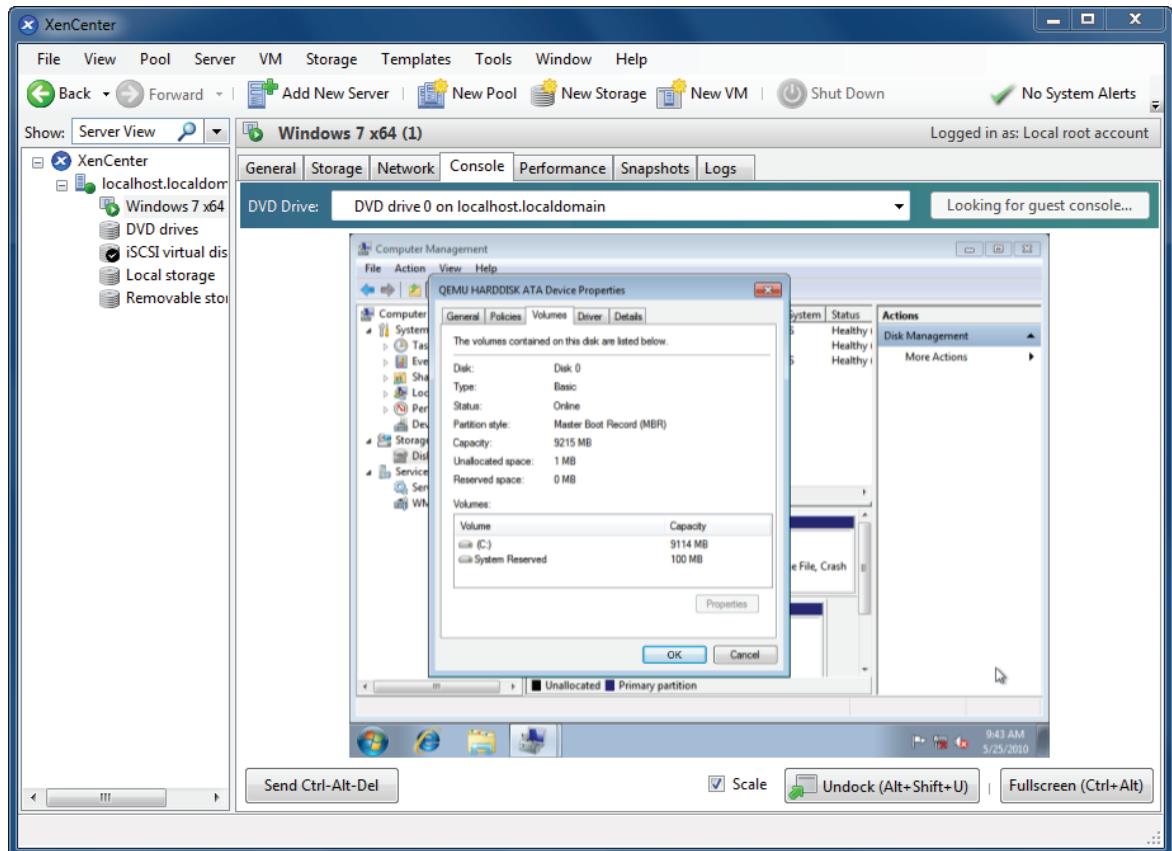


Select the 9G disk. Just like that on a real hard disk.

Setup starts copying files



Last, with all work done, we'll see iSCSI virtual storage device in the virtual operating system.



Likewise, you may install Windows Server 2003, Windows XP, Vista and Windows Server 2008, or even any version of Linux as you wish.

Contact

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