
Server Virtualization with QNAP® Turbo NAS and Citrix XenServer®



How to Set up QNAP® Turbo NAS as Storage Repositories on Citrix XenServer® via iSCSI

**Document revision history:**

Date	Version	Changes
May 2010	1.0	Initial draft
June 2010	1.1	Advanced multipath configuration

©Copyright 2010. QNAP Systems, Inc. All Rights Reserved.

Note:

All the features, functionality, and other product specifications are subject to change without prior notice or obligation. Information contained herein is subject to change without notice.

Trademarks

QNAP and the QNAP logo are trademarks of QNAP Systems, Inc.

©2010 Citrix Systems, Inc. All rights reserved. Citrix®, Citrix Ready® and XenServer™ are trademarks or registered trademarks of Citrix Systems, Inc. and/or one or more of its subsidiaries, and may be registered in the United States Patent and trademark Office and in other countries. Microsoft®, Windows® and Windows Server® are registered trademarks of Microsoft Corporation in the U.S. and/or other countries. All other trademarks and registered trademarks are property of their respective owners. Further, the ® or ™ symbols are not used in the text.

About Citrix Ready

Citrix Ready identifies recommended solutions that are trusted to enhance the Citrix Delivery Center infrastructure. All products featured in Citrix Ready have completed verification testing, thereby providing confidence in joint solution compatibility.

Leveraging its industry leading alliances and partner eco-system, Citrix Ready showcases select trusted solutions designed to meet a variety of business needs. Through the online catalog and Citrix Ready branding program, you can easily find and build a trusted infrastructure. Citrix Ready not only demonstrates current mutual product compatibility, but through continued industry relationships also ensures future interoperability. Learn more at www.citrixready.com/ready.

**Disclaimer**

In no event shall the liability of QNAP Systems, Inc. (QNAP) exceed the price paid for the product from direct, indirect, special, incidental, or consequential software, or its documentation. QNAP makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. QNAP reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.

Contents

Create an iSCSI LUN on Turbo NAS.....	5
Connect XenServer to the iSCSI target	5
Create a new VM on the new storage repository	11
Multipath configuration on XenServer.....	13
Advanced multipath configuration.....	16
Additional information.....	16

How to set up QNAP NAS as storage repositories on Citrix XenServer via iSCSI

Citrix XenServer™ is the powerful server virtualization solution platform for creating and managing a virtual infrastructure. QNAP provides high performance and reliable Citrix Ready network storage solutions that meet your business needs and reduce your total cost of ownership (TCO).

Create an iSCSI LUN on Turbo NAS

To set up the Turbo NAS as a XenServer storage repository, you have to create an iSCSI logical unit number (LUN) on the Turbo NAS. In this example, we created a 5TB LUN named "xenstorage". The complete name of the iSCSI LUN will be:

iqn.2004-04.com.qnap:ts-509:iscsi.xenstorage.b9281b

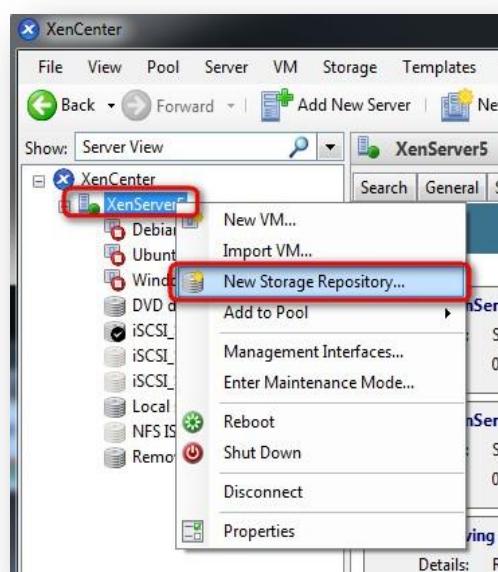
For the details of creating an iSCSI target and LUN, see the application note "Create and use the iSCSI target service on the QNAP NAS" on:

http://www.qnap.com/pro_features.asp

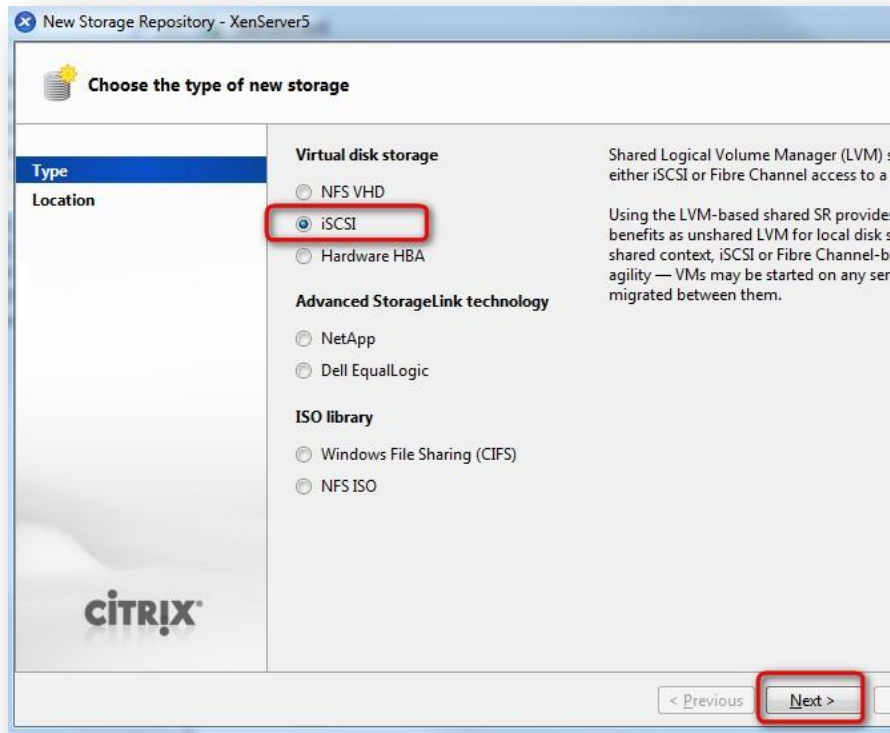
Connect XenServer to the iSCSI target

Once you have created an iSCSI target and LUN on the Turbo NAS, you can connect XenServer to it.

Right click "XenServer" under XenCenter. Then select "New Storage Repository".



Select iSCSI under 'Virtual disk storage' and click 'Next'.



1. Enter a name for the NAS (storage repository).
2. Enter the NAS IP.
3. If you have enabled iSCSI CHAP authentication on the NAS, select the option "Use CHAP" and enter the authentication information.
4. Click "Discover IQNs" to get the target list from the NAS. XenServer will discover all the iSCSI targets on the NAS.

New Storage Repository - XenServer5

Enter a name and path for the new iSCSI storage

Type

Location

Name: My QNAP iSCSI Storage 1

Target Host: 10.8.13.54 2 : 3260

☒ Use CHAP 3

CHAP Authentication

CHAP User: qnapuser

CHAP Secret: 4

Target IQN: Discover IQNs 5

Target LUN: Discover LUNs

The target list has been updated.

1. Select the target you want to use. In this example, "xenstorage" is selected.
2. Click "Discover LUNs" to detect all the LUNs mapped to the target.

Name: My QNAP iSCSI Storage

Target Host: 10.8.13.54 : 3260

☒ Use CHAP

CHAP Authentication

CHAP User: qnapuser

CHAP Secret:

Target IQN: iqn.2004-04.com.qnap:ts-509:iscsi.xenstorage.b9281b (

Discover IQNs

Target LUN:

Discover LUNs

Select the LUN you want to use and click "Finish".

Name: My QNAP iSCSI Storage

Target Host: 10.8.13.54 : 3260

☒ Use CHAP

CHAP Authentication

CHAP User: qnapuser

CHAP Secret:

Target IQN: iqn.2004-04.com.qnap:ts-509:iscsi.xenstorage.b9281b (

Discover IQNs

Target LUN: LUN 0: 5ef2fbd3-a6cc-4cdb-99e7-3855796e6220: 5000 C

Discover LUNs

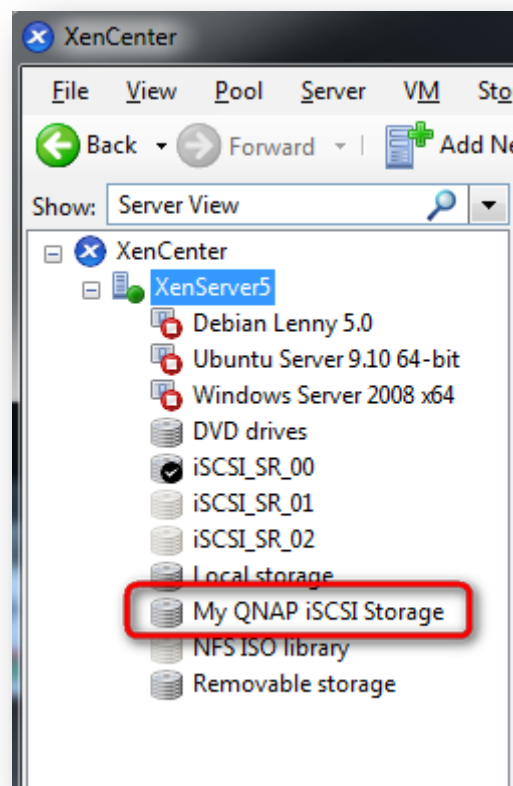
< Previous Next > Finish Cancel

XenServer will scan the LUN. If the LUN is a new one, XenServer will propose to format

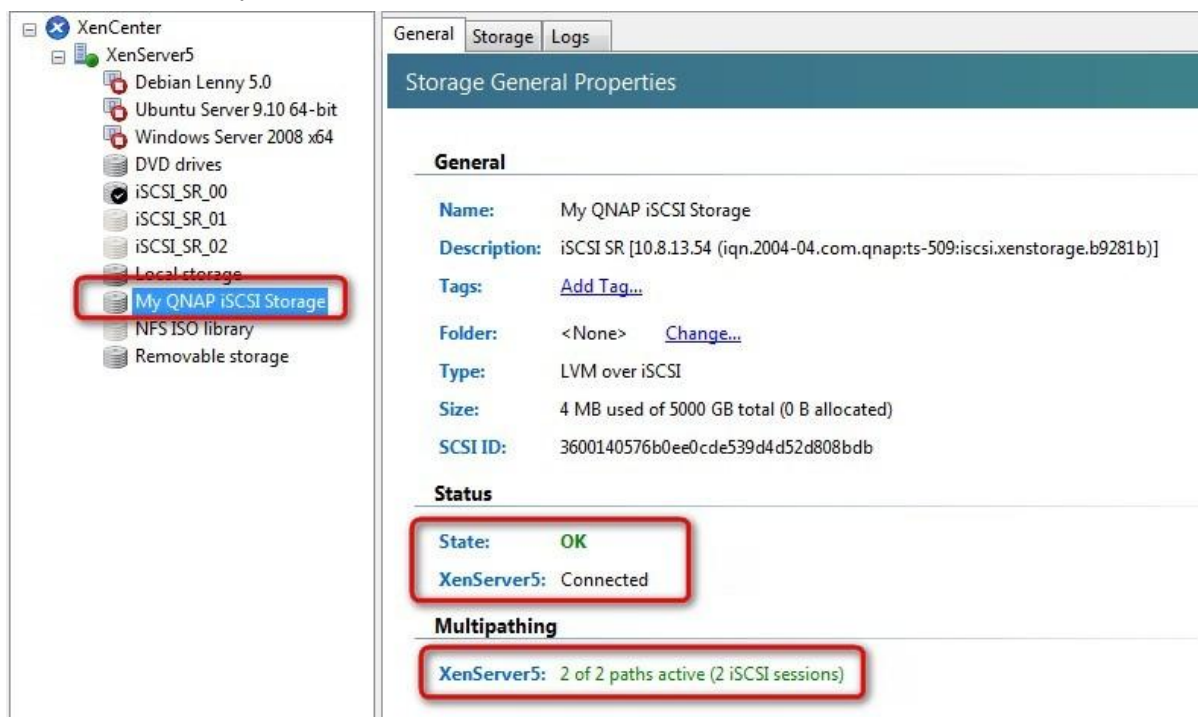
the LUN in order to use it as a storage repository. Click "Yes" to format the LUN. All the data will be destroyed.



When the operation has completed, the storage repository will be shown.



Click the storage repository (My QNAP iSCSI Storage), the status and multipath information will be shown. QNAP NAS supports MPIO and XenServer. If your NAS has more than one IP address, you can use this feature by enabling "Multipathing". The number of active paths will be shown.



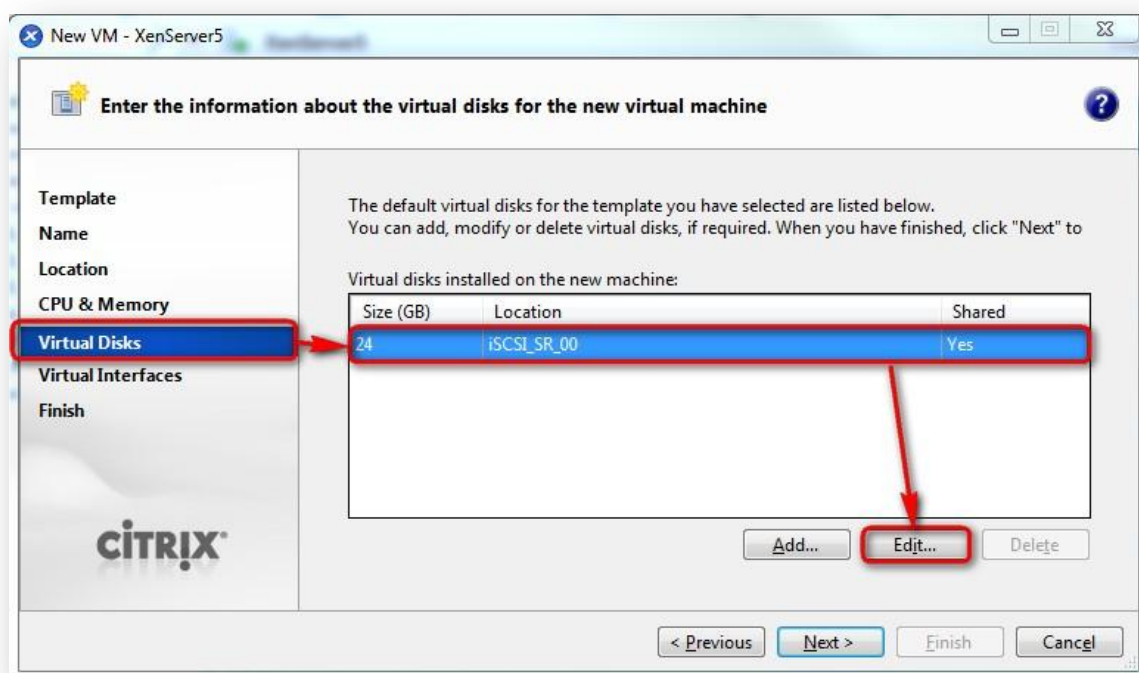
The screenshot displays the XenCenter interface. On the left, a tree view shows the hierarchy: XenCenter > XenServer5 > My QNAP iSCSI Storage (highlighted with a red box). The main panel shows the 'Storage General Properties' for this repository. The 'General' tab is active, displaying details such as Name, Description, Tags, Folder, Type, Size, and SCSI ID. The 'Status' section shows the State as 'OK' and XenServer5 as 'Connected'. The 'Multipathing' section shows 'XenServer5: 2 of 2 paths active (2 iSCSI sessions)', which is also highlighted with a red box.

Section	Property	Value
General	Name	My QNAP iSCSI Storage
	Description	iSCSI SR [10.8.13.54 (iqn.2004-04.com.qnap:ts-509:iscsi.xenstorage.b9281b)]
	Tags	Add Tag...
	Folder	<None> Change...
	Type	LVM over iSCSI
	Size	4 MB used of 5000 GB total (0 B allocated)
	SCSI ID	3600140576b0ee0cde539d4d52d808bdb
Status	State	OK
	XenServer5	Connected
Multipathing	XenServer5	2 of 2 paths active (2 iSCSI sessions)

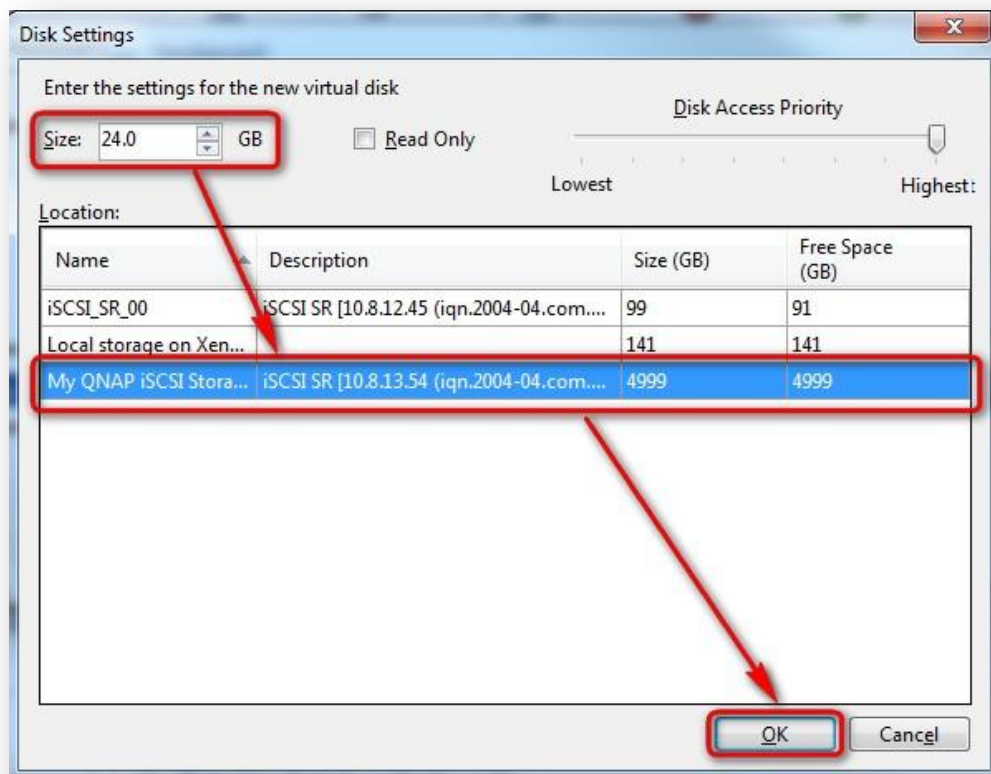
Create a new VM on the new storage repository

Follow the steps below to create a new virtual machine (VM) on the new storage repository.

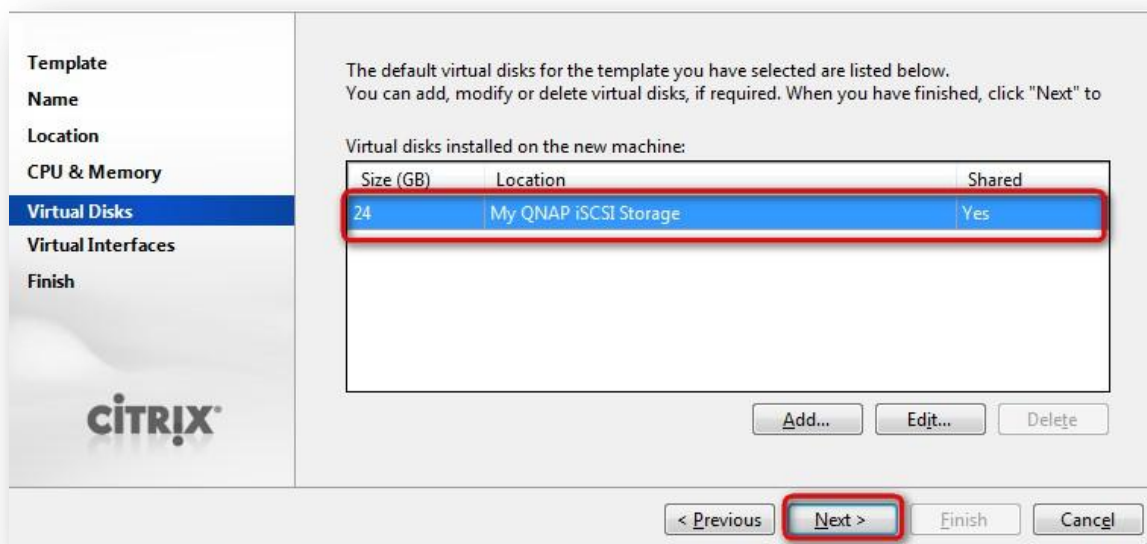
1. Right click your XenServer.
2. Click "New VM".
3. Choose a template.
4. Choose a name for your VM.
5. Select the media for the CD/DVD-ROM drive.
6. Set the number of CPU and memory quantity.
7. Select the pre-existing location for the virtual disk location, click "Edit".



8. Specify the size of the virtual hard drive. Select the location "My QNAP iSCSI Storage" and then click "OK".



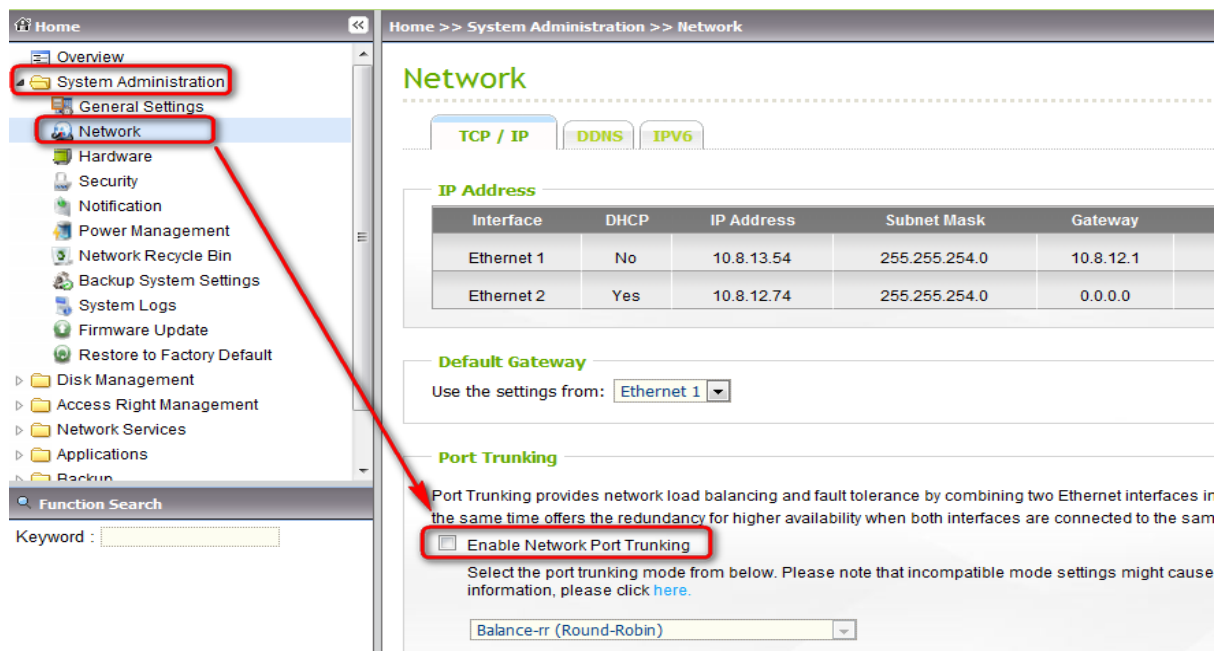
9. The virtual disk on the NAS is shown. Click "Next".



10. Set up your Virtual Interface Network. Then click "Finish".

Multipath configuration on XenServer

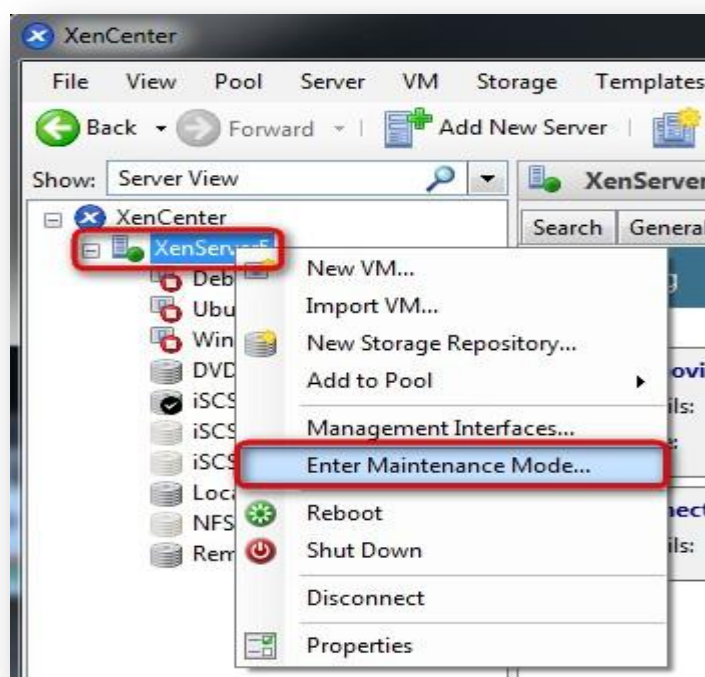
Before adding the iSCSI target to the XenServer, you may want to enable Multipathing. If the NAS has more than one IP address, you can use Multipathing on XenServer. To use multiple IP setting, login into the NAS with user "admin" and then you have to disable the "Network Port Trunking" on the NAS in "System Administration" > "Network".



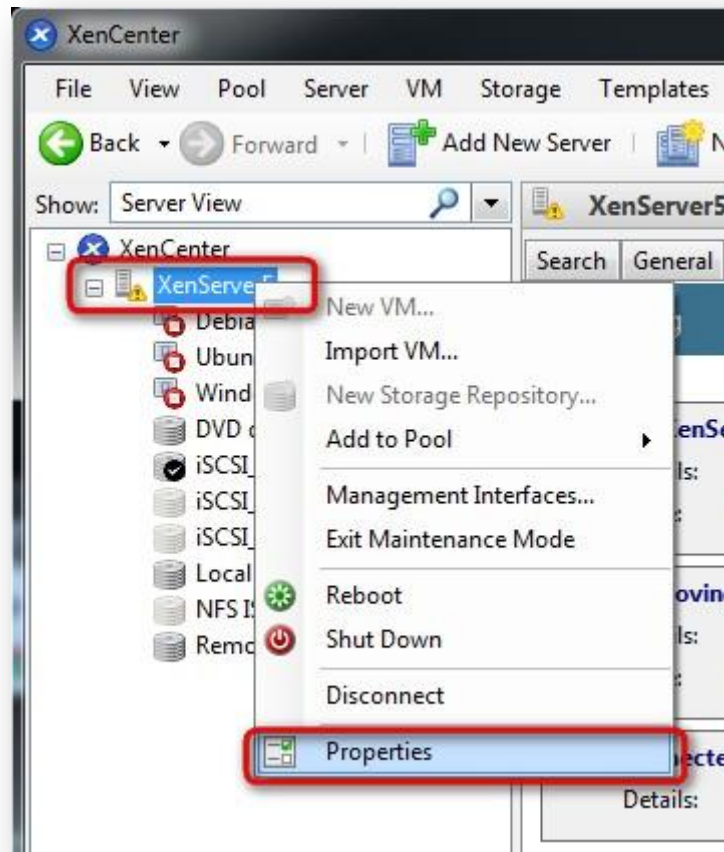
After disabling the port trunking mode, you can configure 2 IPs on the NAS, using DHCP or fixed IP.

Then, follow the steps below to configure multipathing settings on XenServer.

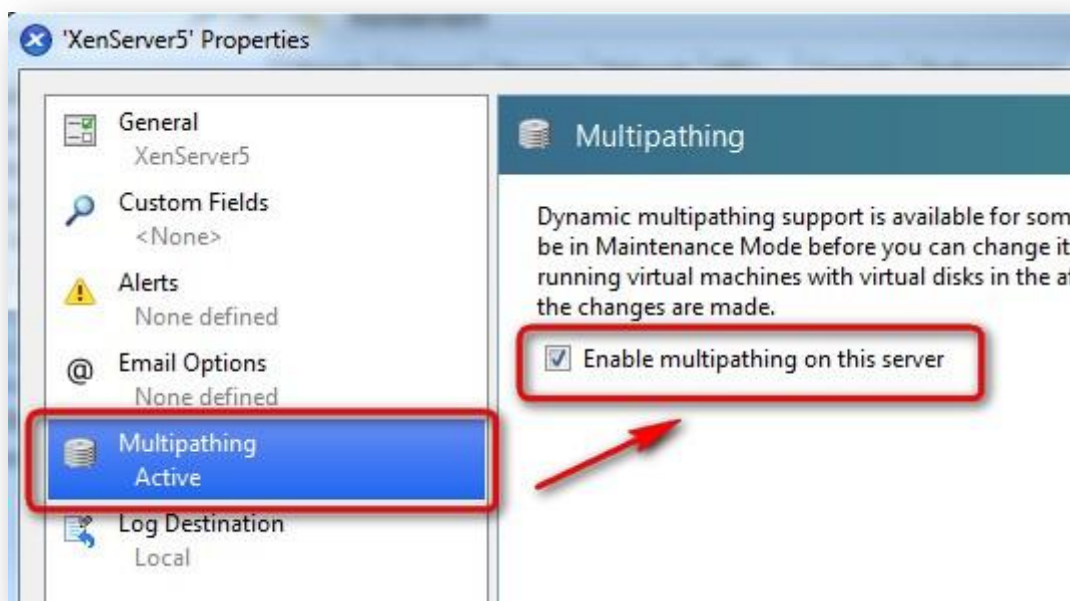
1. Right click XenServer and select "Enter Maintenance Mode". Note that you may need to shut down all the running virtual machines.



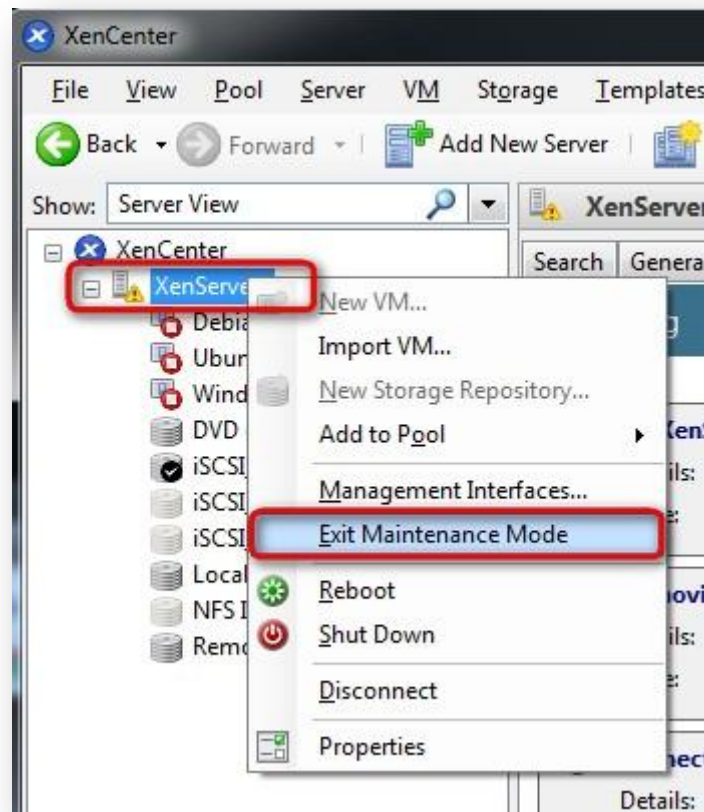
2. Right the XenServer and select "Properties".



3. Under "Multipathing", select the option "Enable multipathing on this server".



4. Right click XenServer and select "Exit Maintenance Mode".



There is no required operation on QNAP NAS. Multipathing is supported natively.

Advanced multipath configuration

XenServer supports an advanced multipath configuration. It is reserved to **advanced users with system administration knowledge**. You can refer to the Citrix article: <http://support.citrix.com/article/CTX118791>

The device section needed in `/etc/multipath-enabled.conf` for QNAP devices is:

```
device {  
    vendor                "QNAP"  
    product                "iSCSI Storage"  
    polling_interval      10  
    selector              "round-robin 0"  
    path_grouping_policy  multibus  
    getuid_callout        "/sbin/scsi_id -g -u -s /block/%n"  
    prio_callout          none  
    path_checker          directio  
    failback              immediate  
}
```

Additional information

Citrix Ready products: <http://hcl.xensource.com>

Citrix website: <http://www.citrix.com>

QNAP Turbo NAS application notes: http://qnap.com/pro_features.asp