

Adding FlashNAS ZFS Series NFS Folder

to

VMware 5

Abstract

This application note describes how to configure a FlashNAS ZFS shared folder according to the NFS protocol and then add the folder to VMWare 5 as a datastore.

Table of Contents

Product Models Covered by This Document	3
FlashNAS ZFS Family of Unified Storage Systems	4
VMware Virtualization	5
Adding FlashNAS ZFS Series NFS Shared Folder to VMware 5	7
Step 1: Preparing the Environment	7
Step 2: Enabling the NFS Service	8
Step 3: Sharing a Folder and Configuring NFS Settings	9
Step 4: Adding the Shared Folder as a New Database to VMWare	13

Product Models Covered by This Document

This document applies to the following product models:

- FlashNAS ZX2U12
- FlashNAS ZX3U16

For more information about compression, virtualization, snapshot, remote replication, ZFS, backup, storage, network-attached-storage, file-sharing and WORM (Write Once, Read Many), please visit www.winsys.com

FlashNAS ZFS Family of Unified Storage Systems

IT environments often feature multiple types of storage infrastructures to accommodate various types of data and achieve different service levels. The scattered boxes for DAS (Direct-Attached Storage), SAN (Storage Area Network) and NAS (Network-Attached Storage) configurations lead to poor utilization and complicated management.

FlashNAS ZFS simultaneously serves file and block-based applications with a unified storage platform, and features easy management, optimized resource utilization, high availability, flexible scalability and competitive price/performance. In addition, FlashNAS ZFS offers a comprehensive set of advanced software features at no additional costs. FlashNAS ZFS systems help businesses effectively meet diverse and changing data demand while staying within budget.



FlashNAS ZFS

VMware Virtualization

The concept of virtualization originated in 1960s but was not applied to the x86 architecture until the 1990s. Since the 1980s, x86 servers have been widely adopted in IT environments because they are much cheaper than mainframe computers. This distributed system of computing reduces TCO but gives birth to other challenges, such as low infrastructure utilization, increasing physical infrastructure and IT management costs, insufficient failover and disaster protection, etc. Virtualization is an effective way to deal with these challenges.

In VMware's virtualization technology, ESX Server has been a foundation of virtualized environments.



Figure 1. VMware ESX Server

Installed on an x86 or x64-based server, VMware ESX Server provides a virtualization layer on the host OS to consolidate all hardware resources, including processors, memories, storage and networking, and apply them to virtual machines (i.e. virtual servers) running on the physical server. Each virtual machine can have its own OS and applications. By sharing hardware resources across multiple virtual machines, users can improve resource utilization and in turn greatly reduce costs involved in building a datacenter's physical infrastructure.

Besides the optimized resource utilization, VMware virtualization also reduces deployment efforts and simplifies management tasks. Free from the physical considerations and requirements, deploying virtual machines can be done in minutes or hours. After the deployment, managers can easily monitor the entire virtual datacenter through a unified management pane. When any of the physical devices fail, the high-availability features of VMware can ensure continuous system operation.

FlashNAS ZFS supports a variety of service protocols, including the NFS (Network File System) commonly used in Unix/Linux as well as VMWare 5 environments. Users can easily create a shared folder based on the NFS protocol in their FlashNAS ZFS systems, then associate the folder to VMWare 5 as a datastore.

In this application note, basic procedures are introduced in a step-by-step manner.

- Enabling NFS protocol in FlashNAS ZFS
- Creating a shared folder in FlashNAS ZFS
- Adding the shared folder as a datastore in VMWare

Step 1: Preparing the Environment

- Prepare the following items:
 (a) A host computer with VMWare 5 implemented
 (b) A FlashNAS ZFS system
- 2. Power up the FlashNAS ZFS system and the computer.
- 3. Make sure that the FlashNAS ZFS system and the computer are connected to the network.

Step 2: Enabling the NFS Service

 Go to the FlashNAS ZFS web interface and select the Configuration > Service > Share menu.

🗆 💮 Configuration	
🖃 💕 Service	
📄 Share	

2. Highlight the NFS service. If the status is *Disabled*, click the ¹/₂ icon to enable it (Online).

Service Name	Status
CIFS	😑 Online
FTP	🖯 Disabled
NFS	😑 Online

(Recent versions of software allow users to configure the compatible versions of NFS protocol. Check the Edit button and if it is active (clickable), click it.

When the setting window appears, select (check) All (all versions of NFS protocol) and click *OK*.)



Step 3: Sharing a Folder and Configuring NFS Settings

1. Highlight a folder in the Explorer screen and click the *Share* button.



2. In the Share Configuration window that appears, specify the name of this share and a short description (optional).

Folder Path	/Pool-1/WM-1
Share Name	WM-1
Description	Folder

3. Click the *Add* button in the *Access Rights* pane to add users who can access this folder.



4. Highlight target users/groups from the left box and move them to the right box using the arrow button. When done, click the *OK* button.

Available Users	🗖 Select All		Added Users	🗖 Select All
	Q C			
🤶 guest			•	
S Thor		>		
😤 Jack]	
😫 John		<		
😫 Jessie				
S Jane	_			

5. Check the access rights granted to the selected users in the right pane.



6. Check the NFS sharing protocol and click the Setting button.

Share —		
CIFS/FTP.	ISFTP	
☑ NFS		Setting
AFP		

7. The NFS protocol setting screen will appear. Click the *Add* button in the Root Privilege corner.

Subnet	Mask	IP Address Range	
		Add Edit I)elete
Read-Only			
Subnet	Mask	IP Address Range	
		Add Edit I)elete
Root Privilege ——			
Subnet	Mask	IP Address Range	
		Add Edit I)elete

8. In the setting screen, enter the following parameters and then click OK.

IP Address:0	. 0 . 0 . 0
Netmask: 0	. 0 . 0 . 0
— Subnet Infor	mation
Subnet :	0.0.0.0
IP Address Range :	0.0.0.0 to 255.255.255.255
	Verify

- IP Address: 0.0.0.0
- Netmask: 0.0.0.0
- Subnet: 0.0.0.0
- IP Address Range: 0.0.0.0 to 255.255.255.255

(These settings ensure that all addresses will be available for the users. Omitting these settings will lead to service errors.)

9. The root privilege setting should appear in the list. Click *OK* to close the window.

Subnet	Mask	IP Address Range
		Add Edit Delete
ead-Only —		
Subnet	Mask	IP Address Range
		Add Edit Delete
oot Privileges		
Subnet	Mask	IP Address Range

Step 4: Adding the Shared Folder as a New Database to VMWare

1. Open VMWare, select *Storage* from the *Hardware* corner, and select the *Configuration* tab. Click *Add Storage…* from the top bar menu.



2. In the *Add Storage* dialogue that appears, select *Network File System* and click *Next*.

🛃 Add Storage	
Select Storage Type Specify if you want to for	mat a new volume or use a shared folder over the network.
NAS Network File System Ready to Complete	Storage Type C Disk/LUN Create or defauture on o Fibre Channel, 19681, or local S691 dals, or mont an existing VMFS volume. C Network File System Choose this option if you want to create a Network File System.
Help	

3. Enter the parameters and click Next.

🛃 Add Storage		
Locate Network File System Which shared folder will be u	d as a vSphere datastore?	
NAS Network File System Ready to Complete	Properties Server: 192.168.6.25 Examples: nas, nas.it.com, 192.168.0.1 or FE80:0:0:2AA:FF:FE9A:4CA2 Folder: /Pool-1/nfttest Example: /vols/vol0/datastore-001 If a datastore already exists in the datacenter for to configure the same datastore on new hosts, mai same input data (Server and Folder) that you used Different input data would mean different datastor storage is the same. Datastore Name NASProNFS	this NFS share and you intend ke sure that you enter the for the original datastore. es even if the underlying NFS
Help	< Back	Next > Cancel

- Server: Enter the IP address of the FlashNAS ZFS system.
- Folder: Enter the path to the shared folder.

Example: If the folder name is "nfttest" and the pool name is "Pool-1," the path should be specified as: */Pool-1/nfttest*

- Mount NFS read only: Unless there is an explicit reason to make the datastore read only, leave this option as unchecked.
- Datastore Name: Name the datastore that will be associated with the FlashNAS ZFS shared folder.
- 4. The summary of the datastore configuration will appear. Click *Finish* to complete the process.

🛃 Add Storage					-OX
Network File System The following network file	e system will be added as	a shared VMFS datastore			
H NAS Ready to Complete	Review this summ	ary and dick Finish.			
	Server: 11 Folder: /P Volume Label: N	92.168.6.25 'ool-1/nfttest ASProNFS			
	P				
Help			≤Back	Einish	Cancel

5. The FlashNAS ZFS shared folder now appears as a new datastore in the list.

File Edit View Inventory Administra	tion Plug-ins Help		
Home P 👌 Inve	entory 👂 🛅 Hosts and Clusters		Search Inventory
67 😅 88			
Image: Standard	192.168.140.161 VHware ESXi, 5.0.0, 623860		
	Getting Started, Summary, Virtual Machines, Resource Allocation, Performance, Configuration, Tasks & Events, Alarma, Permissione, Maps		
	Hardware	Viewi Datastores Devices	
	Processors	Datastores Refresh	Delete Add Storage Rescan Al
	Memory	Identification / Status Device	Drive Type Capacity
	Storage	VI ZX2U12R1 S Normal WINSYS ZX (n-	Non-SSD 1.76 TB 1.2
teamviewer	Storage Adapters	1 NASProNPS O Normal 192.168.6.251/Po.	Unknown 3.52 TB 3.5
tearnviewer2 Wa2Xi_backup Win7 chatkup Win7 chatkup Win7 chatkup Win7 chatkup Windows 2003 AD Windows 2008 AD Windows 2008 F2 AD (Windows XP 21TW District 2008 R2 AD (Strange 2008 R2 AD (Str	Network Adapters Advanced Settings		
	Power Management		
	Licensed Features		
	Time Configuration	Datastore Details	Properties
	DNS and Routing	Server: 192.168.6.25	3.52 TB Capacity -
	Authentication Services	Folder: /Pool-1/nfstest	52.00 KB Used
	Virtual Machine Startup/Shutdown Virtual Machine Swapfile Location	Refreah Storage Capabilities System Storage Capability: N/A User-defined Storage Capability: N/A	
	Security Profile	Storage I/O Control	
	Host Cache Configuration	Parabled	
<u>.</u>	Agent VM Settings		
cent Tasks		Name, Target or Status	contains: • Clear
ame Target	Status Details	Initiated by VCenter Serve	r Requested Start Ti ** Start Time
Create NAS datastore 📋 19	2.168.140.1 🥝 Completed	Administrator 🔂 TSD99-5	SVR20 8/9/2012 7:21:44 PM 8/9/2012 7
Remove datastore	2.158.140.1 S Completed	Administrator	PVR20 8/9/2012 7:21:12 PM 8/9/2012 3
Tarka 💏 Mana			
	1		Admenistrator
Start 🛃 🖓 📙 3	86C04	COC/Pro 6.35 (Sta C) TSD99-SVR2	1008 P (b G) 121 PM

Copyright © 2014 Winchester Systems Inc. All rights reserved. Winchester Systems and FlashDisk are registered trademarks, and FlashNAS and FlashServer are trademarks of Winchester Systems Inc. All other trade names are the property of their respective owners. The information contained herein is subject to change without notice. Content provided as is, without express or implied warranties of any kind.