WINCHESTERSYSTEMS®
Purpose-Built Storage

Using Microsoft Active Directory

with

FlashNAS ZFS

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Product Models Covered by This Document

This document applies to the following product models:

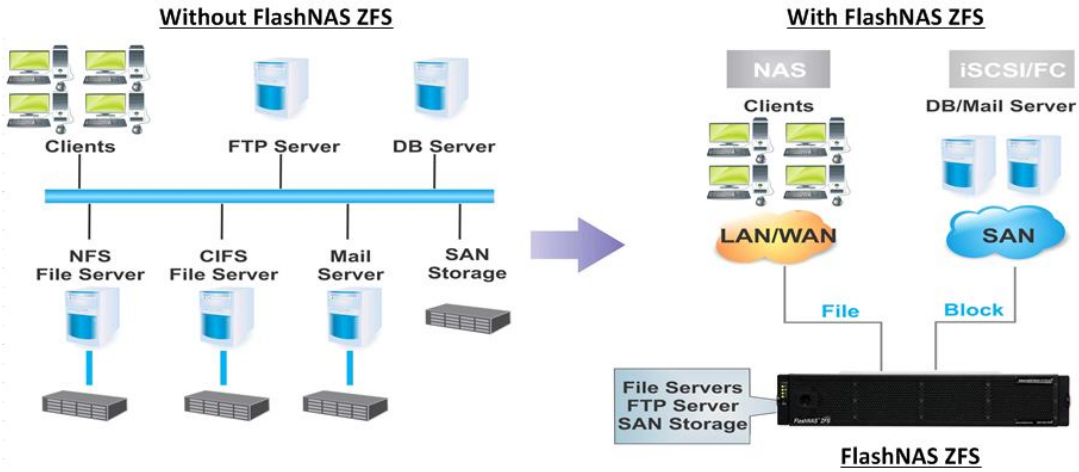
- **FlashNAS ZX2U12 Series**
- **FlashNAS ZX3U16 Series**
- **FlashNAS Desktop Series**

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 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.

Winchester Systems FlashNAS 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 offers a comprehensive set of advanced software features at no additional costs. FlashNAS systems help businesses effectively meet diverse and changing data demand while staying within budget.



Using Microsoft Active Directory (AD) with FlashNAS ZFS Systems in Windows Server

Microsoft Active Directory (AD) in Windows Server environments is a directory service designed for data management and resource distribution on network environments. Microsoft AD allows storing and sharing data, configuring storage parameters, and managing account information from a central location.

Using Microsoft AD with FlashNAS systems offers the following benefits:

- **Simplified account management**
  The same Microsoft AD account name and password can be used for FlashNAS; there is no need to manage separate sets of account information.
- **Consolidated access control**
  Read/write rights to shared directories on the network can be controlled from the FlashNAS.
- **Enhanced security**
  FlashNAS can also benefit from the enhanced data protection protocol integrated in Microsoft AD.

The FlashNAS systems are compatible with Microsoft AD for the following versions of Windows OS:

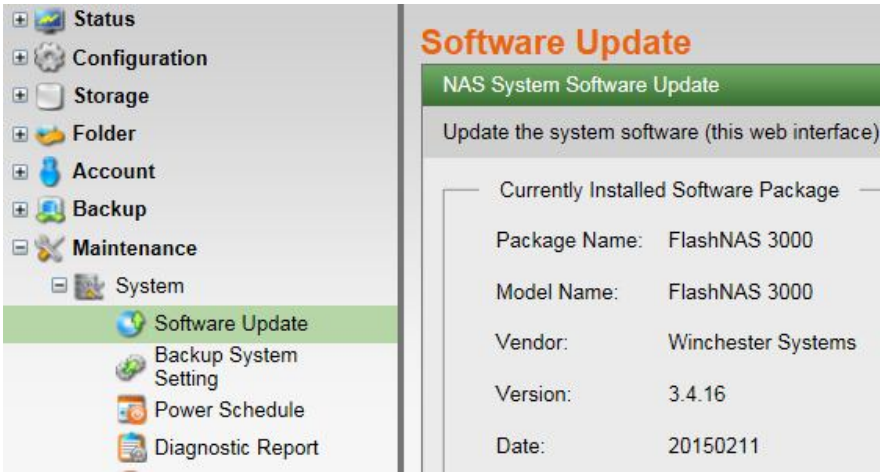
- **Windows Server 2003, 2003 R2**
- **Windows Server 2008, 2008 R2**
- **Windows Server 2012**

Step 1: Preparing the Environment

1.1 Confirm the FlashNAS software version.

The procedure described in this application note is applicable to software version 1.2.46 or later. To check the software version follow these steps:

Go to *Maintenance* > *System* > *Software Update*.



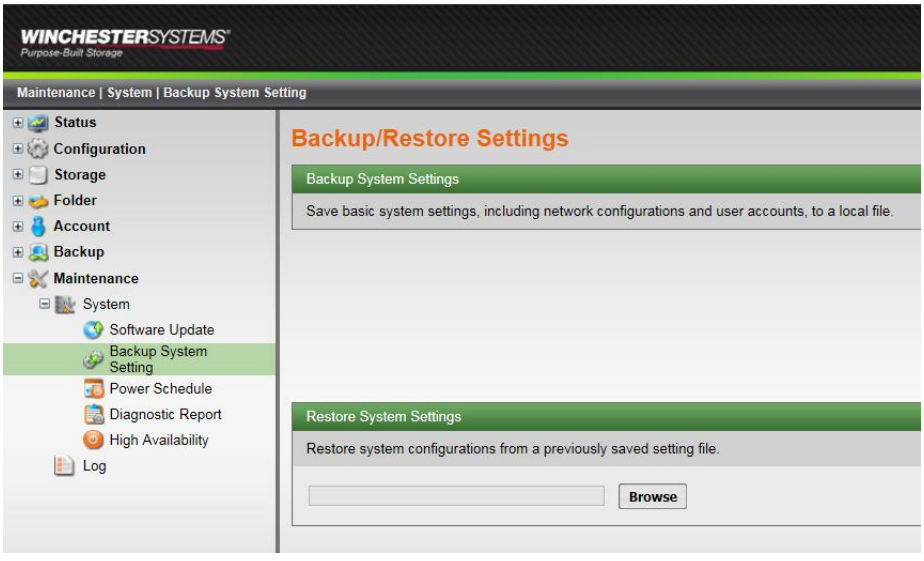
Check the software version in the *Currently Installed Software Package* corner.

(if the software version is not at an acceptable level, please contact Winchester Systems support)

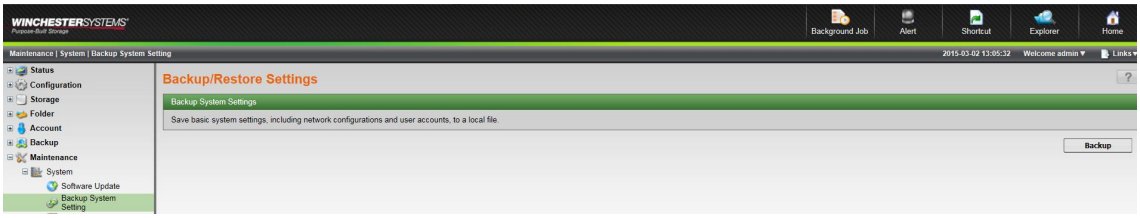
1.2 Take a FlashNAS system snapshot.

This snapshot image will be of use in case errors are encountered during the user import.

Go to *Maintenance* > *System* > *Backup System Setting*.

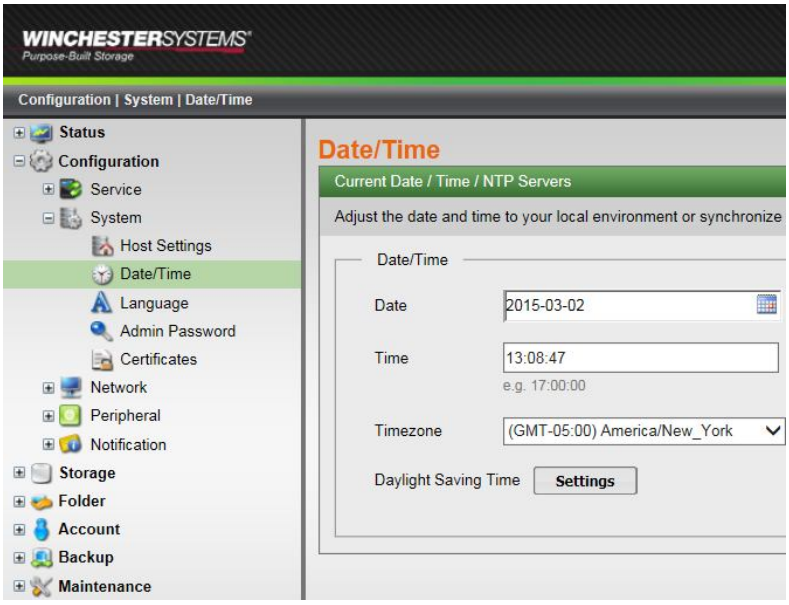


Click on *Backup*. When prompted, save the backup file to a location of your choice.



In the event this system backup has to be used (system recovery), this recovery will require a short amount of downtime in the form of a FlashNAS system reboot. Make sure to properly plan this recovery so that the reboot downtime does not interfere with business applications.

1.3 The FlashNAS and AD server should be synchronized with a time difference of no more than 5 minutes. To check the date/time settings of the FlashNAS, go to *Configuration* > *System* > *Date/Time*.



1.4 Conduct a Test Run

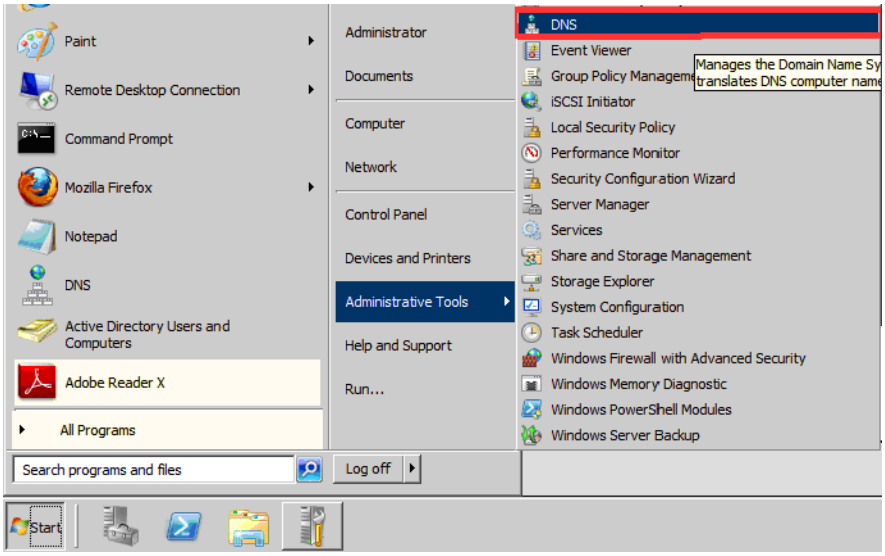
Prepare a test AD server to conduct a practice run before doing the configurations on the operational AD server. In this way, users can ensure that the configurations highlighted in this document work in their specific environments and avoid any damage from unexpected errors that may occur when doing these configurations for the first time.

- This AD server should include all user accounts.
- This AD server will be the target server for FlashNAS.

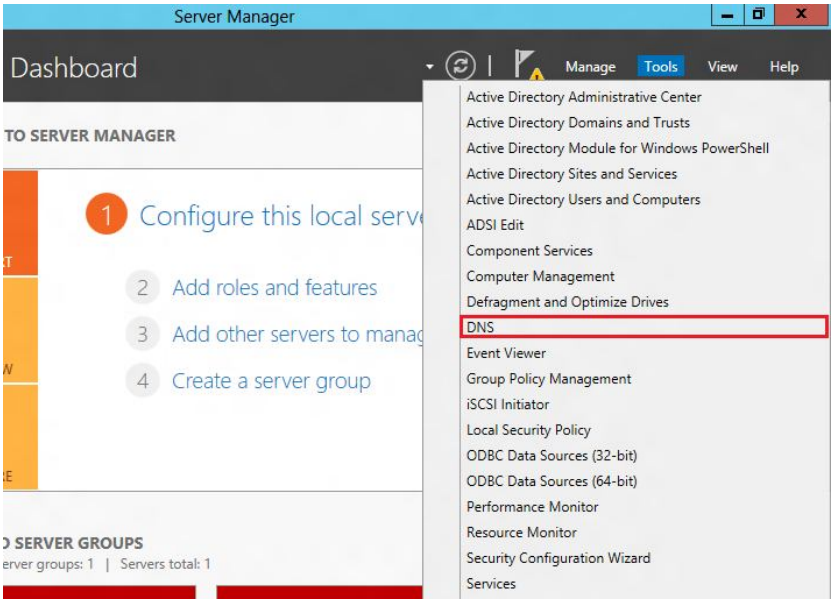
Step 2: Verifying AD Server DNS

2.1 Open *DNS Manager.*

(Windows Server 2003/2008) Go to *Start* > *Administrative Tools* > *DNS*.

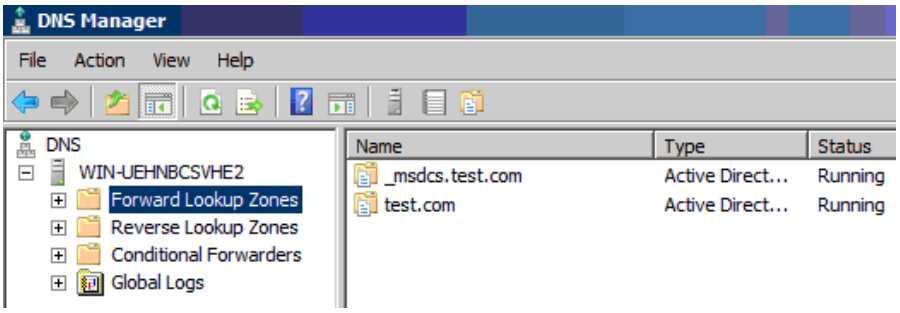


(Windows Server 2012) Open *DNS Manager* by going to *Tools* > *DNS*.

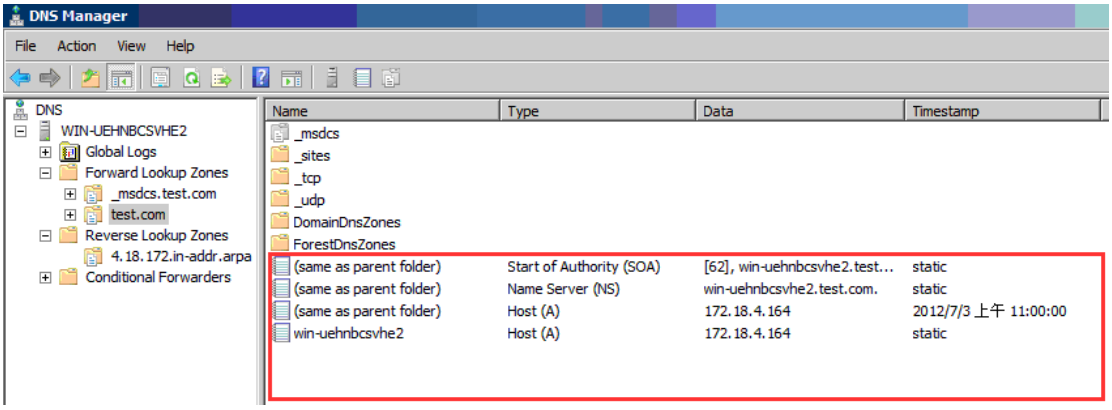


2.2 Check the forward lookup zone.

The DNS Manager will appear. Locate the DNS server and expand the tree in the sidebar.



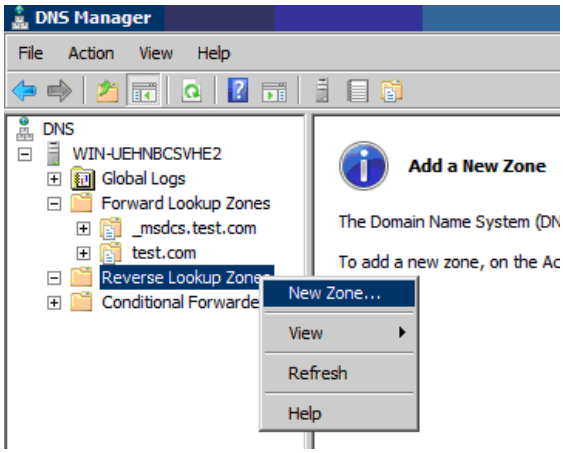
Check the AD server IP settings in the *Forward Lookup Zones.* In this example, the IP address is *172.18.4.164*.



- Start of Authority (SOA): Make sure this item is included in the list.
- Name Server (NS): Make sure this item is included in the list.
- Host (A): The IP address must match that of the AD server.

2.3 Add a reverse lookup zone.

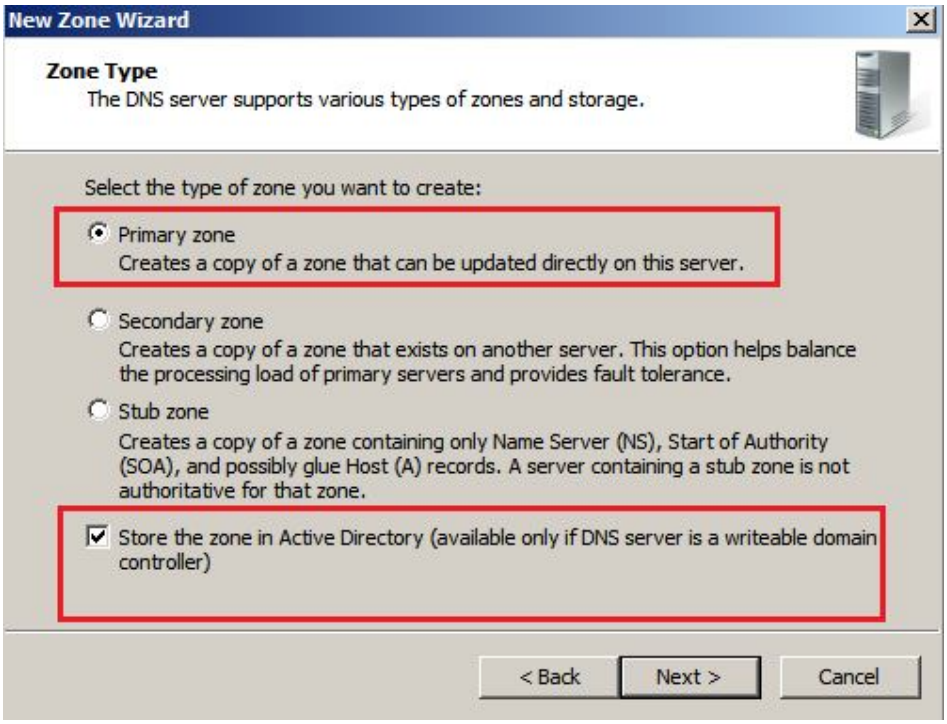
Add a zone in *Reverse Lookup Zones* by right-clicking and selecting *New Zone*, as shown below.



The *New Zone Wizard* will appear. Click *Next* to proceed.

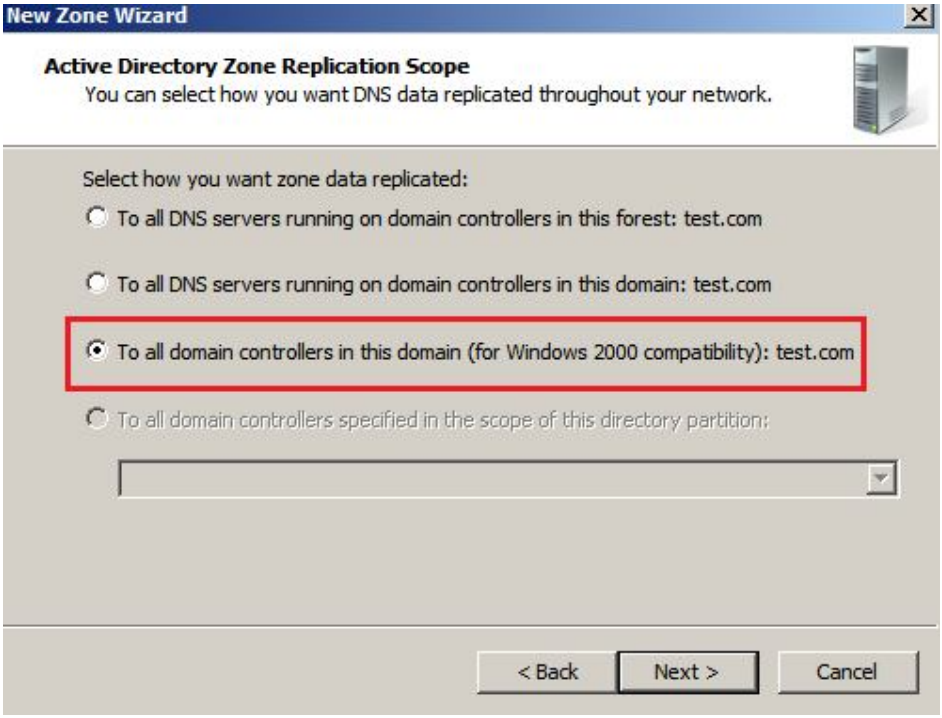
Select the following options and click *Next*:

- **Primary zone**
- **Store the zone in Active Directory**



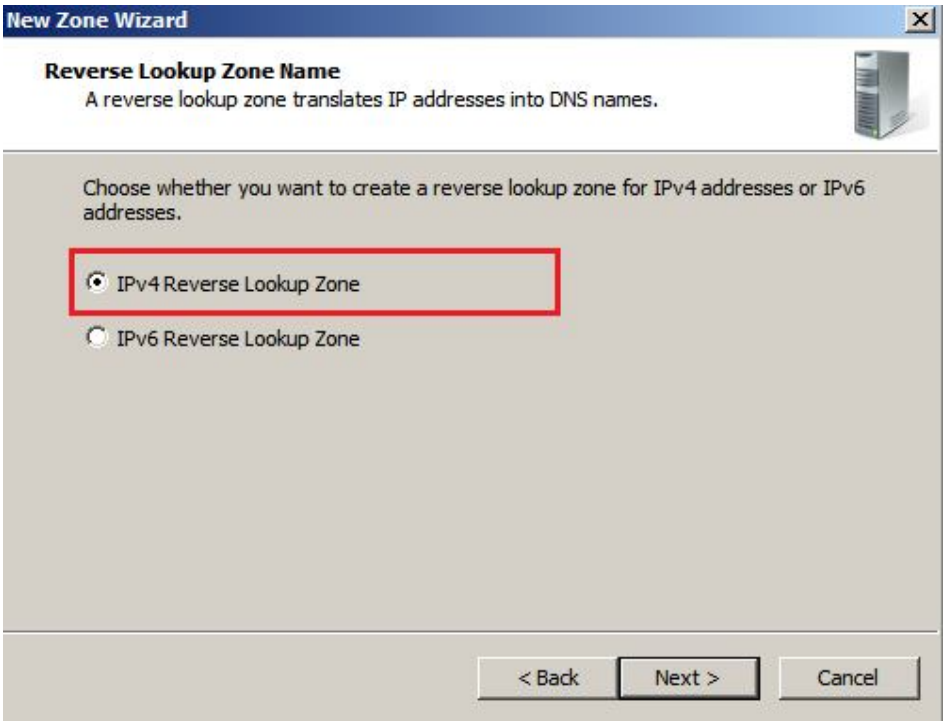
Select the following option and click *Next*:

- **To all domain controllers in this domain**

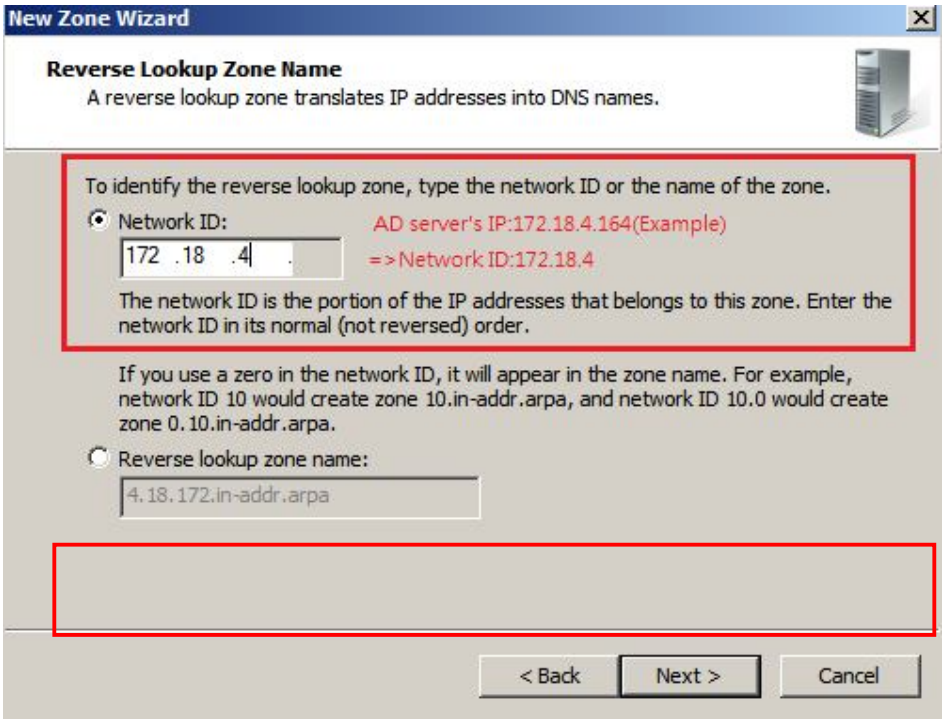


(For Windows Server 2008/2012) Select the following option and click *Next*:

- **IPv4 Reverse Lookup Zone**

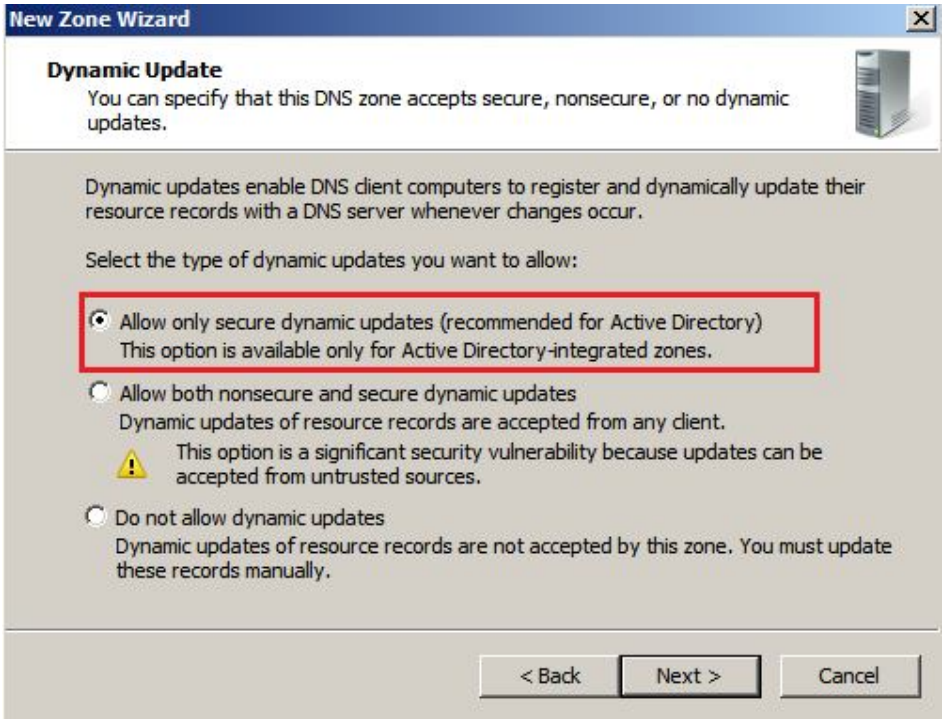


Enter the first three portions of the server's IP address as the Network ID and click *Next*.

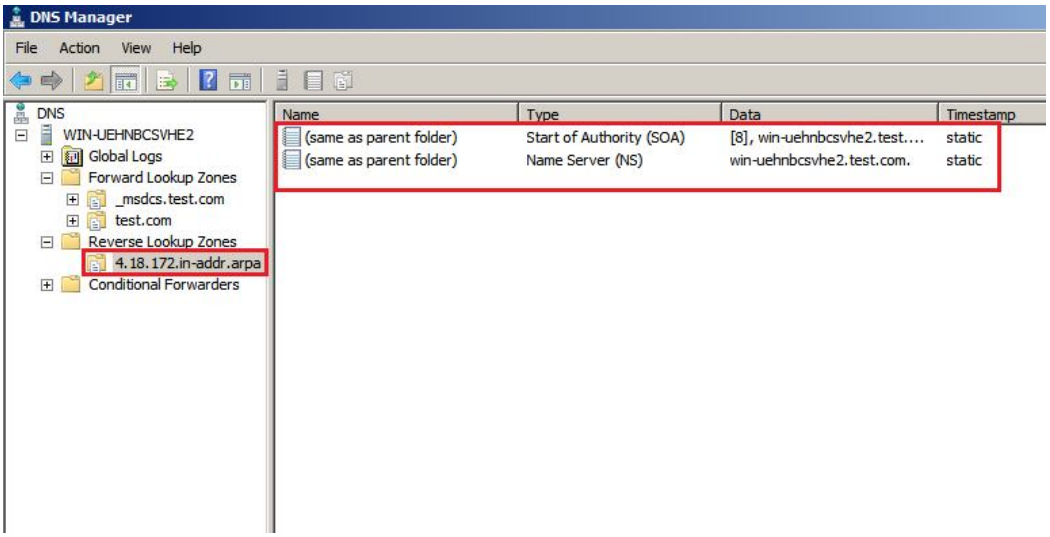


Select the following option and click *Next*:

- **Allow only secure dynamic updates**



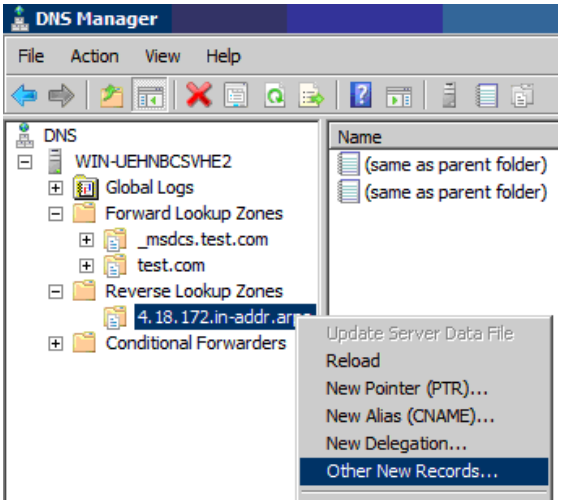
The reverse lookup zone will appear in the DNS Manager. Confirm the settings on the screen.



- Start of Authority (SOA): Make sure this item is included in the list.
- Name Server (NS): Make sure this item is included in the list.

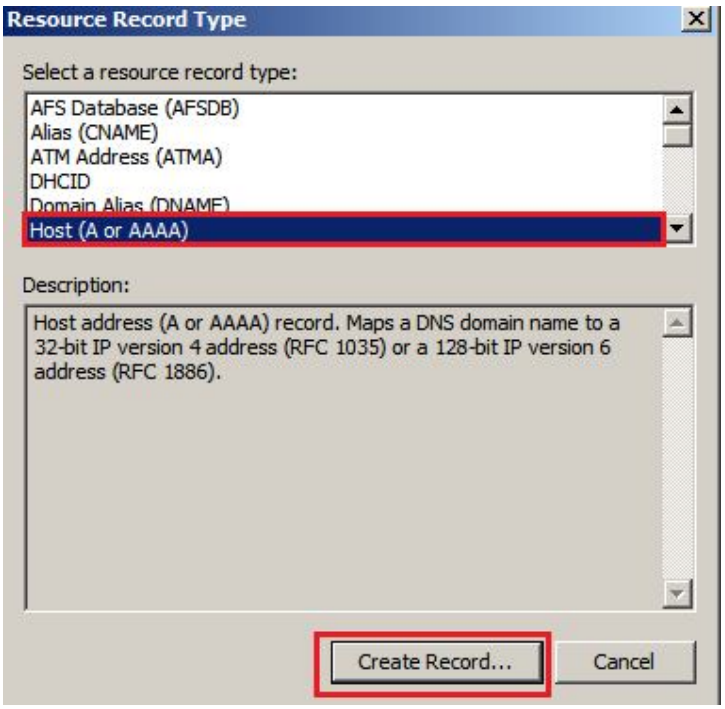
2.4 Create a host record in the reverse lookup zone.

Right-click on the newly created reverse lookup zone and select *Other New Records*.

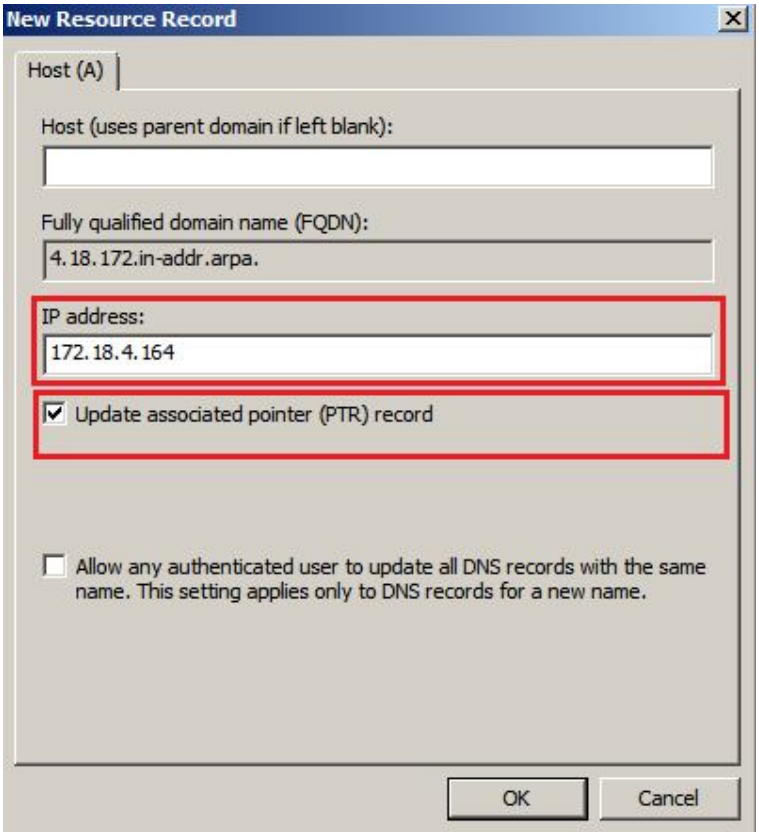


Select the following option and click *Create Record*:

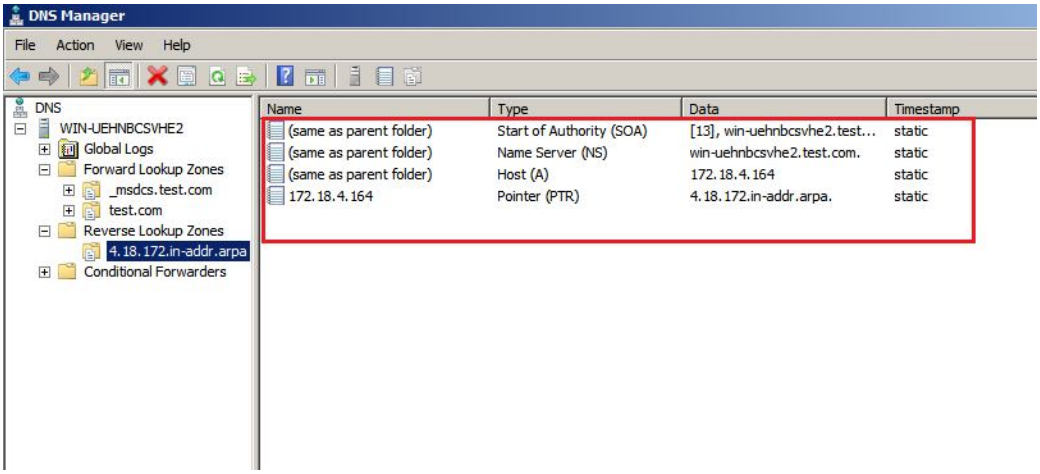
- **Host (A or AAAA): Windows Server 2008/2012**
- **Host (A): Windows Server 2003**



Enter the IP address of the AD server and check "*Update associated pointer (PTR) record*." Click *OK*.



Restart the AD server, and then check that the reverse lookup zone setting has been updated.

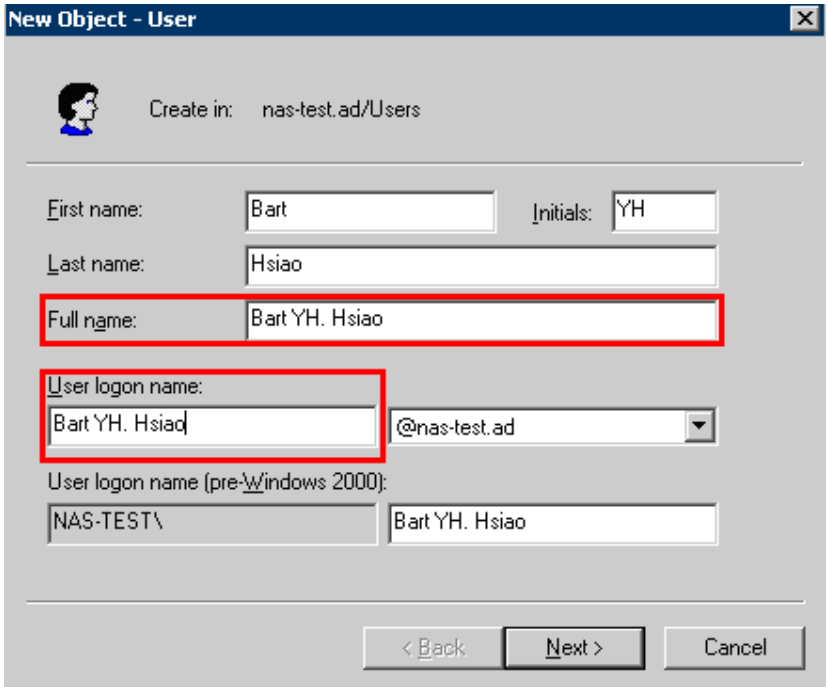


- Start of Authority (SOA): Make sure this item is included in the list.
- Name Server (NS): Make sure this item is included in the list.
- Host (A): The IP address must match that of the AD server.
- Pointer (PTR): The Data column should show the IP address of the AD server.

Step 3: Configuring AD User Account Settings for Import into FlashNAS

Make sure that the AD user accounts meet the following criteria:

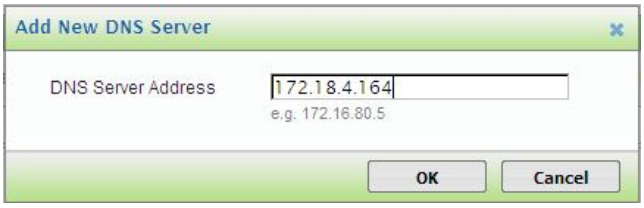
- AD *user logon name* needs to be the same as the *full name.*



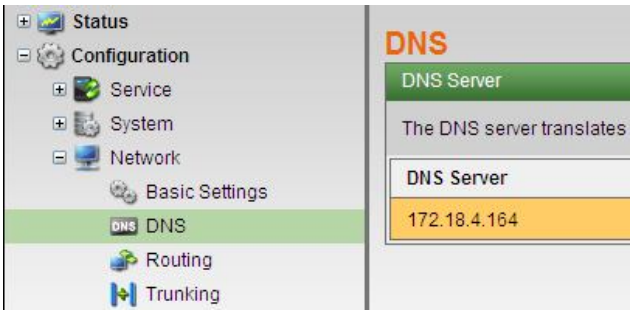
- The user logon name can not include the following invalid characters: /\[]:;|=,+*?<>@”

Step 4: Adding AD server to FlashNAS

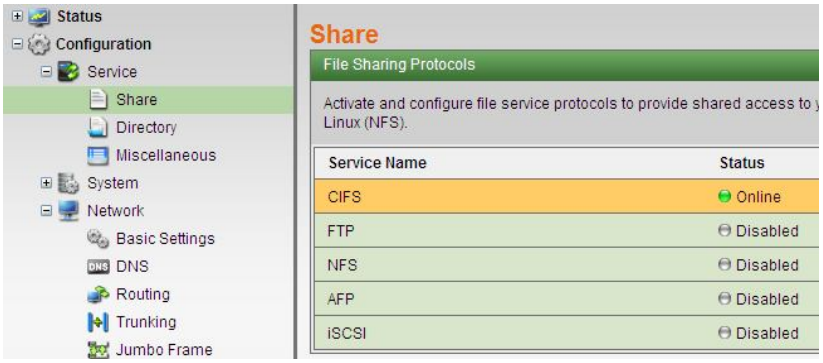
4.1 In the FlashNAS GUI, go to *Configuration* > *Network* > *DNS* and click on *Add* in the DNS Server section. Enter the Windows AD server's IP address and click on *OK*.



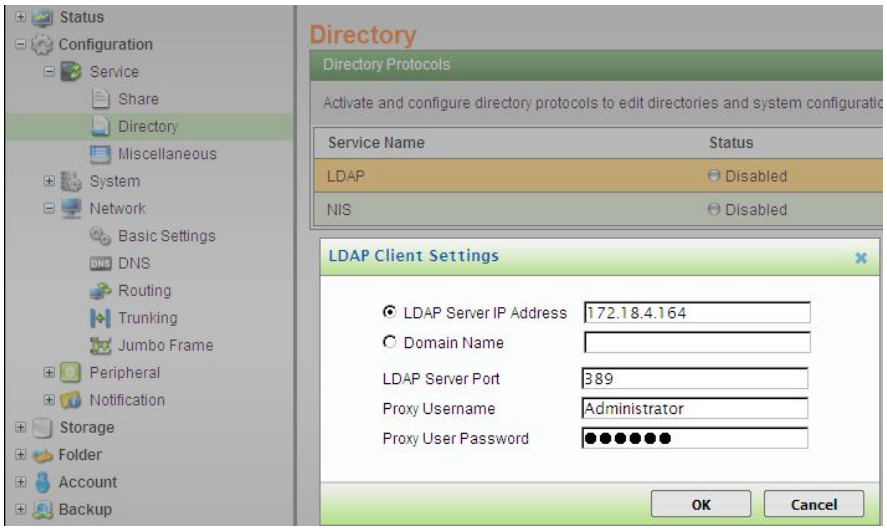
Confirm that the DNS server has been added.



4.2 Go to *Configuration* > *Service* > *Share* and make sure that the CIFS service has been enabled (Online). If it has been disabled, click the icon to enable it.

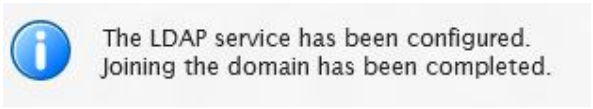


4.3 Go to *Configuration* > *Service* > *Directory*, select the LDAP service and click on *Edit*. Configure the settings and click *OK* after finishing the settings.

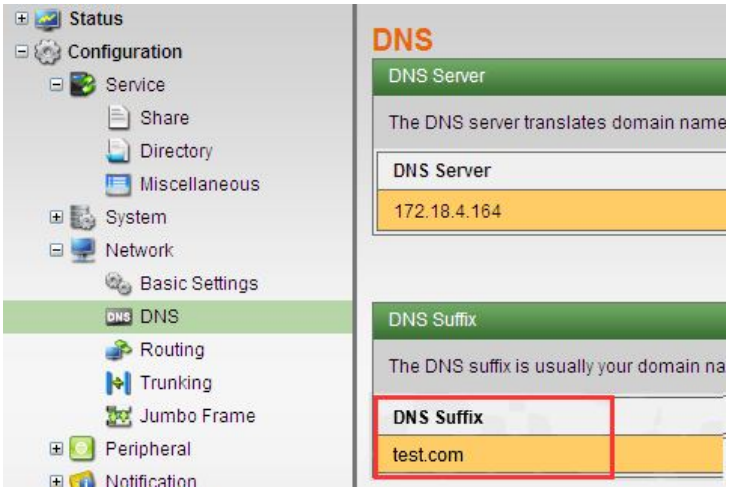


- **LDAP Server IP Address / Domain Name**: Enter either the IP address or the domain name of the AD server to specify it. Example: (IP Address) *172.18.4.164* (Domain Name): *test.com*
- **LDAP Server Port**: Specifies the server port. This parameter will be assigned automatically according to the IP address.
- **Proxy Username**: Enter the AD server admin username.
- **Proxy User Password**: Enter the AD server admin password.

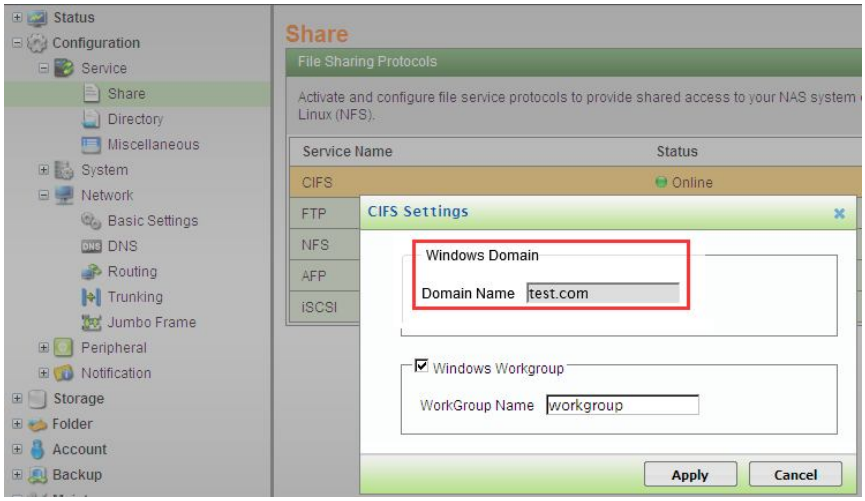
When LDAP configuration is successful, the AD has been added to the FlashNAS system.



4.4 Go to *Configuration* > *Network* > *DNS* to check the DNS Suffix setting and confirm the Windows domain name. It should appear automatically if the LDAP configuration has been done correctly.

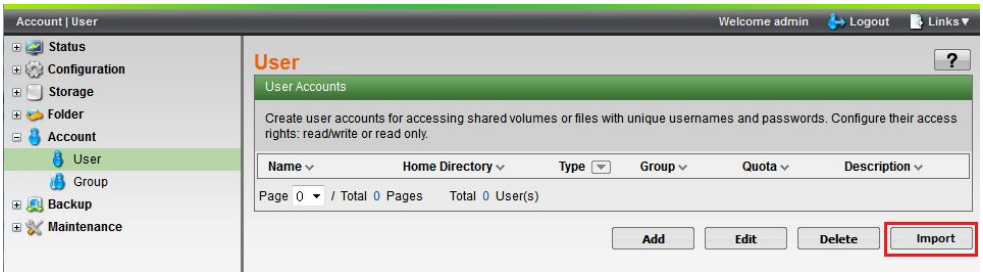


4.5 Go to *Configuration* > *Service* > *Share* to check CIFS settings and confirm the Windows domain name. It should appear automatically if the LDAP configuration has been done correctly.



Step 5: Importing Users from AD Server

Go to *Account* > *User* and click on *Import*.



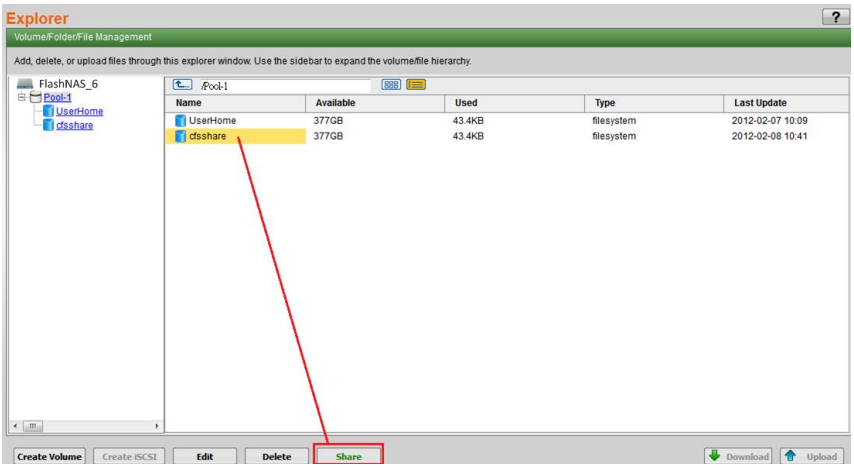
Ensure the AD users are imported from the AD server.

1005	/home/1005	LdapUser	10000	none
1006	/home/1006	LdapUser	10000	none
1007	/home/1007	LdapUser	10000	none
1008	/home/1008	LdapUser	10000	none
1009	/home/1009	LdapUser	10000	none
101	/home/101	LdapUser	10000	none
1010	/home/1010	LdapUser	10000	none
1011	/home/1011	LdapUser	10000	none
1012	/home/1012	LdapUser	10000	none
1013	/home/1013	LdapUser	10000	none
1014	/home/1014	LdapUser	10000	none
1015	/home/1015	LdapUser	10000	none
1016	/home/1016	LdapUser	10000	none
1017	/home/1017	LdapUser	10000	none
1018	/home/1018	LdapUser	10000	none
1019	/home/1019	LdapUser	10000	none
102	/home/102	LdapUser	10000	none
1020	/home/1020	LdapUser	10000	none
1021	/home/1021	LdapUser	10000	none

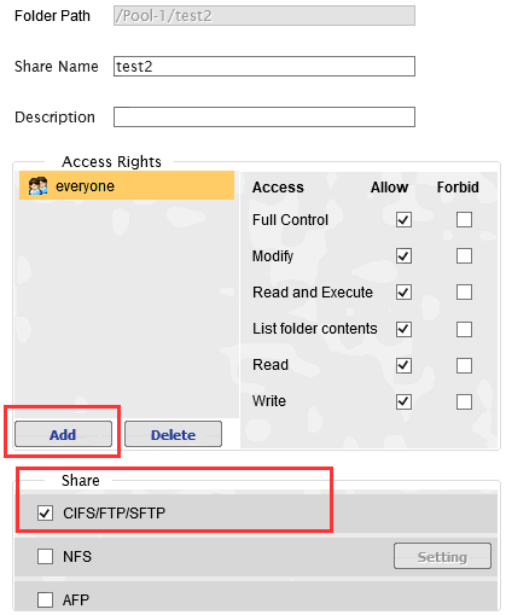
The 1 page / Total 145 pages Total 30 records

Step 6: Allowing Users to Access Folders

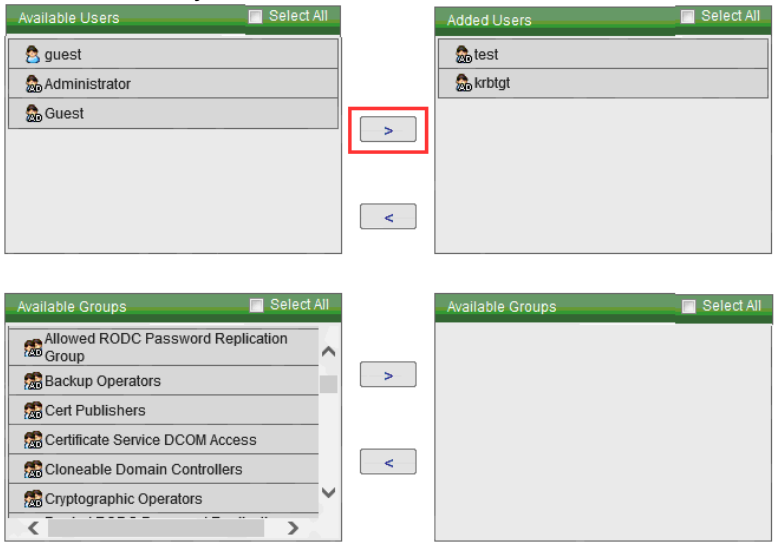
6.1 Go to *Explorer* in the FlashNAS GUI and select the folder to be shared. Click on *Share*.



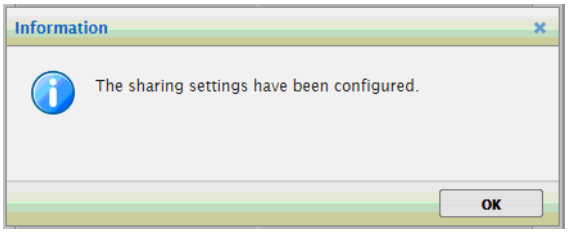
6.2 Add users that will have permission to access this folder by clicking on *Add*. Make sure that the CIFS/FTP/SFTP share protocol has been checked.



6.3 To add users and/or groups, move them to the right-side boxes using the arrow signs.



6.4 After configuring the share settings, click *OK* button to apply the modifications.



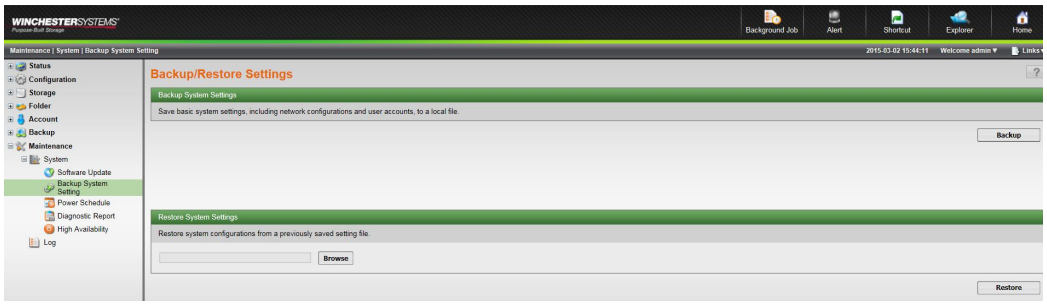
6.5 After that, go back to Windows Server and verify whether the share folder access rights are the same as on the FlashNAS system. To do so, find the relevant network disk, right-click and select *Properties*. The share folder access settings can be found in the *Security* tab.

Appendix

FlashNAS System Recovery Procedure

If the system encounters errors during import, recover (rollback) the system as follows using the system snapshot image mentioned above.

Go to *Maintenance* > *System* > *Backup System Setting*. Select the restore image for recovery and click on *restore*.



Troubleshooting

If joining Windows AD fails after configuring everything, check the following items again to make sure the configurations are correct.

- **FlashNAS DNS Server IP Address**
  It should be the same as the Windows AD server's IP address.
- **The Time Difference between FlashNAS and Windows AD Server**
  It should be less than 5 minutes.