

Windows Enterprise OU Administrator Procedures Creating a Departmental Domain DFSN Root Windows Server 2008

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Support of a Distributed File System domain DFS root is provided for departments. DFS allows your user community to access shared files by only knowing the domain name and your department. The actual servers (and share names) need not be known by the users since they are “linked to” using meaningful folder names (selected by you). In fact, the shares linked to by DFS names can be moved without the users knowing about the change in location.

Automated “replication” of departmental domain DFS root file-stores is currently supported under DFSN (DFS v2). The link-target systems (where the shares are that are served out for your DFS root) must be on Windows Server 2008 systems. You can set up and manage your own replication for your DFS namespace.

Setting Up a Departmental Domain DFS Root

- 1) Make sure a static network address is correctly and completely configured for your server. In particular make sure the WINS settings are set correctly for the Enterprise WINS servers and that “Enabled NetBIOS over TCP/IP” is set:
 - Click Start, click Run, type “ncpa.cpl”, and then click OK .
 - In Network Connections, right-click ”Local Area Connection”, and then click “Properties”.
 - Click “Internet Protocol Version 4 (TCP/IPv4)”, and then click “Properties”.
 - In the “Internet Protocol Version 4 (TCP/IPv4) Properties” dialog box, click “Advanced”.
 - On the WINS tab, verify “Enable NetBIOS Over TCP/IP is enabled”, and then click OK three times.

- 2) Prepare your departmental DFS staging area as follows:
 - Choose a Windows Server 2008 system to be your “DFS namespace server”. This system (and any other DFS namespace or DFS replication servers) must be Windows 2008 Server (NOT Server 2003) and members of the Windows Enterprise domain.
 - As an “Administrator” install the following roles on your “DFS namespace” server:

- File Server
 - Distributed File System “DFS Namespaces”
 - Distributed File System “DFS Replication” (if you will have multiple targets for some links)
- As an “Administrator” create a new folder named for the formal “short abbreviation” for your department (this will be the same as your OU name, “AIT” for example). This folder is the “DFS Staging Area” used by the domain DFS root system. LEAVE THIS FOLDER EMPTY – DFS will manage all contents when you create DFS “links” later. DO NOT manage any items in this folder – all contents are managed by the DFS roles. The default path for the folder is typically “C:\DFSRoots\ - Share this folder with the share name being the “short departmental abbreviation (same as the folder name). Set up the “Share permissions” for your users as desired; however make sure you add “Enterprise Admins” as “Co-Owners” on the share. Check the folder file security settings to make sure “Enterprise Admins” have been granted “Full control” of the folder.
 - Using “Administrative Tools/Computer Management”, add “IASTATE/Enterprise Admins” to the server “Administrators” group.
 - Do NOT use DFS to create a DFS “Stand-Alone Namespace” on this server. “DFS Links” will be used to share files off the domain root.
 - Make sure the “DFS Namespace” service is started on your server.
- 3) Send email to its-ad-admins@iastate.edu indicating the desire for a departmental domain DFSN root namespace using Windows Server 2008.
- Include the following:
- Your OU name (which will also be the share name from the previous step).
 - The DNS hostname of your DFS namespace server (where the DFS Namespace” role has been installed and the namespace share is provided).
 - The path (such as “C:\DFSRoots\ - The group (preferred, such as “!<OU> Admins”) or OU admin that should have full control of the namespace. Members of this group will have full power to add additional namespace servers, folders, set up replication, and delete the namespace.
 - If you would like to have “Access Based Enumeration” turned on for your root namespace please specify in the email.
- 4) Create a new DFS link to your shared data as follows:
- Set up a shared folder on any server (or workstation) with data you wish to share. The name of the folder (or the system it resides on) is not displayed to your DFS users (the actual “DFS folder name” your users see will be created by a “link” to it in a later step). Make sure the share permissions

are correctly set on this folder! Classic Windows share and file permissions control access to this share (and determine who can see and modify the data).

- On your Windows 2008 namespace server, launch “Administrative Tools/DFS Management”.
 - If you do not see your DFS namespace in the left pane, right-click “Namespaces” in the left pane and select “Add Namespaces to Display”. Add your namespace using the “Domain” scope selection.
 - Right-click your DFS namespace in the left pane and select “New Folder”.
 - Supply the new folder “Name” (what your users will see as the folder name within “\\iastate.edu\”) and set up the path to your shared folder (host and share). You may include multiple targets (each a host/share) to the same folder (they do not need to reside on the same system). You will set up DFS replication later to make sure they are all serving out the same information.
- 5) Test your DFS share by going to a client system that is a member of the “iastate.edu” domain, using “Start->Run”, and supplying “\\iastate.edu\” in the “Open:” field. You should see the “link names” you supplied in the previous steps as folders. Opening these folders should allow access to the shared files. Check out read/write privs for access to your files.
- 6) Add/remove files from the shared folders that are folder targets. Do NOT alter the contents of the “DFS Staging Area” on your server (created in Step 1).

Setting up DFS Link Replicas

You can create multiple DFS namespace servers (for failover of your namespace). You can also have multiple folders. Each folder can have multiple targets (servers/shares) serving out the same files with automatic replication from a primary deposit. Refer to the Microsoft documentation for complete information.

Enabling DFS Access-Based Enumeration

Prerequisites

Working DFSv2 (Windows Server 2008 mode) namespace. See separate documentation to create or migrate.

Notes

NTFS permissions on namespace server shares should generally allow 'Everyone' (or the intended departmental group) 'Read & Execute' permissions (Traverse folder / execute file, List folder / read data, Read attributes, Read extended attributes, Read permissions) on 'This folder, subfolders and files'. If this is the case, nothing will change immediately after enabling ABE, before setting custom permissions. DFS

ABE permissions should be set with dfsutil.exe ONLY. At this time the GUI interface does not work as expected.

Steps

1. Enable ABE on the DFS namespace

(Note that property 'ABDE' and 'ABE' seem to be interchangeable.) dfsutil.exe
Property ABDE Enable "\\iastate.edu\DEPT"

2. Verify that ABE is enabled on the DFS namespace

dfsutil.exe Property ABDE "\\iastate.edu\DEPT"

3. Remove any custom permissions on the link, if any

(Note that property 'ACL' and 'SD' seem to be interchangeable.) dfsutil.exe
Property ACL Reset "\\iastate.edu\DEPT\Folder\Link"

4. Disable inheritance so that a custom ACL can be specified

dfsutil.exe Property ACL Control "\\iastate.edu\DEPT\Folder\Link" Protect

5. Grant appropriate permissions to the link (does not affect target)

dfsutil.exe Property ACL Grant "\\iastate.edu\DEPT\Folder\Link"
"IASTATE\!DEPT OU Admins":F

dfsutil.exe Property ACL Grant "\\iastate.edu\DEPT\Folder\Link"
"IASTATE\!GroupName":R

6. Verify permissions on the link

dfsutil.exe Property ACL "\\iastate.edu\DEPT\Folder\Link" ShowSDDL

Repeat steps 3-6 for each link to be modified.

Migrating from DFSv1 to DFSN (v2)

- 1) If your current server is running Windows 2003, bring up and install a new Windows 2008 server (using the instructions in these sub steps)
 - a) Make sure a static network address is correctly and completely configured for your server. In particular make sure the WINS settings are set correctly for the Enterprise WINS servers and that "Enabled NetBIOS over TCP/IP" is set. See Step 1) in "Setting Up a Departmental Domain DFS Root" above.

- b) Prepare your departmental DFS staging area as follows:
- Choose a Windows Server 2008 system to be your “DFS namespace server”. This system (and any other DFS namespace or DFS replication servers) must be Windows 2008 Server (NOT Server 2003) and members of the Windows Enterprise domain.
 - As an “Administrator” install the following roles on your “DFS namespace” server:
 - File Server
 - Distributed File System “DFS Namespaces”
 - Distributed File System “DFS Replication” (if you will have multiple targets for some links)
 - As an “Administrator” create a new folder named for the formal “short abbreviation” for your department (this will be the same as your OU name, “AIT” for example). This folder is the “DFS Staging Area” used by the domain DFS root system. LEAVE THIS FOLDER EMPTY – DFS will manage all contents when you create DFS “links” later. DO NOT manage any items in this folder – all contents are managed by the DFS roles. The default path for the folder is typically “C:\DFSRoots\ - Share this folder with the share name being the “short departmental abbreviation (same as the folder name). Set up the “Share permissions” for your users as desired; however make sure you add “Enterprise Admins” as “Co-Owners” on the share. Check the folder file security settings to make sure “Enterprise Admins” have been granted “Full control” of the folder.
 - Using “Administrative Tools/Computer Management”, add “IASTATE/Enterprise Admins” to the server “Administrators” group.
 - Do NOT use DFS to create a DFS “Stand-Alone Namespace” on this server. “DFS Links” will be used to share files off the domain root.
 - Make sure the “DFS Namespace” service is started on your server
- 2) Export your current DFS share to an XML configuration file
- a) From your current DFS root namespace server open a command prompt and run this command:
- ```
Windows 2003: dfsutil /Root:"\\iastate.edu\

b) Retain this file as you will use this file in a few steps to import your settings to the newly created DFSN namespace


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- 3) Send email to [its-ad-admins@iastate.edu](mailto:its-ad-admins@iastate.edu) indicating the desire to upgrade your existing DFSv1 root namespace to a new DFSNv2 root namespace using Windows Server 2008.  
Include the following:
  - a) Your OU name (which will also be the share name from the previous step).
  - b) The DNS hostname of your new DFS namespace server (where the DFS Namespace” role has been installed and the namespace share is provided).
  - c) The path (such as “C:\DFSRoots\<dept>”) to the “DFS Staging Area” folder for your department you created.
  - d) The group (preferred, such as “!<OU> Admins”) or OU admin that should have full control of the namespace. Members of this group will have full power to add additional namespace servers, folders, set up replication, and delete the namespace.
  - e) If you would like to have “Access Based Enumeration” turned on for your root namespace please specify in the email.
  - f) The date and time you want to schedule the switch over from the old space to the new space. **(Note: from the time the Enterprise Admin removes the old DFSv1 namespace until you have restored the configuration file clients will be unable to connect to your namespace. It is best to make sure users are aware of the down time.)**
- 4) The Enterprise Admin will then remove the old root namespace for <your-OU>, then create a new DFSN root namespace, and finally will apply permission to the newly created namespace to the user or group you specified.
  - a) If any of the above configuration steps were skipped this process will fail.
  - b) From the time the Enterprise Admin deletes the old namespace till the time the permissions are applied can take as long as 15 minutes.
  - c) The Enterprise Admin will contact you when the changes are complete.
- 5) Create a new DFS link to your shared data as follows:
  - a) Set up a shared folder on any server (or workstation) with data you wish to share. The name of the folder (or the system it resides on) is not displayed to your DFS users (the actual “DFS folder name” your users see will be created by a “link” to it in a later step). Make sure the share permissions are correctly set on this folder! Classic Windows share and file permissions control access to this share (and determine who can see and modify the data).
  - b) On your Windows 2008 namespace server, launch “Administrative Tools/DFS Management”.
  - c) If you do not see your DFS namespace in the left pane, right-click “Namespaces” in the left pane and select “Add Namespaces to Display”. Add your namespace using the “Domain” scope selection.
  - d) Right-click your DFS namespace in the left pane and and select “New Folder”.

- e) Supply the new folder “Name” (what your users will see as the folder name within “\\iastate.edu\- 6) Test your DFS share by going to a client system that is a member of the “iastate.edu” domain, using “Start->Run”, and supplying “\\iastate.edu\- 7) Add/remove files from the shared folders that are folder targets. Do NOT alter the contents of the “DFS Staging Area” on your server (created in Step 1).

### **Removing a Departmental Domain DFS Root**

To remove your domain DFS root:

- On your Windows 2008 Server, launch “Administrative Tools/DFS Management”.
- Display your namespace in the left pane.
- Remove your folders and targets.
- Finally remove your namespace servers. Removing the final one will remove your DFS root namespace.