SMW Assignment (DFS)

ST2612

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DISM/FT/2A/04

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Date: 9th August

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Pre-Setup Details

Prerequisites and Assumptions

Before setting up this DFS system, make sure you fulfill the following prerequisites for yourself and your system:

- Basic knowledge in managing Windows Servers
- Basic knowledge on what a Distributed File System is and what it does
- You have 3 WinServers set up and installed Active Directory Domain Services on your Domain Controller
- All member servers are connected to your Domain Controller successfully
- DHCP and DNS services are set up to provide to the domain
- Local VMnet NAT service is disabled and all servers can ping each other

Network Configuration

For this lab, the following network configuration and systems will be used.
Domain Name: smw.assignment.com
NetBIOS: SMW

Name	**Server1**	**Server2**	**Server3**
OS	Win Server 2016	Win Server 2012	Win Server 2016
IP Address	192.168.72.10	192.168.72.11	192.168.72.12
DNS	127.0.0.1	192.168.72.10	192.168.72.10
Status	Domain Controller	Member Server	Member Server

Final Product

The end result of this lab will be a DFS share with the path “\\SMW\SMWAssignment” for clients to access, hosted on 3 servers, Server1, Server2 and Server3.

Having 3 servers creates high availability and redundancy and even if one server goes down as the others can continue to provide the DFS service. Furthermore, if there are too many requests to the DFS shared folder, the 3 servers can share load amongst themselves so no one server gets overloaded with too many requests.

The shared folder is located at “C:\\SharingFolder” of each server.

Step by Step Guide

Flow

The flow of the setup guide is as follows:

1. Installing DFS Server Roles
2. Setting up DFS Namespace on Primary Server
3. Adding another NameSpace Server
4. Adding Target Folders
5. Setting Up Replication

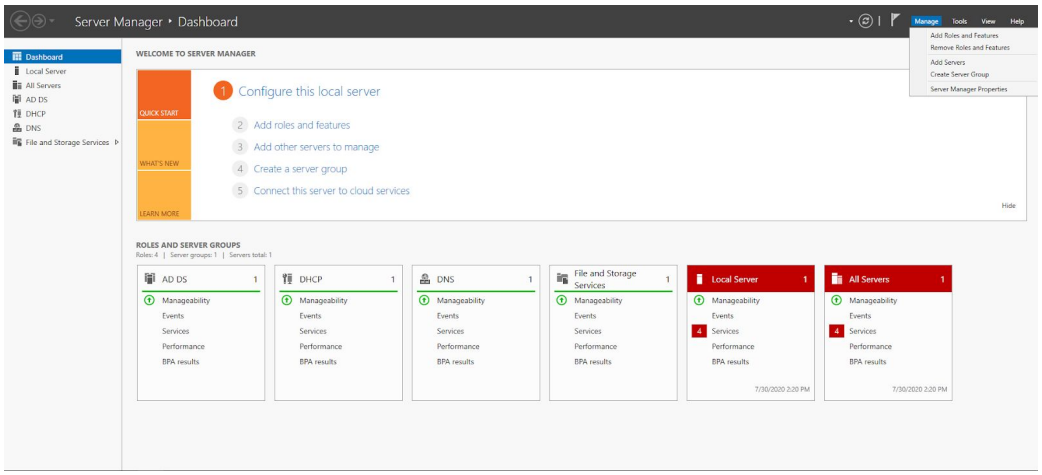
In addition, there are two more optional sections:

1. Further Testing
2. Troubleshooting

Installing DFS Server Roles

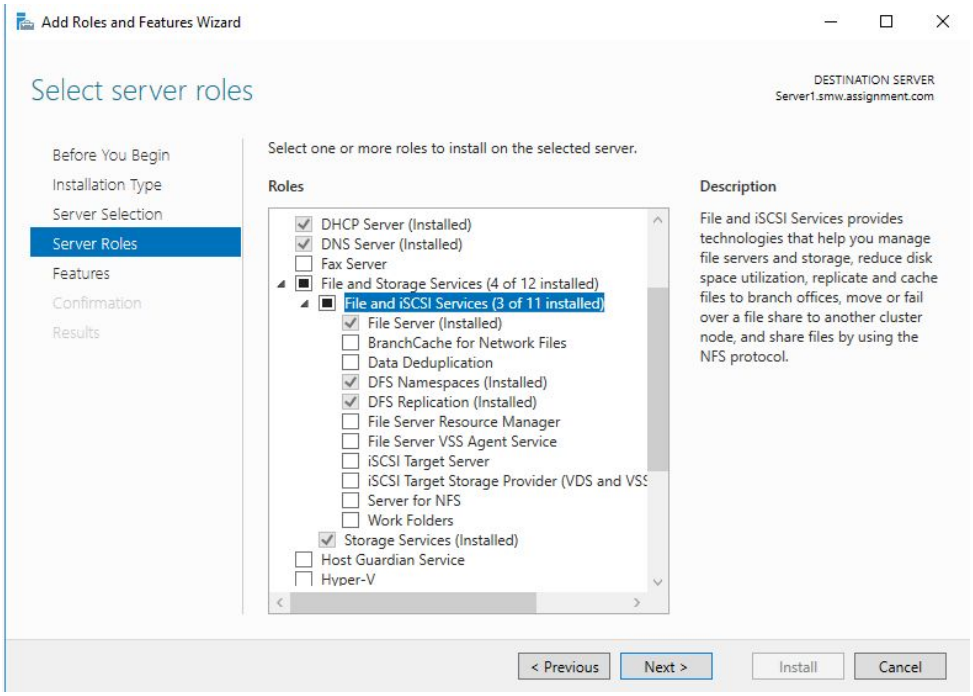
In order to use DFS, we need to install DFS server roles on all the servers we will be using for DFS.

1. Go to Server Manager -> Manage -> Add Roles and Features



2. You will see the “Add Roles and Features Wizard”. Click next, make sure you use “Role-based or feature-based installation” for your installation type, click next, select your primary server from your server pool and click next.

3. You will be at the “Select Server Roles” screen. Click on “File and Storage Services” -> File and iSCSI Services and make sure you check both “DFS Namespaces” and “DFS Replication”



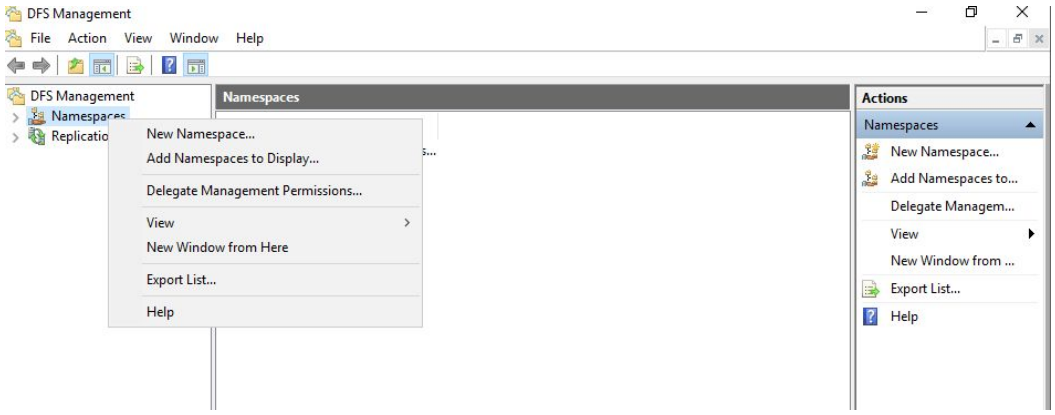
4. You can click next on the “Features” screen, and proceed to install the service. Repeat steps 1-3 on the other 2 servers as well.

Setting up your DFS Namespace on Primary Server

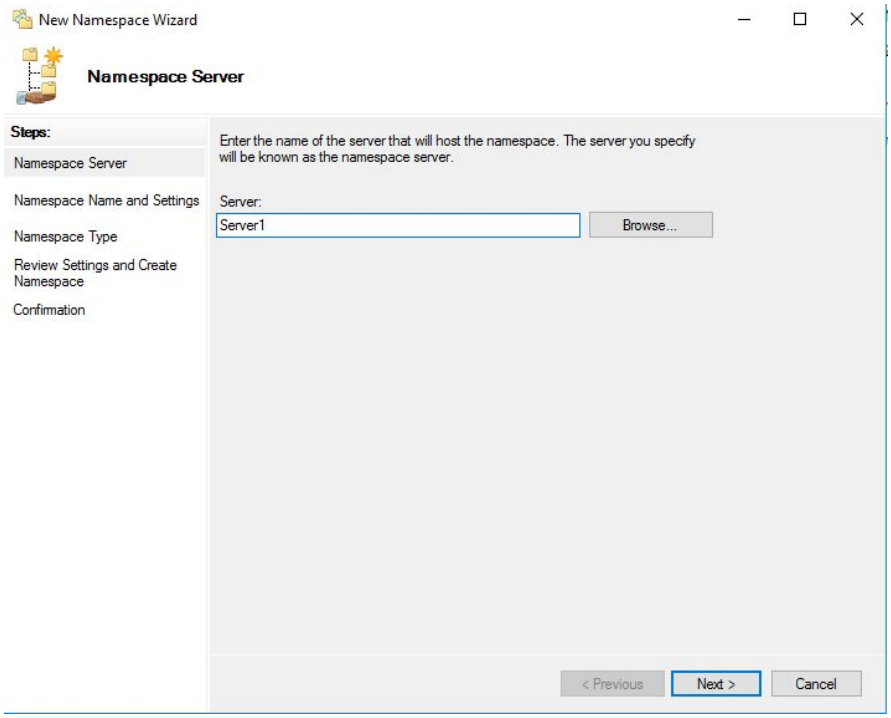
Now we will move onto setting up the DFS namespace on your primary server, Server1. Namespaces are how you call your shared file area which is being replicated.

1. Go to Server Manager -> Tools -> DFS Management and expand it to reveal “Namespaces” and “Replication”

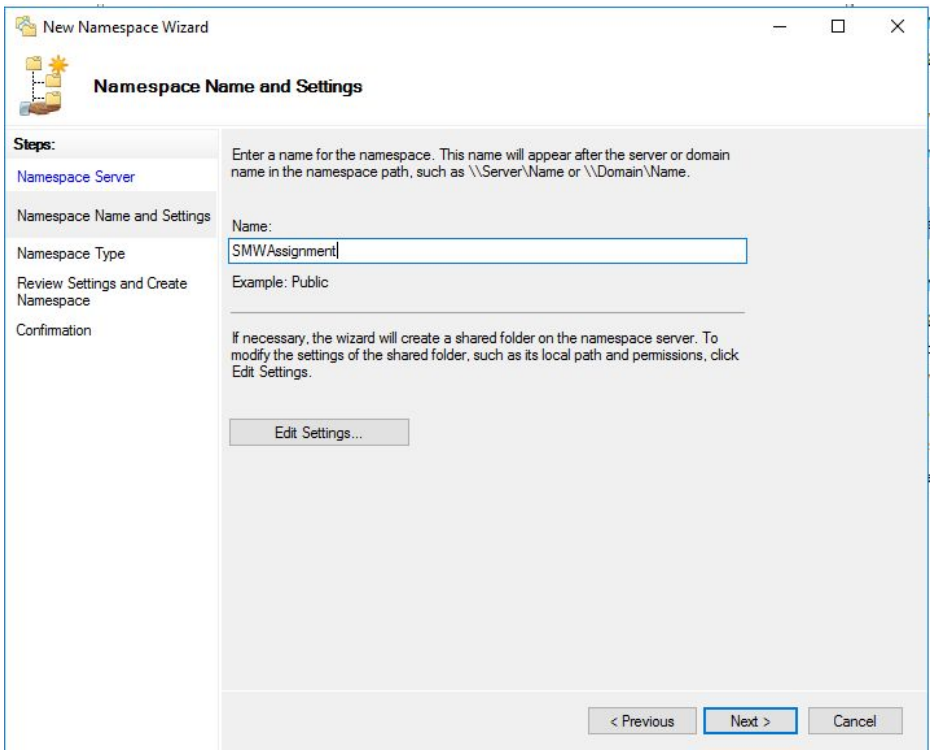
2. Right click on “Namespaces” and click on “New Namespace”



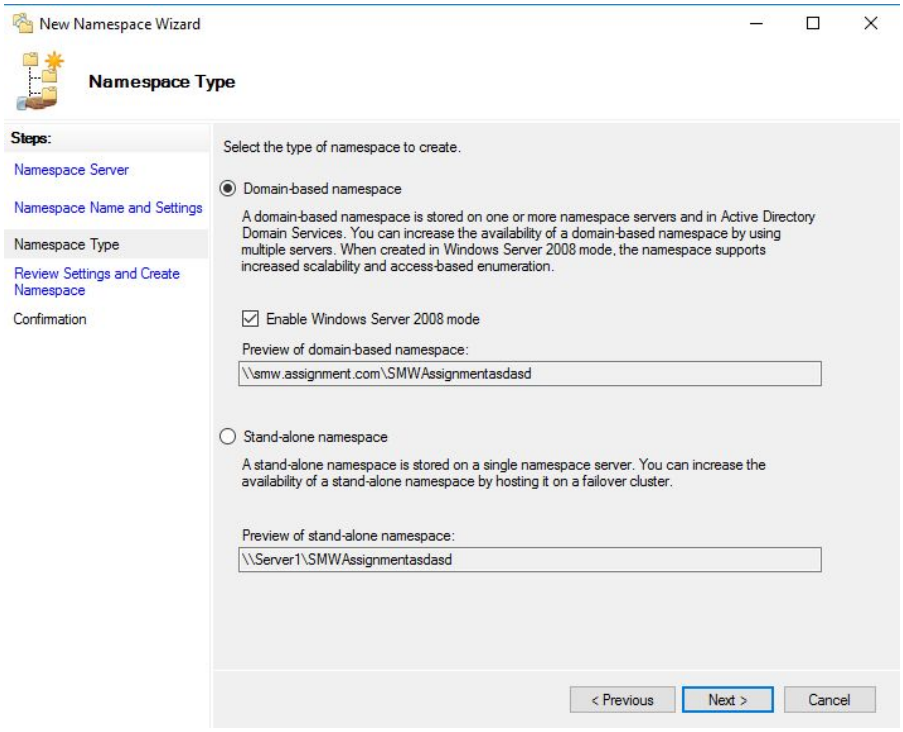
3. It will open up the New Namespace Wizard. On the first screen, specify the name of the Server to be used as the namespace server. In this case, put “Server1” and click Next.



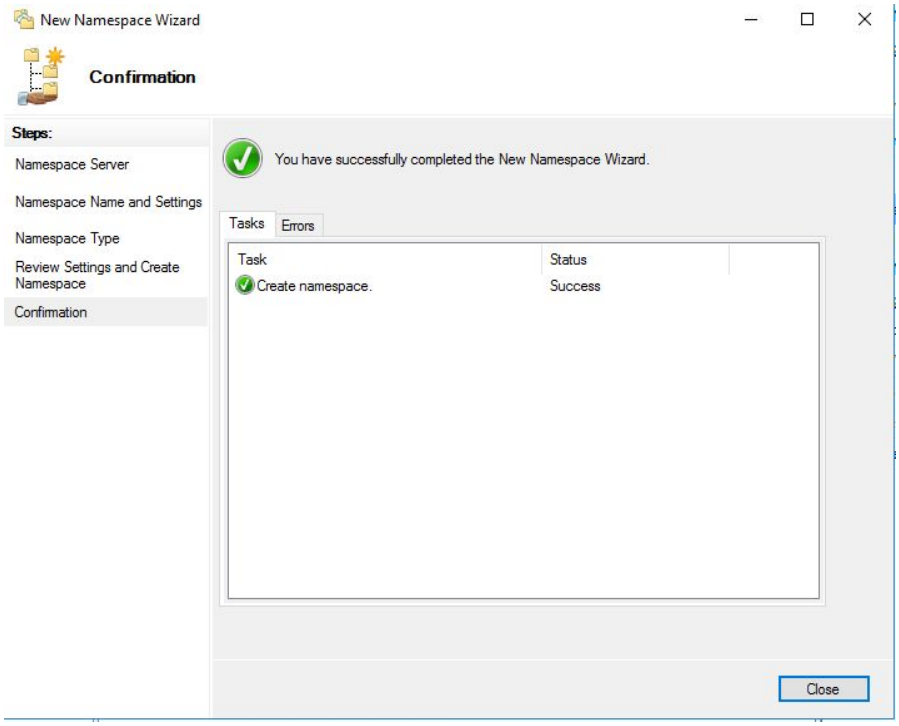
4. For Namespace Name and Settings, enter the name you want for your Namespace. In this case, I used “SMWAssignment”. You can leave the Edit Settings option alone and click Next.



5. For Namespace Type, make sure “Domain-based namespace” is chosen and click Next



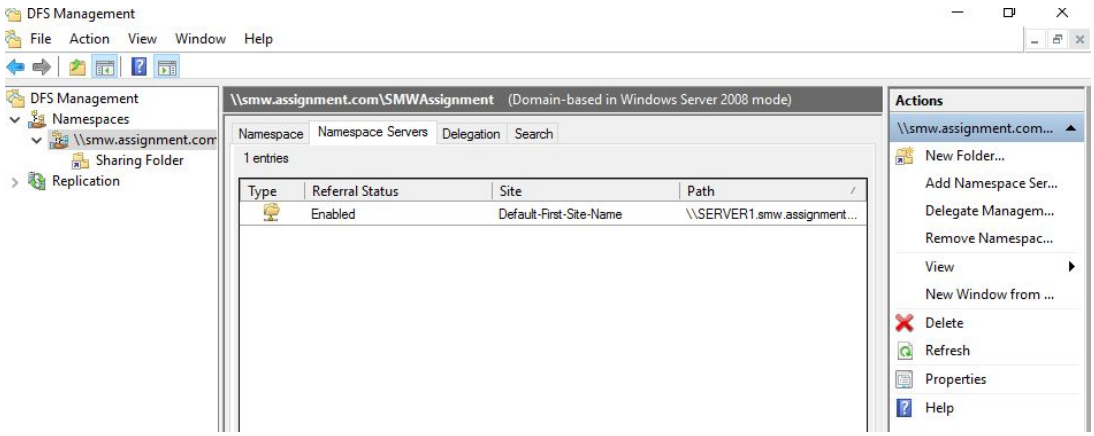
6. For Review Settings and Create Namespace, click Create. After creation succeeds, click Close and close the Wizard. You should now see the Namespace appear on the left.



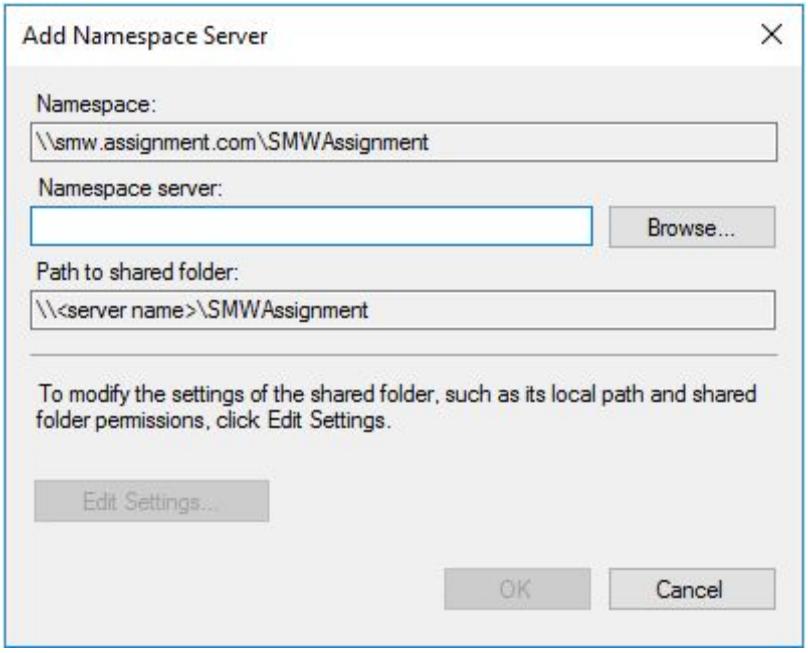
Adding Another Namespace Server

To ensure redundancy, we need to add at least another Namespace Server in addition to the one already created by default when we set up the Namespace. This is to ensure that even if the primary server, Server1, goes down, there is still another Namespace Server.

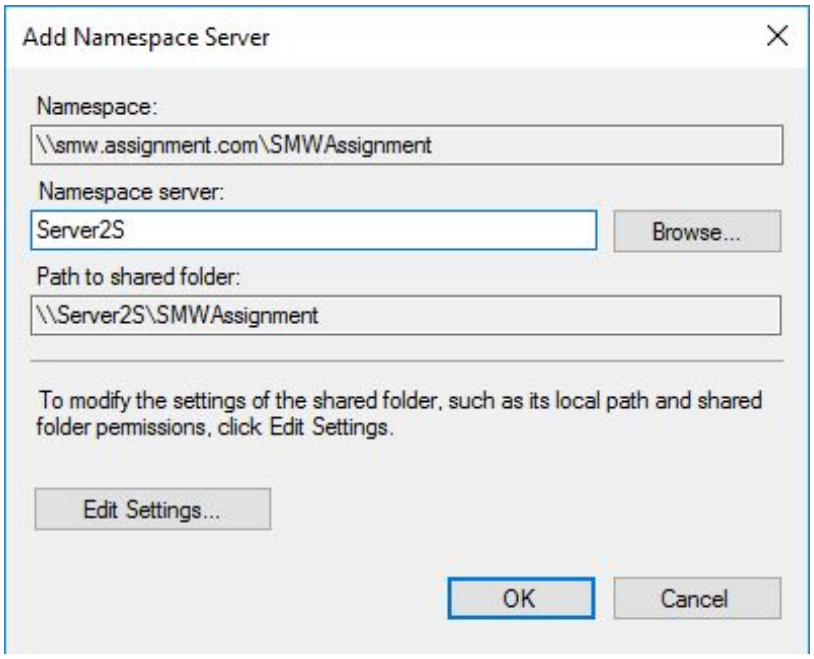
1. Click on your Namespace and select Namespace Servers



2. Select “Add Namespace Server” and open up the window.



3. For this example, we will use Server2 as the redundant server. Click OK.

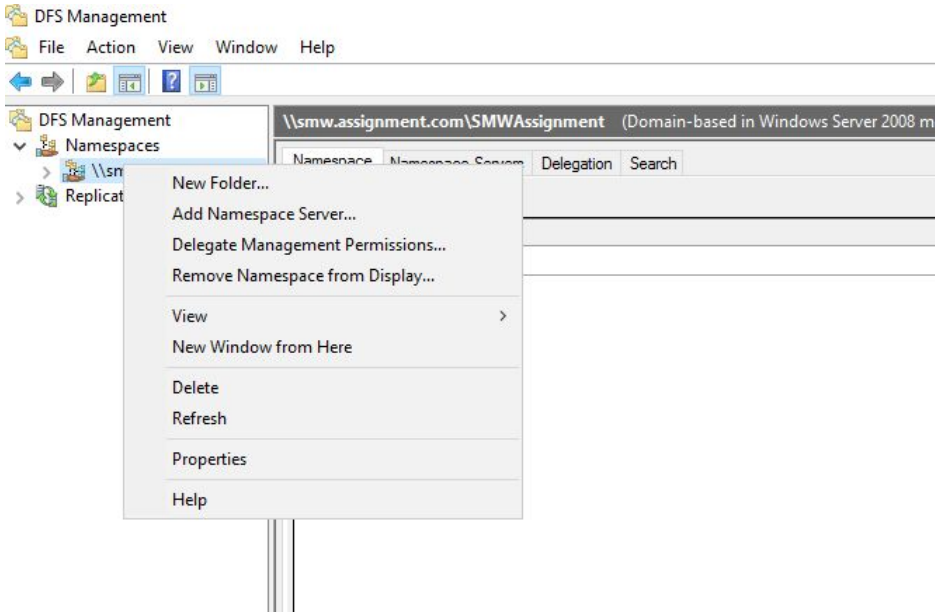


4. You will now see two Namespace Servers there, Server1 and Server2. Repeat steps 1-3 if you want to add Server3 as well for even more redundancy.

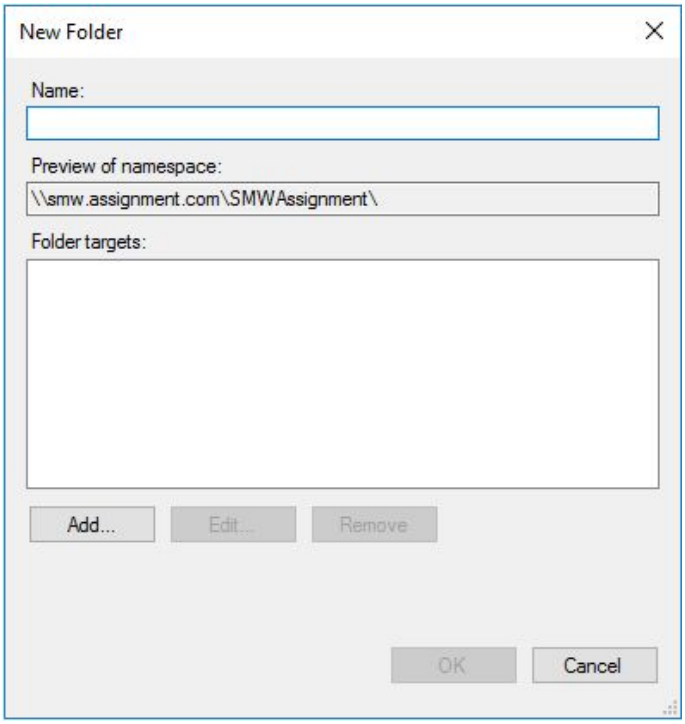
Adding Target Folders

We now need to create target folders to share on each of our servers.

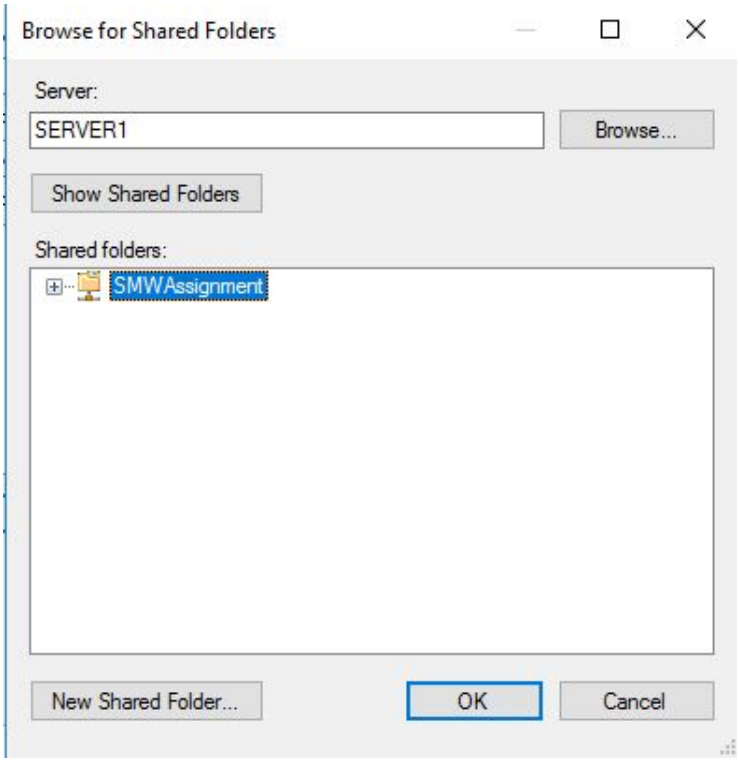
1. Using DFS Management, right click on your Namespace and click “New Folder”



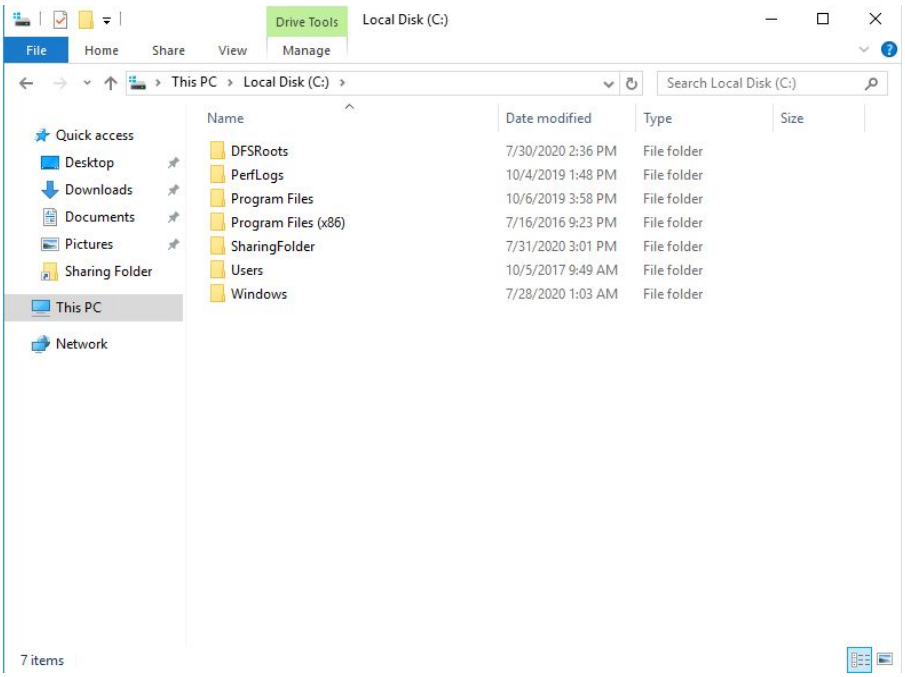
2. Click on Add. Then click Browse.



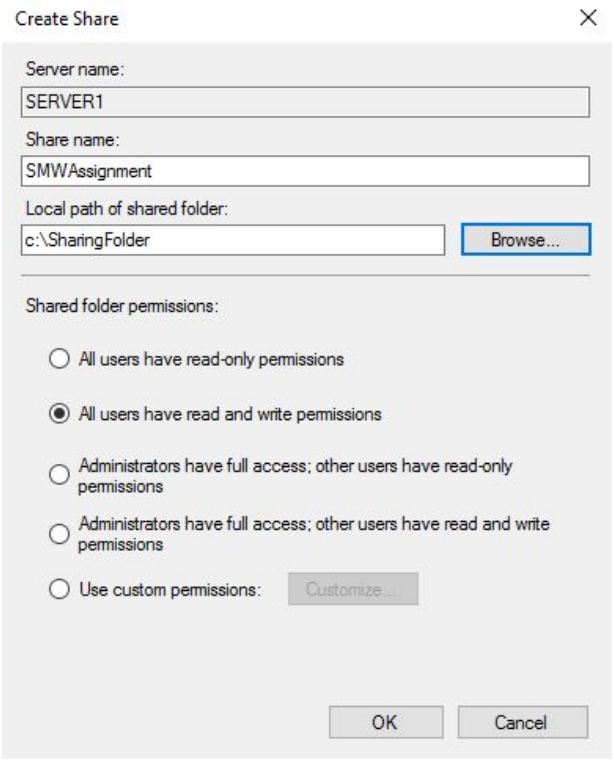
3. Enter “Server1” into the Server Name and click Show Shared Folders. **Take note:** You will not see the SMWAssignment folder that is reflected on my screen.



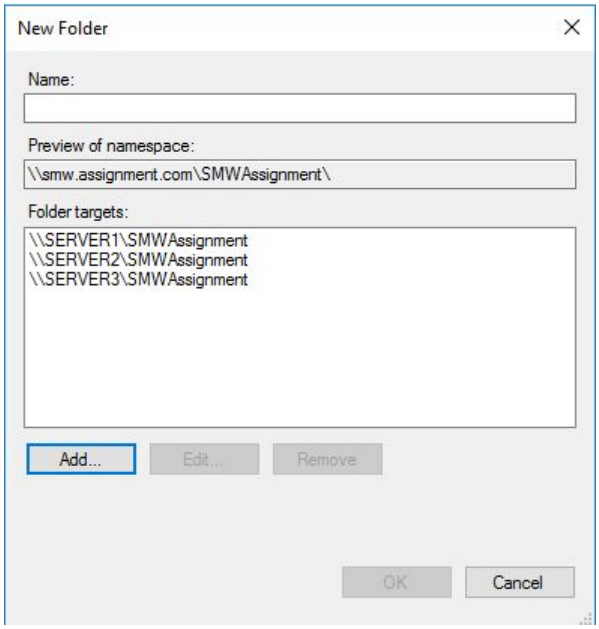
4. Create a new file on your Server1 C drive, “C:\\SharingFolder”.



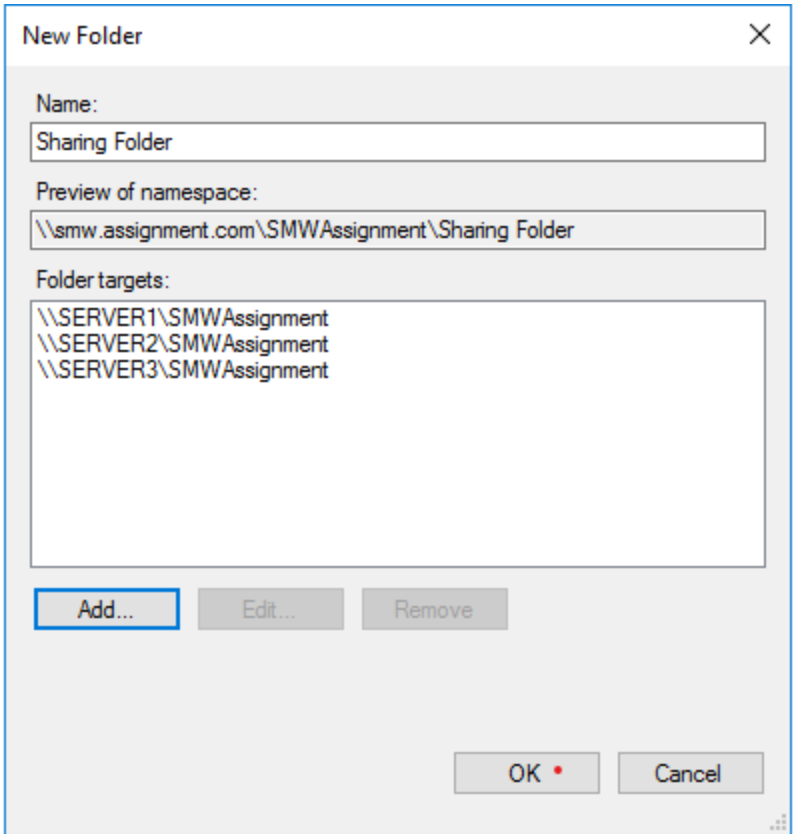
5. There is no folder being shared at the moment, click New Shared Folder. Enter “Sharing Folder” into the Share name. Click Browse and search for “C:\\SharingFolder” and set it as your Local Path of shared folder. Finally, make sure you check “All users have read and write permissions”. Click Ok.



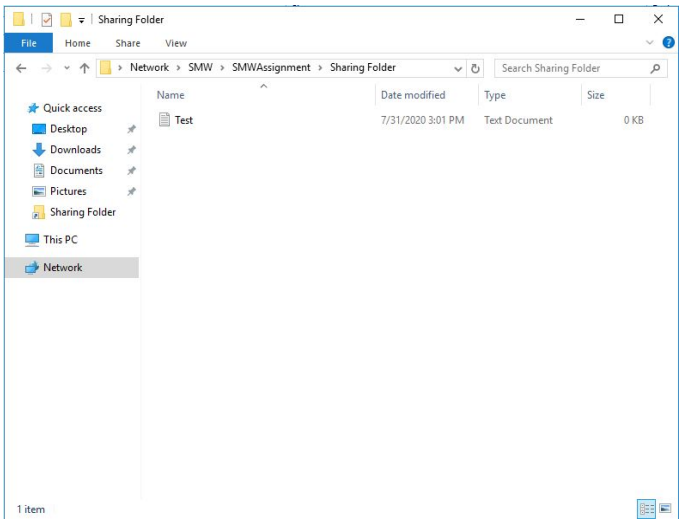
6. You will be back to the New Folder screen. Repeat steps 2-5 for Server2 and Server3 until you have this screen.



7. Enter Sharing Folder as your name. Click Ok



8. Now open “\\SMW\SMWAssignment\Sharing Folder” and you will be in your DFS share. Create a new file there called “Test.txt” and write anything inside it.

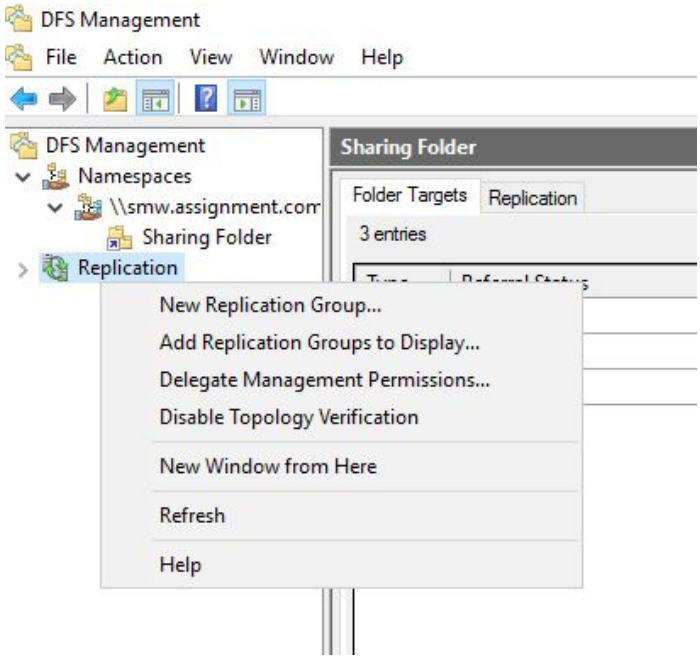


9. Try accessing “\\SMW\SMWAssignment\Sharing Folder” from Server2 and Server3. It should work. However, this folder is only replicated on Server1. We will now create a replication group to Server2 and Server3.

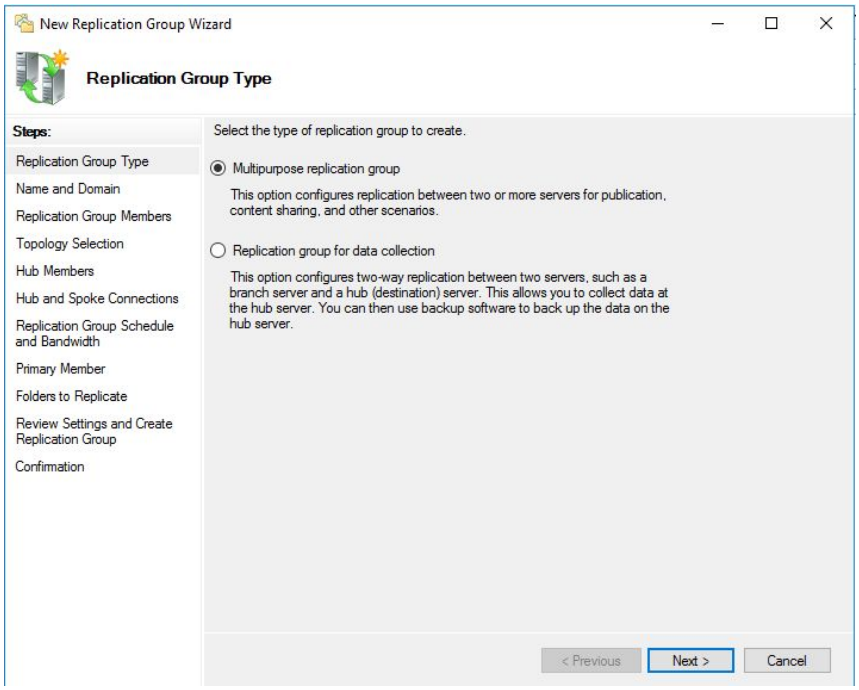
Setting Up Replication

Now that we created our namespace and target folders, it is time to set up replication so the data stays constant throughout all 3 servers.

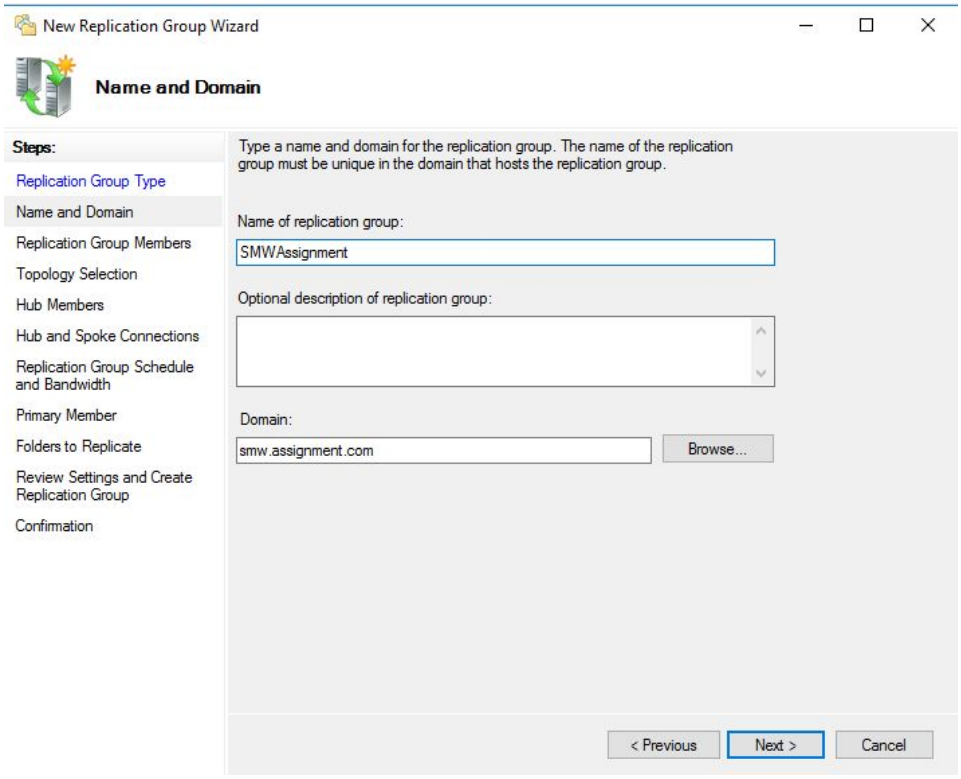
1. From DFS Management, right click Replication and click New Replication Group



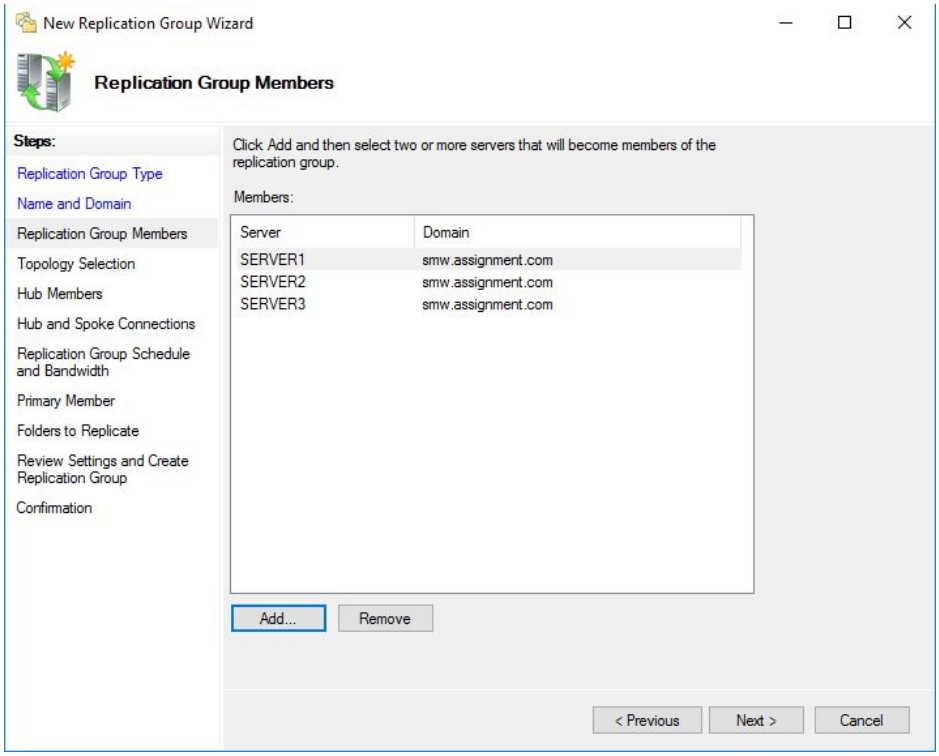
2. Select Multipurpose Replication Group and click next



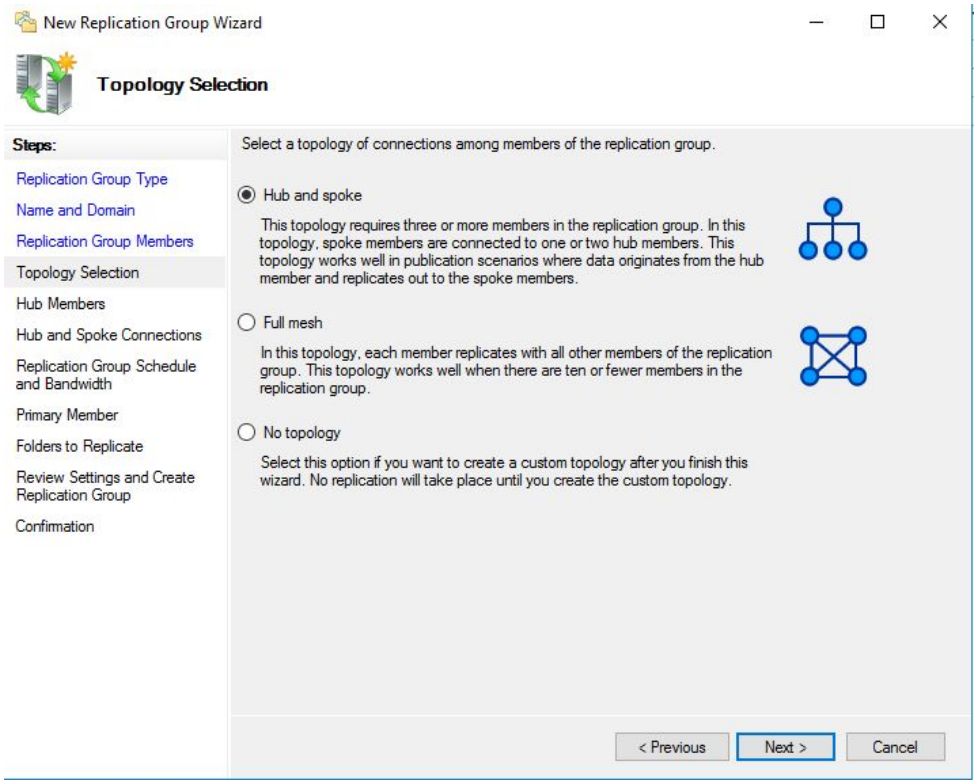
3. Enter “SMWAssignment” as Replication Group Name, click Next



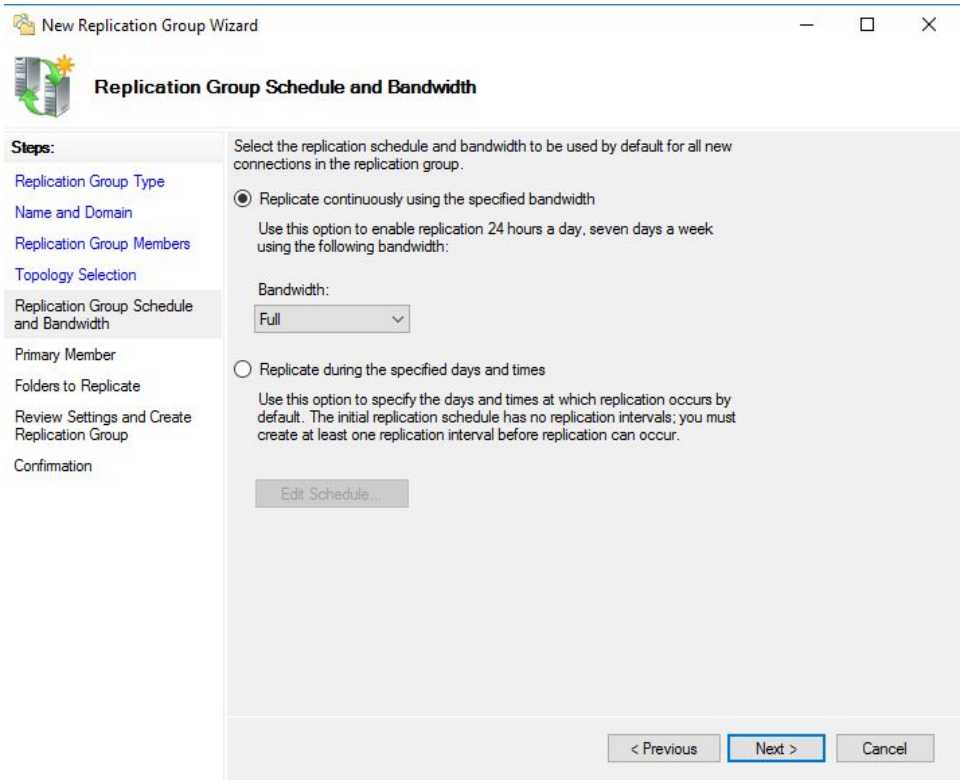
4. On the Replication Group Members, Click Add, then add Server1, Server2 and Server3 click Next.



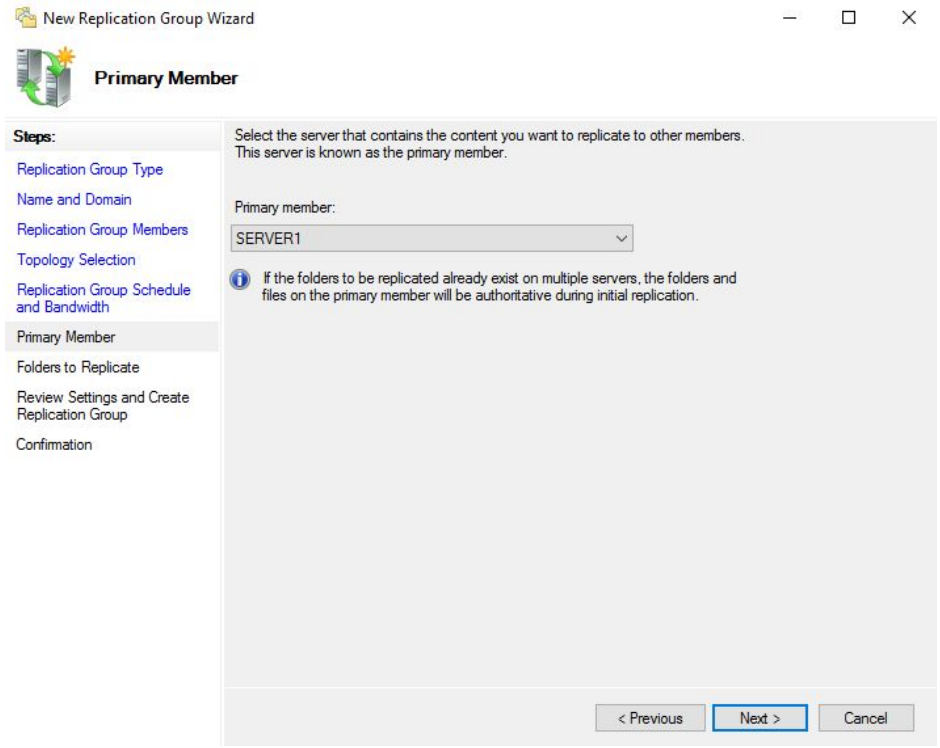
5. For Topology Selection, select Full Mesh and click Next



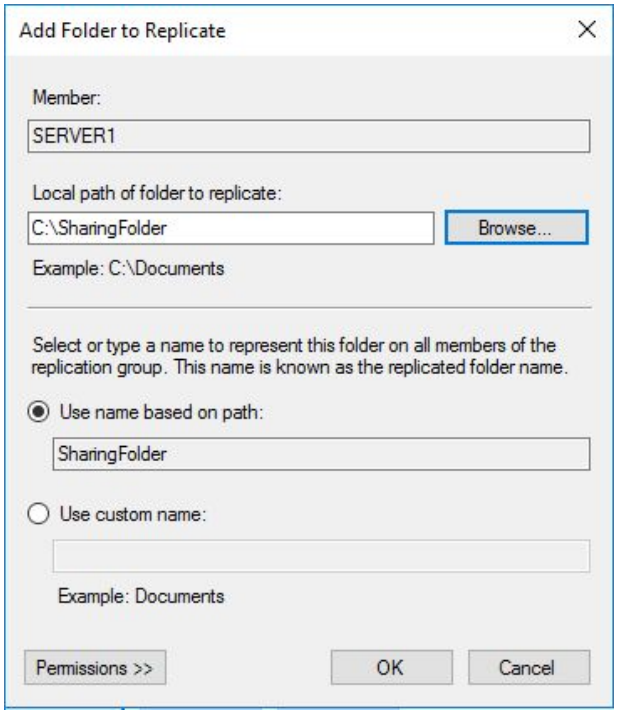
6. For Replication Group Schedule and Bandwidth, select “Replicate continuously using specified Bandwidth” and set it to “Full”. Click Next



7. For Primary Members select Server1, click Next

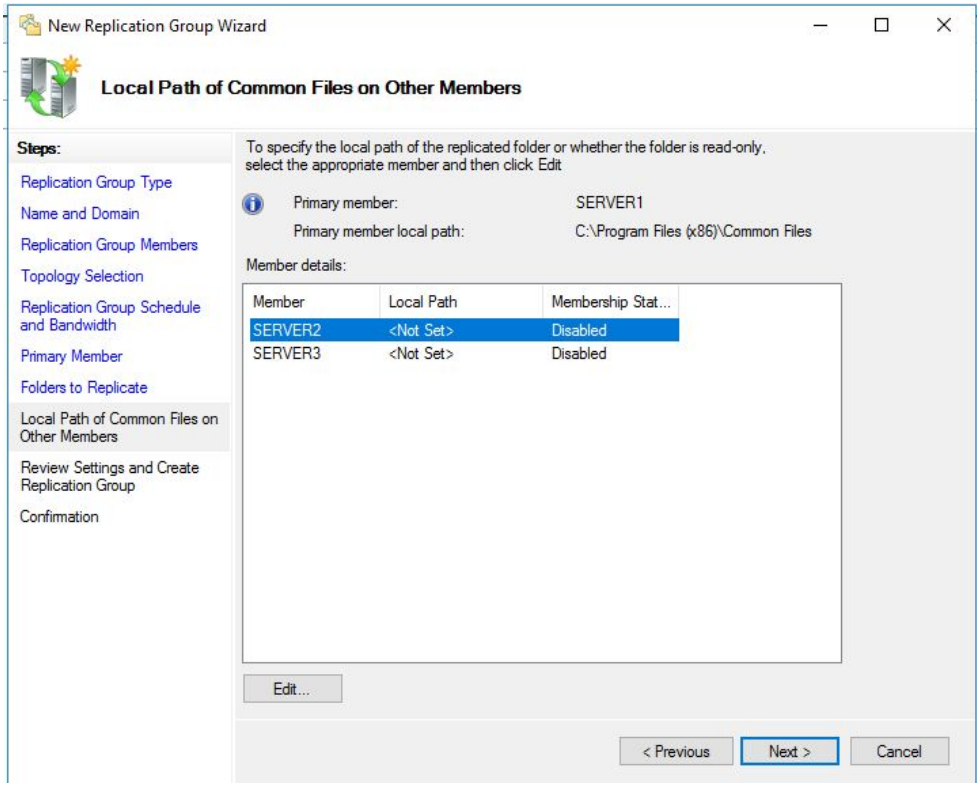


8. For Folders to Replicate, click Add, browse to your C:\\SharingFolder and select it

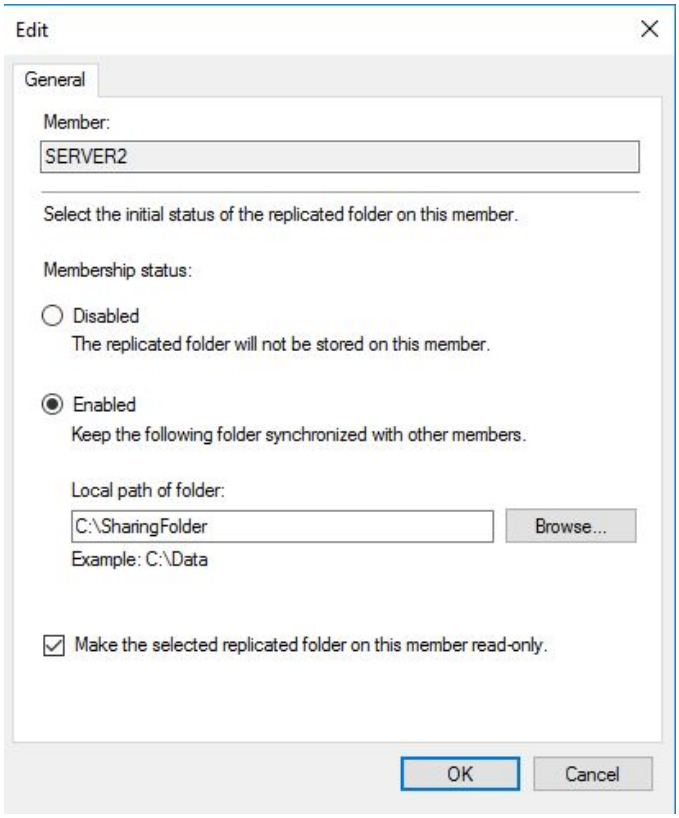


9. Click Ok and click Next.

10. For Local Path of Common Files on Other Members, click on Server2 and click Edit



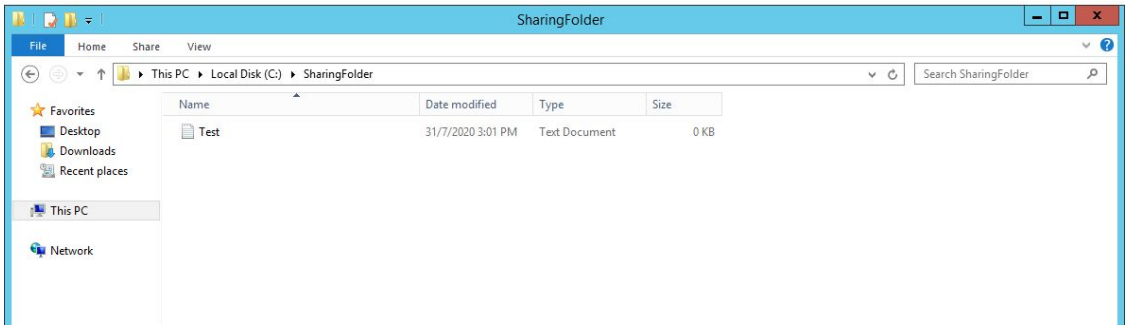
11. Select “Enabled” and click Browse, then select your “C:\\SharingFolder”. Click OK



12. Repeat steps 10-11 for Server3 as well, then click Next

13. Click Create and close the wizard after successfully creating the replication group

14. Give it a few minutes. Go to Server2 and open “C:\\SharingFolder”. You should see the “Test.txt” you created previously



15. Repeat step 14 for Server3 and you should see it. This shows that replication is working

Further Testing

1. Create a file or folder in Server3 and check if it is replicated on Server1 and Server2

2. Edit the file in Server2 and see if the file is updated on Server1 and Server3 as well

3. Delete a file from Server1 and see if the file is deleted in Server2 and Server3

4. Take down Server1 and Server2, see if you can still access the DFS folder from an external client (Requires a 4th VM running Win10 Client

Troubleshooting

1. If you cannot read or write in the shared folder from any machine or account, make sure the permissions you set are correct (Everyone can Read and Write etc)

2. If your DFS is not replicating, make sure the Replication Group was created correctly.

3. If your DFS is not accessible when one server goes down, make sure all servers are Namespace Servers and all are grouped together in the Replication Group

4. If your folders are not syncing, make sure you are accessing the correct folder

Demonstration Agenda

Assumptions

These are the following assumptions I will be basing the demonstration on:

- The servers can all ping one another and are in the same domain
- The client is a Windows 10 VM connected to the domain

Plan and Flow of Demonstration

This will be the flow for the demonstration agenda:

1. Setup Configuration
2. Successful replication of updates and changes made to files or folders
3. High Redundancy and Availability of DFS service
4. Replication of offline editing

I will be going through the setup configuration used to set up the DFS service, which includes the DFS role installation on all servers, namespace servers and other important configurations.

For Successful Replication of updates and changes made to files or folders, I will be showing that replication works by creating two text files and editing them on one of the servers.

For High Redundancy and Availability of DFS service, I will be taking one server down and proving with the client that the files can still be accessed as there is still at least one namespace server still alive.

For replication of offline editing, I will create files and folders and edit them while offline. When the server boots back up I will show that the offline edits were replicated.

Testing Data Set

I will be using the following for purposes of the demonstration:

- Windows 10 client VM
- Text files “Test1”, “Test2” and “OfflineFile”
- Folders “Folder1” and “Folder2”

<End of Report>

References

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