Buffalo Americas:

End of Server 2003 Support & Strategic Solutions: Migrating your data to Windows Storage Server 2012 R2

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Chapter 1 Windows Server 2003 End of Support & Windows Storage Server 2012 R2 Strategic Solution:

Support for Windows Server 2003/R2 and Windows Storage Server 2003/R2 will end on July 14, 2015. If you are using a product equipped with these operating systems, we recommend purchasing a product equipped with the most up-to-date systems, and migrating the stored data.

Windows Storage Server 2012 R2 (WSS) is an officially licensed Microsoft Server product only sold through authorized Microsoft OEM Partners. All system licensing as well as client access licenses are included in the cost of storage appliances known as network-attached storage (NAS). WSS is specifically optimized for use with NAS devices.

Upon release of this document organizations relying on the original computer systems running Server 2003 are primarily using them as local archived storage destinations and file sharing devices requiring Active Directory and Group Policy Object control. Few critical business software applications or programs are running on their original Server 2003 hardware system.

Buffalo TeraStation WSS NAS devices afford organizations an economical way to officially migrate data from Server 2003 computer systems to a TeraStation WSS NAS device. Complete overview of WSS is available on the Microsoft TechNet website at:


Buffalo TeraStation WSS NAS devices address organizational needs for seamless integration with Active Directory and Group Policy Object control. Additional key features such as iSCSI targeting, distributed file system replication, storage oriented third party applications and others are supported. The link above will assist your efforts to identify the correct WSS edition that meets your organizational needs.

Buffalo TeraStation WSS NAS devices are offered in both Workgroup and Standard editions. Our product line includes 2, 4 and 6 bay desktop units from 4 TB to 24 TB total storage capacity. A 1U rackmount option is offered with Standard edition and includes 8 TB and 16 TB total capacity options. All TeraStation WSS 5000N products ship fully populated with NAS quality hard drives which are certified for the 24x7 demands of business environments. Complete product line overview is available online at:

www.buffalotech.com/products/network-storage (select the tab titled “Windows Storage Server”)
Chapter 2  Data migration method

There are 2 ways you can migrate your data:

1. File Server Migration Toolkit.


Whether you plan to consolidate multiple file servers or migrate data from one file server to another, the File Server Migration Toolkit is designed to simplify the process of copying data and minimize the impact of the consolidation or migration on end users.

The toolkit utilizes the Distributed File System (DFS) and is capable of maintaining Universal Naming Convention (UNC) paths thus providing a simplified migration process.

Benefits:

- Simplifies the complex and error-prone migration process with an easy to use Graphical User Interface (GUI).
- Maintains original Universal Naming Convention (UNC) paths of files and eliminates broken shortcuts and links with DFS consolidation roots ensuring a transparent migration experience for end users.
- Maintains security settings after the migration to ensure the security of files and folders.
- Consolidates shared folders with the same names from different servers by using default target shared folder names.
- Supports server clusters as source and target file servers by creating DFS consolidation roots on server clusters, and the necessary File Share resources to represent shared folders on the target server clusters.
- Provides roll-back functionality by attempting to restore access to the source file servers.

Limitations:

- Communication during the transition is not encrypted.

- The DFS Namespaces are unavailable at several times during the migration process. You should plan your migration when you can take the namespace that is hosted on the source server offline.
2. Windows Server Migration Tools:

Windows Server Migration Tools, available as a feature in Windows Server 2012/R2 /
Windows Storage Server 2012/R2, allows an administrator to migrate some server roles,
features, operating system settings, shares, and other data from computers that are running
certain editions of Windows Server 2003/R2 to computers that are running Windows Server

Benefits:

- Uses HTTPS to securely transfer files between servers i.e. communication during the
  transition is encrypted.
- Migrations between physical operating systems and virtual operating systems are
  supported.
- Maintains the DFS namespace during the migration of data.

Limitations:

- Knowledge of PowerShell operations is a prerequisite.
- Can only be used to migrate small datasets, up to 100 GB in size. If you need to migrate
  larger amounts of data, Microsoft recommends using Robocopy command- line tool.
Chapter 3  File Server Migration Toolkit

Best practice:

As with any migration, a backup of the system or data being migrated is recommended prior to using the File Server Migration Tool. Prior to decommissioning any migrated server, confirm the new server is functioning properly.

The following example describes the procedure to migrate data to Buffalo products that are equipped with the Windows Storage Server 2012 R2.

1. Download the “Microsoft File Server Migration Toolkit 1.2” from the following URL, and then install on the destination machine.


2. Run the fsmigrate_x64.msi and follow through the Setup Wizard:

   Next > Accept > Next > Next > Complete > Next > Install

3. On the Windows Storage Server 2012 R2, log in as Domain Administrator or Administrator depending whether you are in a Domain or Workgroup environment.

4. Open Windows Explorer and navigate to Program Files > Microsoft File Server Migration Toolkit, click & run FSIMigrateapplication.
5. At welcome screen, click **New**.

6. At New Project Wizard, click **Next**.
7. Click **Next**.

![Warning dialog]

8. New Project Wizard: DFS Consolidation Root Server, check or uncheck **Use the following DFS root server** depending on whether using one or not, select **Next**

![New Project Wizard]

**Note:** In the continuing example, a DFS root server is not used.

9. New Project Wizard: Default Location for Migrated Shared Folders, specify location and select **Next**

![New Project Wizard]

10. Click **Yes** to create the directory.

![Warning dialog]
11. Click **Finish**.

12. At Microsoft File Server Migration Wizard, Click ‘**Add Server**…’ to add a Source fil server, verify Settings, then click **Continue**

12.1. Type **03FileServer**, click **OK**.

*Note: 03FileServer is the example of the server used here; you can also enter its IP address.*
12.2. Next to View by, select Target volumes.

12.3. Select temp\03FileServer\Acnt.

You can modify the share name and target location for each folder. **Note**: There is an option to help you create DFS link in the DFS root. temp\03FileServer\Acnt is the example used here.

13. Validating Settings/Ready to copy: settings will be validated and if all is okay, click Continue again to copy the shared files and folders.
14. Ready to finalize: click **Continue** and click **Yes** to the Warning regards ‘... access to the source shares will be disabled ...’

![Finalize window]

15. Click **OK**. And then click **View Report**.

![View Report window]

**Example of report:**

```
<table>
<thead>
<tr>
<th>Summary</th>
<th>Errors and Warnings</th>
<th>Server Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project status:</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Project created:</td>
<td>C:\FileServerMigration\</td>
<td></td>
</tr>
<tr>
<td>User:</td>
<td>CONTOSO\Administrator</td>
<td></td>
</tr>
<tr>
<td>Migration server:</td>
<td>08fs</td>
<td></td>
</tr>
<tr>
<td>Configuration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source servers:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Source shares:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>DFS root:</td>
<td>not used</td>
<td></td>
</tr>
<tr>
<td>Validation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total files/folders:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total size:</td>
<td>3.8 GB</td>
<td></td>
</tr>
<tr>
<td>Errors:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Warnings:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Copy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attempt 1 (Most Recent)</td>
<td>Finished</td>
<td>3.8 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total servers finalized:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total servers ignored:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Remaining servers:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total servers in migration:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finalize errors</td>
</tr>
<tr>
<td>Attempt 1 (Most Recent)</td>
<td>Finished</td>
<td>0</td>
</tr>
</tbody>
</table>
```

10
As you can see from the above process, the File Server Migration Toolkit is a tool which lets administrators easily migrate and consolidate shared folders.

We recommend creating a test environment that closely reflects your current setup before performing this on the production Windows Server 2003 File Server.

**Additional reference:**

Overview of the Microsoft File Server Migration Toolkit:

Chapter 4 Windows Server Migration Tools

The following procedure shows how to install and configure the Windows Server Migrations Tools on a destination server running Windows Server 2012 R2 / Windows Storage Server 2012 R2.

To use Windows Server Migration Tools, the feature must be installed on both the source and destination computers.

Best Practice:

As with any migration, a backup of the system or data being migrated is recommended prior to using the Windows Server Migration Tools. Prior to decommissioning any migrated server, confirm the new server is functioning properly.

In order to use the Windows Server Migration Tools, you must have the "Windows PowerShell 2.0" installed. If you are using Windows Server 2008 and earlier OS to the destination of the product, download and install the Windows Management Framework Core onto the source server from the following URL:

http://support.microsoft.com/kb/968929/

The TCP and UDP port number "7000" will be used for the data transfer. Make sure to allow port number "7000" on both the source and destination.

When specifying the destination of the product with an IP address, and when performing the migration between different IP subnets, the following ports also need to be allowed: TCP "7001" and UDP "7002".

1. On the Windows Storage Server 2012 R2 machine via Server Manager, navigate to Manage > Add Roles and Features; Click Next until the Select Features screen is visible; Select the Windows Server Migration Tools from the Server Manager in the Add Roles and Features Wizard to destination of product
Note: The Windows Server Migration Tools include additional cmdlets that assist in the migration of server roles, OS settings files and shares from legacy Windows Servers.

2. On the Windows Storage Server 2012 R2 machine, open PowerShell in Administrator mode and navigate to the following folder:

   C:\Windows\System32\ServerMigrationTools

3. Then type the following:

   ```
   .\SmigDeploy.exe /package /architecture x86 /OS WS03 /Path <deployment folder path>
   ```

   ```
   C:\Windows\System32\ServerMigrationTools\ .\SmigDeploy.exe /package /architecture x86 /OS WS03 /path C:\WS MigDeploy.exe is checking for prerequisites.
   ```

   ```
   C:\Windows\System32\ServerMigrationTools\ .\SmigDeploy.exe /package /architecture x86 /OS WS03 /path C:\WS MigDeploy.exe is copying Windows Server Migration Tools files to C:\WS MigTools\64\ws03_x86.
   ```

Note: Insert your desired path replacing deployment folder path in the script above (in the example the deployment folder path is C:\MIG). If the source server is 64-bit change x86 to amd64.

4. On the Windows Server 2003 machine, create the C:\MigrationTools folder

5. Copy the content from Windows Storage Server 2012 R2 folder <deployment folder path> to the Windows Server folder C:\MigrationTools\ either via the network or USB key.

7. On the Windows Storage Server 2012 R2 machine, still running **PowerShell** in Administrator mode and type the following:

Add-PSSnapin Microsoft.Windows.ServerManager.Migration
Receive-SmigServerData

Enter a desired migration password when prompted.

8. On the Windows Server 2003 machine, open **PowerShell** in Administrator mode and type the following:

```
Send-SmigServerData -ComputerName "Computer Name" -DestinationPath "X:\Users" -Include All -SourcePath "F:\users" -Recurse
```
Note: Insert your Windows Storage Server 2012 R2’s name replacing Computer Name and the appropriate DestinationPath and SourcePath in the script above.

Enter the same password as on Windows Storage Server 2012 R2 machine when prompted.

9. To reflect the Windows Shares from the old machine onto the new one, perform the following:

On the Windows Server 2003 machine, open the registry editor and navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\LanmanServer\Shares

Right-click on the Share Key and select Export

Save the exported key to a folder accessible by the Windows Storage Server 2012 R2 machine.

On the Windows Storage Server 2012 R2 machine, right-click the saved registry file exported from the Windows Server 2003 machine and select Merge

Restart the Windows Storage Server 2012 R2 machine.

Note: If your new server uses different drive allocations than the Windows 2003 Server, run the registry editor on the Windows Storage Server 2012 R2 machine, navigate to:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\LanmanServer\Shares and click on the share in question. Edit the Multi-String Path value to reflect the new drive allocation.
This concludes the process of migrating Windows File Server 2003 onto Windows Server 2012/R2 / Windows Storage Server 2012 R2. It is also possible to migrate other roles and features with this tool, see the additional reference section for more information.

We recommend creating a test environment that closely reflects your current setup before trying this on the production Windows Server 2003 File Server.

**Additional reference:**
Install, Use, and Remove Windows Server Migration Tools:

Migrating Roles and Features in Windows Server:

For information about Buffalo TeraStation Windows Storage Server 2012 R2 line up:
www.buffalotech.com/products/network-storage (select the tab titled “Windows Storage Server”)

<table>
<thead>
<tr>
<th></th>
<th>TeraStation™ 5600DN WSS</th>
<th>TeraStation™ 5400RN WSS Rackmount</th>
<th>TeraStation™ 5400DN WSS</th>
<th>TeraStation™ 5200DN WSS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Hard Drives</strong></td>
<td>6 (NAS)</td>
<td>4 (NAS)</td>
<td>4 (NAS)</td>
<td>2 (NAS)</td>
</tr>
<tr>
<td><strong>Capacity Range</strong></td>
<td>22 - 24 TB</td>
<td>8 - 16 TB</td>
<td>4 - 12 TB</td>
<td>4 - 8 TB</td>
</tr>
<tr>
<td><strong>Number of Users</strong></td>
<td>Unlimited</td>
<td>Unlimited</td>
<td>50</td>
<td>50</td>
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<tr>
<td><strong>RAID Modes</strong></td>
<td>0/1/5/800</td>
<td>0/1/5/800</td>
<td>0/1/5/300</td>
<td>0/1/300</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>Intel® Atom™ Processor D2700 (2.13 GHz Dual-Core)</td>
<td>Intel® Atom™ Processor D2700 (2.13 GHz Dual-Core)</td>
<td>Intel® Atom™ Processor D2550 (1.86 GHz Dual-Core)</td>
<td>Intel® Atom™ Processor D2550 (1.86 GHz Dual-Core)</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>4 GB DDR3</td>
<td>4 GB DDR3</td>
<td>4 GB DDR3</td>
<td>4 GB DDR3</td>
</tr>
<tr>
<td><strong>Expansion Ports</strong></td>
<td>3 x USB 3.0, 2 x USB 2.0</td>
<td>3 x USB 3.0, 2 x USB 2.0</td>
<td>2 x USB 3.0, 2 x USB 2.0</td>
<td>2 x USB 3.0, 2 x USB 2.0</td>
</tr>
<tr>
<td><strong>Data Deduplication</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Select models include Windows Storage Server 2012 R2. Details are noted on each product page.*