



Tech Data File Sharing on Azure

Below is a list of action items as part of the deployment process and post deployment recommendations to customize the Cloud Environment.

Technical Requirements – Customer Inputs

- What Region will the solution be deployed to?
- What will you name the Resource Group?
- What will you name the Storage Account?

Storage account name should contain 3-24 lowercase alphanumeric characters.

- What will you name the File Share?

The File Share name should be 3-63 lowercase alphanumeric characters.
The use of non-consecutive dashes (-) is allowed, but not at the beginning and the end of the name.

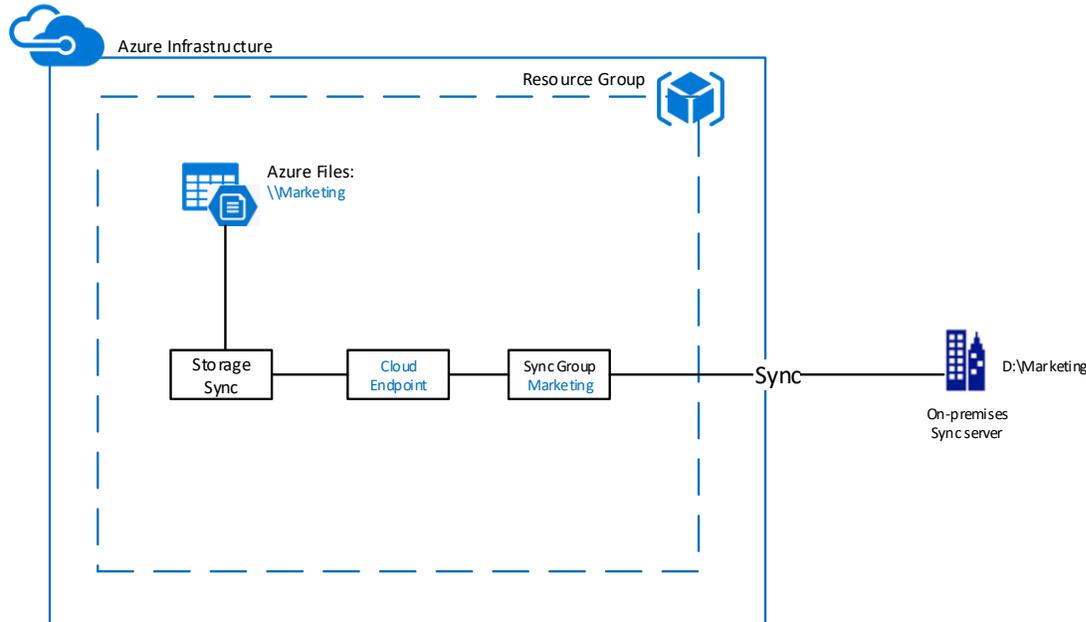
- What are the data redundancy requirements (LRS, ZRS, GRS, GZRS, RA-GRS, RA-GZRS)?
- Will data storage need to be in Hot or Cool Access Tier?
- What are the File Share Quota requirements (128GB-5TB)?
- Is Secure Transfer required for connections?
- Is Hierarchical Namespaces required (typical for analytics workloads)?

Benefits of Azure File Sync

The Azure Storage - Sharing solution is designed for centralizing your organization's file shares in Azure Files without giving up the flexibility, performance, and compatibility of an on-premises file server. Transform your Windows Servers into a quick cache of your Azure file share and access them through SMB or NFS shares on Windows Server.

This solution is useful for scenarios in which data needs to be accessed and modified far away from an Azure datacenter, such as in a branch office scenario. Data may be replicated between multiple Windows Server endpoints, such as between multiple branch offices.

Architecture Diagram



Resources Deployed

The following resources are deployed to build and configure this bundle.

Showing 1 to 2 of 2 records. Show hidden types ⓘ

<input type="checkbox"/> Name ↑↓	Type ↑↓	Location ↑↓
<input type="checkbox"/>  armfstest1sa	Storage account	East US
<input type="checkbox"/>  StorageSync	Storage Sync Service	East US

Storage Account: The storage account that is the cloud endpoint for the files .

Storage Sync Service: The Storage Sync Service is the top-level Azure resource for Azure File Sync. It can create sync relationships with multiple storage accounts via multiple sync groups. A subscription can have multiple Storage Sync Service resources deployed. This service can be added to your File Share at anytime. In order to complete this task you will need to download the File Sync Agent.

Storage Account

All access to data objects in Azure Storage happens through a storage account. It contains all your Azure Storage data objects (files in this case). Data is durable and highly available, secure, massively scalable, and accessible from anywhere in the world over HTTP or HTTPS. There are 3 types of storage accounts and the one used for this solution is a General-purpose v2.

Server Requirements:

- Windows Server 2012 R2 / Windows Server 2016 Datacenter or Standard with a Full UI (not Core):
 - 2Gb Memory
 - Locally attached volume NTFS system
- AzureRM PowerShell module on the servers you would like to use with Azure File Sync.
 - Reboot required
- PowerShell 5.1 installed in the Windows Server (for Windows 2012 R2 at least PowerShell 5.1.*.)
- For each server that you intend to use with Azure File Sync, including each server node in a Failover Cluster, disable Internet Explorer Enhanced Security Configuration. This is required only for initial server registration. You can re-enable it after the server has been registered.
- Connection to the internet to access Azure Files
- The Azure File Sync agent is updated on a regular basis to add new functionality and to address issues. Configure Microsoft Update to automatically download and install agent updates.

Deployment Overview

In the next section we will walk through the deployment and inputs of the click to run solution. The screenshot below provides an overview of the inputs required for deployment. After deployment you will be able to install the Microsoft recommended File Sync Agent on server to link back to the Storage Sync Services.

✓ Configure your Azure Storage - File Sync Solution

Location

Select data center location

Select an available Azure Region

Resource Group Name

Basic Information

Storage Account name

File Share name

Advanced Bundle Settings

Storage Account and Replication type

Locally Redundant Storage (LRS)

Access Tier

Hot

File Share quota

0 512 1024 1536 2048 2560 3072 3584 4096 4608 5120

Secure Transfer required

Hierarchical Namespace enabled

Sync Group name

SyncToAzure

Deploy Now

Deployment Tasks

Steps to deploy:

1. The first step in the deployment is to pick an Azure data center location to deploy the resources into along with the name for the resource group. The Azure resource group name must be unique to your Azure tenant so after you type in your resource group name the form will validate that it is unique and conforms to the naming rules.

📍 Data center location

Select an available Azure Region

Resource group name

2. The next step is to pick the name for the storage account and file share. These should be unique names. The storage account name should contain 3-24 lowercase alphanumeric characters, and the file share name should be 3-63 lowercase alphanumeric characters. After you input each name the form will validate against the live tenant to verify that it is unique and valid.

Basic Information

Storage Account name

Storage account name should contain 3-24 lowercase alphanumeric characters.

File Share name

The File Share name should be 3-63 lowercase alphanumeric characters. The use of non-consecutive dashes (-) is allowed, but not at the beginning and the end of the name.

3. You will be next asked to provide the replication type for the storage account.

📍 Storage Account and Replication type

Locally Redundant Storage (LRS) ▾

Please select account type

- Locally Redundant Storage (LRS)
- Zone Redundant Storage (ZRS)
- Geo Redundant Storage (GRS)
- Geo Zone Redundant Storage (GZRS - Preview)
- Read access Geo Redundant Storage (RA-GRS)
- Read Access Geo Zone Redundant Storage (RA-GZRS - Preview)

- **Locally redundant storage (LRS)** copies your data synchronously three times within a single physical location in the primary region. LRS is the least expensive replication option, but is not recommended for applications requiring high availability.
- **Zone-redundant storage (ZRS)** copies your data synchronously across three Azure availability zones in the primary region. For applications requiring high availability, Microsoft recommends using ZRS in the primary region, and also replicating to a secondary region.
- **Geo-redundant storage (GRS)** copies your data synchronously three times within a single physical location in the primary region using LRS. It then copies your data asynchronously to a single physical location in the secondary region.
- **Geo-zone-redundant storage (GZRS)** copies your data synchronously across three Azure availability zones in the primary region using ZRS. It then copies your data asynchronously to a single physical location in the secondary region.
- For read access to the secondary region, enable **read-access geo-redundant storage (RA-GRS)** or **read-access geo-zone-redundant storage (RA-GZRS)**.

Durability and availability parameters

The following table describes key parameters for each redundancy option:

Parameter	LRS	ZRS	GRS/RA-GRS	GZRS/RA-GZRS
Percent durability of objects over a given year ¹	at least 99.9999999999% (11 9's)	at least 99.9999999999% (12 9's)	at least 99.9999999999% (16 9's)	at least 99.9999999999% (16 9's)
Availability SLA for read requests ¹	At least 99.9% (99% for cool access tier)	At least 99.9% (99% for cool access tier)	At least 99.9% (99% for cool access tier) for GRS At least 99.99% (99.9% for cool access tier) for RA-GRS	At least 99.9% (99% for cool access tier) for GZRS At least 99.99% (99.9% for cool access tier) for RA-GZRS
Availability SLA for write requests ¹	At least 99.9% (99% for cool access tier)	At least 99.9% (99% for cool access tier)	At least 99.9% (99% for cool access tier)	At least 99.9% (99% for cool access tier)

¹ For information about Azure Storage guarantees for durability and availability, see the [Azure Storage SLA](#).

Durability and availability by outage scenario

The following table indicates whether your data is durable and available in a given scenario, depending on which type of redundancy is in effect for your storage account:

Outage scenario	LRS	ZRS	GRS/RA-GRS	GZRS/RA-GZRS
A node within a data center becomes unavailable	Yes	Yes	Yes	Yes
An entire data center (zonal or non-zonal) becomes unavailable	No	Yes	Yes ¹	Yes
A region-wide outage occurs in the primary region	No	No	Yes ¹	Yes ¹
Read access to the secondary region is available if the primary region becomes unavailable	No	No	Yes (with RA-GRS)	Yes (with RA-GZRS)

¹ Account failover is required to restore write availability if the primary region becomes unavailable. For more information, see [Disaster recovery and storage account failover](#).

- Next you will need to select the tier of storage. For frequently used files it is recommended you use the Hot access tier and if you infrequently access the files it is recommended you use the Cold access tier.

 Access Tier

Hot ▼

Please select access tier

Hot

Cool

- Next you will need to define the file share quota for the storage account. You can use the slider to move from 128GB to 5TB.

 File Share quota

0 512 1024 1536 2048 2560 3072 3584 4096 4608 5120

 Secure Transfer required

 Hierarchical Namespace enabled

You should enable **Secure Transfer** if you only want to accept connections from secure protocols. If you are using the Azure File Sync agent this will utilize encryption in transit. If you needed to access the storage account directly using an insecure protocol (e.g. legacy application) then you have the option to turn this feature off. It is recommended that Secure Transfer be enabled unless you have a specific use.

Hierarchical Namespaces allow for the collection of object/files in a storage account in a hierarchy of directories (similar to a filesystem) improving the capability of providing the scalability and cost-effectiveness of object storage, with file system semantics that are familiar to analytics engines and frameworks. This setting also enables file level ACLs. It is recommended that Hierarchical Namespaces be enabled to take benefits.

6. After you receive the email confirmation that the solution has deployed you can install the Azure File Sync Agent if you want to add that service manually.

Supported Operating System

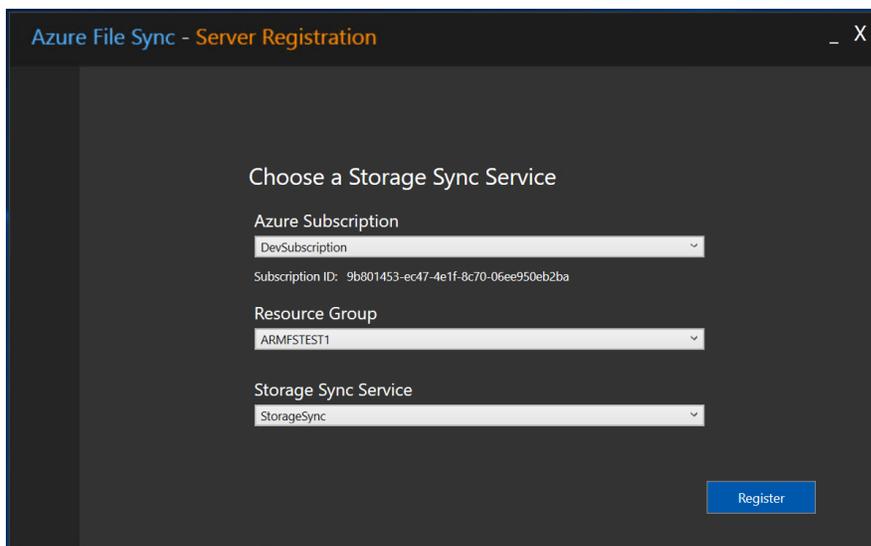
- Windows Server 2019, Windows Server 2016, Windows Server 2012 R2

You can visit the following URL on your download the agent.

<https://www.microsoft.com/en-us/download/details.aspx?id=57159>

During the installation of the File Sync Agent you will log into your tenant and be able to:

- select your Azure subscription
- select the Resource Group you previously defined
- link to the Storage Sync Service defined.



Azure File Sync - Server Registration

Choose a Storage Sync Service

Azure Subscription
DevSubscription
Subscription ID: 9b801453-ec47-4e1f-8c70-06ee950eb2ba

Resource Group
ARMFSTEST1

Storage Sync Service
StorageSync

Register

Example Deployment

In this example deployment I will demonstrate setting up a Azure File Sync Relationship between a Windows 2019 server. In this first step I deploy the Click to Run solution from Tech Data.

✔ Configure your Azure Storage - File Sync Solution

Location

Select data center location

East US

Resource Group Name

ARMFSTESTI

Basic Information

Storage Account name

armfstestsas

File Share name

armfstestfs

Advanced Bundle Settings

Storage Account and Replication type

Locally Redundant Storage (LRS)

Access Tier

Hot

File Share quota

0 512 1024 1536 2048 2560 3072 3584 4096 4608 5120

Secure Transfer required

Hierarchical Namespace enabled

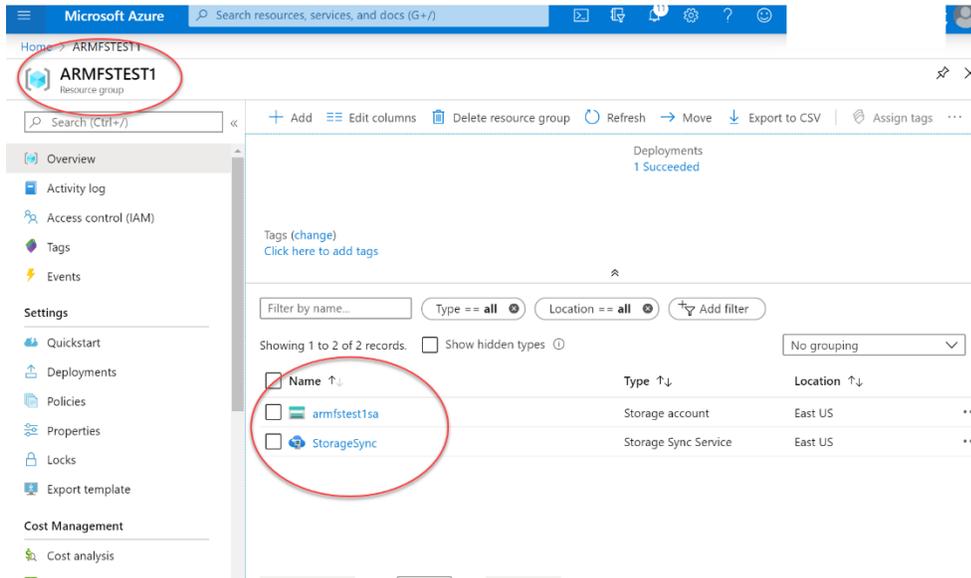
Sync Group name

SyncToAzure

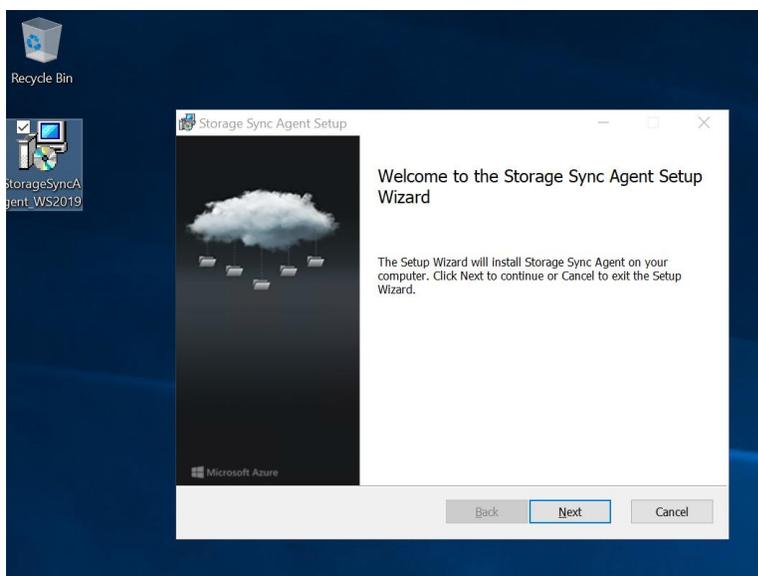
Deploy Now

Post Deployment Steps for installing File Sync

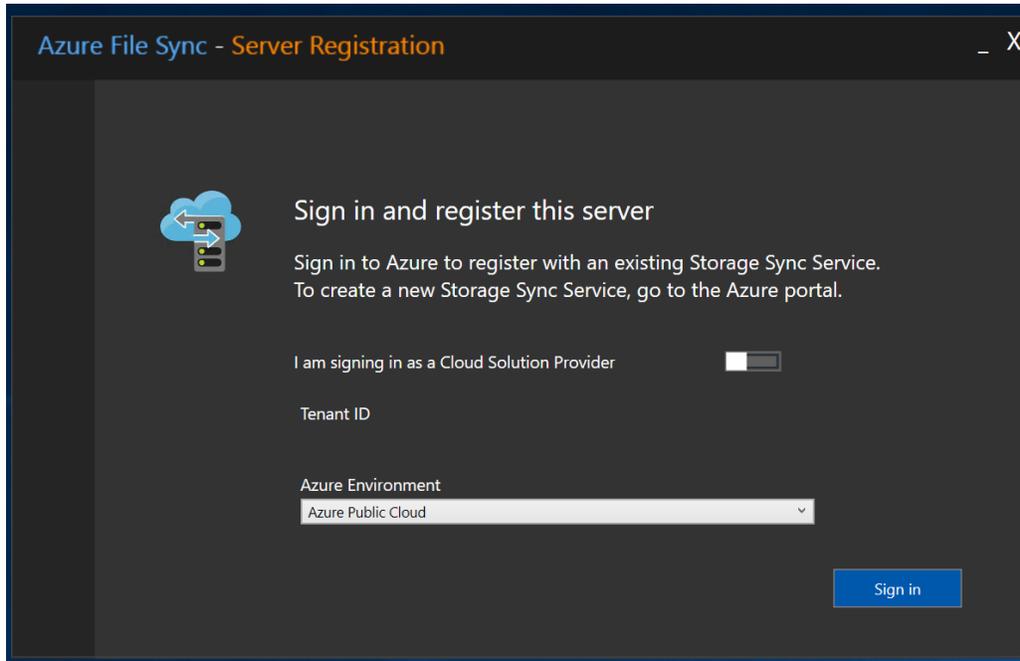
After the deployment is complete you should notice that a new resource group has been created along with the storage account and Storage Sync Service.



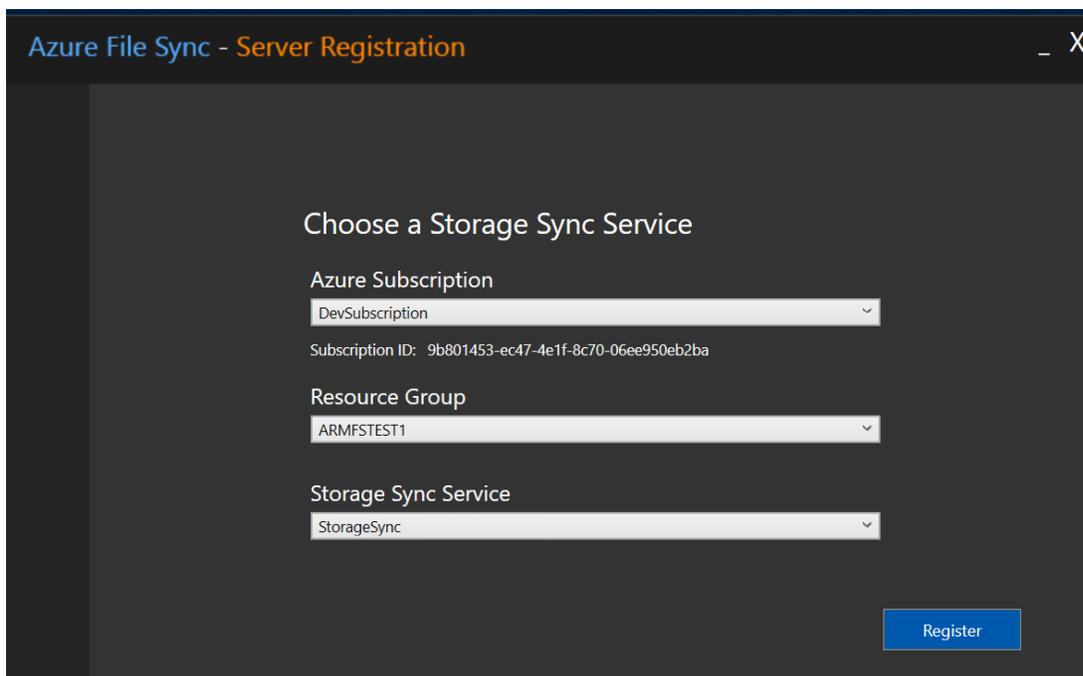
Visit <https://www.microsoft.com/en-us/download/details.aspx?id=57159> to download the appropriate version of the File Sync Agent and complete the wizard.



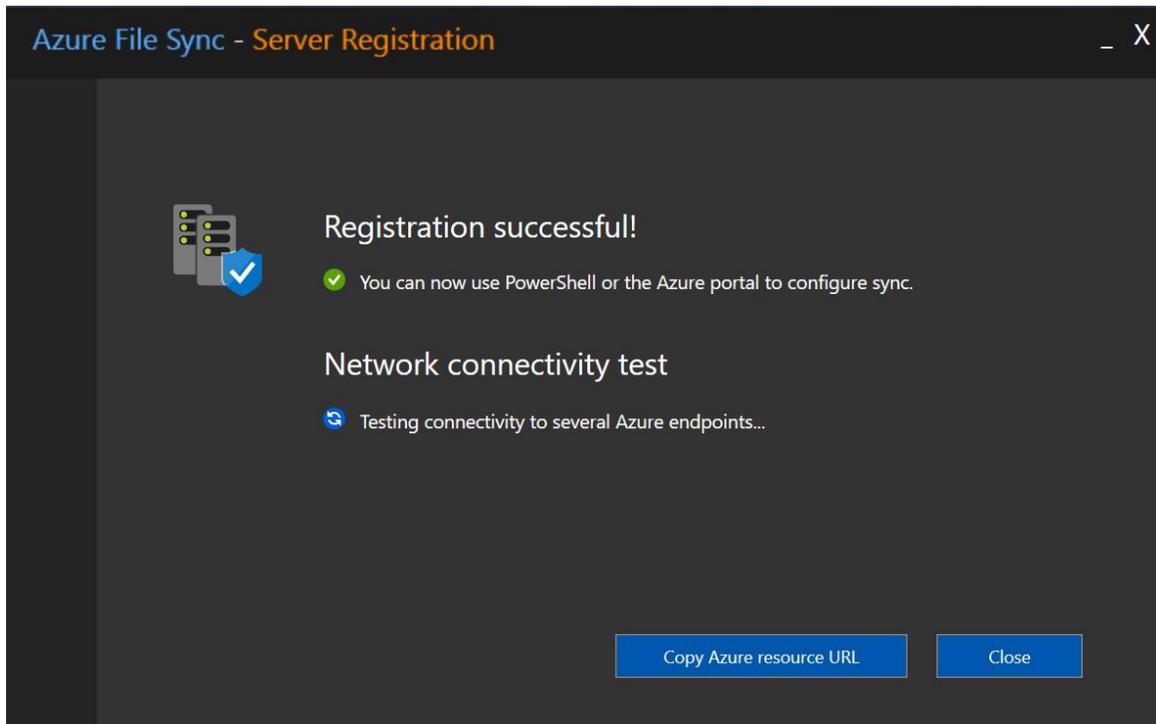
After installation the setup for the File Sync Agent will start. You can sign into your azure subscription.



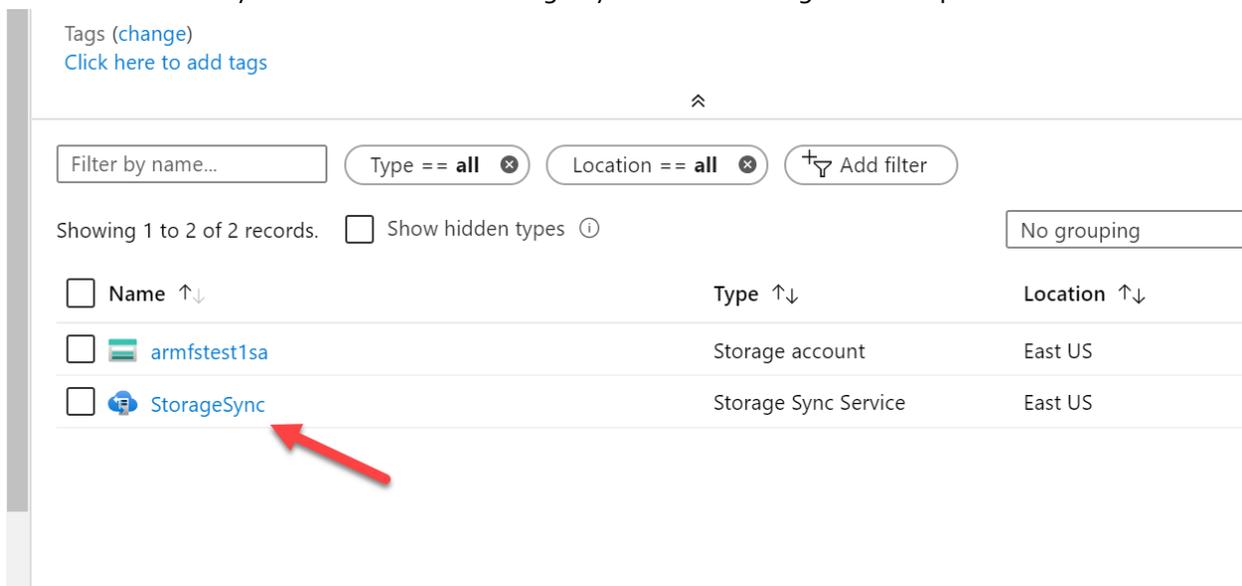
I then used the drop down boxes to select the appropriate subscription, resource group, and then I selected StorageSync for the Storage Sync Service. Then you can click on Register.



The next screen will let you know if the registration was successful.



In the Azure Portal you can click on the Storage Sync Service to begin the setup of the



Next click on the Sync Group that we want to configure. During the deployment in our case we created the Sync Group named "SyncToAzure".

The screenshot shows the Azure Storage Sync console. The breadcrumb navigation is 'Home > ARMFSTEST1 > StorageSync'. The page title is 'StorageSync Storage Sync Service'. There is a search bar and a list of navigation options: Overview, Activity log, Access control (IAM), Tags, and Settings. The main content area shows a table of 'Sync groups' with columns for 'Sync group name', 'Health', and 'Region'. A single entry 'SyncToAzure' is listed with a green checkmark in the Health column and 'East US' in the Region column. A red arrow points to the 'SyncToAzure' row.

Sync group name	Health	Region
SyncToAzure	✓	East US

Next click on "Add server endpoint" to complete the linking of the the Server Registration to the Sync Group.

The screenshot shows the details page for the 'SyncToAzure' sync group. The breadcrumb navigation is 'Home > ARMFSTEST1 > StorageSync > SyncToAzure'. The page title is 'SyncToAzure Sync group'. There are buttons for 'Add cloud endpoint', 'Add server endpoint', 'Refresh', and 'Delete'. A red arrow points to the 'Add server endpoint' button. Below the buttons, it says '1 cloud endpoints'. A table shows one endpoint: 'Azure File Share' with 'armfstest1fs' as the name and 'Provisioning State' as '✓'. On the left side, there is a 'Region' dropdown menu set to 'East US'.

Azure File Share	Provisioning State
armfstest1fs	✓

You will be able to drop down the Registered Server to find the server that you completed the wizard on. You will also specify a path on the server that you would like to sync. For the purposes of this demo we will use the C:\Users directory. When you are done you can click on Create.

Add server endpoint ✕

A server endpoint integrates an entire volume or a subfolder of a volume from a registered server as a location to sync. The following considerations apply:

- Servers must be registered to the storage sync service that contains this sync group before you can add a location on them here.
- A specific location on the server can only sync with one sync group. Syncing the same location or even a part of it – with a different sync group doesn't work.
- Make sure that the path you specify for this server is correct.

[Learn more](#)

Registered Server

Path

Cloud Tiering Enabled **Disabled**

Offline Data Transfer Enabled **Disabled**

You may be trying to create a server endpoint on the server's system volume. Please note that you will not be able to enable cloud tiering on the system volume.

Create

You can monitor the sync status on the main Sync Group page. You want to wait for this first sync to complete before you install the Azure File Sync Agent on other servers.

The screenshot shows the 'SyncToAzure' page in the Azure portal. It features two main sections:

- 1 cloud endpoints:** A table with one entry:

Azure File Share	Provisioning State	Resource Group
armfstest1fs	Success	ARMFSTEST1
- 2 server endpoints:** A table with two entries:

Server	Health	Files Not Syncing	Sync Activity	Path	Cloud Tiering	Last Status
ARMDEMOFSSERVER	Success	0		C:\Users		5/26/2020, 11:46 AM
ARMFSSERVER	Success	0		C:\Packages		5/26/2020, 10:03 AM

Below the tables are two bar charts: 'Files Synced' and 'Bytes Synced'. The 'Files Synced' chart shows a peak of approximately 25 files around 12 PM. The 'Bytes Synced' chart shows a peak of approximately 500 MB around 12 PM. A red arrow points to the 'Health' column in the server endpoints table.

The screenshot shows the 'armfstest1sa' storage account overview page in the Azure portal. The page includes a navigation sidebar on the left and a main content area with various service tiles and settings.

- Navigation Sidebar:** Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Data transfer, Events, Storage Explorer (preview), Settings (Access keys, Geo-replication, CORS, Configuration, Encryption, Shared access signature, Firewalls and virtual networks, Private endpoint connections, Advanced security, Static website, Properties, Locks, Export template).
- Main Content Area:**
 - Classic alerts in Azure Monitor is announced to retire in 2021, it is recommended that you upgrade your classic alert rules to retain alerting functionality with the new alerting platform.
 - Resource group (change): ARMFSTEST1
 - Status: Primary: Available
 - Location: East US
 - Subscription (change):
 - Subscription ID:
 - Tags (change): Click here to add tags
 - Performance/Access tier: Standard/Hot
 - Replication: Locally-redundant storage (LRS)
 - Account kind: StorageV2 (general purpose v2)
- Service Tiles:**
 - Containers: Scalable, cost-effective storage for unstructured data. Learn more
 - File shares: Serverless SMB file shares. Learn more (highlighted with a red arrow)
 - Tables: Tabular data storage. Learn more
 - Queues: Effectively scale apps according to traffic. Learn more
- Tools and SDKs:** Storage Explorer (preview), PowerShell, Azure CLI, .NET, Java, Python, Node.js
- Monitoring:** Show data for last: 1 hour, 6 hours, 12 hours, 1 day, 7 days

If you desire you can also browse into the storage account to find the files as well.

The screenshot shows the Microsoft Azure File Explorer interface. At the top, there is a navigation bar with the Microsoft Azure logo and a search bar. Below the navigation bar, the breadcrumb path is: Home > ARMFSTEST1 > armfstest1sa | File shares > armfstest1fs. The main content area displays the file share 'armfstest1fs' with a search bar and a list of files and folders. The left sidebar contains navigation options: Overview, Access Control (IAM), Settings, Properties, Operations, and Snapshots. The main area shows a search bar for files by prefix and a list of items:

Name
.SystemShareInformation
amadhosingh
Default
Plugins
Public
test.txt