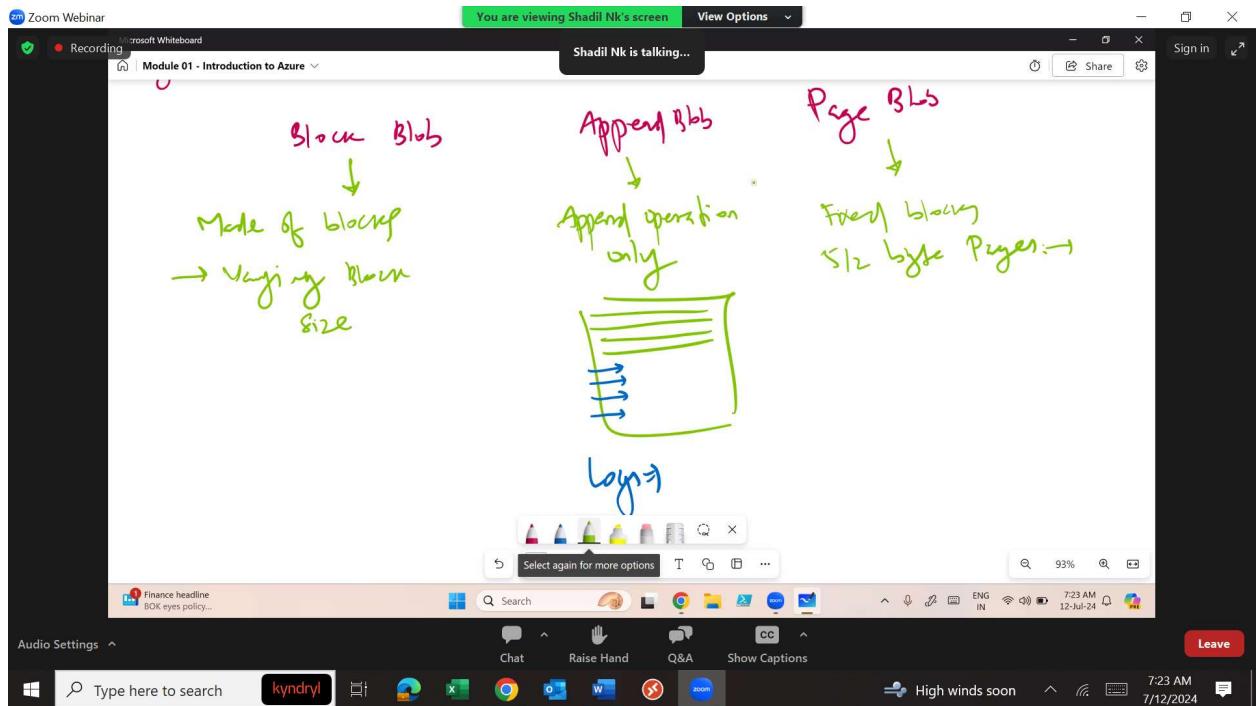


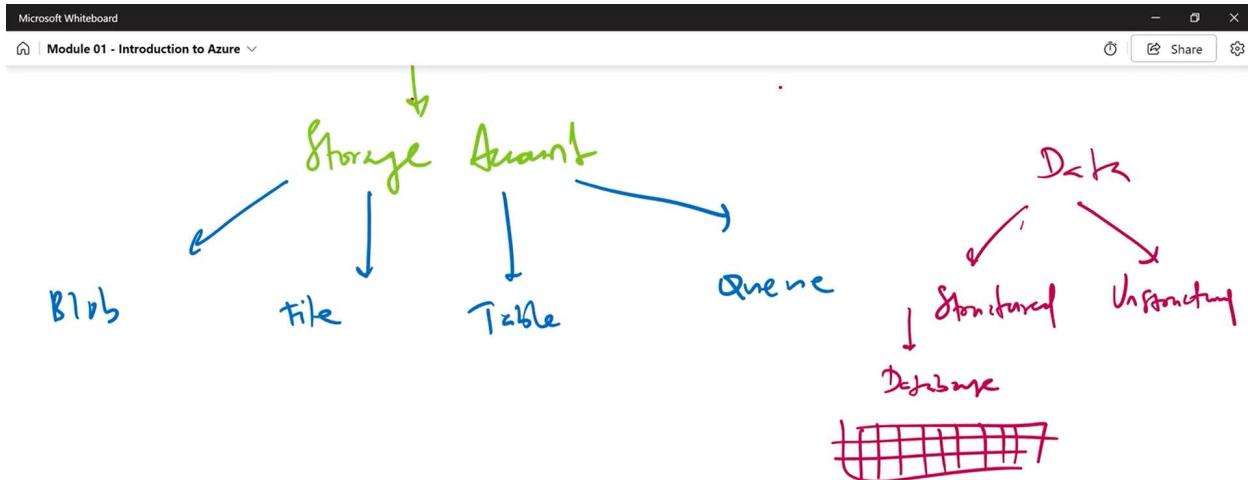
Azure storage

With azure storage we have 4 different sub-services available

Storage account in azure: store data within azure

- 1) Blob
- 2) File
- 3) Table
- 4) Queue





In a database data is represented in rows and columns so we call it as a structured data.

Any random day to day files is unstructured data eg. Video, image, exe. , .txt file

Table is basically a structured database solution

Queue is used for message queuing. A message that has been passed between different applications components

BLOB: binary large object. It is used for unstructured data storage. You will start by creating a container. Within the storage account you will have a container

A container basically means a holder or bucket to store the data

In a container we store the blob data

Blobs are classified into 3

Block blob, append blob and page blob

Block blob: made of multiple blocks of data. Eg- utorrent or bit torrent. File was downloaded into multiple parts/pieces and later on it all joined to form a single file

Block size can vary

Such files which is made up of multiple blocks is blob

Append blob: a file which is made up of multiple blobs but it is designed for append operation only

Adding at the end of the file

Cannot modify any existing data

Append blobs allows you to do append operations only

Useful: logs,

Page blob: in block blob we have varying block size but in page blobs you will have fixed blocks size

512 bytes pages

512 bytes block size

Every disk (physical disk) is made of sectors and every sector has 512 byte fixed size

Page blobs can be used as a disk for your virtual machine

Page blob is storing the vhd files and vhd acting as a disk for your Virtual machine

You can store vhd files in your page blobs and use it in your vms

You can upload it onto azure and you can convert it into a managed disk

Disks also comes in storage in the form of page blobs you can say so

But usually it is used to attaching onto the vms

In page blobs are we using ssd?

Ans: page blobs storing your vhd files (hard disk files)

There could be ssd or hdd in the backend.

It could be both ssd and hdd in the backend

Create the storage account

Microsoft Azure

Search resources, services, and docs (G+/)

Home > Storage accounts >

Create a storage account ...

Basics Advanced Networking Data protection Encryption Tags Review + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more about Azure storage accounts](#)

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription * Pay-As-You-Go

Resource group * (New) DemoRG Create new

Instance details

Storage account name * manoharstorageaccount91

Region * (Asia Pacific) Central India Deploy to an Azure Extended Zone

Performance * Standard: Recommended for most scenarios (general-purpose v2 account)
 Premium: Recommended for scenarios that require low latency.

Redundancy * Locally-redundant storage (LRS)

Previous Next **Review + create**

Disable soft delete

Uncheck all the boxes

Microsoft Azure Search resources, services, and docs (G+)

Home > Storage accounts >

Create a storage account

change feed, and blob soft delete must also be enabled. [Learn more ⓘ](#)

Enable soft delete for blobs
Soft delete enables you to recover blobs that were previously marked for deletion, including blobs that were overwritten. [Learn more ⓘ](#)

Enable soft delete for containers
Soft delete enables you to recover containers that were previously marked for deletion. [Learn more ⓘ](#)

Enable soft delete for file shares
Soft delete enables you to recover file shares that were previously marked for deletion. [Learn more ⓘ](#)

Tracking

Manage versions and keep track of changes made to your blob data.

Enable versioning for blobs
Use versioning to automatically maintain previous versions of your blobs. [Learn more ⓘ](#)
Consider your workloads, their impact on the number of versions created, and the resulting costs. Optimize costs by automatically managing the data lifecycle. [Learn more ⓘ](#)

Enable blob change feed
Keep track of create, modification, and delete changes to blobs in your account. [Learn more ⓘ](#)

Access control

Enable version-level immutability support
Allows you to set time-based retention policy on the account-level that will apply to all blob versions. Enable this feature to set a default policy at the account level. Without enabling this, you can still set a default policy at the container level or set policies for specific blob versions. Versioning is required for this property to be enabled. [Learn more ⓘ](#)

[Previous](#) [Next](#) [Review + create](#)



Click on review+create

[Home](#) > [Storage accounts](#) >

Create a storage account ...

Basics Advanced Networking Data protection Encryption Tags [Review + create](#)

[View automation template](#)

Basics

Subscription	Pay-As-You-Go
Resource group	DemoRG
Location	Central India
Storage account name	manoharstorageaccount91
Performance	Standard
Replication	Locally-redundant storage (LRS)

Advanced

Enable hierarchical namespace	Disabled
Enable SFTP	Disabled
Enable network file system v3	Disabled
Allow cross-tenant replication	Disabled
Access tier	Hot
Enable large file shares	Enabled

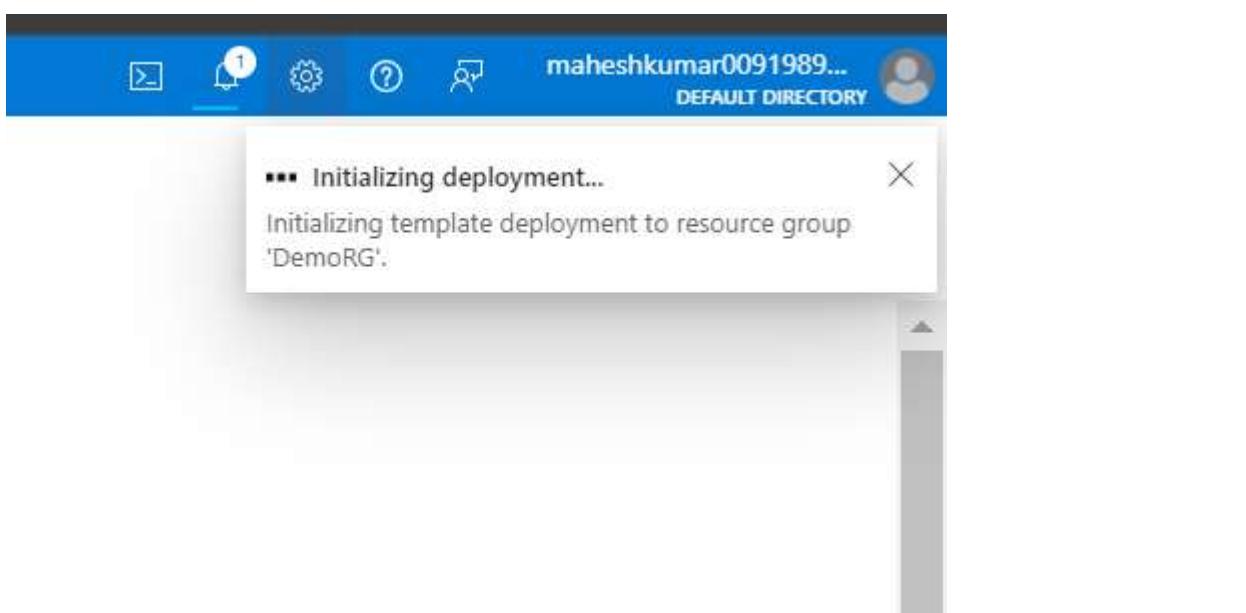
Security

Secure transfer	Enabled
Blob anonymous access	Disabled

[Previous](#)

[Next](#)

[Create](#)



Microsoft Azure

manoharstorageaccount91_1720803631099 | Overview

Deployment is in progress

Deployment name: manoharstorageaccount91_1720803631099
Subscription: Pay-As-You-Go
Resource group: DemoRG

Start time: 7/12/2024, 10:31:10 PM
Correlation ID: 8a4b017b-fb7a-4ef9-9231-341009a2e2fe

Deployment details

Resource	Type	Status	Operation details
No results.			

Give feedback
Tell us about your experience with deployment

Microsoft Defender for Cloud
Secure your apps and infrastructure
Go to Microsoft Defender for Cloud >

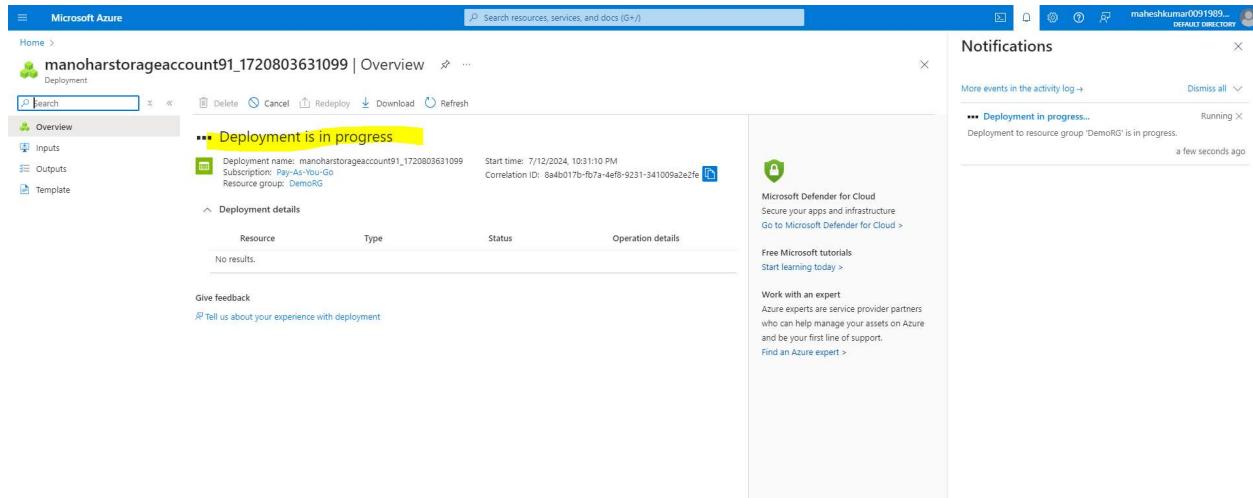
Free Microsoft tutorials
Start learning today >

Work with an expert
Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support.
Find an Azure expert >

Notifications

More events in the activity log > Dismiss all X

Deployment in progress... Running X
Deployment to resource group 'DemoRG' is in progress.
a few seconds ago



Storage account created successfully

Microsoft Azure

manoharstorageaccount91_1720803631099 | Overview

Storage account

Overview

Essentials

Resource group (move)	: DemoRG	Performance	: Standard
Location	: centralindia	Replication	: Locally-redundant storage (LRS)
Subscription (move)	: Pay-As-You-Go	Account kind	: StorageV2 (general purpose v2)
Subscription ID	: 32aab345-46e-4708-be87-491dbf8d1da9	Provisioning state	: Succeeded
Disk state	: Available	Created	: 7/12/2024, 10:31:20 PM
Tags (edit)	: Add tags		

Properties Monitoring Capabilities (7) Recommendations (0) Tutorials Tools + SDKs JSON View

Blob service

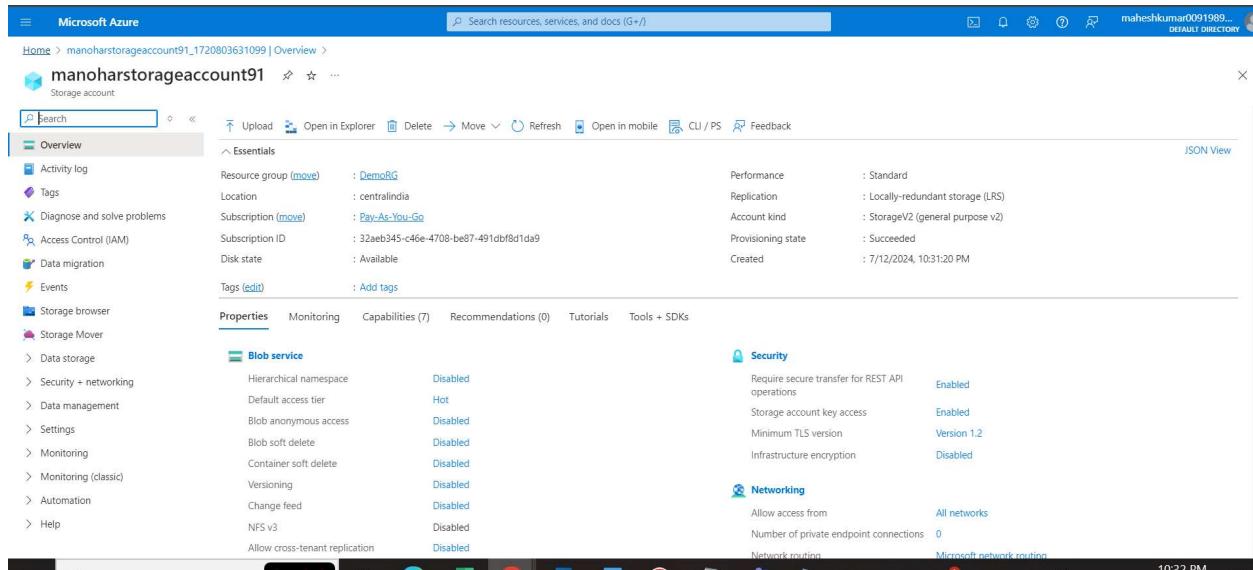
Hierarchical namespace	Disabled
Default access tier	Hot
Blob anonymous access	Disabled
Blob soft delete	Disabled
Container soft delete	Disabled
Versioning	Disabled
Change feed	Disabled
NFS v3	Disabled
Allow cross-tenant replication	Disabled

Security

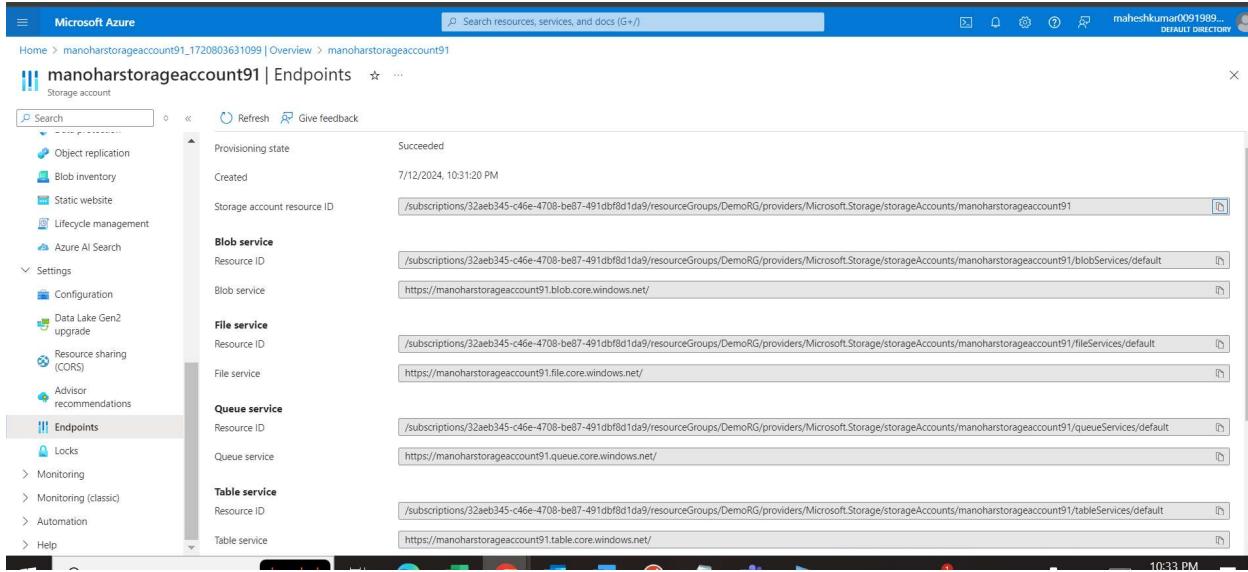
Require secure transfer for REST API operations	Enabled
Storage account key access	Enabled
Minimum TLS version	Version 1.2
Infrastructure encryption	Disabled

Networking

Allow access from	All networks
Number of private endpoint connections	0
Network routing	Microsoft network routing



Endpoints urls:



The screenshot shows the Microsoft Azure Storage account overview page for 'manoharstorageaccount91'. The left sidebar is collapsed, showing options like Object replication, Blob inventory, Static website, Lifecycle management, Azure AI Search, Settings (Configuration, Data Lake Gen2 upgrade, Resource sharing (CORS), Advisor recommendations), Endpoints (selected), Locks, Monitoring, Monitoring (classic), Automation, and Help. The main content area displays the 'Endpoints' section with the following details:

Provisioning state	Succeeded
Created	7/12/2024, 10:31:20 PM
Storage account resource ID	/subscriptions/32ae345-c46e-4708-be87-491dbf8d1da9/resourceGroups/DemoRG/providers/Microsoft.Storage/storageAccounts/manoharstorageaccount91
Blob service	
Resource ID	/subscriptions/32ae345-c46e-4708-be87-491dbf8d1da9/resourceGroups/DemoRG/providers/Microsoft.Storage/storageAccounts/manoharstorageaccount91/blobServices/default
Blob service	https://manoharstorageaccount91.blob.core.windows.net/
File service	
Resource ID	/subscriptions/32ae345-c46e-4708-be87-491dbf8d1da9/resourceGroups/DemoRG/providers/Microsoft.Storage/storageAccounts/manoharstorageaccount91/fileServices/default
File service	https://manoharstorageaccount91.file.core.windows.net/
Queue service	
Resource ID	/subscriptions/32ae345-c46e-4708-be87-491dbf8d1da9/resourceGroups/DemoRG/providers/Microsoft.Storage/storageAccounts/manoharstorageaccount91/queueServices/default
Queue service	https://manoharstorageaccount91.queue.core.windows.net/
Table service	
Resource ID	/subscriptions/32ae345-c46e-4708-be87-491dbf8d1da9/resourceGroups/DemoRG/providers/Microsoft.Storage/storageAccounts/manoharstorageaccount91/tableServices/default
Table service	https://manoharstorageaccount91.table.core.windows.net/

Using below urls we can access the data

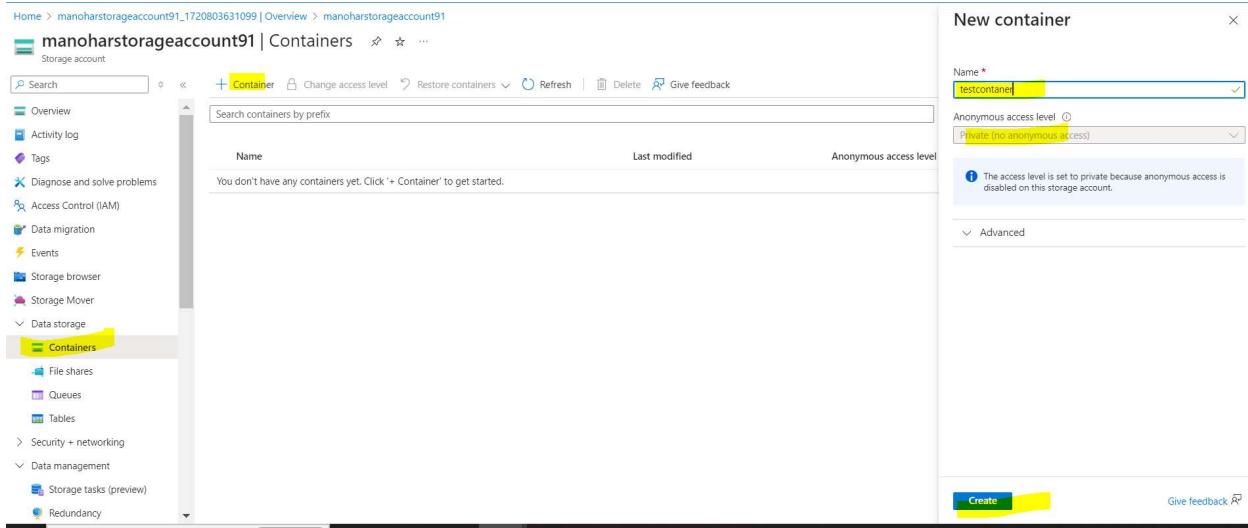
Blob service url: <https://manoharstorageaccount91.blob.core.windows.net/>

File service url: <https://manoharstorageaccount91.file.core.windows.net/>

Queue service url: <https://manoharstorageaccount91.queue.core.windows.net/>

Table service url: <https://manoharstorageaccount91.table.core.windows.net/>

Go to containers and store some data



The screenshot shows the Microsoft Azure Storage account overview page for 'manoharstorageaccount91'. The left sidebar is expanded, showing sections like Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Storage Mover, Data storage (Containers selected), File shares, Queues, Tables, Security + networking, Data management (Storage tasks (preview) and Redundancy), and Help. The main content area displays the 'Containers' section with the following details:

Name	Last modified	Anonymous access level
You don't have any containers yet. Click 'Create Container' to get started.		

A modal window titled 'New container' is open on the right, showing fields for Name (set to 'testcontainer'), Anonymous access level (set to 'Private (no anonymous access)'), and a note: 'The access level is set to private because anonymous access is disabled on this storage account.' A 'Create' button is at the bottom of the modal.

The screenshot shows the Microsoft Azure Storage Container list for the 'manoharstorageaccount91' account. The container 'testcontainer' has been successfully created, as indicated by a yellow-highlighted success message at the top right. The table lists the container's name, last modified date, anonymous access level, and lease state.

Name	Last modified	Anonymous access level	Lease state
testcontainer	7/12/2024, 10:37:22 PM	Private	Available

Go inside the container and start upload the file

The screenshot shows the Microsoft Azure Storage Container Overview page for 'testcontainer'. The left sidebar includes links for Overview, Diagnose and solve problems, Access Control (IAM), and Settings. The main area displays a table with no results. On the right, the 'Upload blob' interface is open, showing options to drag files or browse for files, and a checkbox for overwriting existing files.

File uploaded successfully and it is uploaded as a block blob

The screenshot shows the Microsoft Azure Storage Container Overview page for a container named "testcontainer". The container has one blob named "Kivas_Fajo.webp". The blob details are as follows:

Name	Modified	Access tier	Archive status	Blob type	Size	Lease state
Kivas_Fajo.webp	7/12/2024, 10:40:36 PM	Hot (Inferred)	-	Block blob	40.93 KB	Available

Open the file and copy the url

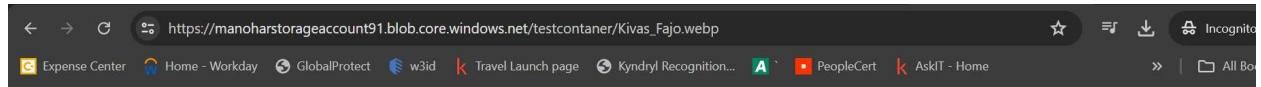
The screenshot shows the Microsoft Azure Storage Blob Properties page for the blob "Kivas_Fajo.webp". The URL field is highlighted.

Properties

URL
https://manoharstorageaccount91.blob.core.windows.net/testcontainer/Kivas_Fajo.webp

url: https://manoharstorageaccount91.blob.core.windows.net/testcontainer/Kivas_Fajo.webp

paste the url on the browser but getting the access is denied error msg (it says public access is not permitted)



Go back to your container and select it and click on change access levels

Name	Last modified	Anonymous access level	Lease state
testcontainer	7/12/2024, 10:37:22 PM	Private	Available

Anonymous access level is set to private so we are unable to access the file

Change access level

Change the access level of all selected containers.

Anonymous access level ⓘ

Private (no anonymous access)

The access level is set to private because anonymous access is disabled on this storage account.

OK Cancel

Storage account enforces a security settings so you can only create private containers & private containers cannot be accessed by their direct URLs. So in order to access it we need to change it to public accessible option.

We go back to our storage account and click on settings and inside settings we will click on configurations and we will enable the blob anonymous access and save it

Search

Upload Open in Explorer Delete Move Refresh Open in mobile CLI / PS Feedback

Resource group (move) : DemoRG Performance : Standard

Location : centralindia Replication : Locally-redundant storage (LRS)

Subscription (move) : Pay-As-You-Go Account kind : StorageV2 (general purpose v2)

Subscription ID : 32ae8345-c46e-4708-be87-491dbf8d1da9 Provisioning state : Succeeded

Disk state : Available Created : 7/12/2024, 10:31:20 PM

Tags (edit) : Add tags

Properties Monitoring Capabilities (7) Recommendations (0) Tutorials Tools + SDKs

Blob service

Hierarchical namespace	Disabled	Require secure transfer for REST API operations	Enabled
Default access tier	Hot	Storage account key access	Enabled
Blob anonymous access	Disabled	Minimum TLS version	Version 1.2
Blob soft delete	Disabled	Infrastructure encryption	Disabled
Container soft delete	Disabled		
Versioning	Disabled		
Change feed	Disabled		
NFS v3	Disabled		
Allow cross-tenant replication	Disabled		

Security

Allow access from	All networks
Number of private endpoint connections	0
Network routing	Microsoft network routing

Networking

Microsoft Azure

Home > manoharstorageaccount91_1720803631099 | Overview > manoharstorageaccount91

manoharstorageaccount91 | Configuration

Storage account

Search Save Discard Refresh Give feedback

Redundancy Data protection Object replication Blob inventory Static website Lifecycle management Azure AI Search

Settings

Configuration

- Data Lake Gen2 upgrade
- Resource sharing (CORS)
- Advisor recommendations
- Endpoints
- Locks

Monitoring Monitoring (classic)

This setting cannot be changed after the storage account is created.

Secure transfer required Enabled Disabled

Allow Blob anonymous access Enabled Disabled

Some blobs may become anonymously readable.

Allow storage account key access Enabled Disabled

Allow recommended upper limit for shared access signature (SAS) expiry interval Enabled Disabled

Default to Microsoft Entra authorization in the Azure portal Disabled Enabled

Minimum TLS version Version 1.2

Permitted scope for copy operations (preview) From any storage account

Blob access tier (default) Hot Cool

Microsoft Azure

Home > manoharstorageaccount91_1720803631099 | Overview > manoharstorageaccount91

manoharstorageaccount91 | Configuration

Storage account

Search Save Discard Refresh Give feedback

Redundancy Data protection Object replication Blob inventory Static website Lifecycle management Azure AI Search

Settings

Configuration

- Data Lake Gen2 upgrade
- Resource sharing (CORS)
- Advisor recommendations
- Endpoints
- Locks

Monitoring Monitoring (classic)

The cost of your storage account depends on the usage and the options you choose below. [Learn more about storage pricing](#)

Account kind StorageV2 (general purpose v2)

Performance Standard Premium

This setting cannot be changed after the storage account is created.

Secure transfer required Enabled Disabled

Allow Blob anonymous access Enabled Disabled

Some blobs may become anonymously readable.

Allow storage account key access Enabled Disabled

Allow recommended upper limit for shared access signature (SAS) expiry interval Enabled Disabled

Default to Microsoft Entra authorization in the Azure portal Disabled Enabled

Minimum TLS version Version 1.2

The screenshot shows the Microsoft Azure Storage account configuration page for 'manoharstorageaccount91'. The 'Configuration' tab is selected in the left sidebar. The main area displays various storage settings like Redundancy, Data protection, Object replication, Blob inventory, Static website, Lifecycle management, Azure AI Search, Settings, Configuration, Data Lake Gen2 upgrade, and Resource sharing. A yellow box highlights the status bar message 'Updating storage account...'.

We will now go back to our container and select it and click on change access levels

The screenshot shows the Microsoft Azure Storage account containers page for 'manoharstorageaccount91'. The 'Containers' tab is selected in the left sidebar. The main area lists containers with columns for Name, Last modified, Anonymous access level, and Lease state. A yellow box highlights the 'testcontainer' row.

From the drop down choose option “Blob(anonymous read access for blobs only)” and click on ok

Change access level

Change the access level of all selected containers.

Anonymous access level

Blob (anonymous read access for blobs only)

OK **Cancel**

Successfully changed access level for container(s)

Successfully changed access level for 1 container(s)

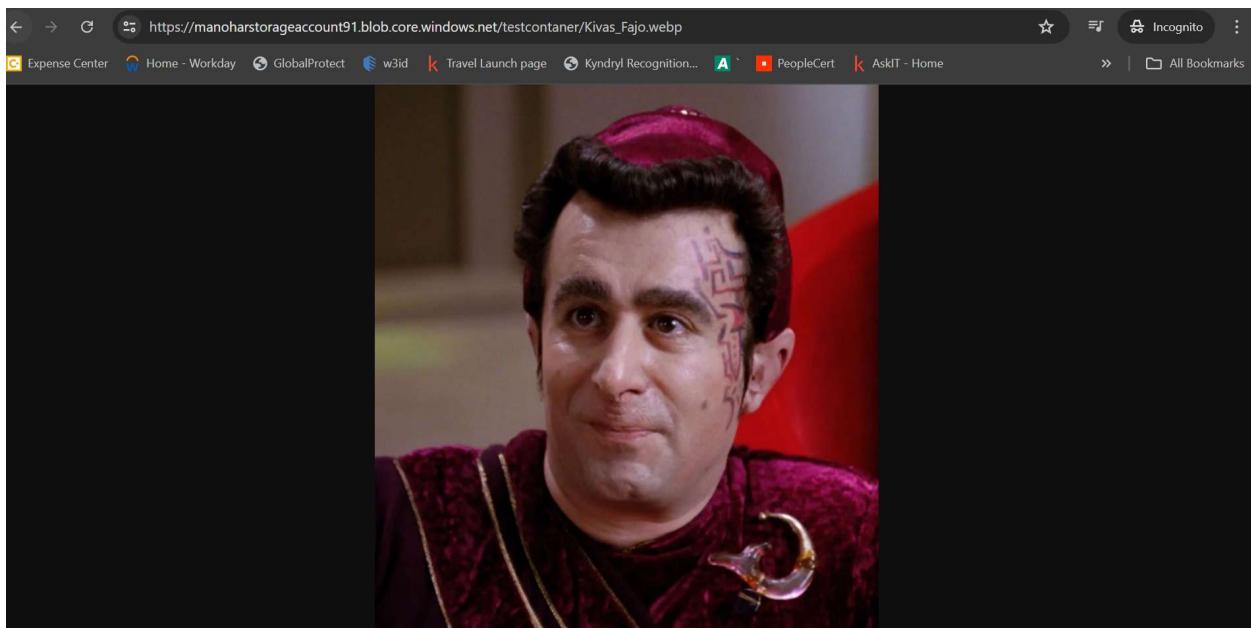
Now we will go inside the container and click on our file that we have uploaded copy the url and paste on the browser

Kivas_Fajo.webp

blob

URL: <https://manoharstorage...>

Properties	Values
LAST MODIFIED	7/12/2024, 10:40:36 PM
CREATION TIME	7/12/2024, 10:40:36 PM
VERSION ID	-
TYPE	Block blob
SIZE	40.93 KB
ACCESS TIER	Hot (Inferred)
ACCESS TIER LAST MODIFIED	N/A
ARCHIVE STATUS	-
REHYDRATE PRIORITY	-
SERVER ENCRYPTED	true
ETAG	0x8DCA2958C3610D5
VERSION-LEVEL IMMUTABILITY POLICY	Disabled
CACHE-CONTROL	
CONTENT-TYPE	image/webp
CONTENT-MD5	SLui2FlxUmB9xsqzy0eZyQ==
CONTENT-ENCODING	
CONTENT-LANGUAGE	



Now we will again change the access to “Private (no anonymous access)”

Copy the url and paste on the browser and now we are unable to access it

https://manoharstorageaccount91.blob.core.windows.net/testcontainer/Kivas_Fajo.webp

Now we will create a shared access tokens

We will go to our container and inside the container we will click on shared access tokens and give the required permission

The screenshot shows the Microsoft Azure Storage Accounts interface. The left sidebar has 'Storage accounts' selected, followed by 'manoharstorageaccount91 | Containers > testcontainer'. The main area is titled 'testcontainer | Shared access tokens'. Under the 'Shared access tokens' section, 'Access policy' is selected. The 'Permissions' dropdown shows '5 selected' with 'Read', 'Add', 'Create', 'Write', and 'List' checked. Below this, there are two time range fields: 'Start' at 12:10:38 AM and 'End' at 8:10:38 AM, both set to 'ikata, Mumbai, New Delhi'. There are also sections for 'Allowed IP addresses' (with a placeholder 'for example, 168.1.5.65 or 168.1.5.65-168.1...') and 'Allowed protocols' (set to 'HTTPS only').

Once done we will click on generate SAS token and URL

The screenshot shows the same Microsoft Azure Storage Accounts interface as before, but now the 'Properties' section is selected under 'Shared access tokens'. The 'Permissions' dropdown still shows '5 selected'. The 'Start' and 'End' fields are filled with specific dates and times: 'Start' is 07/13/2024 at 12:10:38 AM (UTC+05:30) from 'Chennai, Kolkata, Mumbai, New Delhi'; 'End' is 07/13/2024 at 8:10:38 AM (UTC+05:30) from 'Chennai, Kolkata, Mumbai, New Delhi'. Below these fields are 'Allowed IP addresses' and 'Allowed protocols' (set to 'HTTPS only'). At the bottom, there is a large blue button labeled 'Generate SAS token and URL'. To the right of the button, the generated SAS token URL is displayed: `https://manoharstorageaccount91.blob.core.windows.net/testcontainer?sp=racwl&st=2024-07-12T18:40:38Z&se=2024-07-13T02:40:38Z&spr=https&sv=2022-11-02&sr=c&sig=kW%2BhBWePIRZaCobhZsPrYl5sBa8fORREkZY08%2Fy5ExU%3D`. Below it, the full blob SAS URL is shown: `https://manoharstorageaccount91.blob.core.windows.net/testcontainer?sp=racwl&st=2024-07-12T18:40:38Z&se=2024-07-13T02:40:38Z&spr=https&sv=2022-11-02&sr=c&sig=kW%2BhBWePIRZaCobhZsPrYl5sBa8fORREkZY08%2Fy5ExU%3D`.

Copy the blob SAS url:

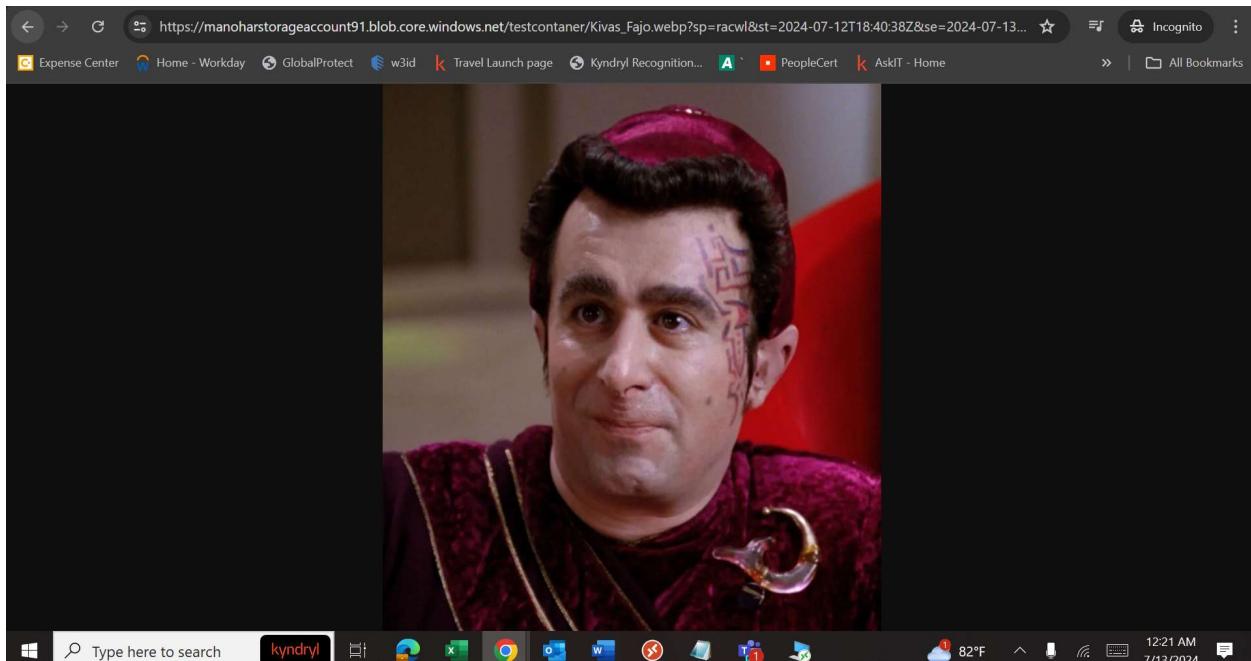
<https://manoharstorageaccount91.blob.core.windows.net/testcontainer?sp=racwl&st=2024-07-12T18:40:38Z&se=2024-07-13T02:40:38Z&spr=https&sv=2022-11-02&sr=c&sig=kW%2BhBWePIRZaCobhZsPrYl5sBa8fORREkZY08%2Fy5ExU%3D>

copy the blob SAS token:

```
sp=racwl&st=2024-07-12T18:40:38Z&se=2024-07-13T02:40:38Z&spr=https&sv=2022-11-02&sr=c&sig=kW%2BhBWePIRZaCobhZsPrYl5sBa8fORREkZY08%2Fy5ExU%3D
```

Copy the url of the file & followed by question mark (?)the SAS Token and we are able to access the file.

https://manoharstorageaccount91.blob.core.windows.net/testcontaner/Kivas_Fajo.webp?sp=racwl&st=2024-07-12T18:40:38Z&se=2024-07-13T02:40:38Z&spr=https&sv=2022-11-02&sr=c&sig=kW%2BhBWePIRZaCobhZsPrYl5sBa8fORREkZY08%2Fy5ExU%3D

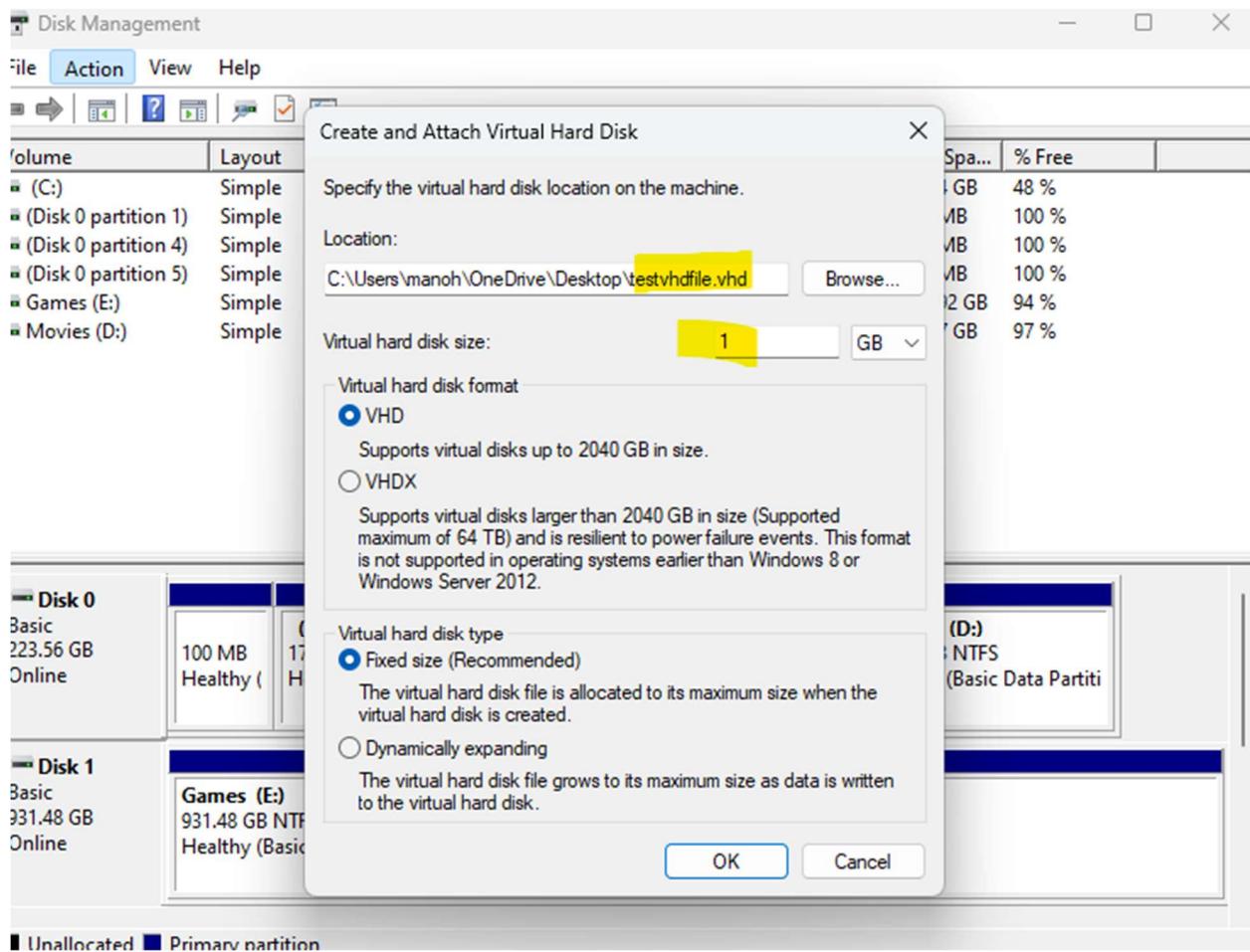
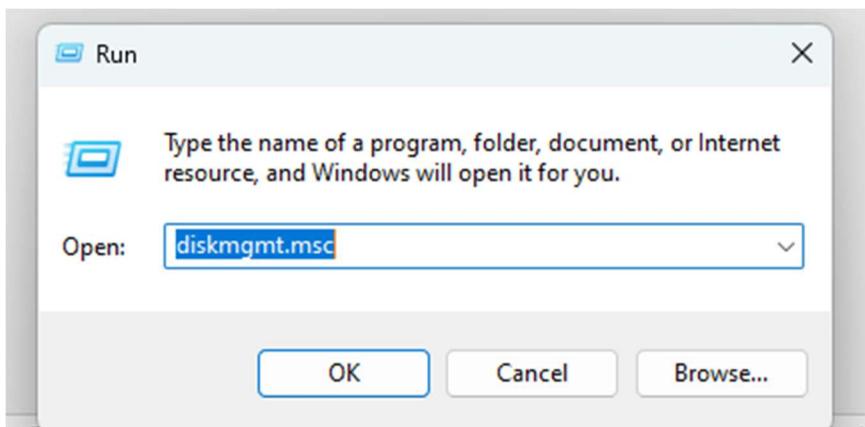


So above example prove that using the SAS Token we can access our file inside the storage account even if we set the access level permission to “Private (no anonymous access)”

Page blob example

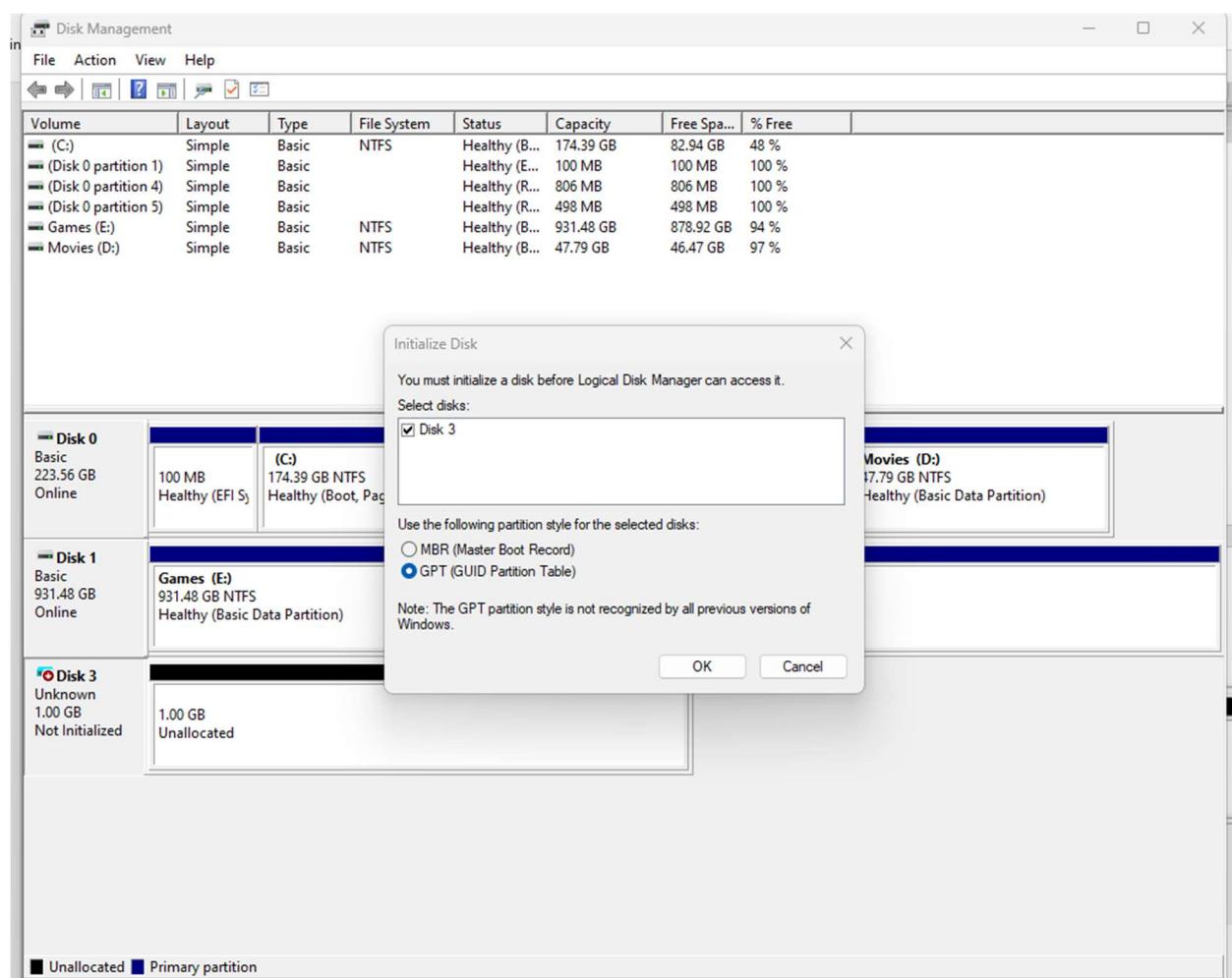
On your laptop open run window (window +R key)

Type “diskmgmt.msc” in run window

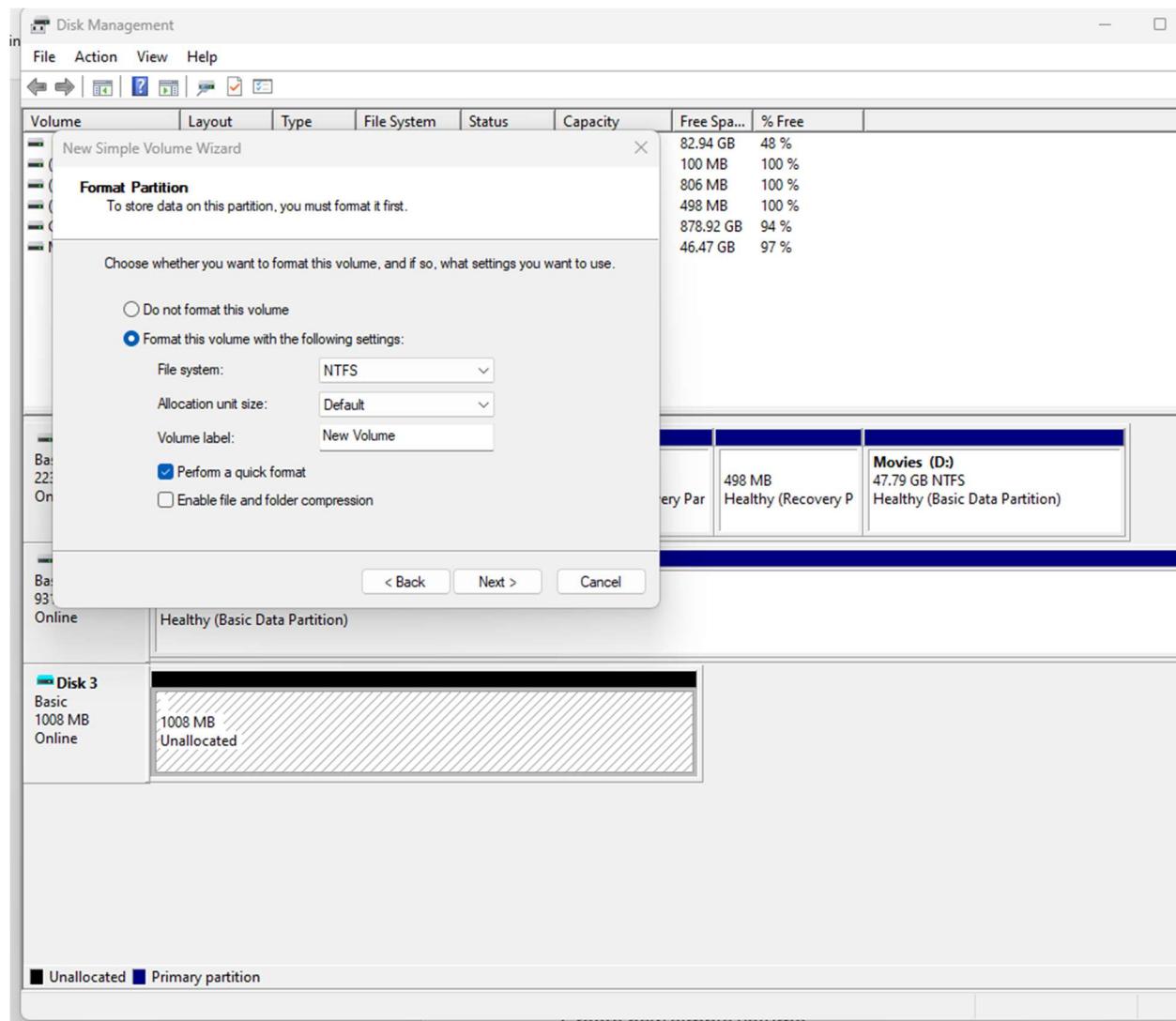




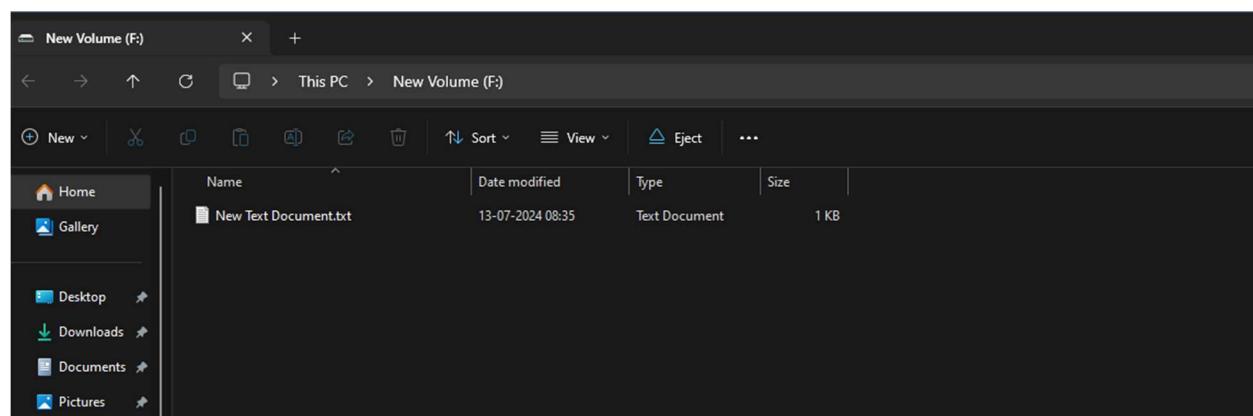
Initialize the disk



Create new simple volume



We will create a test file and save inside the vhd





Now we will upload this testvhdf file in our storage account and it is upload as a page blob automatically.

Name	Modified	Access tier	Archive status	Blob type	Size	Lease state
Kivas_Fajo.webp	7/13/2024, 8:26:30 AM	Hot (Inferred)		Block blob	40.93 KB	Available
testvhdf.vhd	7/13/2024, 8:38:02 AM			Page blob	1 GiB	Available

Now we need to attach this testvhdf.vhd to azure vm as a disk

We will create a virtual machine in azure

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual machines >

Create a virtual machine

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Pay-As-You-Go

Resource group * DemoRG

Instance details

Virtual machine name * TestVM

Region * (Asia Pacific) Central India

Availability options No infrastructure redundancy required

Security type Trusted launch virtual machines

Configure security features

Image * Windows Server 2019 Datacenter - x64 Gen2

See all images | Configure VM generation

VM architecture x64 Arm64

Arm64 is not supported with the selected image.

< Previous Next : Disks > Review + create

Home > Virtual machines >

Create a virtual machine

Size * ⓘ

Standard_B2s - 2 vcpus, 4 GiB memory (₹3,206.66/month)

[See all sizes](#)

Enable Hibernation ⓘ



i Hibernate is not supported by the size that you have selected. Choose a size that is compatible with Hibernate to enable this feature. [Learn more ↗](#)

Administrator account

Username * ⓘ

manohar



Password * ⓘ



Confirm password * ⓘ



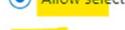
Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * ⓘ



None



Allow selected ports

Select inbound ports *

RDP (3389)



i All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

Licensing

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more ↗](#)

[< Previous](#)

[Next : Disks >](#)

Review + create

Click on review+create to create our windows virtual machine

Microsoft Azure

Home > [Virtual machines](#) >

Create a virtual machine

Validation passed

1 X Standard B2s
by Microsoft
[Terms of use](#) | [Privacy policy](#)

Subscription credits apply ⓘ
4,3927 INR/hr
[Pricing for other VM sizes](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

⚠ You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

Basics

Subscription	Pay-As-You-Go
Resource group	DemoRG
Virtual machine name	TestVM
Region	Central India
Availability options	No infrastructure redundancy required
Security type	Trusted launch virtual machines
Enable secure boot	Yes
Enable vTPM	Yes
Integrity monitoring	No
Image	Windows Server 2019 Datacenter - Gen2

< Previous Next > **Create**

Microsoft Azure

Home > [CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240713084453](#) | Overview ⚡ ...

Deployment

Overview

Deployment is in progress

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 7/13/2024, 8:48:55 AM
Subscription: Pay-As-You-Go Correlation ID: 8ded8598-97c0-4701-b91f-26f3a7a1b74a
Resource group: DemoRG

Deployment details

Resource	Type	Status	Operation details
TestVM-ip	Microsoft.Network/publicIPAddresses	Created	Operation details
TestVM-vnet	Microsoft.Network/virtualNetworks	Created	Operation details
TestVM-nsg	Microsoft.Network/networkSecurityGroups	Created	Operation details

[Give feedback](#)
[Tell us about your experience with deployment](#)

Microsoft Azure

Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240713084453 | Overview

Deployment

Search X <

Delete Cancel Redeploy Download Refresh

Overview Deployment Inputs Outputs Template

Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 7/13/2024, 8:48:55 AM
Subscription: Pay-As-You-Go Correlation ID: 8ded8598-97c0-4701-b91f-26f3a7a1b74a

Deployment details

Next steps

Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended

Go to resource Create another VM

Give feedback
Tell us about your experience with deployment

Now we will create a disk and in source type we will choose storage blob. In source blob we will choose our storage account and select the vhdfile

Microsoft Azure

Home > Disks >

Create a managed disk

Subscription * Pay-As-You-Go

Resource group * DemoRG

Disk details

Disk name * TestVHD

Region * (Asia Pacific) Central India

Availability zone No infrastructure redundancy required

Source type Storage blob

Source subscription Pay-As-You-Go

Source blob * Browse

OS type None (data disk)

Security type Standard

VM architecture x64

Size * 1024 GiB Premium SSD LRS

[Change size](#)

[Review + create](#)

< Previous

Next : Encryption >

Microsoft Azure

Home > Disks > Create a managed disk > Storage accounts > Containers > testcontainer

Container

Upload Refresh Give feedback

Authentication method: Access key (Switch to Microsoft Entra user account)
Location: testcontainer

Search blobs by prefix (case-sensitive)

Add filter

Name	Modified	Access tier	Archive status	Blob type	Size	Lease state
Kivar_Fajo.webp	7/13/2024, 8:26:30 AM	Hot (Inferred)		Block blob	40.93 KiB	Available
testvhdfile.vhd	7/13/2024, 8:38:02 AM			Page blob	1 GiB	Available

Home > Disks > Create a managed disk >

Create a managed disk ...

Subscription * ⓘ

Resource group * ⓘ [Create new](#)

Disk details

Disk name * ⓘ 

Region * ⓘ

Availability zone

Source type ⓘ

Source subscription ⓘ

Source blob * ⓘ 
[Browse](#)

OS type ⓘ None (data disk)
 Linux
 Windows

Security type ⓘ

VM architecture ⓘ x64
 Arm64

Size * ⓘ **1024 GiB**
Premium SSD LRS
[Change size](#)

[Review + create](#)

[< Previous](#)

[Next : Encryption >](#)

We will create review+create

Create a managed disk ...

 Validation passed

Basics Encryption Networking Advanced Tags Review + create

Basics

Subscription	Pay-As-You-Go
Resource group	DemoRG
Region	Central India
Disk name	TestVHD
Availability zone	No infrastructure redundancy required
Source type	Storage blob
Source subscription	Pay-As-You-Go
Source blob	https://manoharstorageaccount91.blob.core.windows.net/testcontainer/testvhdfi
OS type	None (data disk)
Security type	Standard
VM architecture	x64

Size

Size	1024 GiB
Performance tier	P30 - 5000 IOPS, 200 MB/s (default)
Storage type	Premium SSD LRS

Encryption

Encryption type	Platform-managed key
-----------------	----------------------

Advanced

[Create](#)

< Previous

Next >

[Download a template for automation](#)

Home > Microsoft.ManagedDisk-20240713085137 | Overview

Deployment

Search | Delete | Cancel | Redeploy | Download | Refresh

Overview

Inputs | Outputs | Template

Deployment is in progress

Deployment name : Microsoft.ManagedDisk-20240713085137
Subscription : Pay-As-You-Go
Resource group : DemoRG

Start time : 7/13/2024, 8:55:08 AM
Correlation ID : 58c4b7f9-f8a1-4b6c-bb76-1f3fd3e18d8e

Deployment details

Resource	Type	Status	Operation details
There are no resources to display.			

Give feedback
Tell us about your experience with deployment

Now we will go back to our virtual machine and inside VM we will go to disk option and in data disk we will choose the disk which we have created

Home > Virtual machines > TestVM

Virtual machines

+ Create | Switch to classic | ...

Filter for any field... Name : TestVM

TestVM | Disks

Default Directory

Search | Refresh | Additional settings | Feedback | Troubleshoot

OS disk

Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MBps)	Encryption	Host caching
TestVM_OsDisk_1_6713bac3633b407385131	Premium SSD LRS	127	500	100	SSE with PMK	Read/write

Data disks

Filter by name | Showing 0 of 0 attached data disks

+ Create and attach a new disk | Attach existing disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MBps)	Encryption	Host caching
No data disks attached.							

Page 1 of 1 | Apply | Discard changes

OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MBps)	Encryption	Host caching
TestVM_OsDisk_1_6713bac3633b407385131	Premium SSD LRS	127	500	100	SSE with PMK	Read/write

Data disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MBps)	Encryption	Host caching
0	TestVHD	Premium SSD LRS	1024	5000	200	SSE with PMK	None

OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MBps)	Encryption	Host caching
TestVM_OsDisk_1_6713bac3633b407385131	Premium SSD LRS	127	500	100	SSE with PMK	Read/write

Data disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MBps)	Encryption	Host caching
0	TestVHD	Premium SSD LRS	1024	5000	200	SSE with PMK	None

Now we will login to our virtual machine and will check if we have successfully mounted the vhdfile as a disk in azure vm

Home > Virtual machines > TestVM

Virtual machines

+ Create ⚡ Switch to classic ...

Filter for any field... Name: TestVM

TestVM | Connect Virtual machine

Search ⚡ Refresh Troubleshoot More Options Feedback

Connecting using Public IP address | 4.213.156.53

Admin username: manohar
Port (change): 3389 Check access
Just-in-time policy: Unsupported by plan

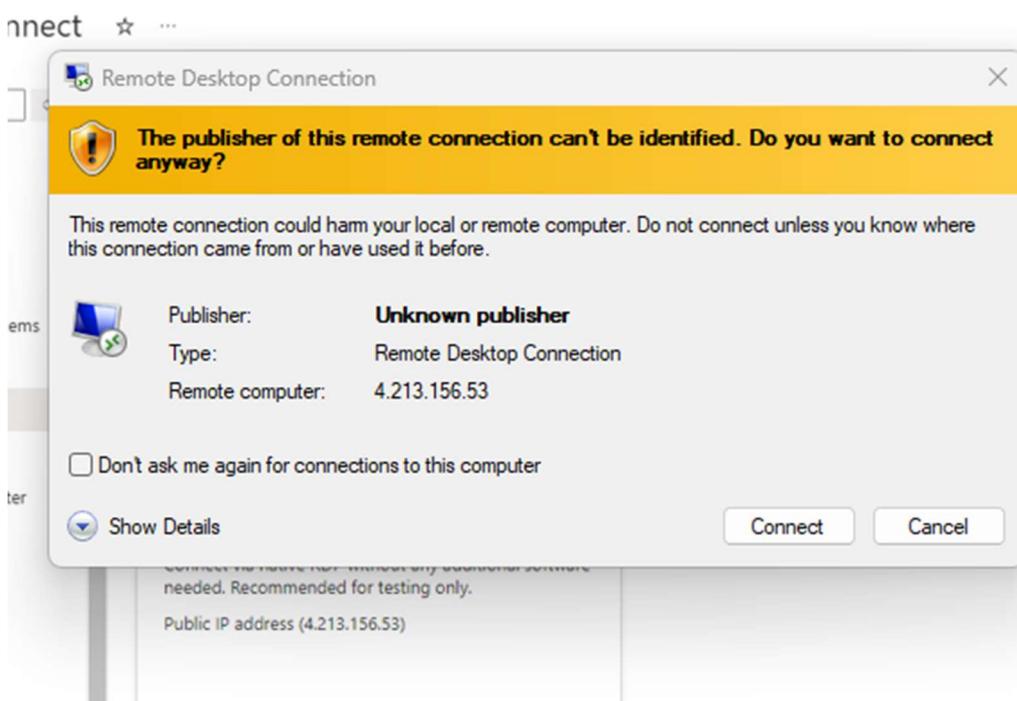
Most common

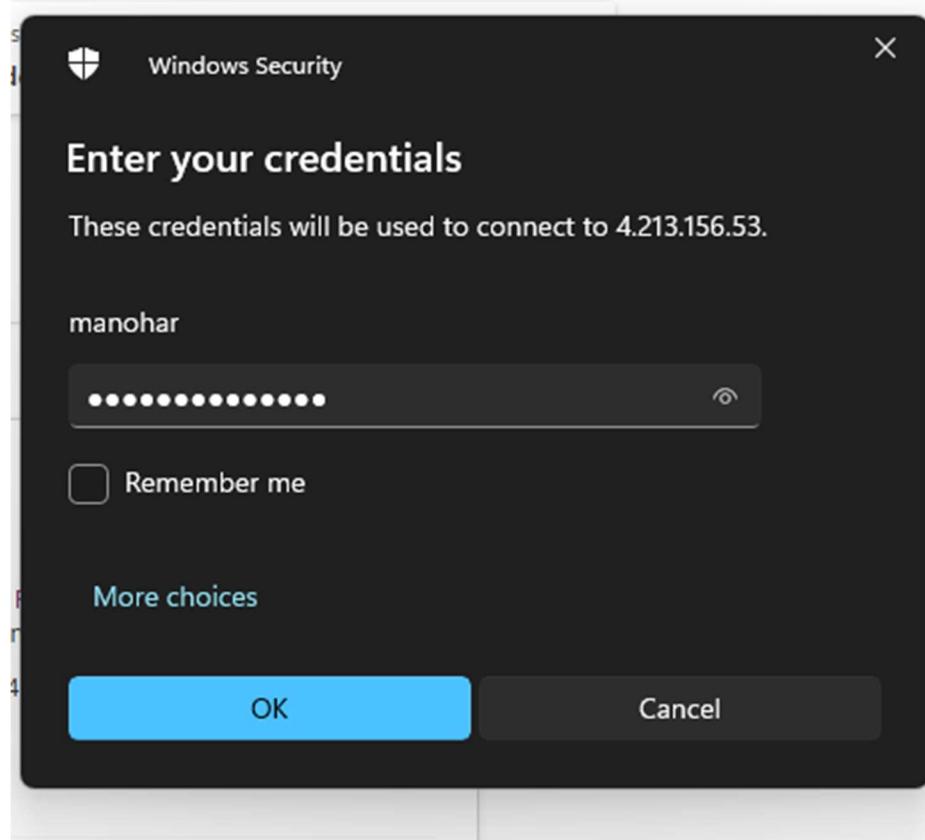
Native RDP Local machine

Connect via native RDP without any additional software needed. Recommended for testing only.
Public IP address (4.213.156.53)

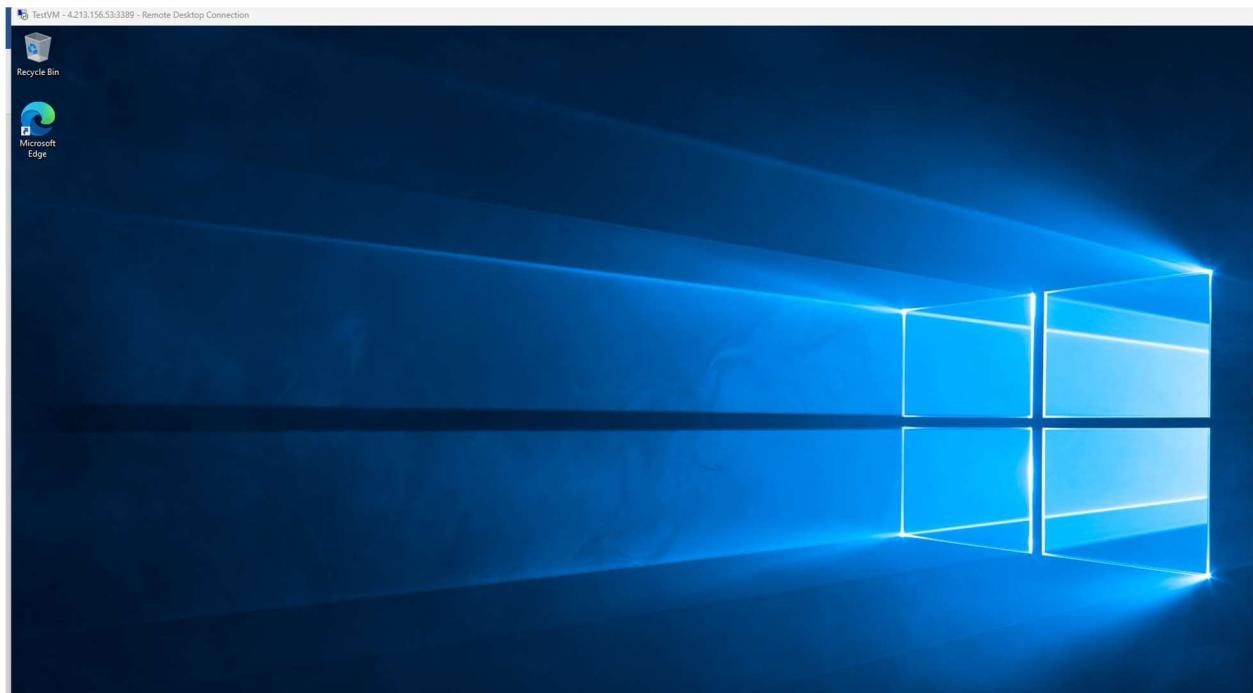
Select Download RDP file

More ways to connect (4)

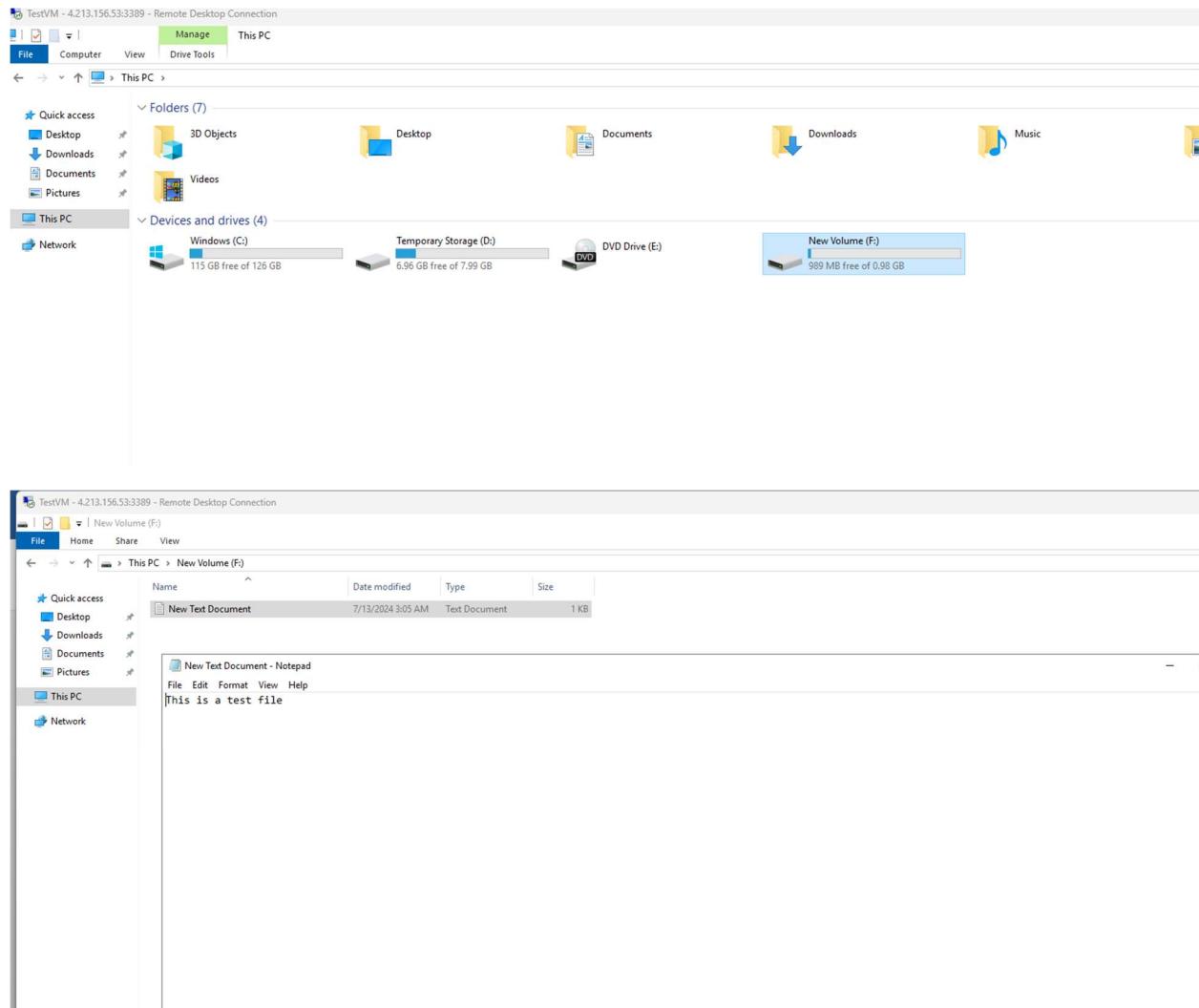




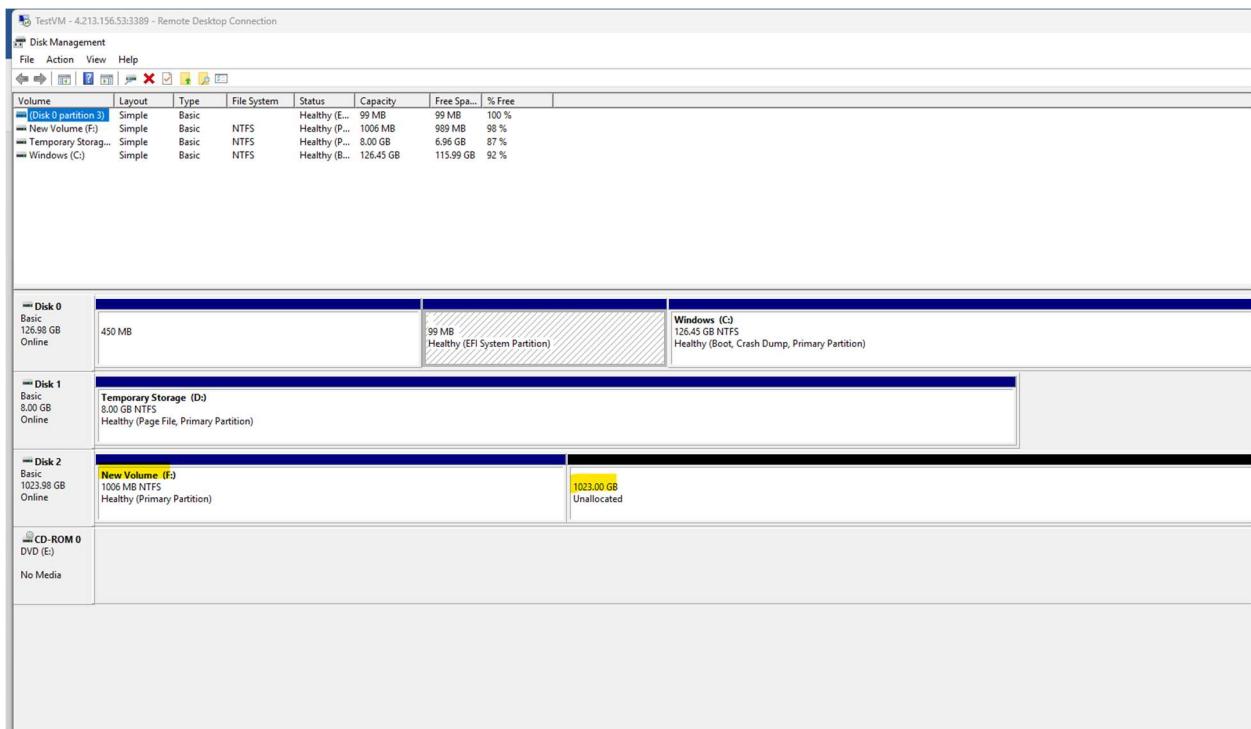
We have successfully logged into our vm



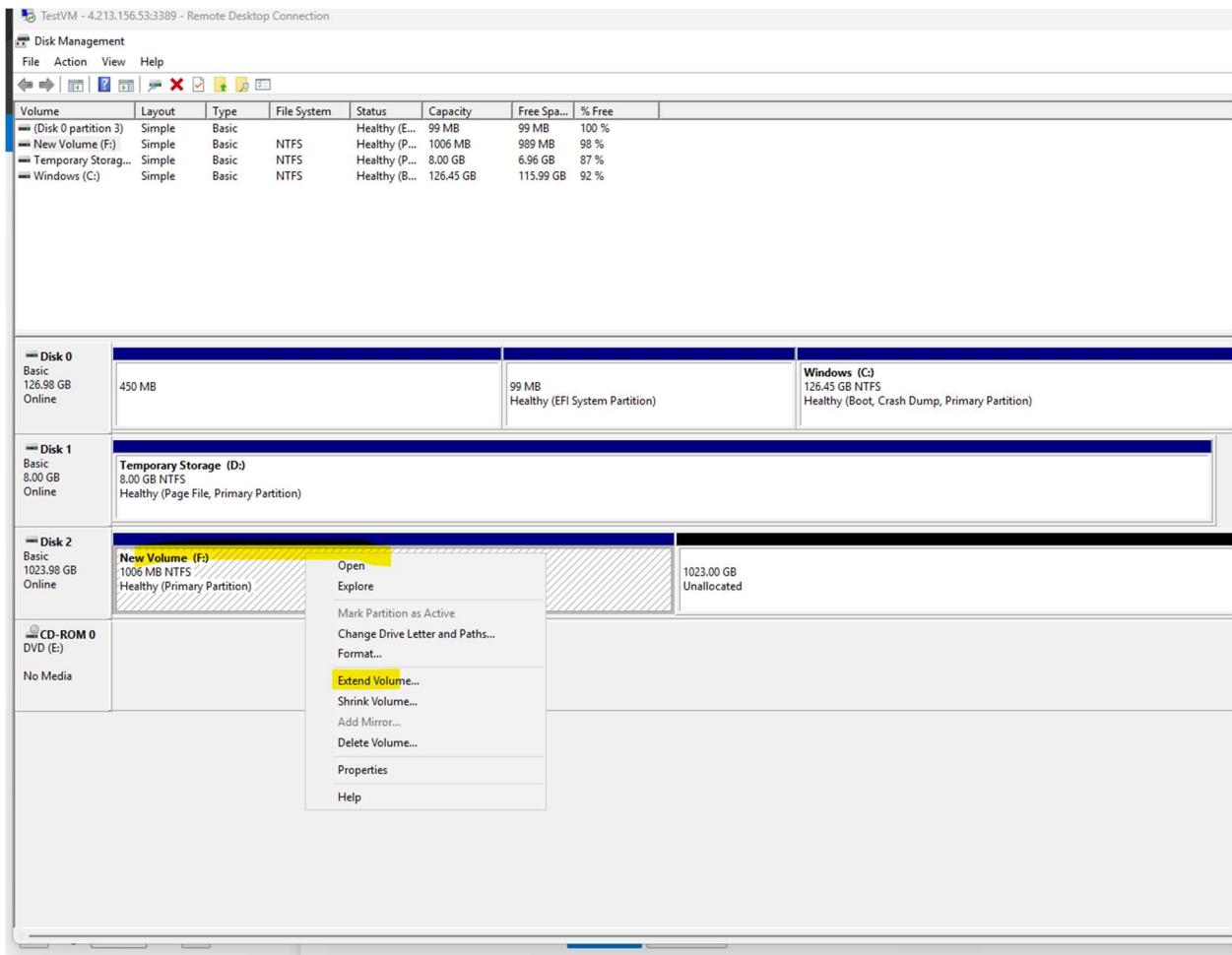
Now we will open the file explorer inside Virtual machine and we can see we have successfully mounted vhdf file as a disk in azure vm and it also contains the test document



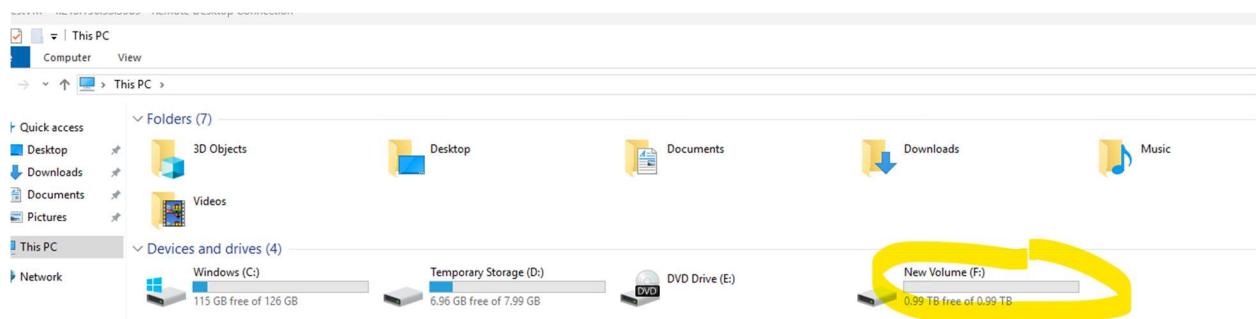
But we can see the size of the disk is only 1 gb but it should be 1024 gb so we will open the run window and type diskmgmt.msc and expand the unallocated space



We will right click on our disk and click on expand the volume



Now we can see the size of our disk is 1024 gb (1TB)



Access tiers

Hot, cool, cold , archive

Hot: any data which is live and always getting used is hot data & we can move this data to hot access tier

Cool: any data which is infrequent access we can keep it for 30 days move it to cool tier

Cold: any data which is infrequent access & we can keep it for 90 days we can also move it to cold tier

Archive: any data you want to keep it above 180 days or more we can move it to the archive tier

Pricing is calculated in two ways

Storage cost

Transaction cost

In hot access tier your transaction cost is less but storage cost is high

In cool, cold and archive tier your storage cost is less but transaction cost is high

Archive data we move it to the tape drive means in the backend when we put data in the archive access tier it will be moved into the tape drive. Tape drive is slow so retrieving data will take time.

Hot
Cool - 30 days
Cold - 90 days
Archive - 180 days

Storage cost:

Hot - more
Cool - lesser
Cold - lesser
Archive - lesser

Transaction cost

Hot - less
Cool - more
Cold - more

Archive - more

Azure File service

- Cloud based file share

In azure file share we will use two protocols

-

SMB and NFS

For windows we will use the SMB protocol

For linux we will use the NFS protocol

Go to the azure storage account and click on file share and create a file share and make sure to not enable the backup

The screenshot shows the 'New file share' creation process in the Microsoft Azure portal. The top navigation bar includes the Microsoft Azure logo, a search bar, and a 'File shares' section. The main page title is 'manoharstorageaccount91 | File shares > New file share'. Below the title, there are three tabs: 'Basics' (selected), 'Backup', and 'Review + create'. The 'Basics' tab contains fields for 'Name *' (set to 'test') and 'Access tier *' (set to 'Transaction optimized'). A 'Performance' section lists 'Maximum IO/s' as 20000 and 'Maximum capacity' as 100 TiB. A note below states: 'To use the SMB protocol with this share, check if you can communicate over port 445. These scripts for [Windows clients](#) and [Linux clients](#) can help. Learn how to [circumvent port 445 issues](#).'. At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next : Backup >'.

New file share

...

 Validation passed

Basics Backup Review + create

Basics

File share name test
Access Tier TransactionOptimized
Protocol SMB

Backup

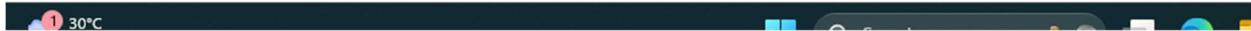
Vault name (new) vault-lyjltu0i
Backup policy (new) DailyPolicy-lyjltu55
Policy details
 Backup frequency Daily at 7:30 PM UTC
 Retention of daily backup point
 Retain backup taken every day at 7:30 PM for 30 Day(s)

[Create](#)

[< Previous](#)

[Next >](#)

[Download a template for automation](#)



Home > Storage accounts > manoharstorageaccount91 | File shares > New file share >

test SMB File share

Search ...

Connect Upload Refresh Add directory Delete share Change tier Edit quota Give feedback

Enable Backup for file share "test" to protect your data. [Learn more](#)

Overview

- Diagnose and solve problems
- Access Control (IAM)
- Browse
- Operations

Essentials

Storage account	: manoharstorageaccount91	Share URL	: https://manoharstorageaccount91.file.core.windows.net/test
Resource group (move)	: DemoRG	Redundancy	: Locally-redundant storage (LRS)
Location	: Central India	Configuration modified	: 7/13/2024, 9:36:48 AM
Subscription (move)	: Pay-As-You-Go		
Subscription ID	: 32ae345-c46e-4708-be87-491dbf8d1da9		

Properties Capabilities (2) Tutorials

Size

Maximum capacity	100 TiB
Used capacity	0 B
Tier	Transaction optimized

Performance

Maximum IO/s	20000
Throughput rate	Varies by region. Learn more

Backup

Snapshots	0 snapshots
Last modified	-
Backup	Not configured

Feature status

Soft delete	7 days
Large file shares	Enabled

Identity-based access

Directory service	Not configured
Domain	-

SMB protocol settings

Security profile	Maximum compatibility
SMB protocol versions	-
SMB channel encryption	-
Authentication mechanisms	-
Kerberos ticket encryption	-

Now we will upload a file to our file share

Microsoft Azure

Home > Storage accounts > manoharstorageaccount91 | File shares >

test SMB File share

Search ...

Connect Upload Refresh Add directory Delete share Change tier Edit quota Give feedback

Enable Backup for file share "test" to protect your data. [Learn more](#)

Overview

- Diagnose and solve problems
- Access Control (IAM)
- Browse
- Operations
- Snapshots
- Backup

Essentials

Storage account	: manoharstorageaccount91	Share URL	: http://
Resource group (move)	: DemoRG	Redundancy	: Locally-redundant storage (LRS)
Location	: Central India	Configuration modified	: 7/13/2024, 9:36:48 AM
Subscription (move)	: Pay-As-You-Go		
Subscription ID	: 32ae345-c46e-4708-be87-491dbf8d1da9		

Properties Capabilities (2) Tutorials

Size

Maximum capacity	100 TiB
Used capacity	0 B
Tier	Transaction optimized

Performance

Maximum IO/s	20000
Throughput rate	Varies by region. Learn more

Upload files

Drag and drop files here or [Browse for files](#)

1 file(s) selected: Kivas_Fajo.webp

Overwrite if files already exist

Upload

Home > Storage accounts > manoharstorageaccount91 | File shares > test

test | Browse SMB File share

Search ...

Connect Upload Add directory Refresh Delete share Change tier Edit quota Give feedback

Authentication method: Access key (Switch to Microsoft Entra user account)

Search files by prefix

Name	Type	Size
Kivas_Fajo.webp	File	40.93 KiB

- Diagnose and solve problems
- Access Control (IAM)
- Browse
- Operations
- Snapshots
- Backup

Now we need to connect this file share to our VM

When we will click on connect it will give us options how we can connect this file share to our VM.

We can connect file share with windows, linux and mac os

For this demo we have created a windows VM so we will connect it with a windows virtual machine.

The screenshot shows the Microsoft Azure Storage account interface for a file share named 'test'. On the left, there's a sidebar with options like Overview, Diagnose and solve problems, Access Control (IAM), and a selected 'Browse' option. The main area shows a list of files with one item: 'Kivas_Fajo.webp'. At the top, there's a 'Connect' button. A 'Connect' dialog box is open on the right, titled 'Connect test'. It contains several sections: a warning about 'Secure transfer required', a 'Windows' tab selected, authentication method options (Active Directory or Microsoft Entra, Storage account key selected), a note about connecting using storage account keys, and a 'Show Script' button. Below the dialog, a note states: 'Note: This script will only work on Windows Server 2012 and above.'

Connect

X

test

Z

▼

Authentication method

- Active Directory or Microsoft Entra
- Storage account key

i Connecting to a share using the storage account key is only appropriate for admin access. Mounting the Azure file share with the Active Directory or Microsoft Entra identity of the user is preferred. [Learn more](#)

Hide Script

```
$connectTestResult = Test-NetConnection -ComputerName manoharstorageaccount91.file.core.windows.net -Port 445
if ($connectTestResult.TcpTestSucceeded) {
    # Save the password so the drive will persist on reboot
    cmd.exe /C "cmdkey
    /add:"manoharstorageaccount91.file.core.windows.net"
    /user:"localhost\manoharstorageaccount91"
    /pass:"10cE9lxF17M9EdcLJ3YaN9f4VOBDQFz/XpNQMtYW874iVepPB/DZHxp
    q8FZ8+zi6MKJebpepQOee+ASt3OUUow=""""
    # Mount the drive
    New-PSDrive -Name Z -PSProvider FileSystem -Root
    "\manoharstorageaccount91.file.core.windows.net\test" -Persist
} else {
    Write-Error -Message "Unable to reach the Azure storage account via port 445. Check to make sure your organization or ISP is not blocking port 445, or use Azure P2S VPN, Azure S2S VPN, or Express Route to tunnel SMB traffic over a different port."
}
```

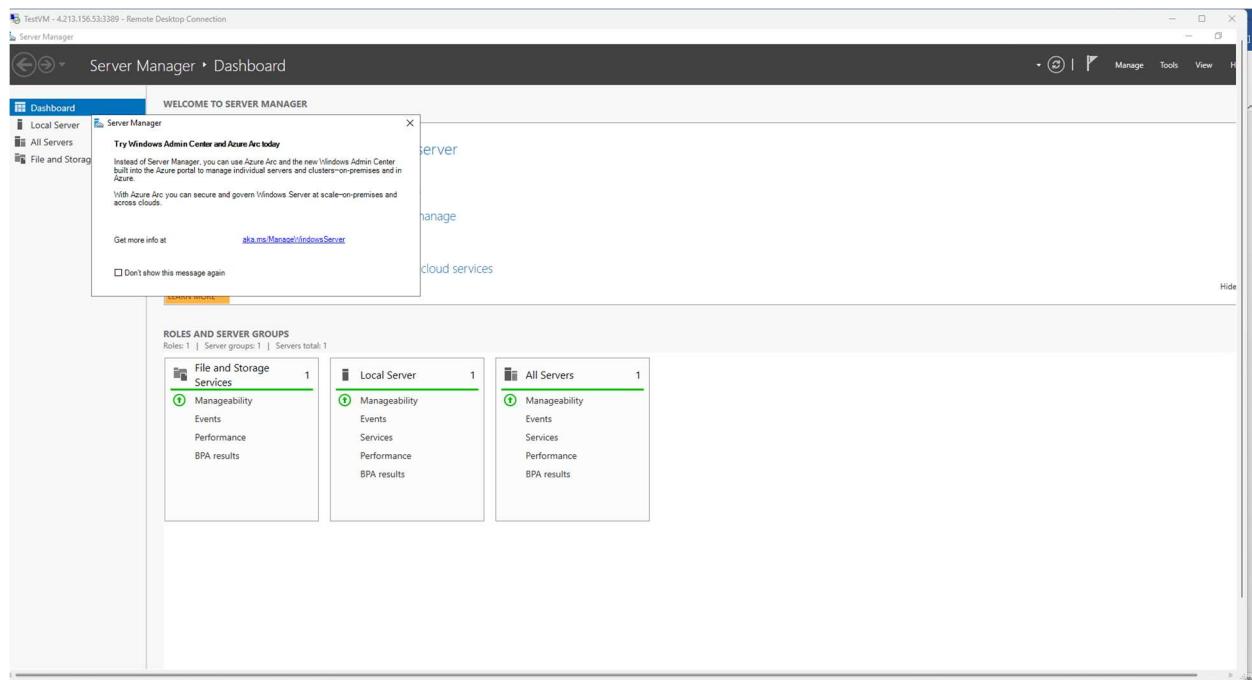


This script will check to see if this storage account is accessible via TCP port 445, which is the port SMB uses. If port 445 is available, your Azure file share will be persistently mounted. Your organization or internet service provider (ISP) may block port 445, however you may use Azure [Point-to-Site \(P2S\) VPN](#), Azure [Site-to-Site \(S2S\) VPN](#), or [ExpressRoute](#) to tunnel SMB traffic to your Azure file share over a different port.

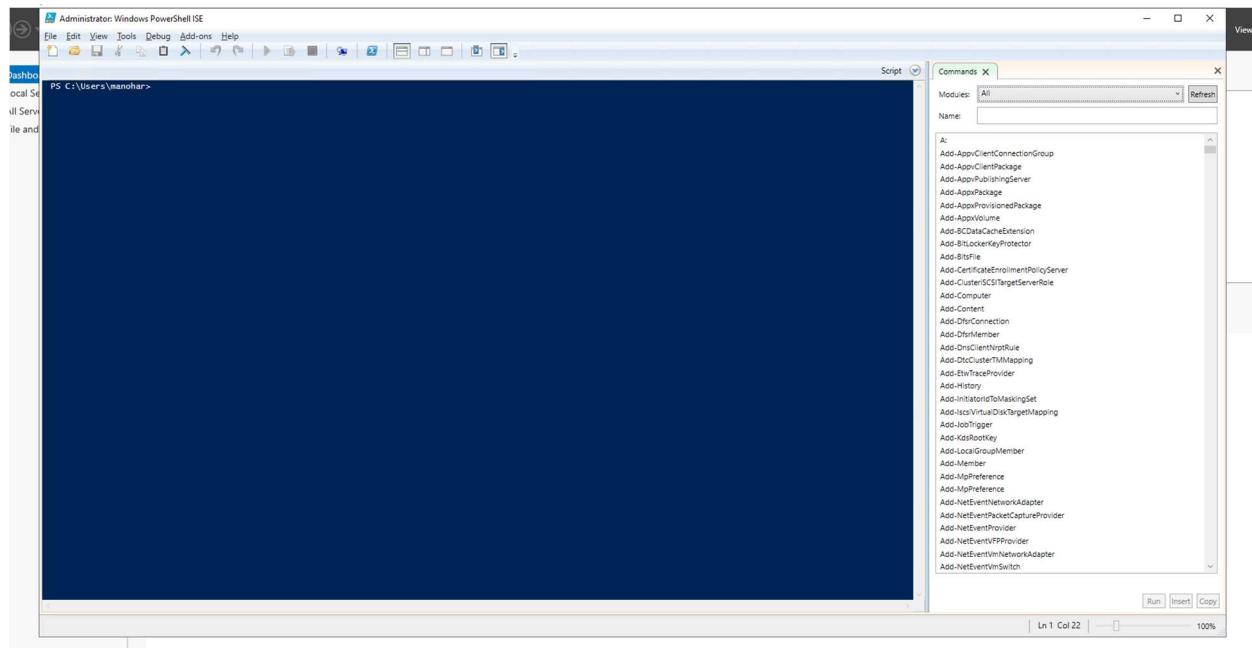
Note: The script will only work on Windows Server 2012 and above.

[Azure Storage](#)

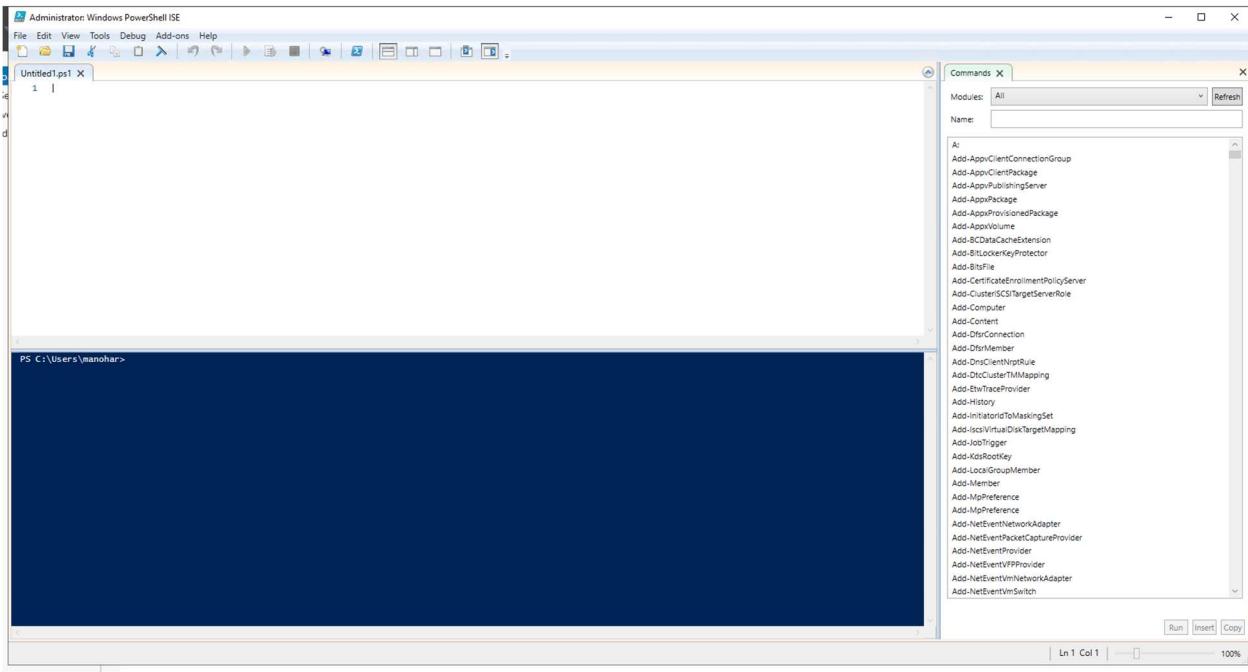
Now we will login to our Windows VM



We will open the windows powershell ISE



Within powershell ISE we will create a new file



We will copy the script and execute it in the powershell

```
$connectTestResult = Test-NetConnection -ComputerName  
manoharstorageaccount91.file.core.windows.net -Port 445  
  
if ($connectTestResult.TcpTestSucceeded) {  
  
    # Save the password so the drive will persist on reboot  
  
    cmd.exe /C "cmdkey /add: `\"manoharstorageaccount91.file.core.windows.net` "  
    /user: `\"localhost\manoharstorageaccount91` "  
    /pass: `\"10cE9lxF17M9EdcLJ3YaN9f4VOBDQFz/XpNQMtYW874iVepPB/DZHxpq8FZ8+zi6MKJebpep  
    QOee+ASt3UOUow==` ""  
  
    # Mount the drive  
  
    New-PSDrive -Name Z -PSProvider FileSystem -Root  
    "\\manoharstorageaccount91.file.core.windows.net\test" -Persist  
  
} else {  
  
    Write-Error -Message "Unable to reach the Azure storage account via port 445. Check to make  
sure your organization or ISP is not blocking port 445, or use Azure P2S VPN, Azure S2S VPN, or  
Express Route to tunnel SMB traffic over a different port."  
  
}
```

The screenshot shows the Windows PowerShell ISE interface. The title bar says "Administrator: Windows PowerShell ISE". The menu bar includes File, Edit, View, Tools, Debug, Add-ons, Help. The toolbar has standard icons for file operations. The main code editor window contains the following PowerShell script:

```
Untitled1.ps1* X
1 $connectTestResult = Test-NetConnection -ComputerName manoharstorageaccount91.file.core.windows.net -Port 445
2 if ($connectTestResult.TcpTestSucceeded) {
3     # Save the password so the drive will persist on reboot
4     cmd.exe /C "cmdkey /add:'manoharstorageaccount91.file.core.windows.net' /user:'localhost\manoharstorageaccount91' /pass:'10cE9IxF17M9EdcLJ3YaN9f4V0BDQFz/XpW'
5     # Mount the drive
6     New-PSDrive -Name Z -PSProvider FileSystem -Root "\\\manoharstorageaccount91.file.core.windows.net\test" -Persist
7 } else {
8 } else {
9 }
```

The right side of the interface features a "Commands" pane with a search bar and a list of cmdlets starting with "Add-". Below the list are buttons for Run, Insert, and Copy. The status bar at the bottom shows "Ln 9 Col 2" and "100%".

Now we will run the script

The screenshot shows the Windows PowerShell ISE interface after the script has been run. The title bar says "Administrator: Windows PowerShell ISE". The menu bar includes File, Edit, View, Tools, Debug, Add-ons, Help. The toolbar has standard icons for file operations. The main code editor window shows the same PowerShell script as before.

```
Untitled1.ps1* X
1 $connectTestResult = Test-NetConnection -ComputerName manoharstorageaccount91.file.core.windows.net -Port 445
2 if ($connectTestResult.TcpTestSucceeded) {
3     # Save the password so the drive will persist on reboot
4     cmd.exe /C "cmdkey /add:'manoharstorageaccount91.file.core.windows.net' /user:'localhost\manoharstorageaccount91' /pass:'10cE9IxF17M9EdcLJ3YaN9f4V0BDQFz/:
5     # Mount the drive
6     New-PSDrive -Name Z -PSProvider FileSystem -Root "\\\manoharstorageaccount91.file.core.windows.net\test" -Persist
7 } else {
8 } else {
9 }
```

```

Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
Untitled1.ps1* X
1 $connectTestResult = Test-NetConnection -ComputerName manoharstorageaccount91.file.core.windows.net -Port 445
2 if ($connectTestResult.TcpTestSucceeded) {
3     # Save the password so the drive will persist on reboot
4     cmd.exe /C "netkey /add: \"manoharstorageaccount91.file.core.windows.net\" /user:\"localhost\manoharstorageaccount91\" /pass:\"10cE9IxF17M9EdclJ3YaN9f4V0BDQFz/XpNQmtYw8"
5     New-PSDrive -Name Z -PSProvider FileSystem -Root "\\\manoharstorageaccount91.file.core.windows.net\test" -Persist
6 } else {
7 } else {
8     Write-Error -Message "Unable to reach the Azure storage account via port 445. Check to make sure your organization or ISP is not blocking port 445, or use Azure P2S VPN"
9 }

```

PS <C:\Users\manohar> .\Untitled1.ps1

```

PS <C:\Users\manohar> $connectTestResult = Test-NetConnection -ComputerName manoharstorageaccount91.file.core.windows.net -Port 445
PS <C:\Users\manohar> if ($connectTestResult.TcpTestSucceeded) {
PS <C:\Users\manohar>     # Save the password so the drive will persist on reboot
PS <C:\Users\manohar>     cmd.exe /C "netkey /add: \"manoharstorageaccount91.file.core.windows.net\" /user:\"localhost\manoharstorageaccount91\" /pass:\"10cE9IxF17M9EdclJ3YaN9f4V0BDQFz/XpNQmtYw8"
PS <C:\Users\manohar>     New-PSDrive -Name Z -PSProvider FileSystem -Root "\\\manoharstorageaccount91.file.core.windows.net\test" -Persist
PS <C:\Users\manohar> } else {
PS <C:\Users\manohar>     Write-Error -Message "Unable to reach the Azure storage account via port 445. Check to make sure your organization or ISP is not blocking port 445, or use Azure P2S VPN"
PS <C:\Users\manohar>

```

CMDKEY: Credential added successfully.

Name	Used (GB)	Free (GB)	Provider	Root	CurrentLocation
Z	0.00	102400.00	FileSystem	\\\manoharstorageaccount91.file.core.windows.net\test	

PS C:\Users\manohar>

File share is successfully attached and our network drive created successfully and inside the network drive we have our file which we uploaded in file share

