

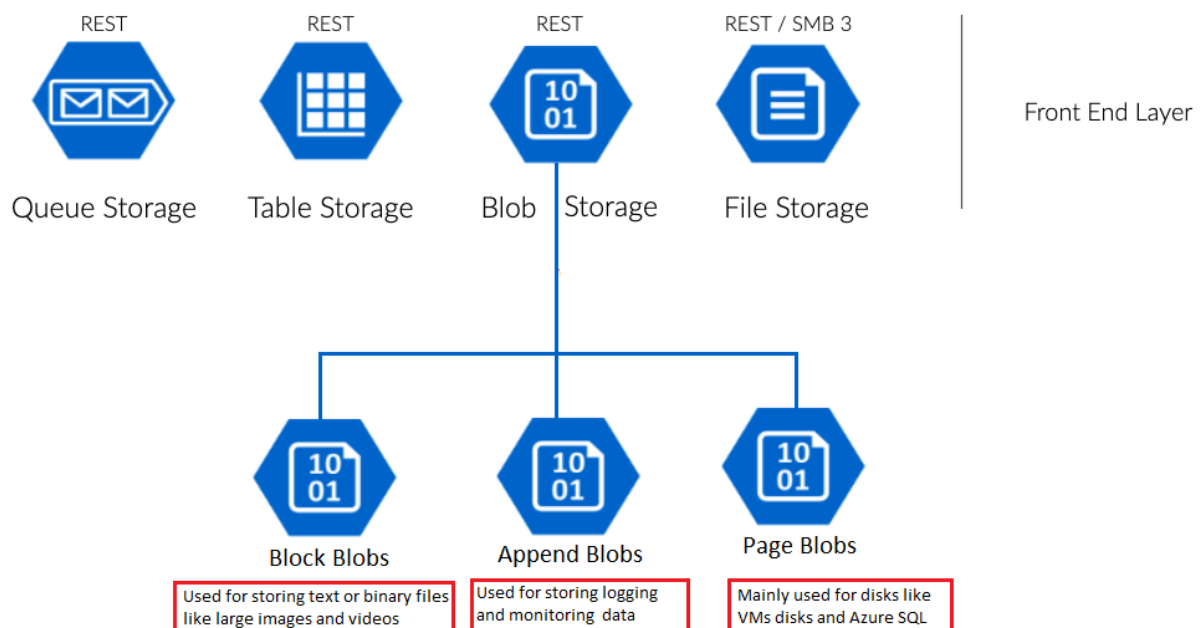
Contents

What is Azure Storage Account.....	2
Storage Account core storage services.....	3
Blob storage	4
Block Blobs	4
Append Blobs	4
Page Blobs	4
Structure of Azure Blob storage	4
Tables Storage	4
Files Storage	5
Queues Storage	6
Create Azure Storage Account	6
How to save image in blob container	11
What is Azure Storage Explorer	16

What is Azure Storage Account

The Azure Storage platform is Microsoft's cloud storage solution for modern data storage scenarios. Core storage services offer a massively scalable object store for data objects, disk storage for Azure virtual machines (VMs), a file system service for the cloud, a messaging store for reliable messaging, and a NoSQL store. The storage account provides a unique namespace (URL) for your Azure Storage data that is accessible from anywhere in the world over HTTP or HTTPS.

Azure Storage Architecture



Azure Storage offers several types of storage accounts. Each type supports different features and has its own pricing model. Consider these differences before you create a storage account to determine the type of account that is best for your applications.

1. **BlobStorage** - Legacy Blob-only storage accounts. Use general-purpose v2 accounts instead when possible. It only supports two types of blob
 - a. Block Blob
 - b. Append Blob
2. **Storage (General-purpose v1)** - Legacy account type for blobs, files, queues, and tables. Use general-purpose v2 accounts instead when possible. It supports all three types of blob
 - a. Block Blob
 - b. Append Blob
 - c. Page Blob
3. **StorageV2 (General-purpose v2)** - Basic storage account type for blobs, files, queues, and tables. Recommended for most scenarios using Azure Storage.

StorageV2 (General Storage v2) account which takes the features of the **BlobStorage** accounts and combines them with the **Storage (General-purpose v1)**, plus tiering

StorageV2 (General-purpose v2) = Storage (General-purpose v1) + BlobStorage

Azure storage offers different access tiers, which allow you to store blob object data in the most cost-effective manner. The available access tiers

1. **Hot** - Lowest access rates, most expensive per GB capacity.
2. **Cool** - Still low latency, but cheap per GB capacity at higher access rate and stored for at least 30 days. Data in the cool access tier can tolerate slightly lower availability, but still requires high durability, retrieval latency, and throughput characteristics like hot data. For cool data, a slightly lower availability service-level agreement (SLA) and higher access costs compared to hot data are acceptable trade-offs for lower storage costs.
3. **Archive** - The cheapest per GB capacity but it takes up to 15 hours to move a blob back to cool/hot where it can be accessed again.

Differences between BlobStorage and Storage (General-purpose v1)

	BlobStorage	Storage (General-purpose v1)
Storage Service	Only support blobs	It supports blobs, files, queues and tables
Blobs types	Only supports block and append blobs	It supports block, append & page blobs
Access tier	Support both hot and cool access tier	Only support hot access tier

Storage Account core storage services

Azure Storage Account provide these core storage services

1. **Blobs Storage**
2. **Tables Storage**
3. **Files Storage**
4. **Queues Storage**

Blob storage

A massively scalable object store for text and binary data. Azure Storage offers three types of blob storage

1. Block Blobs
2. Append Blobs
3. Page blobs

Block Blobs

Block blobs are composed of blocks and are ideal for storing text or binary files, and for uploading large files efficiently. Blocks of block blob can be managed individually. Block blobs store up to about 4.75 TB of data.

Append Blobs

Append blobs are also made up of blocks, but they are optimized for append operations, making them ideal for logging scenarios. An append blob is comprised of blocks and is optimized for append operations. When you modify an append blob, blocks are added to the end of the blob only, via the Append Block operation. Updating or deleting of existing blocks is not supported. Unlike a block blob, an append blob does not expose its block IDs.

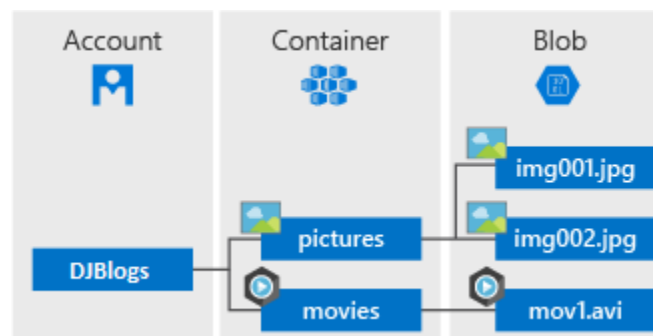
Page Blobs

Page blobs are made up of 512-byte pages up to 8 TB in total size and are designed for frequent random read/write operations. Page blobs are the foundation of Azure IaaS Disks. Page blobs are a collection of 512-byte pages, which provide the ability to read/write arbitrary ranges of bytes. Hence, page blobs are ideal for storing index-based and sparse data structures like OS and data disks for Virtual Machines and Databases.

Structure of Azure Blob storage

It has three types of resources

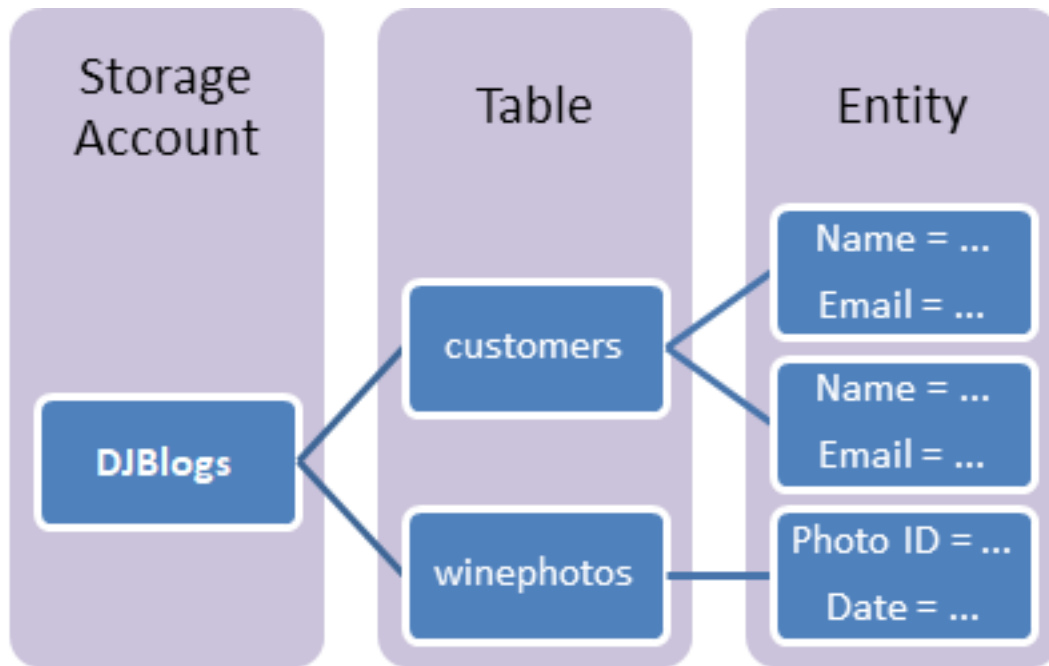
1. The storage Account
2. A container in the storage account
3. A blob



Tables Storage

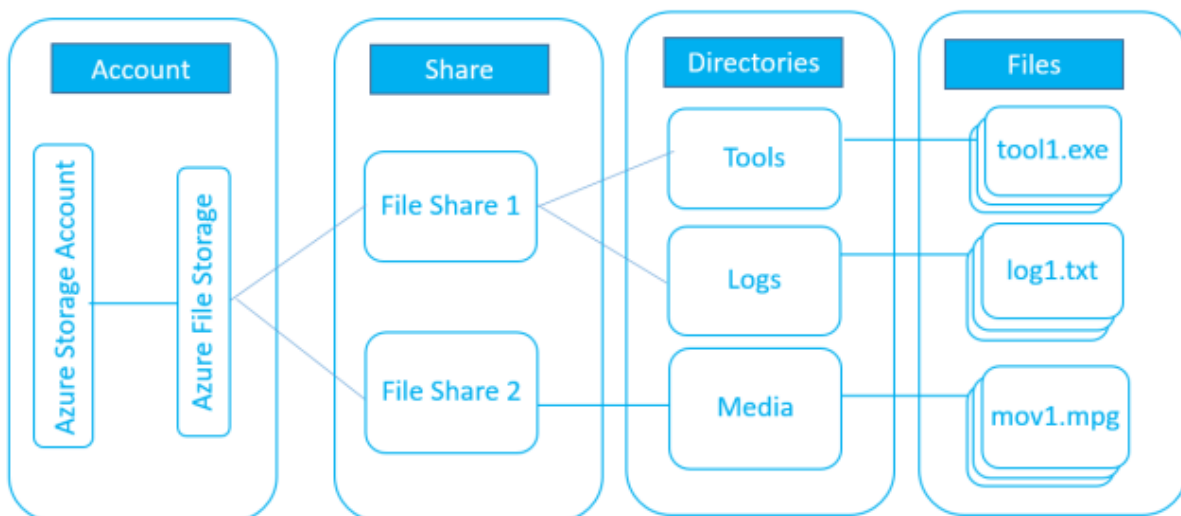
Azure Table storage is a service that stores structured NoSQL data in the cloud, providing a key/attribute store with a schemaless design. Because Table storage is schemaless, it's easy to adapt your data as the needs of your application evolve. Access to Table storage data is fast and cost-effective for many types of applications and is typically lower in cost than traditional SQL for similar volumes of data.

Table storage contains the following components



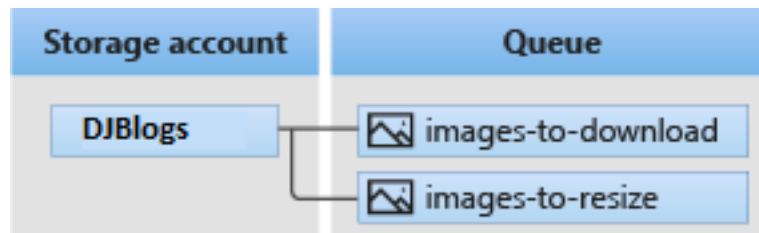
Files Storage

Azure Files is an alternative to Azure Blob Storage (Block Blob) but can reside within the same storage account. Azure File Storage exposes file shares using the Server Message Block (SMB) protocol, the predominantly used file share protocol for existing on-premises applications, it simplifies moving your existing applications to the cloud, and because Azure File Storage allows applications to mount file shares from anywhere in the world, your on-premises applications can take advantage of cloud storage without change. Azure File Storage also implements REST API protocol, which enables you to develop modern applications that integrate with existing applications.



Queues Storage

Azure Queue Storage is a service for storing large numbers of messages. You access messages from anywhere in the world via authenticated calls using HTTP or HTTPS. A queue message can be up to 64 KB in size. A queue may contain millions of messages, up to the total capacity limit of a storage account. Queues are commonly used to create a backlog of work to process asynchronously.



Create Azure Storage Account


We need to follow below steps to “Create storage account”

1. Go to azure portal <https://portal.azure.com>
2. Once you are login in portal click in (+) sign as below “Azure Marketplace” search page will open type “Storage Account”

Azure services




3. Select “Storage account” option

Storage account 

Microsoft



Storage account  Save for later

Microsoft

Create

Overview Plans

Microsoft Azure provides scalable, durable cloud storage, backup, and recovery solutions for any data, big or small. It works with the infrastructure you already have to cost-effectively enhance your existing applications and business continuity strategy, and provide the storage required by your cloud applications, including unstructured text or binary data such as video, audio, and images.

Useful Links

[Documentation](#)

[Service overview](#)

[Pricing](#)

4. Click on above “Create” button and it will open “Create storage account” form like this

portal.azure.com/#create/Microsoft.StorageAccount

Microsoft Azure

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

Home >

Create storage account

Project details

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

Subscription * ..

Resource group * 1. DJBlogs
[Create new](#)

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Storage account name * ⓘ 2. djblogs ✓

Location * 3. (US) Central US

Performance ⓘ 4. ☒ Standard ☐ Premium Managed (Standard) and Unmanaged (Premium)

Account kind ⓘ 5. StorageV2 (general purpose v2)

Replication ⓘ 6. Locally-redundant storage (LRS)

Blob access tier (default) ⓘ 7. ☐ Cool ☒ Hot

[Review + create](#) [< Previous](#) 8. [Next : Networking >](#)

- Performance** - A premium performance tier for storing unmanaged virtual machine disks. Microsoft recommends using managed disks with Azure virtual machines instead of unmanaged disks.
 - Replication** - Azure Storage always stores multiple copies of your data so that it is protected from planned and unplanned events, including transient hardware failures, network or power outages, and massive natural disasters.
5. Once we fill “Create storage account” form as above it asks to choose “Network”

portal.azure.com/#create/Microsoft.StorageAccount

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

Home >

Create storage account

Basics **Networking** Data protection Advanced Tags Review + create

Network connectivity

You can connect to your storage account either publicly, via public IP addresses or service endpoints, or privately, using a private endpoint.

Connectivity method *

1. ☒ Public endpoint (all networks)
- ☐ Public endpoint (selected networks)
- ☐ Private endpoint

i All networks will be able to access this storage account.
[Learn more about connectivity methods](#)

Network routing

Determine how to route your traffic as it travels from the source to its Azure endpoint. Microsoft network routing is recommended for most customers.

Routing preference * ⓘ

2. ☒ Microsoft network routing (default)
- ☐ Internet routing

i The current combination of storage account kind, performance, replication, and location does not support 'Internet routing'.

Review + create < Previous **Next : Data protection >**

6. We have not made any change in “Network” default option just click in “Next: Data protection”

Create storage account

Basics Networking **Data protection** Advanced Tags Review + create

Recovery

☐ Turn on point-in-time restore

Use point-in-time restore to restore one or more containers to an earlier state. If point-in-time restore is enabled, then versioning, change feed, and blob soft delete must also be enabled. [Learn more](#)

i The current subscription needs to have the following features enabled - Versioning, Change feed, RestoreBlobRanges

☐ Turn on soft delete for blobs

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

☐ Turn on soft delete for containers

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

i Sign up is currently required to utilize the Container soft delete feature on a per-subscription basis. [Learn more about container soft delete](#)

☐ Turn on soft delete for file shares

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

Tracking

☐ Turn on versioning

Use versioning to automatically maintain previous versions of your blobs for recovery and restoration. [Learn more](#)

☐ Turn on blob change feed

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

[Review + create](#)

[< Previous](#)

[Next : Advanced >](#)

7. We have not made any change in this screen as well just click in "Next: Advanced"

Microsoft Azure

Search resources, services, and docs (G+)

[Home](#) >

Create storage account

BasicsNetworkingData protectionAdvancedTagsReview + create

Security

Secure transfer required ⓘ

1. ☐ Disabled ☒ Enabled

Allow Blob public access ⓘ

2. ☐ Disabled ☒ Enabled

Minimum TLS version ⓘ

3. Version 1.2

Infrastructure encryption ⓘ

☒ Disabled ☐ Enabled

Sign up is currently required to enable infrastructure encryption on a per-subscription basis. [Sign up for infrastructure encryption](#)

Azure Files

Large file shares ⓘ

5. ☒ Disabled ☐ Enabled

Data Lake Storage Gen2

Hierarchical namespace ⓘ

6. ☒ Disabled ☐ Enabled

NFS v3 ⓘ

☒ Disabled ☐ Enabled

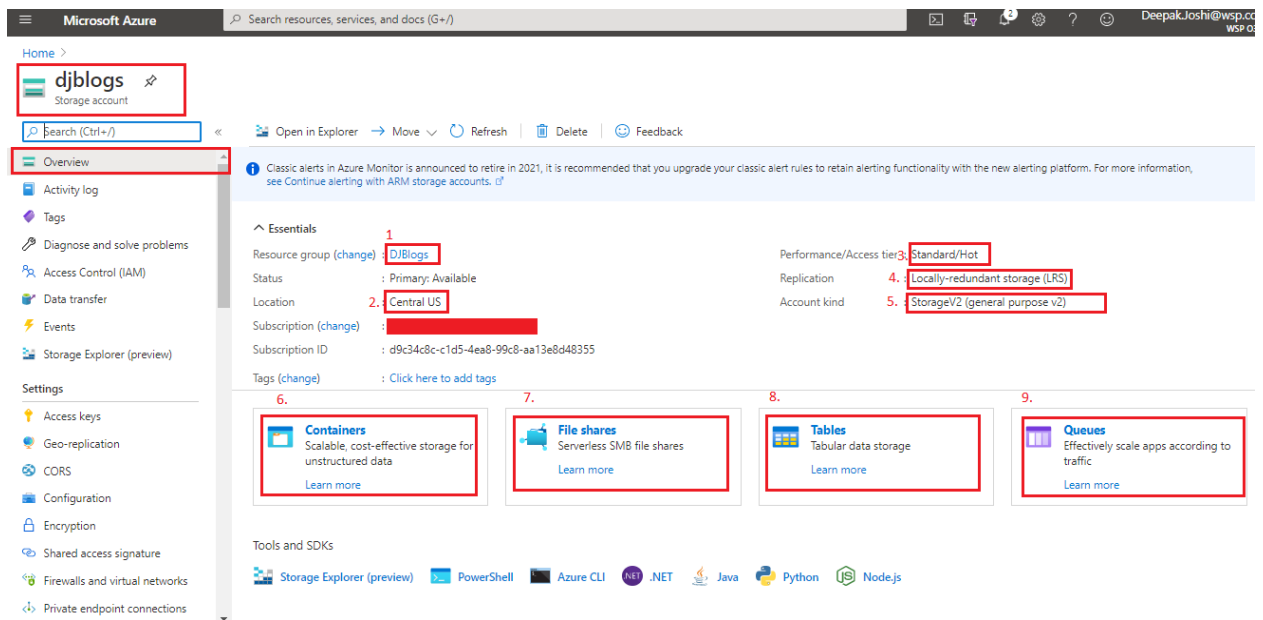
Sign up is currently required to utilize the NFS v3 feature on a per-subscription basis. [Sign up for NFS v3](#)

Review + create

< Previous

Next : Tags >

- On above screen we have not made any changed all these options selected by default. Just click in "Review + Create" button it will create "djblogs" as storage account.



How to save image in blob container

Now I will create demo application to save images in blob storage container. Need to follow below steps

1. Go to azure portal <https://portal.azure.com>
2. Select **djblogs** storage account and add new container **images** like below

Microsoft Azure

Home > DJBlogs > djblogs

djblogs | Containers
Storage account

Search (Ctrl+/)

Overview
Activity log
Tags
Diagnose and solve problems
Access Control (IAM)
Data transfer
Events
Storage Explorer (preview)

Settings

Access keys
Geo-replication
CORS
Configuration
Encryption
Shared access signature
Firewalls and virtual networks
Private endpoint connections
Security
Static website
Properties
Locks

Blob service

Containers

+ Container

Change access level
Restore containers
Refresh
Delete

Search containers by prefix

Name

You don't have any containers yet. Click '+ Container' to get started.

New container

Name * 1.
images

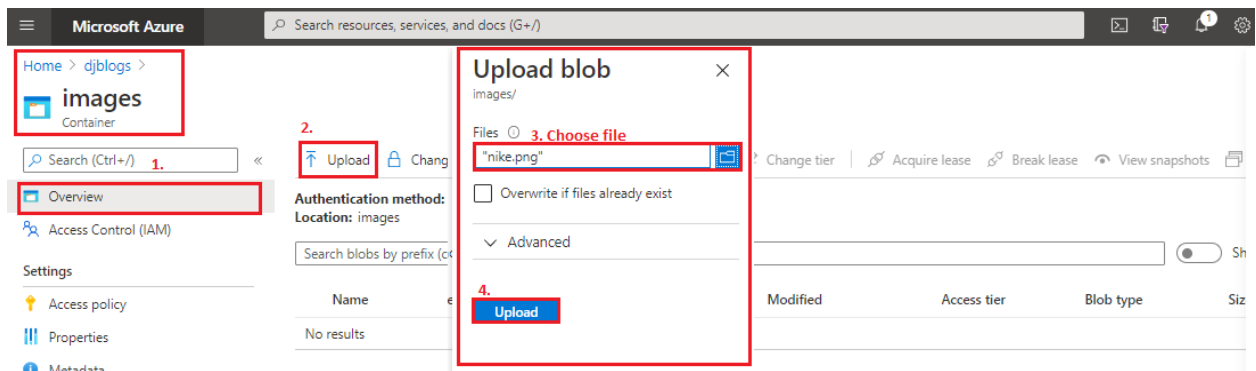
Public access level ⓘ
2. Container (anonymous read access for containers and blobs)

All container and blob data can be read by anonymous request. Clients can enumerate blobs within the container by anonymous request, but cannot enumerate containers within the storage account.

Advanced

3. Create Discard

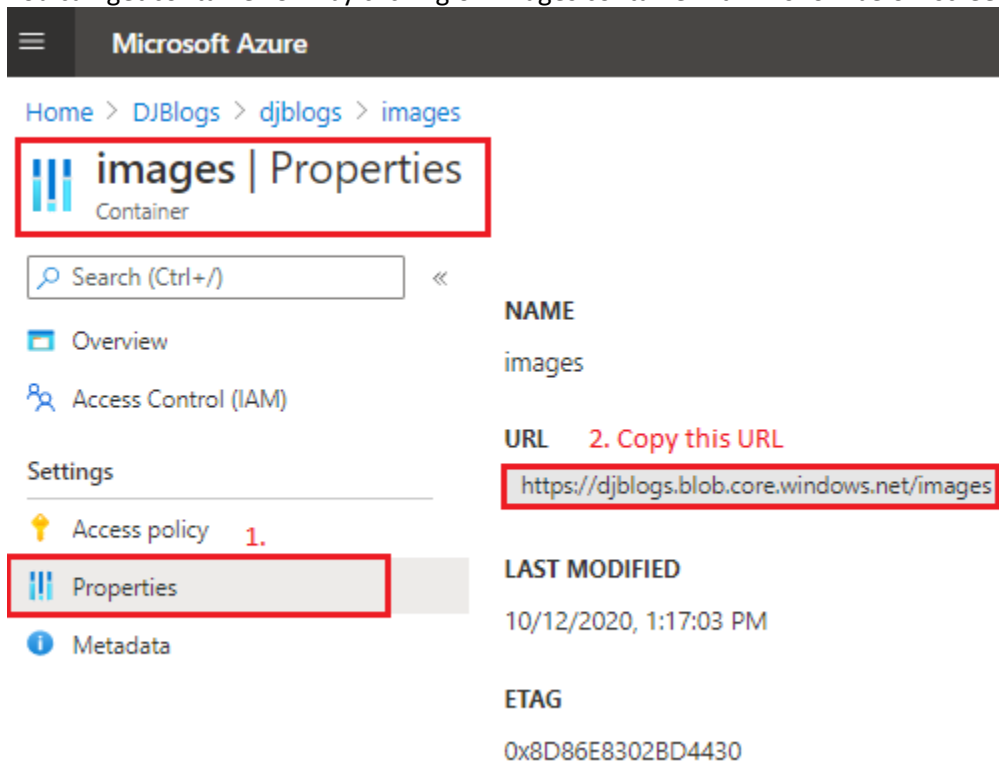
3. User can upload new image in **images** container directly from azure portal as below



4. Once **images** container created we need to save images inside it. We can access this container with help of
 - a. Container URL
 - b. Storage account access keys

Container URL

You can get container URL by clicking on images container. It will show below screen



Storage account access keys

We can get storage account access key by clicking on storage account **Access keys** section. It provides two access keys. You can use any one of them

Microsoft Azure

Home > djblogs

djblogs | Access keys
Storage account

Search (Ctrl+ /)

Overview
Activity log
Tags
Diagnose and solve problems
Access Control (IAM)
Data transfer
Events
Storage Explorer (preview)

Settings 1.
Access keys
Geo-replication
CORS
Configuration
Encryption

Use access keys to authenticate your applications when making rec connections using one key while regenerating the other.

When you regenerate your access keys, you must update any Azun

Storage account name
2. djblogs

Hide keys

key1 ↺

Key
3. [Redacted]

Connection string
[Redacted]

key2 ↺

Key
4. [Redacted]

Connection string
[Redacted]

5. Now open visual studio and create new MVC project in .NET core. First we will install NuGet package "Microsoft.WindowsAzure.Storage" to for blob storage library.
6. You can get the images from blob storage with below piece of code.

```

// Get a reference to a container that's available for anonymous access.
CloudBlobContainer container = new CloudBlobContainer(new Uri(AppConstant.BlobContainerURL));
//New for core
OperationContext context = new OperationContext();
BlobRequestOptions options = new BlobRequestOptions();
// List blobs in the container.
var list = container.ListBlobsSegmentedAsync(null, true, BlobListingDetails.All, null, null, options, context);
var _list = new List<FileModel>();
foreach (IListBlobItem blobItem in list.Result.Results)
{
    _list.Add(new FileModel()
    {
        URL = blobItem.Uri.ToString(),
        Name = Path.GetFileName(blobItem.Uri.ToString())
    });
    //Console.WriteLine(blobItem.Uri);
}

```

GitHub Code:

<https://github.com/deepakjoshiinfo/DJBlog.StorageAccount/blob/main/DJBlog.StorageAccount/Controllers/HomeController.cs>

7. User can save images and files with below code

```

if (files == null || files.Count == 0)
    return Content("files not selected");
foreach (var file in files)
{
    var stream = file.OpenReadStream();
    // Create storagecredentials object by reading the values from the configuration (appsettings.json)
    //deeppawncustomer - Access keys
    StorageCredentials storageCredentials = new StorageCredentials("djblogs", AppConstant.Accesskey);

    // Create cloudstorage account by passing the storagecredentials
    CloudStorageAccount storageAccount = new CloudStorageAccount(storageCredentials, true);

    // Create the blob client.
    CloudBlobClient blobClient = storageAccount.CreateCloudBlobClient();

    // Get reference to the blob container by passing the name by reading the value from the configuration (appsettings.json)
    CloudBlobContainer container = blobClient.GetContainerReference("images");

    // Get the reference to the block blob from the container
    CloudBlockBlob blockBlob = container.GetBlockBlobReference(file.FileName);

    // Upload the file
    await blockBlob.UploadFromStreamAsync(stream);
}

```

GitHub Code:

<https://github.com/deepakjoshiinfo/DJBlog.StorageAccount/blob/main/DJBlog.StorageAccount/Controllers/HomeController.cs>

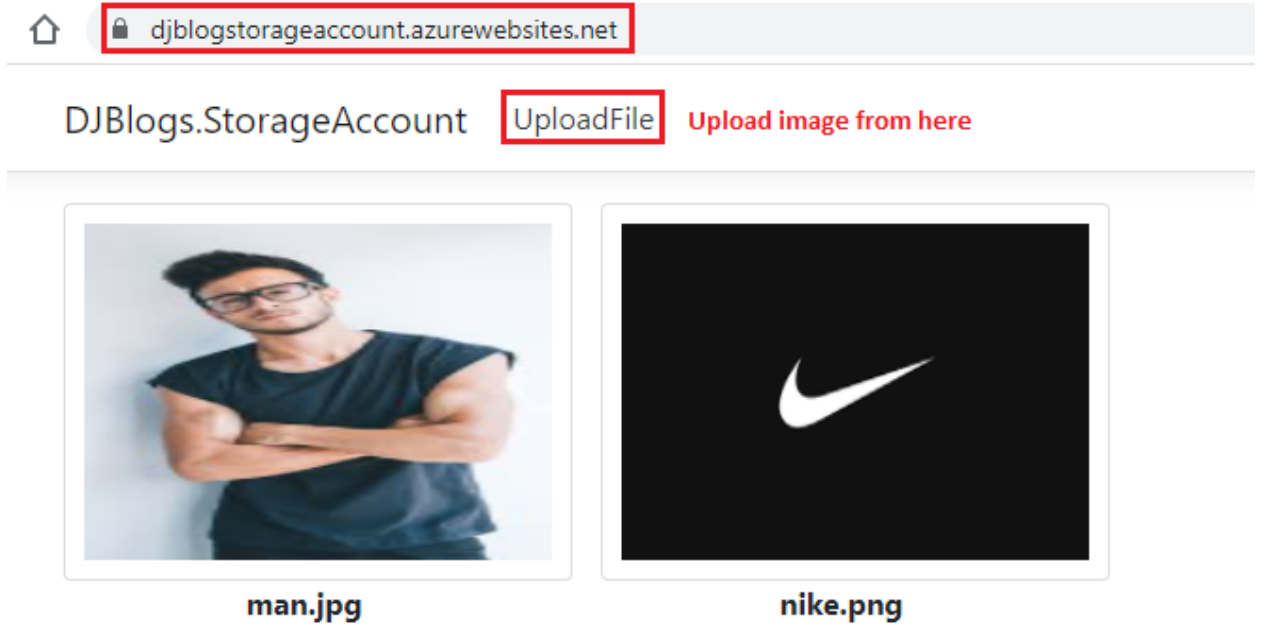
8. I have added all this code in my "DJBlog.StorageAccount" project. You can download this project code from GitHub.

GitHub URL: <https://github.com/deepakjoshiinfo/DJBlog.StorageAccount>

9. Also deployed this code in Azure WebApp as well

URL: <https://djblogstorageaccount.azurewebsites.net/>

I have uploaded 2 images it will look like as below



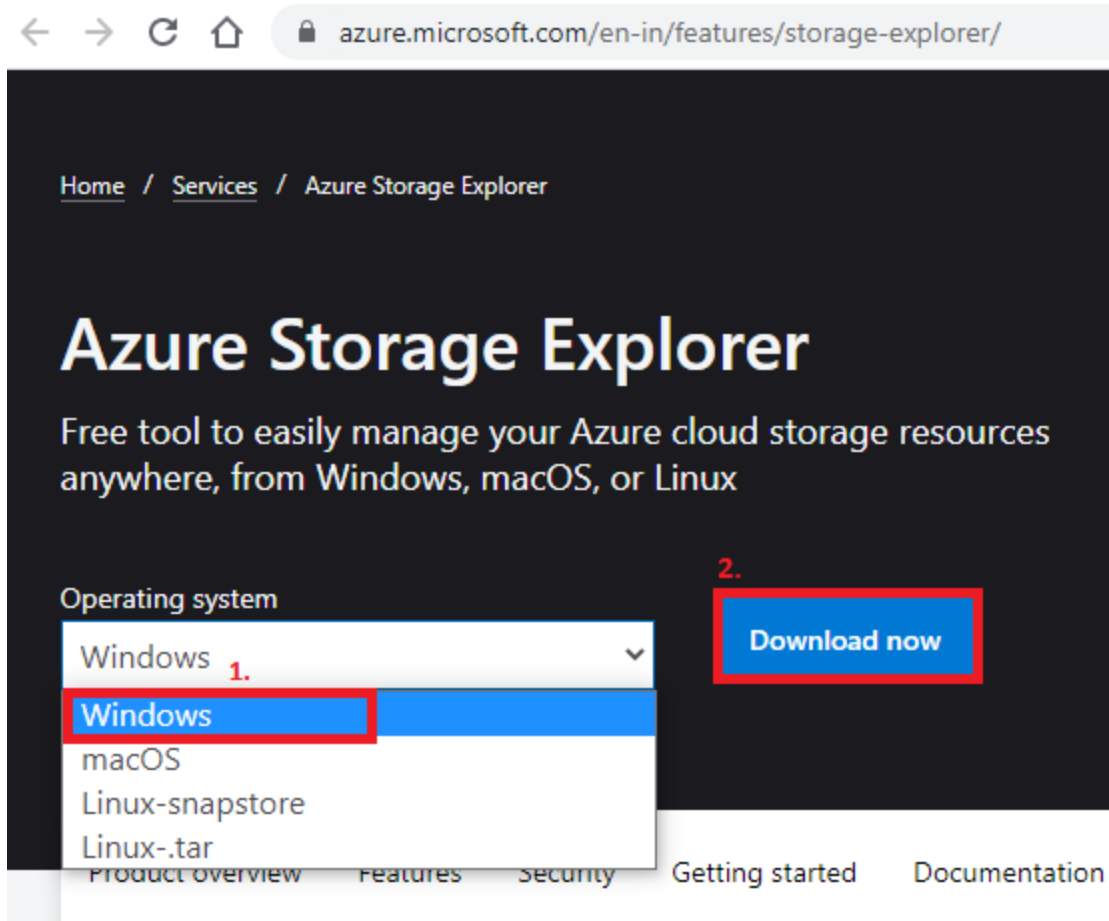
What is Azure Storage Explorer

Azure Storage Explorer is an application which helps you to easily access the Azure storage account through any device on any platform, be it Windows, MacOS, or Linux. You can easily connect to your subscription and manipulate your tables, blobs, queues, and files.

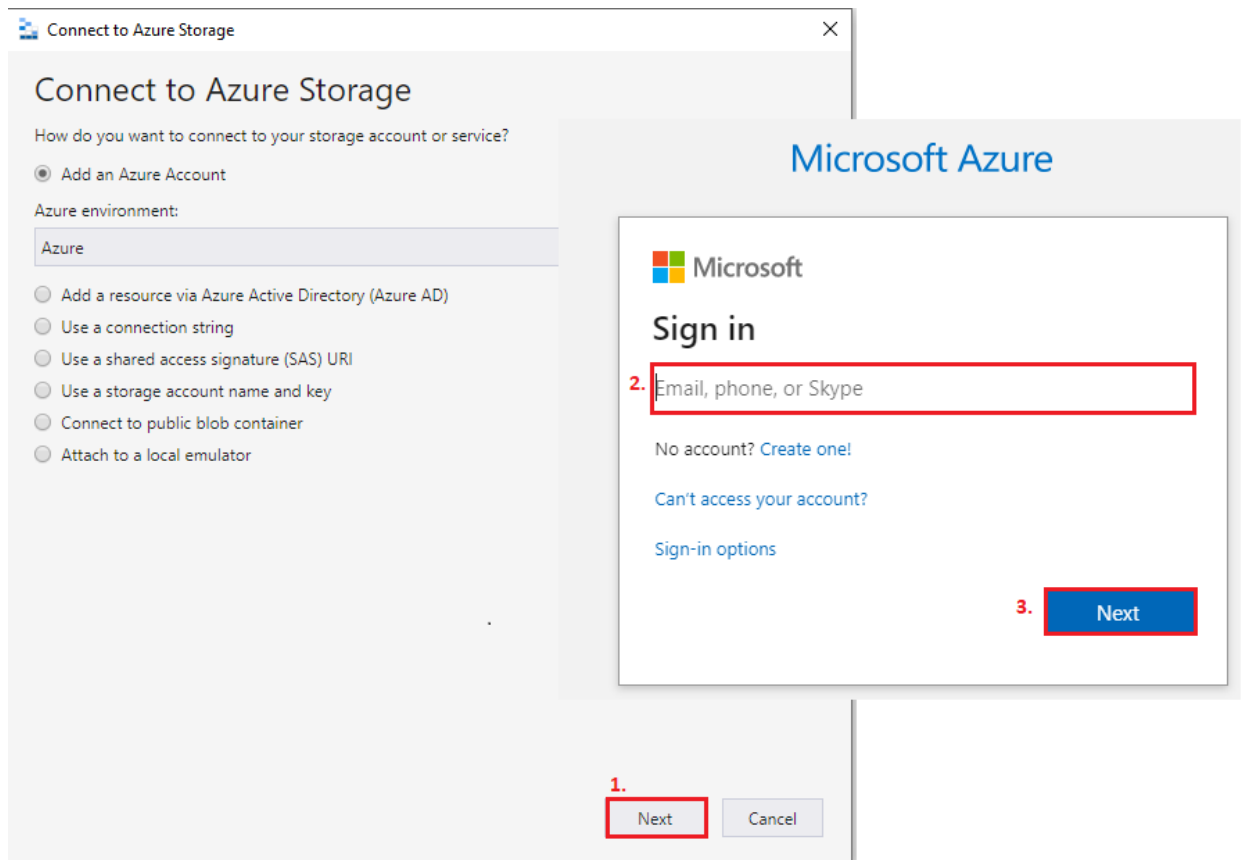
We need to follow below steps to see all storage account details in “Azure Storage Explorer”

1. You can download “Azure Storage Explorer” from below link and install your machine

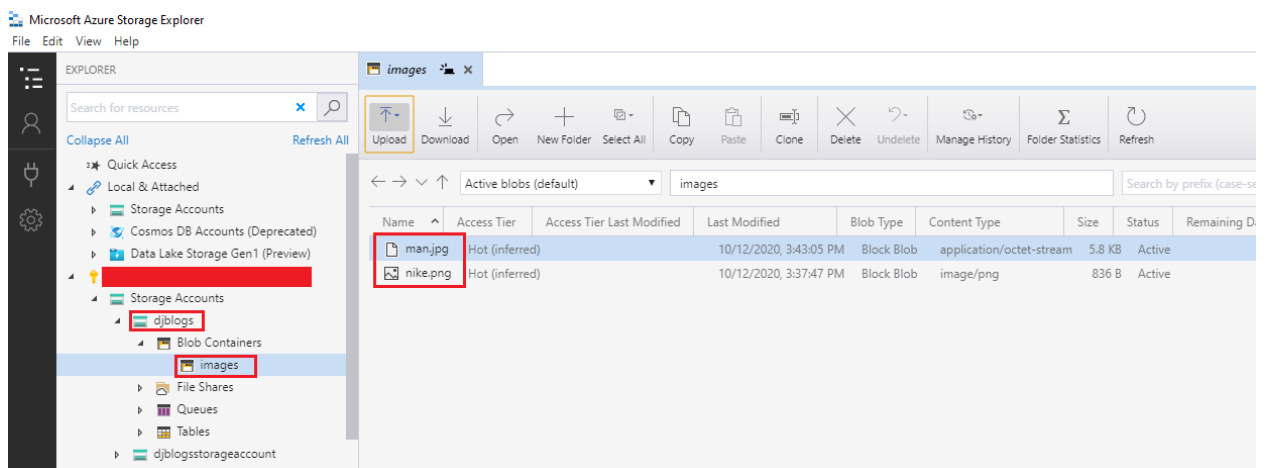
Download Link: <https://azure.microsoft.com/en-in/features/storage-explorer>



2. Once you “Azure Storage Explorer” installed in your machine then need to be added your azure to see all your storage accounts.



3. Once your azure account added in “Azure Storage Explorer” then you can see all storage account added in azure subscription. As we have created “djblogs” storage account and added **images** container to store images. It will look like below



Once you installed it in your machine need to login with
 Hope it will help you to understand azure storage account and where we can use them
 Keep sharing keep learning

Cheers