

## Azure Storage Account

An Azure Storage Account acts as a unique container within Azure, allowing you to store several types of data such as blobs, files, queues, and tables. It serves as a core building block for managing both structured and unstructured data—ensuring secure, durable, and scalable access.

**⚠️ Important:** Deleting a storage account will permanently remove all associated services and the data stored within them.

### Types of Storage in an Azure Storage Account

#### 1. Blob Storage

Used for storing large amounts of unstructured data such as text, images, videos, backups, and logs. Ideal for cloud-native applications and scalable data lakes.

#### 2. File Storage

Provides fully managed file shares in the cloud that can be accessed via the SMB protocol. Suitable for lift-and-shift migrations and shared access across multiple VMs.

#### 3. Queue Storage

Enables reliable messaging between application components. Useful for building decoupled and scalable systems using asynchronous communication.

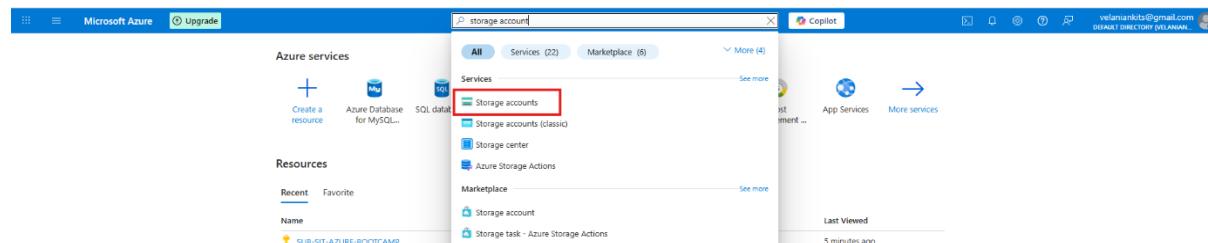
#### 4. Table Storage

Offers a NoSQL key-value store for structured data. Great for storing large datasets with flexible schema, such as user profiles or device information.

As the first step in our Azure Bootcamp, we will begin by creating an Azure Storage Account, which will serve as the foundation for storing various types of data in the cloud.

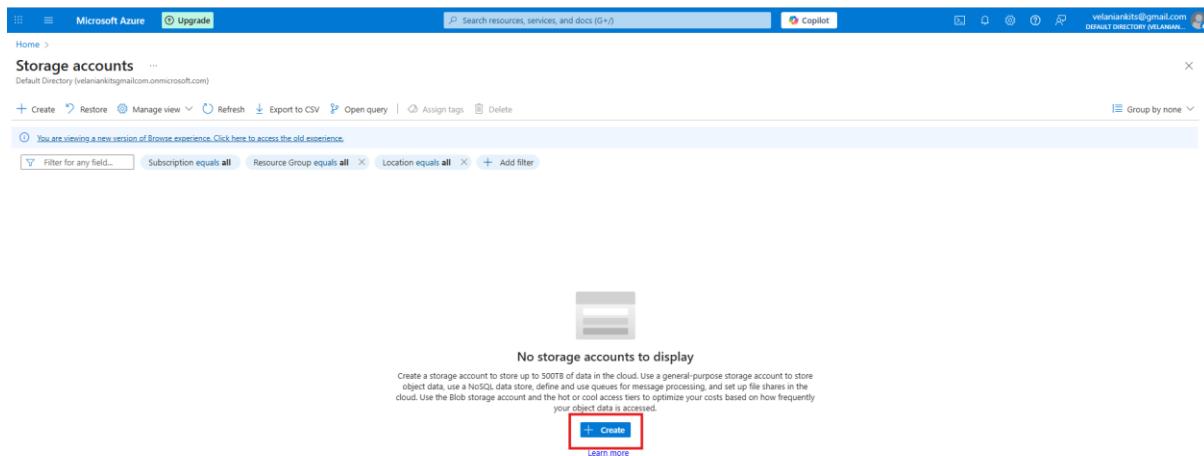
### Accessing the Azure Portal and Navigating to Storage Accounts

1. Open your web browser and go to the **Azure Portal**: <https://portal.azure.com/#home>
2. Once you're on the homepage, locate the **search bar** at the top of the page.
3. Type "**Storage Account**" into the search bar and press **Enter**.
4. From the search results, click on **Storage Accounts** to begin creating or managing your storage resources.



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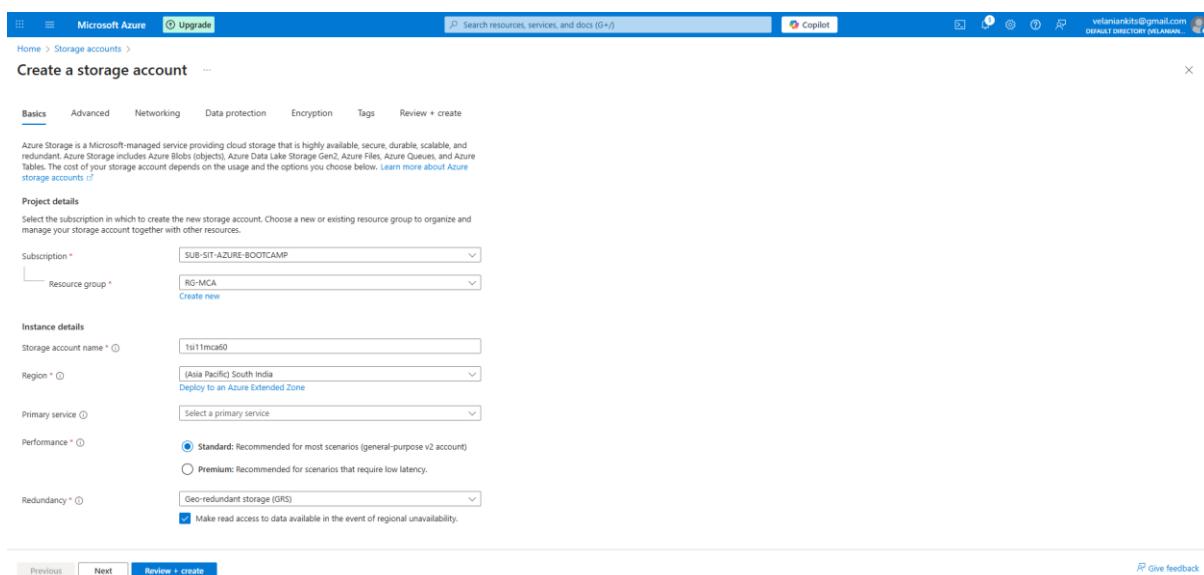
Next, click on the “Create” button to start the process of setting up a new Azure Storage Account.



The screenshot shows the Microsoft Azure Storage accounts page. At the top, there's a search bar and a Copilot button. Below the header, there are filter options: 'Subscription equals all', 'Resource Group equals all', and 'Location equals all'. A message at the top says, 'You are viewing a new version of Browse experience. Click here to access the old experience.' In the center, it says 'No storage accounts to display' and provides a brief description of what a storage account is. At the bottom, there's a large blue '+ Create' button, which is highlighted with a red box.

Next step is to:

1. Select or Create a Resource Group
2. Enter a Unique Storage Account Name
  - 💡 To keep it simple and identifiable, we recommend using your University Seat Number (USN) — for example: 1si11mca60.
3. Choose Region, Performance, and Redundancy Options
4. Click “Next”



The screenshot shows the 'Create a storage account' wizard on the 'Basics' step. It includes sections for Project details, Instance details, Performance, and Redundancy. The 'Subscription' dropdown is set to 'SUB-SIT-AZURE-BOOTCAMP' and the 'Resource group' dropdown is set to 'RG-MCA'. The 'Storage account name' field contains '1si11mca60'. The 'Region' dropdown is set to '(Asia Pacific) South India'. Under 'Performance', the 'Standard' radio button is selected. Under 'Redundancy', 'Geo-redundant storage (GRS)' is selected and the 'Make read access to data available in the event of regional unavailability' checkbox is checked. Navigation buttons at the bottom include 'Previous', 'Next', and 'Review + create'.

Now, scroll down to the Advanced section where you'll find the Access Tier setting. Select the appropriate tier based on your data usage and storage requirements.

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Minimum TLS version: Version 1.2  
Permitted scope for copy operations: From any storage account  
Hierarchical Namespace: Hierarchical namespace, complemented by Data Lake Storage Gen2 endpoint, enables file and directory semantics, accelerates big data analytics workloads, and enables access control lists (ACLs). Learn more.  
Enable hierarchical namespace:   
Access protocols: Blob and Data Lake Gen2 endpoints are provisioned by default. Learn more.  
Enable SFTP:  SFTP can only be enabled for hierarchical namespace accounts  
Enable network file system v3:  To enable NFS v3 'hierarchical namespace' must be enabled. Learn more about NFS v3.  
Blob storage: Allow cross-tenant replication:   
Access tier:  Hot: Optimized for frequently accessed data and everyday usage scenarios  
 Cool: Optimized for infrequently accessed data and backup scenarios  
 Cold: Optimized for rarely accessed data and backup scenarios  
Azure Files: Enable large file shares:   
Previous | Next | Review + create | Give feedback

Click on Next and add the Tags.

Basics Advanced Networking Data protection Encryption Tags Review + create  
Name Value Resource  
TRAINER : ANKIT Storage account  
OWNER : STUDENT Storage account  
All resources selected  
Previous | Next | Review + create | Give feedback

Click on **Review + create**

View automation template  
Basics  
Subscription: SUB-SIT-AZURE-BOOTCAMP  
Resource group: RG-MCA  
Location: South India  
Storage account name: 1s11mca60  
Primary service: Performance: Standard  
Replication: Read-access geo-redundant storage (RA-GRS)  
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  
Allow storage account key access: Enabled  
Default to Microsoft Entra authorization in the Azure portal: Disabled  
Previous | Next | Create | Give feedback  
<https://portal.azure.com/#/>

Here, you can review the Storage Account details, including configuration settings, access tier, and available services. Once everything is verified, click on “Create” to initiate the deployment.

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The screenshot shows the Microsoft Azure portal with a deployment titled "1si11mca60\_1753354991593" in progress. The deployment details table is empty, indicating "No results". A sidebar on the right provides links to Microsoft Defender for Cloud, Microsoft tutorials, and Azure experts.

You'll now see a message indicating that deployment is in progress. This may take a few moments as Azure sets up your Storage Account.

The screenshot shows the Microsoft Azure portal with a deployment titled "1si11mca60\_1753354991593" completed successfully. The deployment details table is empty. A red box highlights the "Go to resource" button under the "Next steps" section. A sidebar on the right provides links to Cost Management, Microsoft Defender for Cloud, Microsoft tutorials, and Azure experts.

Once the deployment is complete, click on “Go to resource” to access and manage your newly created Storage Account.

The screenshot shows the Microsoft Azure portal with the "1si11mca60" storage account overview. The "Essentials" section displays basic account details like Resource group (RG-MCA), Location (southindia), and Primary/Secondary Location (Primary: South India, Secondary: Central India). The "Properties" tab is selected, showing Blob service and File service configurations. A sidebar on the right provides links to JSON View and other Azure services.

Congratulations! You have successfully created your Azure Storage Account. You're now ready to start storing and managing data in the cloud.

## Enable Public Access for Blob (Demo Purpose Only)

For the purpose of this Azure Bootcamp demo, we'll enable public access to the Blob container. This will allow us to demonstrate file upload and public access to the stored content.

**⚠ Note:** Enabling public access is not recommended for real-world projects, as it may expose sensitive data. Always follow best practices for securing your storage in production environments.

### Navigate to Your Storage Account

1. Go to the **Azure Portal**: <https://portal.azure.com>
2. Use the **search bar** at the top of the page and type “**Storage Account**”.
3. From the search results, click on **Storage Accounts** to view and manage your existing accounts.

The recently created Storage Account will be displayed in the Azure Portal, typically listed at the top of the Storage Accounts page for easy access.

Click on the Storage Account named i.e 1si11mca60 to view its configuration settings, including access tiers, networking options, and data management features. And click on Setting to enable public access.

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The screenshot shows the Azure Storage account settings for '1si11mca60'. The 'Settings' section is expanded, revealing sub-options like Configuration, Data Lake Gen2 upgrade, Resource sharing (CORS), Advisor recommendations, Endpoints, Locks, and Monitoring. The 'Blob service' section is specifically highlighted with a red box around its configuration options.

Click on Configuration under the Settings section.

The screenshot shows the Azure Storage account settings for '1si11mca60'. The 'Settings' section is expanded, revealing sub-options like Configuration, Data Lake Gen2 upgrade, Resource sharing (CORS), Advisor recommendations, Endpoints, Locks, and Monitoring. The 'Configuration' sub-section under the 'Blob service' is specifically highlighted with a red box.

Then, enable the option “Allow Blob anonymous access” to permit public access to blob data for demonstration purposes.

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The screenshot shows the Azure Storage account configuration page for '1s11mca60'. The left sidebar lists various storage account settings like Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Storage Mover, Partner solutions, Resource visualizer, Data storage, Security + networking, Data management, and Settings. Under Settings, Configuration is selected. In the main pane, there are several configuration options: Account kind (StorageV2 (general purpose v2)), Performance (Standard), Secure transfer required (Disabled), Allow Blob anonymous access (Enabled, highlighted with a red box), Allow storage account key access (Enabled), Allow upper limit for shared access signature (SAS) expiry interval (Disabled), Default to Microsoft Entra authorization in the Azure portal (Disabled), Minimum TLS version (Version 1.2), Permitted scope for copy operations (preview) (From any storage account), and Blob access tier (default) (Hot). A note at the top states: 'The cost of your storage account depends on the usage and the options you choose below. Learn more about storage pricing.' A message at the bottom left says: 'You are viewing a new version of the Azure experience. Click here to access the old experience.'

🎉 Great job! Your Storage Account is now configured to allow public access to Blob data over the internet.

⚠️ Reminder: This setting is intended only for demo and learning purposes. Avoid enabling public access in real-world projects to ensure data security.

## Creating Container, Blob

In the Azure portal, locate and select your Storage account. Once inside, click on 'Storage browser' to view and manage your stored data.

**Storage account**

**Overview**

**Essentials**

- Resource group: RG-MCA
- Location: southindia
- Primary/Secondary location: Primary: South India, Secondary: Central India
- Subscription: SUB-SIT-AZURE-BOOTCAMP
- Subscription ID: 714820ec-6f53-4fe5-a06a-3c8e50fb7e24
- Disk state: Primary: Available, Secondary: Available
- Tags: TRAINER: ANKIT, OWNER: STUDENT

**Blob service**

- Hierarchical namespace: Disabled
- Default access tier: Hot
- Blob anonymous access: Enabled
- Blob soft delete: Enabled (7 days)
- Container soft delete: Enabled (7 days)
- Versioning: Disabled
- Change feed: Disabled
- NFS v3: Disabled
- Allow cross-tenant replication: Disabled
- Storage tasks assignments: None

**File service**

- Large file share: Enabled
- Identity-based access: Not configured

**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
- Private endpoint connections: 0
- Network routing: Microsoft network routing
- Access for trusted Microsoft services: Yes
- Endpoint type: Standard

Click on Blob Container to manage Container

**Storage account**

**Storage browser**

**Storage account metrics**

The data provided is regularly updated about 2-4 times a day and published hourly. If your account has extremely large objects, it may be over a day between updates.

Blob containers		File shares	
Number of containers	-	Number of file shares	-
Number of blobs	-	Number of files	-
Total data stored	-	Total data stored	-

Tables		Queues	
Number of tables	-	Number of queues	-
Number of entities	-	Number of messages	-
Total data stored	-	Total data stored	-

**Recently viewed**

Resources will be shown here as they are viewed.

**Other ways to manage data**

The Azure Storage Explorer desktop client provides faster performance for your storage tasks. [Learn more](#)

[Open Azure Storage Explorer](#) [Download Azure Storage Explorer](#)

Click on 'Add container' to create a new container, similar to creating folders. For example, you can name them 'Photos', 'Documents', or 'Music' to organize your data

**Storage account**

**Storage browser**

**Add container**

**Blob containers**

Name	Last modified	Anonymous access level	Lease state
Slogs	7/24/2025, 5:59:08 PM	Private	Available

Create two containers in your Storage account named '**photo**' and '**document**' to organize your files accordingly.

The screenshot shows the Azure Storage Blob Containers list. On the left, there's a sidebar with 'Recently viewed' items: \$logs, document, and photo. The main area shows a table with three items:

	Name	Last modified	Anonymous access level	Lease state
<input type="radio"/>	\$logs	7/24/2025, 5:59:08 PM	Private	Available
<input type="radio"/>	document	7/24/2025, 10:03:53 PM	Private	Available
<input type="radio"/>	photo	7/24/2025, 10:03:42 PM	Private	Available

Select the 'photo' container to upload some sample images.

The screenshot shows the same Azure Storage Blob Containers list as before, but now the 'photo' container is selected and highlighted with a red box. The table remains the same:

	Name	Last modified	Anonymous access level	Lease state
<input type="radio"/>	\$logs	7/24/2025, 5:59:08 PM	Private	Available
<input type="radio"/>	document	7/24/2025, 10:03:53 PM	Private	Available
<input checked="" type="radio"/>	photo	7/24/2025, 10:03:42 PM	Private	Available

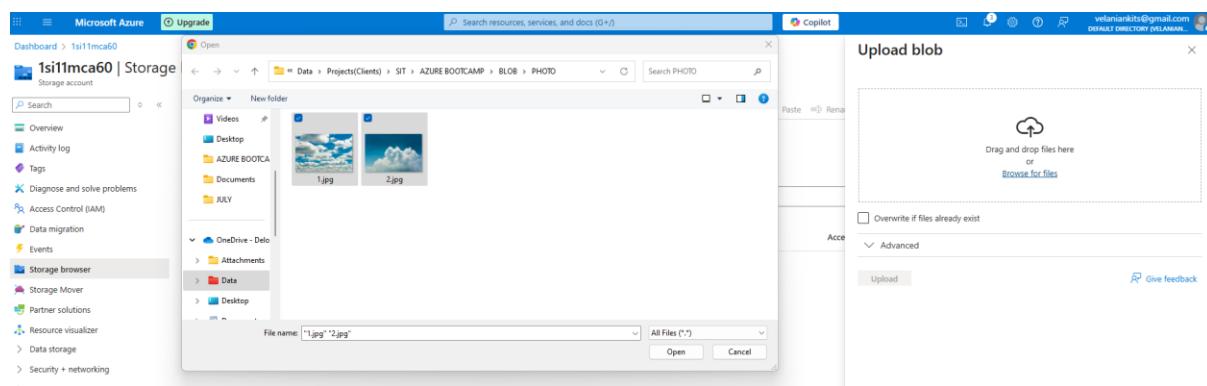
Click on upload to upload few images

The screenshot shows the Azure Storage browser interface. The 'Storage browser' tab is selected in the sidebar. In the center, there's a table showing 'No items found'. At the top, there's a toolbar with various icons, and the 'Upload' button is highlighted with a red box.

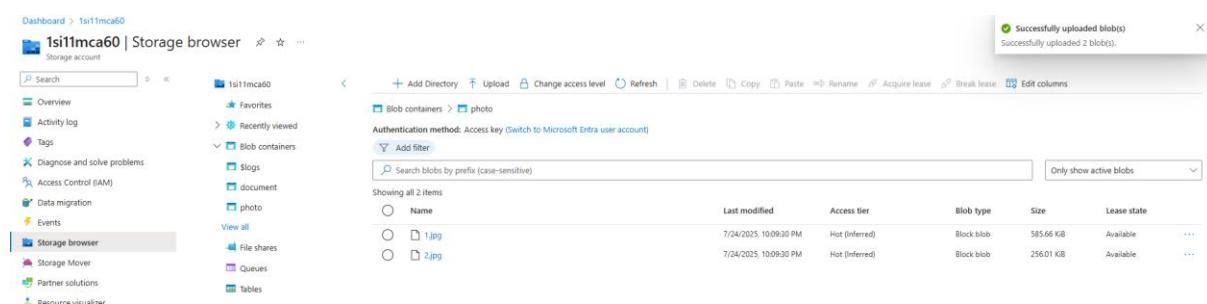
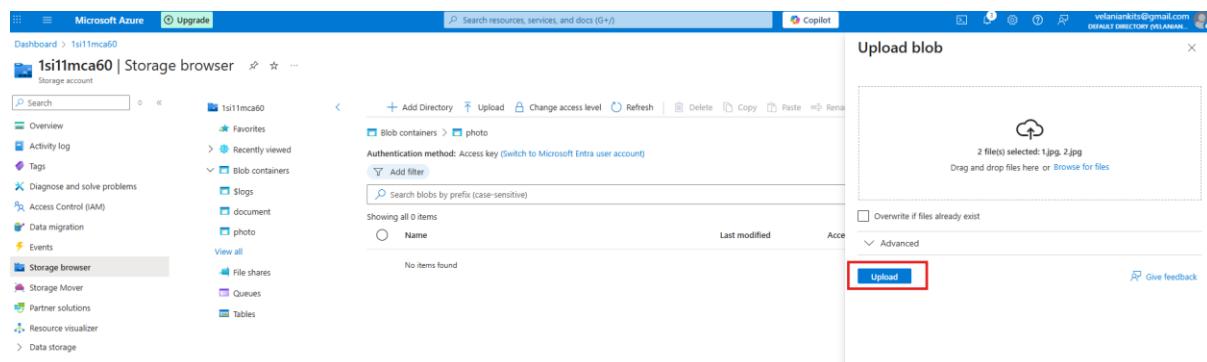
The screenshot shows the 'Upload blob' dialog box. It has a large central area for dragging files or browsing for files. Below it, there's a checkbox for 'Overwrite if files already exist' and an 'Advanced' section. At the bottom right, there's a 'Upload' button and a 'Give feedback' link.

Browse for files -> select the files to be uploaded on BLOB

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Click on Open -> and then click on Upload.



Sample images have been successfully uploaded to the 'photo' container.

## Accessing BLOB

Select any BLOB from the container to access it through a web browser

The screenshot shows the Azure Storage browser interface for the '1si1mca60' storage account. The left sidebar lists various storage services like Overview, Activity log, Tags, etc. The 'Storage browser' option is selected. The main area shows the 'photo' blob container with two items: '1.jpg' and '2.jpg'. A table below lists the blobs with columns for Name, Last modified, Access tier, Blob type, Size, and Lease state.

Name	Last modified	Access tier	Blob type	Size	Lease state
1.jpg	7/24/2025, 10:09:30 PM	Hot (Inferred)	Block blob	585.66 KB	Available
2.jpg	7/24/2025, 10:09:30 PM	Hot (Inferred)	Block blob	256.01 KB	Available

A new popup will appear. Copy the URL provided to access the BLOB through a web browser.

This screenshot shows the properties of the '1.jpg' blob within the 'photo' container. The 'Properties' tab is selected, displaying details such as URL, Last Modified, Creation Time, Version ID, Type, Size, Access Tier, and more. A tooltip indicates that the URL has been copied.

This screenshot shows the Microsoft Azure dashboard for the '1si1mca60' storage account. The 'Storage browser' section is visible. In the foreground, a browser window is open with the URL 'https://1si1mca60.blob.core.windows.net/photo/1.jpg' pasted into the address bar. The browser's status bar shows the URL and indicates it is being loaded.

Open a new tab in your web browser and paste the BLOB URL to view or download the file

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<Error>
<Code>ResourceNotFound</Code>
<Message>The specified resource does not exist. RequestId:f63e3653-e01e-000a-34ba-fc5bd6000000 Time:2025-07-24T16:49:12.3591850Z</Message>
</Error>
```

If you try to access the BLOB via its URL, an access error message will appear because the container is private by default.

To make the BLOB publicly accessible, you need to update the container's access level to allow anonymous read access for blobs.

Click on **Change access level**

Dashboard > 1si11mca60

**1si11mca60 | Storage browser**

Storage account

+ Add Directory    + Upload    **Change access level**    Refresh    Delete    Copy    Paste    Rename    Acquire lease    Break lease    Edit columns

Blob containers > photo

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

Add filter

Search blobs by prefix (case-sensitive)

Showing all 2 items

Name	Last modified	Access tier	Blob type	Size	Lease state
1.jpg	7/24/2025, 10:09:30 PM	Hot (Inferred)	Block blob	585.66 KB	Available
2.jpg	7/24/2025, 10:09:30 PM	Hot (Inferred)	Block blob	256.01 KB	Available

Microsoft Azure    Upgrade

Dashboard > 1si11mca60

**1si11mca60 | Storage browser**

Storage account

Change access level

Change the access level of container 'photo'.

Anonymous access level

Blob (anonymous read access for blobs only)

Blobs within the container can be read by anonymous request, but container data is not available. Anonymous clients cannot enumerate the blobs within the container.

Ok    Cancel

Anonymous access level → Blob (anonymous read access for blob) → click **Ok**

Copy BLOB URL again and paste in Web browser to access.

The image shows two screenshots related to Azure Storage. The top screenshot is from the 'Storage browser' interface in the Azure portal. It displays a blob named '1.jpg' with the following properties:

Properties	Value
URL	<a href="https://1si11mca60.blob.core.windows.net/photo/1.jpg">https://1si11mca60.blob.core.windows.net/photo/1.jpg</a>
LAST MODIFIED	24/7/2025, 10:09:30 pm
CREATION TIME	24/7/2025, 10:09:30 pm
VERSION ID	-
TYPE	Block blob
SIZE	585.66 KB
ACCESS TIER	Hot (Inferred)
ACCT TIER   LAST MODIFIED	N/A

A tooltip 'Copied' is shown over the URL field. The bottom screenshot shows a web browser window displaying the image at the URL <https://1si11mca60.blob.core.windows.net/photo/1.jpg>. The image is a blue sky with white clouds.

Congratulations! The BLOB is now successfully accessible via its URL.