

## 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.

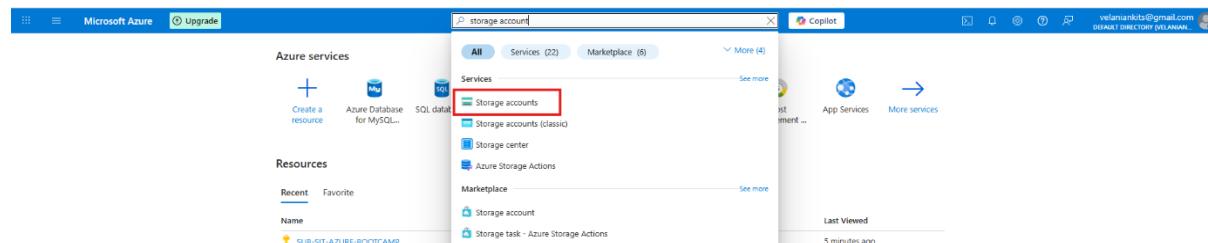
#### 4. Table Storage

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.

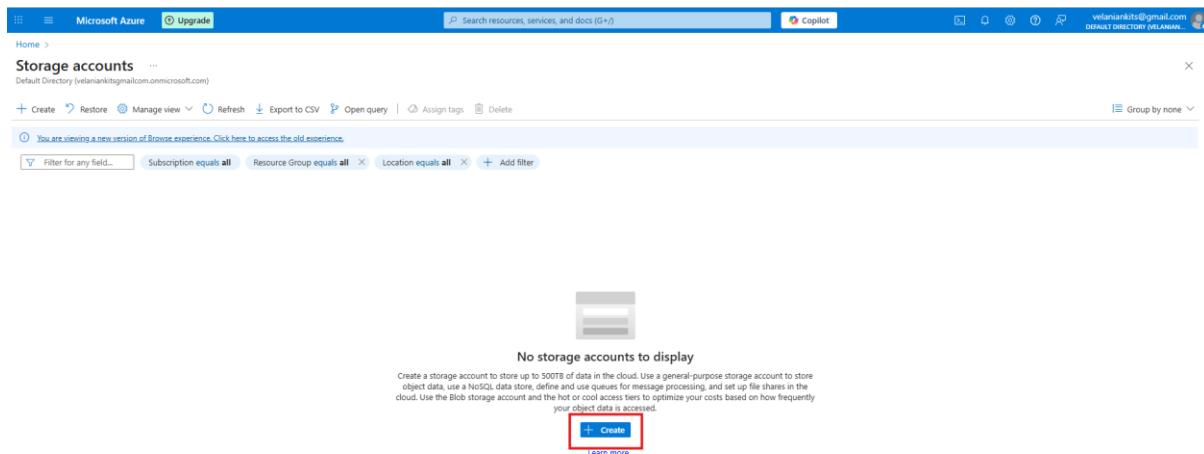
### Accessing the Azure Portal and Navigating to Storage Accounts

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.



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”

A screenshot of the 'Create a storage account' wizard on the 'Basics' step. The top navigation bar shows 'Microsoft Azure' and 'Upgrade'. The main heading is 'Create a storage account' with a note '...'. Below this is a 'Project details' section where users can select a subscription ('SUB-SIT-AZURE-BOOTCAMP') and a resource group ('RG-MCA'). The 'Storage account name' field is filled with '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. At the bottom, there are 'Previous', 'Next', and 'Review + create' buttons.

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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The screenshot shows the 'Create a storage account' wizard in the Azure portal. The 'Basics' tab is selected. In the 'Access tier' section, the 'Hot' radio button is selected, which is highlighted with a red box. Other options include 'Cool' and 'Cold'. Below this, there are sections for 'Hierarchical Namespace', 'Access protocols' (blob and Data Lake Gen2 endpoints), and 'Blob storage' (allowing cross-tenant replication). At the bottom, there are 'Previous', 'Next', and 'Review + create' buttons.

Click on Next and add the Tags.

The screenshot shows the 'Create a storage account' wizard in the Azure portal. The 'Tags' tab is selected. Two tags are defined: 'TRAINER' with value 'ANKIT' and 'OWNER' with value 'STUDENT'. Both tags are associated with the 'Storage account' resource type. At the bottom, there are 'Previous', 'Next', and 'Review + create' buttons.

Click on Review + create

The screenshot shows the 'Create a storage account' wizard in the Azure portal. The 'Review + create' tab is selected. It displays the following configuration details:

Setting	Value
Subscription	SUB-SIT-AZURE-BOOTCAMP
Resource group	RG-MCA
Location	South India
Storage account name	1s11mca60
Primary service	Standard
Performance	Read-access geo-redundant storage (RA-GRS)
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

At the bottom, there are 'Preview', 'Next', and 'Create' buttons.

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 Deployment Overview page for a deployment named '1si11mca60\_1753354991593'. The status bar indicates 'Deployment is in progress'. Deployment details show the start time as 24/7/2025, 4:40:06 pm, and a correlation ID of db934beb-e4a9-47c5-ba6f-a137162a601. The right sidebar features promotional links for Microsoft Defender for Cloud, Free Microsoft tutorials, and Work with an expert.

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 Deployment Overview page for the same deployment, now indicating 'Your deployment is complete'. The 'Next steps' section contains a 'Go to resource' button, which is highlighted with a red box. The right sidebar remains the same as in the previous screenshot.

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 Storage account Overview page for '1si11mca60'. The left sidebar lists various storage services like Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Storage Mover, Partner solutions, Resource visualizer, Configuration, Data Lake Gen2 upgrade, Resource sharing (CORS), Advisor recommendations, Endpoints, Locks, and Monitoring. The main pane displays the 'Essentials' section with details such as Resource group (mcs), Location (southindia), Primary/Secondary Location (Primary: South India, Secondary: Central India), Subscription (SUB-SIT-AZURE-BOOTCAMP), Subscription ID (714820ec-f6f3-4f5e-a0fa-3cbe50f87e24), Disk state (Primary: Available, Secondary: Available), and Tags (TRAINER:ANJIT, OWNER:STUDENT). The 'Properties' tab is selected, showing Blob service and File service configurations. The right sidebar includes sections for Security, Networking, and Infrastructure.

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 overview for '1si11mca60'. The 'Settings' section is highlighted with a red box. The 'Blob service' tab is selected, showing configuration details like 'Hierarchical namespace' (Disabled), 'Default access tier' (Hot), and 'Allow blob anonymous access' (Disabled). The 'File service' tab is also visible.

Click on Configuration under the Settings section.

The screenshot shows the Azure Storage account overview for '1si11mca60'. The 'Configuration' option under the 'Settings' section is highlighted with a red box. The 'File service' tab is selected, showing configuration details like 'Large file share' (Enabled) and 'Identity-based access' (Not configured).

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

The screenshot shows the Azure Storage account configuration page for '1s11mca60'. The left sidebar lists various storage-related services 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 in the top-left corner 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.

The screenshot shows the Azure Storage account overview for '1si1mca60'. The 'Storage browser' link in the left sidebar is highlighted with a red box. The main content area displays the following details:

- 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

The screenshot shows the Azure Storage browser for '1si1mca60'. The 'Storage browser' link in the left sidebar is highlighted with a red box. The main content area displays the following sections:

- Blob containers**: Shows metrics for Number of containers, Number of blobs, and Total data stored.
- File shares**: Shows metrics for Number of file shares, Number of files, and Total data stored.
- Tables**: Shows metrics for Number of tables, Number of entities, and Total data stored.
- Queues**: Shows metrics for Number of queues, Number of messages, and Total data stored.

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

The screenshot shows the Azure Storage browser for '1si1mca60'. The 'Storage browser' link in the left sidebar is highlighted with a red box. The main content area displays a table of existing containers and a button to add a new container:

	Name	Last modified	Anonymous access level	Lease state
<input type="radio"/>	Slogs	7/24/2025, 5:59:08 PM	Private	Available
<input type="radio"/>	File shares			
<input type="radio"/>	Queues			
<input type="radio"/>	Tables			

A red box highlights the '+ Add container' button at the top of the table.

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 rows:

	Name	Last modified	Anonymous access level	Lease state
○	\$logs	7/24/2025, 5:59:08 PM	Private	Available
○	document	7/24/2025, 10:03:53 PM	Private	Available
○	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 in the sidebar.

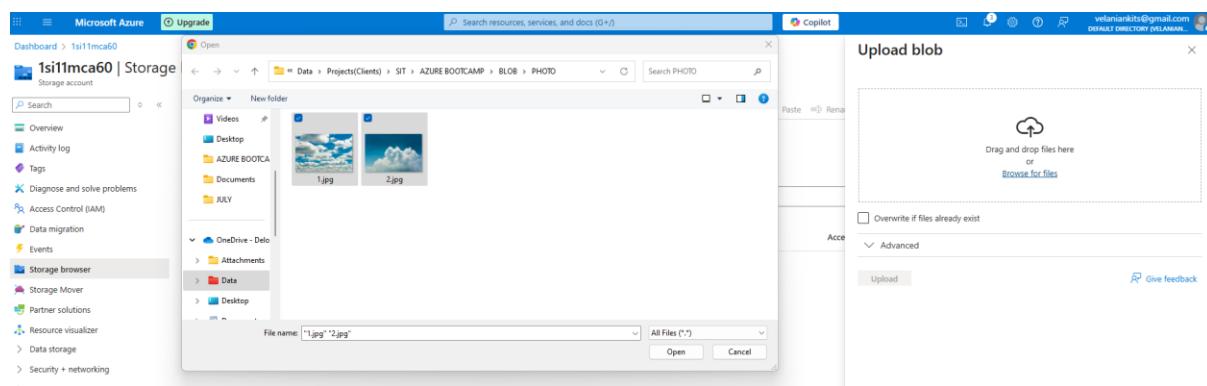
Click on upload to upload few images

The screenshot shows the Azure Storage Blob browser. In the top navigation bar, the 'Upload' button is highlighted with a red box.

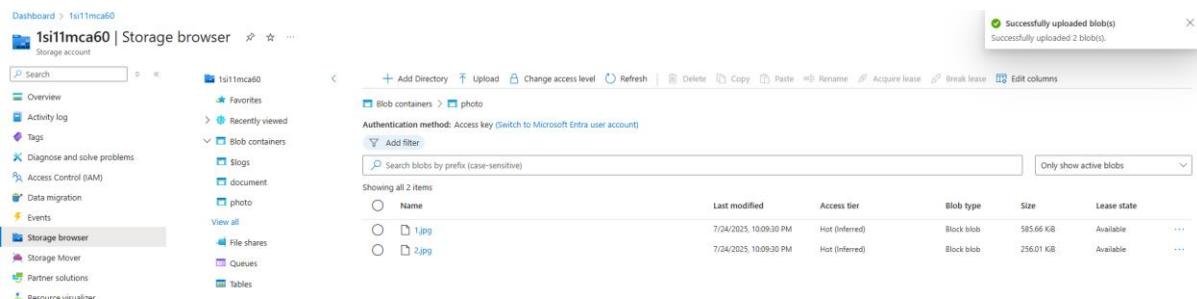
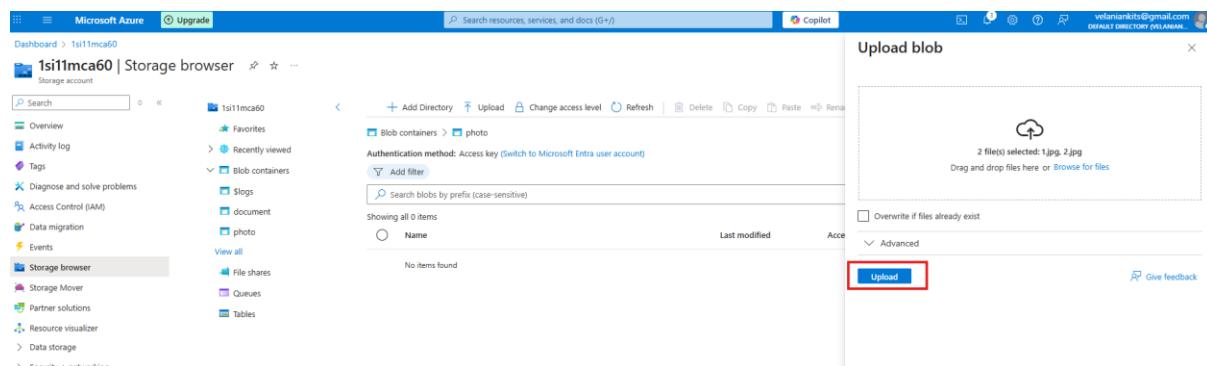
The screenshot shows the 'Upload blob' dialog box. It has a large area for dragging files or selecting them from a 'Browse for files' button. Below this is a checkbox for 'Overwrite if files already exist' and an 'Advanced' section. At the bottom are 'Upload' and 'Give feedback' buttons.

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 a 'photo' blob container with two items: '1.jpg' and '2.jpg'. A table provides details for each blob:

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	236.01 KB	Available

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

The screenshot shows the properties of the '1.jpg' blob within the 'photo' container. The 'Properties' tab is selected, displaying the blob's URL as 'https://1si1mca60.blob.core.windows.net/photo/1.jpg'. A 'Copied' message is visible near the URL field, indicating it has been copied to the clipboard.

The screenshot shows the Microsoft Azure dashboard for the '1si1mca60' storage account. A new browser tab is open, showing the URL 'https://1si1mca60.blob.core.windows.net/photo/1.jpg' in the address bar. The browser interface shows the file has been successfully 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 > 1si1mca60

**1si1mca60 | Storage browser**

Storage account

+ Add Directory    + Upload    **Change access level** (highlighted)

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

Dashboard > 1si1mca60

**1si1mca60 | Storage browser**

Storage account

Change access level

Change the access level of container 'photo'.

Anonymous access level

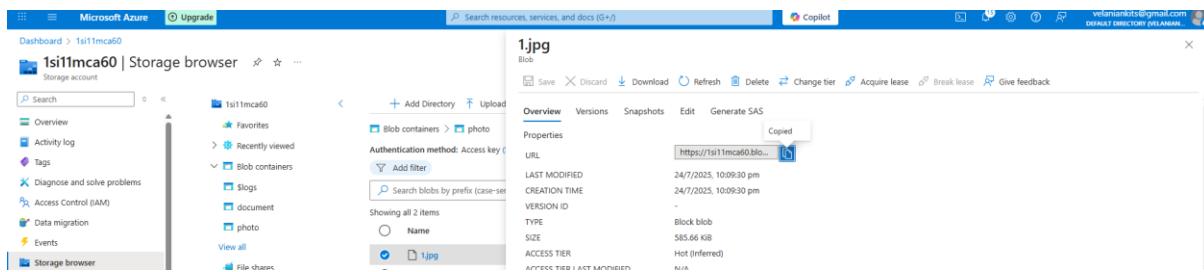
Blob (anonymous read access for blobs only) (highlighted)

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.

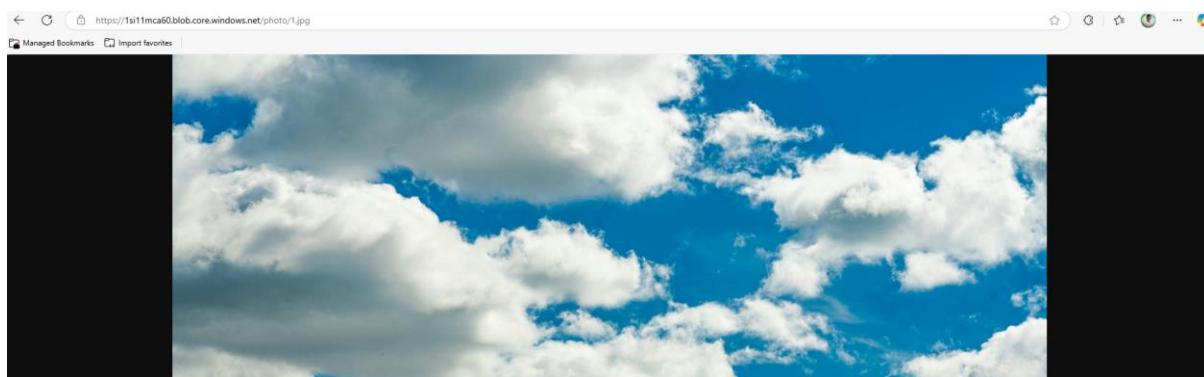
Ok (highlighted)    Cancel

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

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



The screenshot shows the Azure Storage browser interface for a storage account named '1si11mca60'. The left sidebar lists various storage services like Dashboard, Activity log, Tags, etc. The main area shows a blob container named 'photo' containing two items: '1.jpg' and '1.pdf'. The properties of '1.jpg' are displayed, including its URL: <https://1si11mca60.blob.core.windows.net/photo/1.jpg>. A 'Copied' message is visible next to the URL. Below this, the blob's type is listed as 'Block blob'.

The 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 landscape photograph of a bright blue sky filled with large, white, fluffy clouds.

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