

CST8912 – Cloud Solution Architecture

Graded Lab Activity #3 - Lab Report

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Azure Cloud Storage Management & Access Control

Introduction or Purpose

The purpose of this lab is to:

- Set up and configure an Azure Storage Account.
- Upload and manage Blob storage within a secure environment.
- Test restricted access to Blob storage and use SAS tokens to grant controlled access.
- Implement lifecycle management policies to optimize cloud storage efficiency.

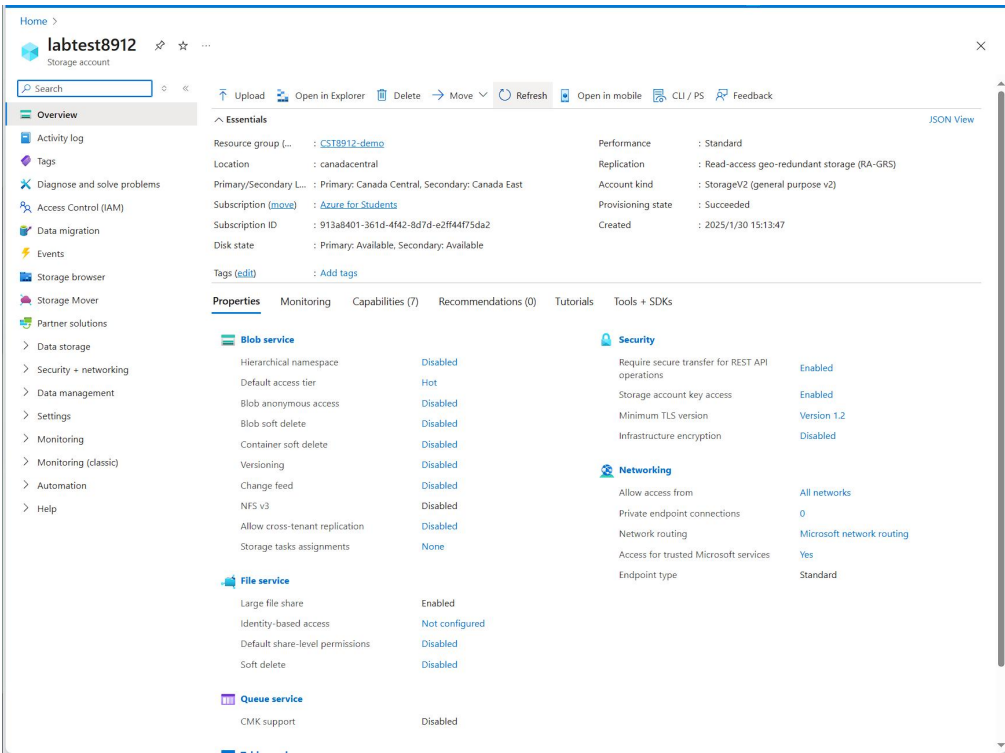
Through this experiment, we will understand the essential components of Azure cloud storage and how they contribute to secure and cost-effective cloud solutions.

Steps Covered in the Lab

Step 1: Create a Storage Account

1. Log in to [Azure Portal](#).
2. Navigate to **Storage Accounts** and click "+ Create".
3. Select **Azure for Students** subscription and create a resource group named **CST8912-demo**.
4. Set the storage account name as **labtest8912**, choose **Canada Central** region.
5. Select **Geo-Redundant Storage (GRS)** for redundancy.
6. Click "**Review + Create**" and wait for deployment to complete.

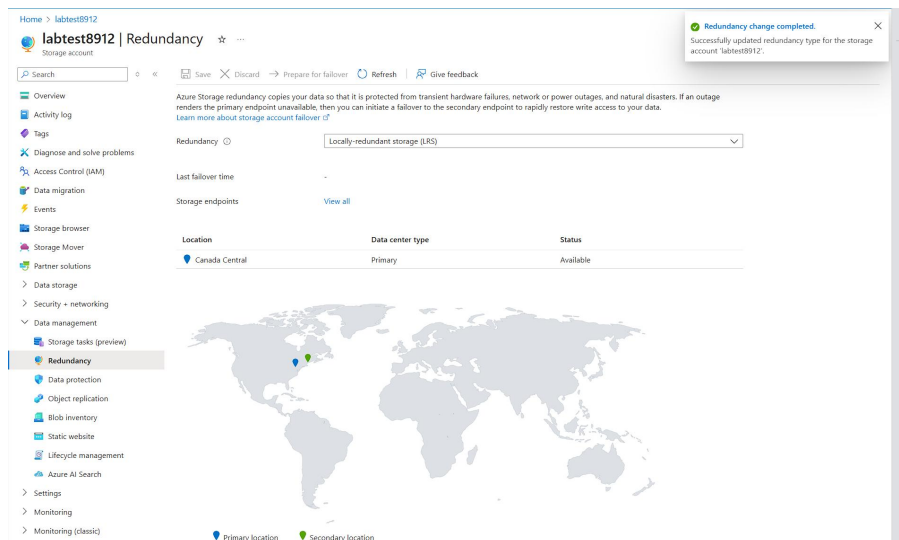
Screenshot 1: Successful creation of labtest8912 storage account.



Step 2: Change Storage Redundancy

1. Navigate to **labtest8912** Storage Account.
2. Under **Data Management**, go to **Redundancy**.
3. Change redundancy from **Geo-Redundant Storage (GRS)** to **Local-Redundant Storage (LRS)**.
4. Click **Save**.

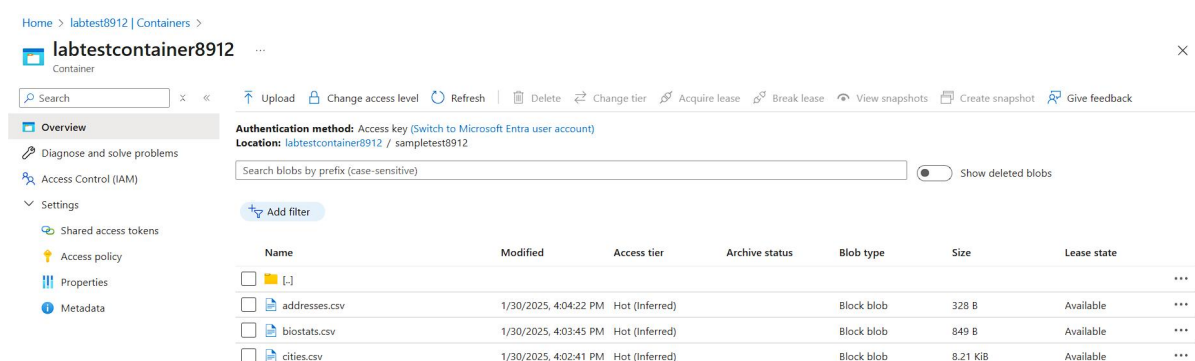
Screenshot 2: Successfully changed storage redundancy.



Step 3: Create Storage Container and Upload Blob

1. Inside **labtest8912**, click **Containers** under **Data Storage**.
2. Create a new container named **labtestcontainer8912** with **Private** access level.
3. Download sample CSV files from: [Sample Files](#).
4. Click **"Upload"**, select CSV files, and set **Upload to folder** as **sampletest8912**.
5. In **Advanced Settings**, set **Access Tier** to **Hot**.
6. Ensure successful file upload.

Screenshot 3: Successfully uploaded files to sampletest8912 in labtestcontainer8912.

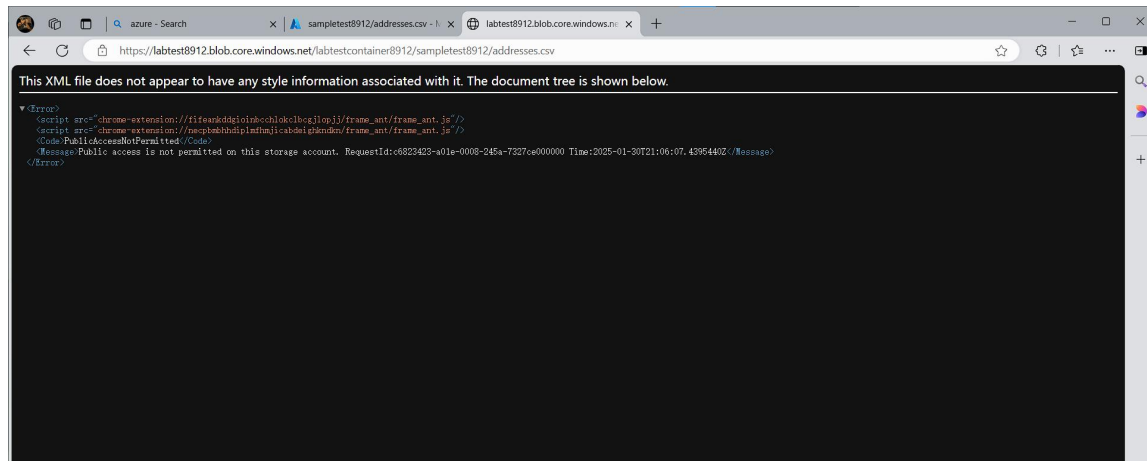


Step 4: Test Blob Access Permissions

1. Open **labtestcontainer8912**, select an uploaded CSV file.

2. Copy **Blob URL** and paste it in an incognito browser window.
3. The expected result is an error message: **"PublicAccessNotPermitted"**.

Screenshot 4: Access denied error (PublicAccessNotPermitted).



Step 5: Generate SAS Token and Access Blob

1. In Azure Portal, go to the uploaded Blob file.
2. Click **"Generate SAS"**.
3. Select **Read** permission and set an expiration time.
4. Click **"Generate SAS and URL"**, copy the **SAS URL**.
5. Paste the **SAS URL** in an incognito browser window; the file should be accessible.

Screenshot 5: Successfully accessed Blob using SAS token.

access level

Access key (Switch to st) 3912 /

SE...

ds

...

...

...

...

sampletest8912/addresses.csv

Blob

Save Discard Download Refresh Delete

Overview Versions Snapshots Edit **Generate SAS**

A shared access signature (SAS) is a URI that grants restricted access to an Azure Storage blob. Use it when you want to grant access to storage account resources for a specific time range without sharing your storage account key. [Learn more about creating an account SAS](#)

Signing method

☒ Account key ☐ User delegation key

Signing key

Key 1

Stored access policy

None

Permissions *

2 selected

Start and expiry date/time

Start

01/30/2025 4:08:29 PM

(UTC-05:00) Eastern Time (US & Canada)

Expiry

01/31/2025 5:08:29 AM

(UTC-05:00) Eastern Time (US & Canada)

Allowed IP addresses

for example, 168.1.5.65 or 168.1.5.65-168.1...

Allowed protocols

☒ HTTPS only ☐ HTTPS and HTTP

Generate SAS token and URL

Blob SAS token

sp=rw&st=2025-01-30T21:08:29Z&se=2025-01-31T10:08:29Z&spr=https&sv=2022-11-02&sr=b&sig=r%2FDaw%2BEY90A9O%2FoampDRA5d...

Blob SAS URL

https://labtest8912.blob.core.windows.net/labtestcontainer8912/sampletest8912/addresses.csv?sp=rw&st=2025-01-30T21:08:29Z&se=2025-01-31T10:08:29Z&spr=https&sv=2022-11-02&sr=b&sig=r%2FDaw%2BEY90A9O%2FoampDRA5d...

Step 6: Configure Lifecycle Management

1. Navigate to **Lifecycle Management** in the storage account.
2. Create a rule named **myrule8912**, select **Limit blobs with filters**.
3. Set condition: If Blob was last modified more than **15 days ago**, move it to **Cool storage**.
4. Click **Save**.

Screenshot 6: Successfully created lifecycle management rule.

+

Add a rule

✓

Enable

□

Disable

↺

Refresh

🗑

Delete

🗨

Give feedback

Lifecycle management offers a rich, rule-based policy for general purpose v2 and blob storage accounts. Use the policy to transition your data to the appropriate access tiers or expire at the end of the data's lifecycle. A new or updated policy may take up to 48 hours to complete. [Learn more](#)

List View

Code View

Enable access tracking ⓘ

Name	Status	Blob type
myrule9912	Enabled	Block

Update a rule ...

Details

Base blobs

Lifecycle management uses your rules to automatically move blobs to cooler tiers or to delete them. If you create multiple rules, the associated actions must be implemented in tier order (from hot to cool storage, then archive, then deletion).

If

Base blobs haven't been modified in 15 days

🗑

↓

Then

Move to cold storage

↓

+

Add conditions

Step 7: Delete Lab Resources

1. Navigate to **Resource Groups**.
2. Select **CST8912-demo**, click **Delete**.

Screenshot 7: Successfully deleted lab resources.

Home >

Recent 🔍 ⋮

⚙ Manage view ▾

↺ Refresh

⬇ Export to CSV

✕ Clear

🏷 Assign tags

🔍 Filter for any field...

Subscription equals all

Resource Group equals all ✕

Type equals all ✕

Location equals all ✕

⊕ Add filter

<input type="checkbox"/>	Name ↑	Type	Location	Resource Group	Subscription
<input type="checkbox"/>	🔥 Azure for Students	...	Subscription		Azure for Students
<input type="checkbox"/>	🔥 AVD-Prod	...	Subscription		AVD-Prod

Results

- Successfully created and managed an Azure Storage Account.
- Verified restricted Blob access with default permissions.
- Used SAS tokens to grant controlled access.
- Configured lifecycle management to optimize storage costs.

References

[Azure Storage Documentation](#)

YouTube videos provided in the lab.