

# CHALLENGE – 1

## SQL DATABASE

## AI INFRASTRUCTURE AND ARCH.

Name: Samrat Thapa -- 200481763

# Creating SQL Database

**Create SQL Database**

Microsoft

Home > Create a resource > Marketplace > SQL Database

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

Subscription \*

Resource group \*  [Create new](#)

**Cost summary**

<b>Basic (Basic)</b>	
Cost per DTU (in USD)	1.08
DTUs selected	x 5
<b>ESTIMATED COST / MONTH</b>	<b>\$5.38 USD</b>

**Database details**

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources.

Database name \*

Server \*  [Create new](#)

Want to use SQL elastic pool? ☐ Yes ☒ No

Workload environment: ☒ Development ☐ Production

*Default settings provided for Development workloads. Configurations can be modified as needed.*

Compute + storage \*  [2 GB storage](#) [Configure database](#)

**Backup storage redundancy**

Choose how your PITR and LTR backups are replicated. Geo restore or ability to recover from regional outage is only available when geo-redundant storage is selected.

Backup storage redundancy ☐ ☒ Locally-redundant backup storage ☐ Zone-redundant backup storage ☐ Geo-redundant backup storage

[Review + create](#) [Next: Networking >](#)

# Creating SQL Server

Create SQL Database Server - Microsoft Azure

portal.azure.com/#view/SqlAzureExtension/SharedCreateServer/IsNewServer~/true/subscriptions/8c1bcaa6-91ae-435f-9dcb-25a67d95315f/resourceGroup/ai-infrastructure/infoFilters~/null/disableFilters~/null/hideFilters~/null...

Microsoft Azure

Home > Create a resource > Create SQL Database

## Create SQL Database Server

Microsoft

### Server details

Enter required settings for this server, including providing a name and location. This server will be created in the same subscription and resource group as your database.

Server name \*  .database.windows.net

Location \*

### Authentication

Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Azure AD authentication [Learn more](#) or using an existing Azure AD user, group, or application as Azure AD admin [Learn more](#) or, or select both SQL and Azure AD authentication.

Authentication method

- ☐ Use only Azure Active Directory (Azure AD) authentication
- ☐ Use both SQL and Azure AD authentication
- ☒ Use SQL authentication

Server admin login \*

Password \*  ✓

Confirm password \*  ✓

OK

# SQL SERVER

Microsoft Azure portal showing the 'Create SQL Database' page. The page displays the estimated cost per month (5.38 USD) and the configuration details for the SQL database.

**Estimated cost per month**  
5.38 USD

**Cost summary**

Basic (Basic)	
Cost per DTU (in USD)	1.08
DTUs selected	x 5
<b>ESTIMATED COST / MONTH</b>	<b>5.38 USD</b>

**Basics**

Subscription	Azure for Students
Resource group	AI_Infrastructure
Region	Canada Central
Database name	AI_infra_C1
Server	(new) samrat-ai-infra
Authentication method	Azure Active Directory authentication only
Azure AD Admin	200503303@student.georgian.on.ca
Compute + storage	Basic 2 GB storage
Backup storage redundancy	Locally-redundant backup storage

**Networking**

Allow Azure services and resources to access this server	No
Private endpoint	None
Minimum TLS version	1.2
Connection Policy	Default

**Security**

[Create](#) [Previous](#) [Download a template for automation](#)

Microsoft.SQLDatabase.newData... x Home - Microsoft Azure x +

portal.azure.com/#view/HubsExtension/DeploymentDetailsBlade/~/overview/id/%2Fsubscriptions%2F8c1bcaa6-91ae-435f-9dc6-25a67d95315f%2FresourceGroups%2Fai\_infrastructure%2Fproviders%2FMicrosoft.Resources%2Fdeplo...  
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Home >

Microsoft.SQLDatabase.newDatabaseNewServer\_30c329769f234b4e9043c | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name: Microsoft.SQLDatabase.newDatabaseNewServe...  
Subscription: Azure for Students  
Resource group: ai\_infrastructure

Start time: 11/12/2022, 10:41:31 AM  
Correlation ID: 6fba800b-c039-48a4-8906-d3d2630709ca

Deployment details

Next steps

Go to resource

Give feedback

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AI\_Infra\_C1 (samrat-ai-infra/AI\_Infra\_C1) x

Home - Microsoft Azure x

+

portal.azure.com#@georgiancollege.onmicrosoft.com/resource/subscriptions/8c1bcaa6-91ae-435f-9ddb-25a67d95315f/resourceGroups/AI\_Infrastructure/providers/Microsoft.Sql/servers/samrat-ai-infra/databases/AI\_Infra\_C1/over...

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Home > Microsoft.SqlDatabase.newDatabaseNewServer\_30c329769f234b4e9043c | Overview >

AI\_Infra\_C1 (samrat-ai-infra/AI\_Infra\_C1) SQL database

Search

Copy Restore Export Set server firewall Delete Connect with... Feedback

Overview

Activity log

Tags

Diagnose and solve problems

Getting started

Query editor (preview)

Settings

Compute + storage

Connection strings

Properties

Locks

Data management

Replicas

Sync to other databases

Integrations

Stream analytics (preview)

Add Azure Search

Power Platform

Power BI

Power Apps

Power Automate

Security

This database was just created. Do you need any help [getting started?](#)

JSON View

Essentials

Resource group [\(move\)](#) : AI\_Infrastructure

Status : Online

Location : Canada Central

Subscription [\(move\)](#) : Azure for Students

Subscription ID : 8c1bcaa6-91ae-435f-9ddb-25a67d95315f

Tags [\(edit\)](#) : [Click here to add tags](#)

Server name : samrat-ai-infra.database.windows.net

Elastic pool : No elastic pool

Connection strings : [Show database connection strings](#)

Pricing tier : Basic

Earliest restore point : No restore point available

Show data for last: 1 hour 24 hours 7 days

Aggregation type: Max

Database data storage

Compute utilization

DTU percentage (Max)  
samrat-ai-infra\_ai\_infra\_c1

Used space  
4 MB

Allocated space  
16 MB

Maximum storage size  
2 GB

0.2% USED SPACE

Notifications (0) Database features (6)

AI Security (4) Performance (1) Recovery (1)



Home - Microsoft Azure

portal.azure.com/#home

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All resources

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Quickstart Center

Virtual machines

App Services

Storage accounts

More services

### Resources

Recent Favorite

Name	Type	Last Viewed
AI_infra_C1 (samrat-ai-infra/AI_infra_C1)	SQL database	a few seconds ago
AI_Infrastructure	Resource group	a minute ago

See all

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Dashboard

### Tools

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Microsoft Defender for Cloud

Secure your apps and infrastructure

Cost Management

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### Useful links

Technical Documentation

Azure Migration Tools

Azure Services

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Recent Azure Updates

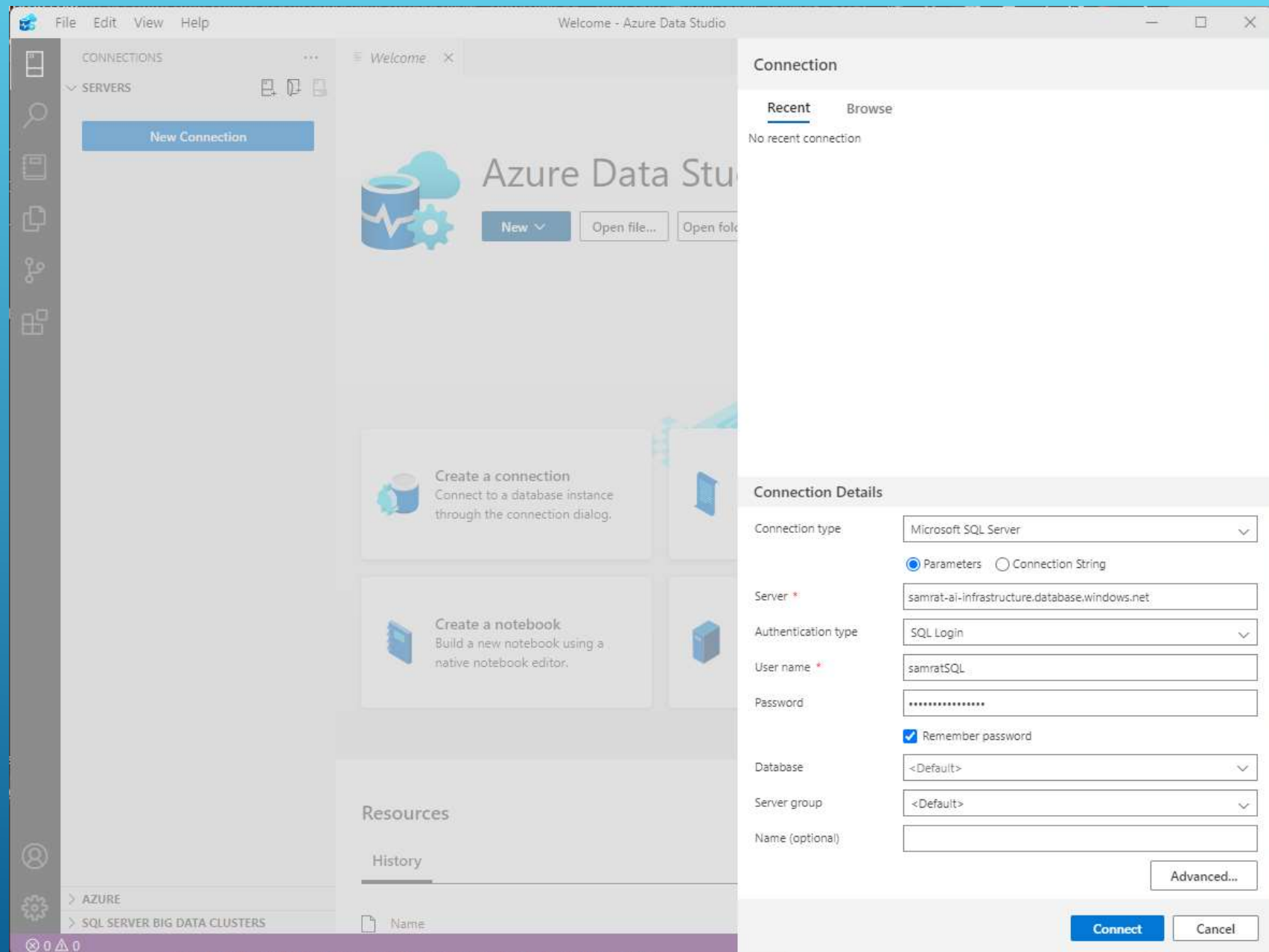
Quickstart Center

### Azure mobile app

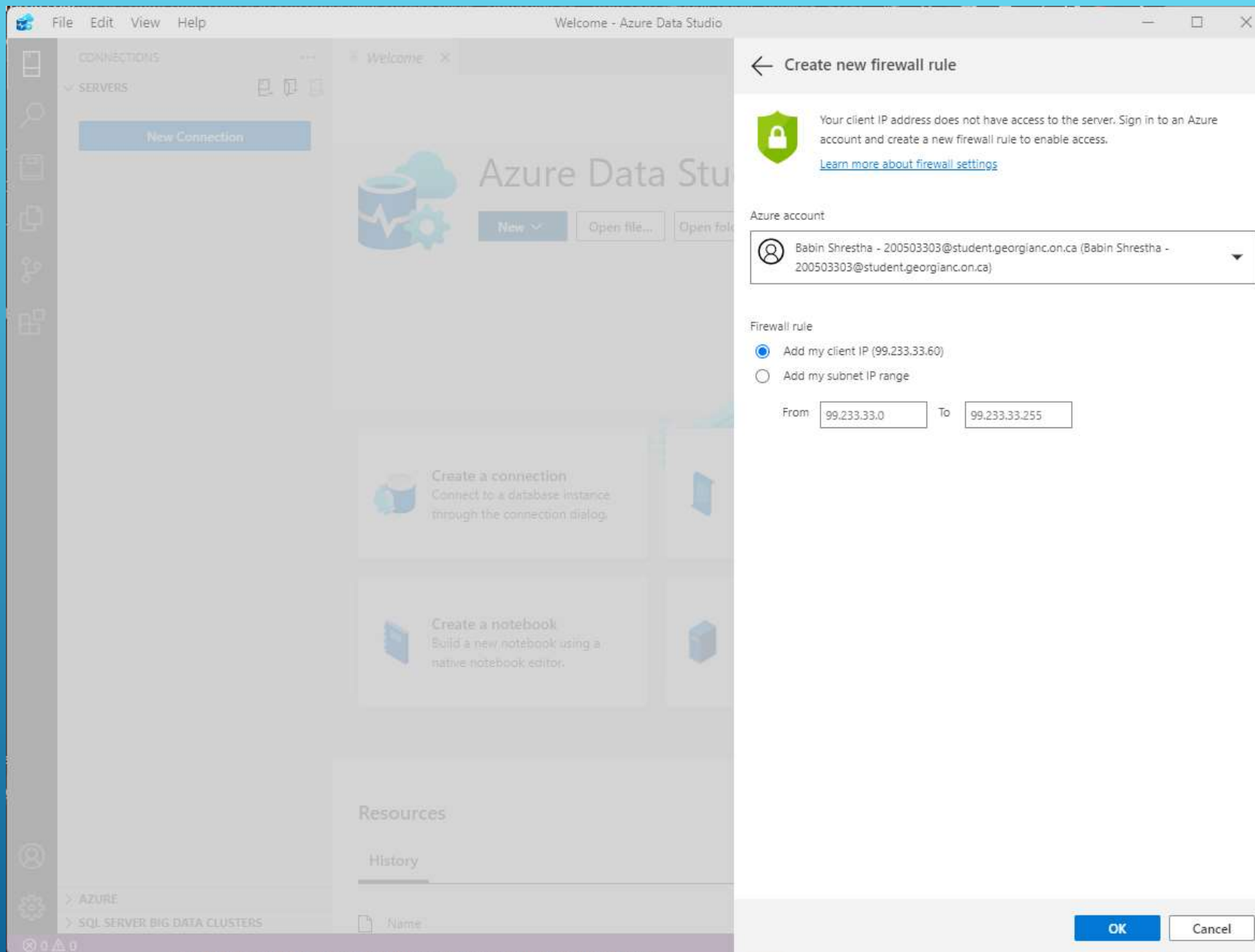
Download on the App Store

GET IT ON Google Play

# CONNECTING TO AZURE DATA STUDIO







FileEditViewHelp

CONNECTIONS

SERVERS

▼ samrat-ai-infrastructure.database.windows.net

▼ Databases

▼ System Databases

▼ master

▼ AI\_Infra\_C1

▼ Tables

▼ Dropped Ledger Tables

▼ Views

▼ Dropped Ledger Views

▼ Synonyms

▼ Programmability

▼ External Resources

▼ Storage

▼ Filegroups

▼ Full-Text Catalogs

▼ Full Text Stoplists

▼ Log Files

▼ Partition Functions

▼ Partition Schemes

▼ Search Property Lists

▼ Security

▼ Security

AZURE

SQL SERVER BIG DATA CLUSTERS

Home > samrat-ai-infrastructure.database.windows.net

Home

Version  
12.0.2000.8

Type  
Azure SQL DB

Search

Search databases

Name	Status	Size (MB)	Actions
master	ONLINE		...
AI_Infra_C1	ONLINE		...

Choose SQL Language

samrat-ai-infrastructure.database.windows.net : AI\_Infra\_C1

# CREATING STORAGE ACCOUNT

Microsoft Azure

Home > Create a resource > Marketplace > Storage account

## Create a storage account

Basics | Advanced | Networking | Data protection | Encryption | Tags | Review

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 \*

Resource group \*   
[Create new](#)

### Instance details

If you need to create a legacy storage account type, please click [here](#).

Storage account name \*

Region \*

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

Redundancy \*

[Review](#) [Previous](#) [Next: Advanced >](#)

Microsoft.SQLDatabase.newData...storagesqlsamrat\_16682708427...Home - Microsoft Azure

portal.azure.com/#view/HubsExtension/DeploymentDetailsBlade/~/overview/id/%2Fsubscriptions%2F8c1bcaa6-91ae-435f-9dcb-25a67d95315f%2FresourceGroups%2FAL\_Infrastructure%2Fproviders%2FMicrosoft.Resources%2Fdeploymen...Imported From IE(2) FASTEST Way to...conversational AIethicsGeorgian College...YouTubeInbox (45) - tsamrat...mathData Connectors...AI for decision mak...machine learning fr...vision systemSKINOPATHYAI Infra. - AWSOther bookmarks

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Home >

storagesqlsamrat\_1668270842748 | OverviewDeployment

SearchDeleteCancelRedeployDownloadRefresh

OverviewInputsOutputsTemplate

✓ Your deployment is complete

Deployment name: storagesqlsamrat\_1668270842748

Subscription: Azure for Students

Resource group: AL\_Infrastructure

Start time: 11/12/2022, 11:34:10 AM

Correlation ID: 241fad9c-9ebb3-4f0e-b9cb-a6f81272a770

Deployment details

Next steps

Go to resource

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portal.azure.com/#@georgiancollege.onmicrosoft.com/resource/subscriptions/8c1bcaa6-91ae-435f-9dc6-25a67d95315f/resourcegroups/AI\_Infrastructure/providers/Microsoft.Storage/storageAccounts/storagesqlsamrat/overview

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Home > storagesqlsamrat\_1668270842748 | Overview >

storagesqlsamrat

Storage account

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Upload Open in Explorer Delete Move Refresh Open in mobile Feedback

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Security + networking

Networking

Azure CDN

Access keys

Shared access signature

Encryption

Microsoft Defender for Cloud

Data management

Redundancy

Data protection

Essentials

Resource group (move) : AI\_Infrastructure

Location : East US

Subscription (move) : Azure for Students

Subscription ID : 8c1bcaa6-91ae-435f-9dc6-25a67d95315f

Disk state : Available

Tags (edit) : Click here to add tags

Performance : Standard

Replication : Locally-redundant storage (LRS)

Account kind : StorageV2 (general purpose v2)

Provisioning state : Succeeded

Created : 11/12/2022, 11:34:17 AM

JSON View

Properties

Monitoring

Capabilities (7)

Recommendations (0)

Tutorials

Developer Tools

Blob service

Hierarchical namespace Disabled

Default access tier Hot

Blob public 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 Enabled

File service

Large file share Disabled

Active Directory Not configured

Default share-level permissions Disabled

Soft delete Enabled (7 days)

Share capacity 5 TiB

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

Access for trusted Microsoft services Yes

Endpoint type Standard

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portal.azure.com/#home


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Name	Type	Last Viewed
 samrat-ai-infrastructure	SQL server	4 minutes ago
 AI_Infra_C1 (samrat-ai-infrastructure/AI_Infra_C1)	SQL database	4 minutes ago
 AI_infrastructure	Resource group	9 minutes ago
 storagesqlsamrat	Storage account	25 minutes ago

See all

### Navigate

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 Dashboard

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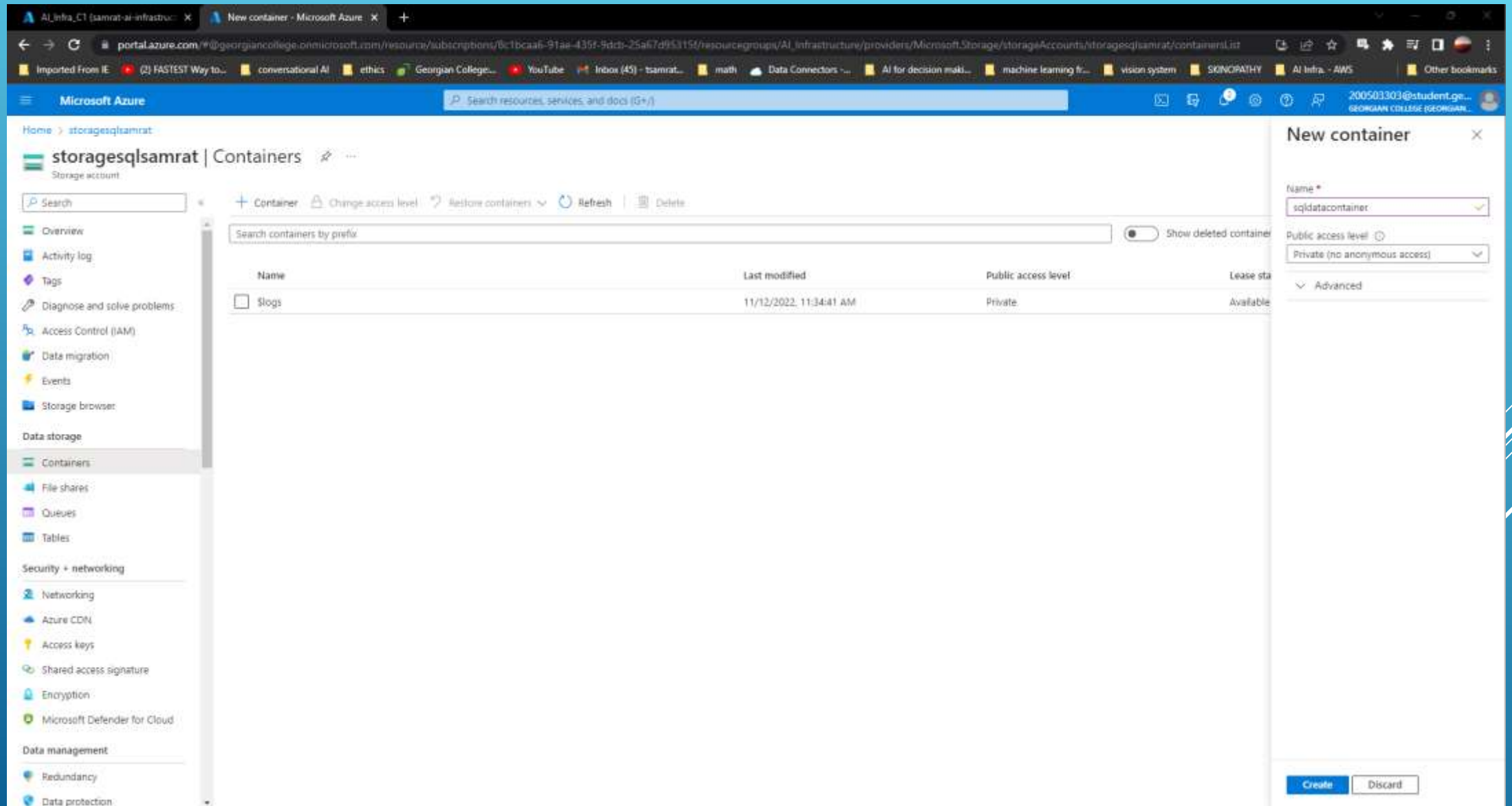
 Cost Management  
Analyze and optimize your cloud spend for free

### Useful links

Azure mobile app



# CREATING STORAGE CONTAINER



The screenshot displays the Microsoft Azure portal interface for creating a new storage container. The main page shows the 'Containers' section for the 'storagesqlsamrat' storage account. A 'New container' dialog box is open on the right, allowing the user to configure the container's name, public access level, and advanced settings.

**Storage Account: storagesqlsamrat**

**Containers Table:**

Name	Last modified	Public access level	Lease status
sqllogs	11/12/2022, 11:34:41 AM	Private	Available

**New container dialog box details:**

- Name:** sqldatacontainer
- Public access level:** Private (no anonymous access)
- Advanced:** (Expanded section, details not visible)
- Buttons:** Create, Discard



# GENERATING SSH KEY

The screenshot shows the Microsoft Azure portal interface. The left sidebar contains navigation options: Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Data storage, Containers (selected), File shares, Queues, Tables, Security + networking, Networking, Azure CDN, Access keys, Shared access signature, Encryption, Microsoft Defender for Cloud, Data management, Redundancy, and Data protection.

The main content area displays the 'storagesqlsamrat | Containers' page. A table lists containers with columns for Name, Last modified, and Public access. The 'sqldatacontainer' is selected.

Name	Last modified	Public access
logs	11/12/2022, 11:34:41 AM	Private
sqldatacontainer	11/12/2022, 12:02:08 PM	Private

The right panel, titled 'Generate SAS', provides configuration options for a Shared Access Signature (SAS). It includes settings for the signing method (Account key), signing key (Key 1), stored access policy (None), permissions (Read), start and expiry date/time (11/12/2022, 12:16:20 PM), allowed IP addresses, and allowed protocols (HTTPS only). A 'Generate SAS token and URL' button is present.

Below the button, the generated 'Blob SAS token' and 'Blob SAS URL' are displayed. The URL is: `https://storagesqlsamrat.blob.core.windows.net/sqldatacontainer?sp=r&st=2022-11-12T17:16:20Z&se=2022-11-13T01:16:20Z&spr=https&sv=2021-0...`

# UPLOADING A CSV FILE

The screenshot shows the Microsoft Azure portal interface for a storage account named 'storagesqlsamrat'. The 'Storage browser' section is active, displaying a list of blob containers. The 'sqldatacontainer' is selected, showing a single blob named 'winequality-red.csv' with a size of 82.17 KiB and a last modified date of 11/12/2022, 12:14:27 PM. The interface includes a search bar, a left sidebar with navigation options, and a top toolbar with actions like Upload, Delete, and Copy.

Microsoft Azure

Home > storagesqlsamrat

storagesqlsamrat | Storage browser

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Microsoft Defender for Cloud

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Redundancy

Data protection

storagesqlsamrat

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Recently viewed

Blob containers

sqldatacontainer

View all

File shares

Queues

Tables

+ Add Directory

Upload

Change access level

Refresh

Delete

Copy

Paste

Rename

Acquire lease

Break lease

Edit columns

Blob containers > sqldatacontainer

Authentication method: Access key (Switch to Azure AD User Account)

Add filter

Search blobs by prefix (case-sensitive)

Only show active blobs

Showing all 1 items

<input type="checkbox"/>	Name	Last modified	Access tier	Blob type	Size	Lease state
<input type="checkbox"/>	winequality-red.csv	11/12/2022, 12:14:27 PM	Hot (Inferred)	Block blob	82.17 KiB	Available

AL\_Infra\_C1 (samrat-ai-infrastru... x

Overview - Microsoft Azure x

how to download azcopy using x

+

portal.azure.com/#@georgiancollege.onmicrosoft.com/resource/subscriptions/6c1bcaa6-91ae-435f-9dcb-25a67d95315f/resourcegroups/AL\_Infrastructure/providers/Microsoft.Storage/storageAccounts/storagesqlsamrat/storagebrowser

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Recently viewed

Blob containers

Slogs

sqldatacontainer

View all

File shares

Queues

Tables

+ Add Directory

↑ Upload

🔒

Blob containers > sqldatacont

Authentication method: Access key (S

+ Add filter

🔍 Search blobs by prefix (case-sens

Showing all 1 items

☒

Name

☒

winequality-red.csv

Overview

Blob: winequality-red.csv

Save Discard Download Refresh Delete Change tier Acquire lease Break lease

Properties

URL

LAST MODIFIED

CREATION TIME

VERSION ID

TYPE

SIZE

ACCESS TIER

ACCESS TIER LAST MODIFIED

ARCHIVE STATUS

REHYDRATE PRIORITY

SERVER ENCRYPTED

ETAG

VERSION-LEVEL IMMUTABILITY POLICY

CACHE-CONTROL

CONTENT-TYPE

CONTENT-MD5

CONTENT-ENCODING

CONTENT-LANGUAGE

CONTENT-DISPOSITION

LEASE STATUS

LEASE STATE

LEASE DURATION

COPY STATUS

COPY COMPLETION TIME

Metadata

https://storagesqlsamra...

11/12/2022, 12:14:27 PM

11/12/2022, 12:14:27 PM

-

Block blob

82.17 KiB

Hot (inferred)

N/A

-

-

true

0x80AC4D15AA4A1E8

Disabled

text/csv

ZNErR+xxPq/ZamLudrSpw==

Unlocked

Available

-

-

-

Undelete



THANK YOU