

Q3: Azure Blob Storage + AKS Persistent Volume Integration

Screenshots

1. Azure Storage Accounts

staks5q074gff

Storage account

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Overview

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Essentials

Resource group (move) : rg-aks-5q074gff

Location : westus2

Subscription (move) : Azure for Students

Subscription ID : 69a0ceb2-4ba6-4cd4-bbf7-a35a58b1be1e

Disk state : Available

Tags (edit) : Environment : DevelopmentProject : AKS-TerraformPurpose : AKS-Persistent-Storage

Performance : Standard

Replication : Locally-redundant storage (LRS)

Account kind : StorageV2 (general purpose v2)

Provisioning state : Succeeded

Created : 7/18/2025, 10:04:28 PM

JSON View

Properties

Monitoring

Capabilities (7)

Recommendations (0)

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Blob service

Hierarchical namespace : Disabled

Default access tier : Hot

Blob anonymous access : Enabled

Blob soft delete : Disabled

Container soft delete : Disabled

Versioning : Enabled

Change feed : Disabled

NFS v3 : Disabled

Allow cross-tenant replication : Enabled

Storage tasks assignments : None

File service

Large file share : Enabled

Identity-based access : Not configured

Default share-level permissions : Disabled

Soft delete : Enabled (7 days)

Queue service

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

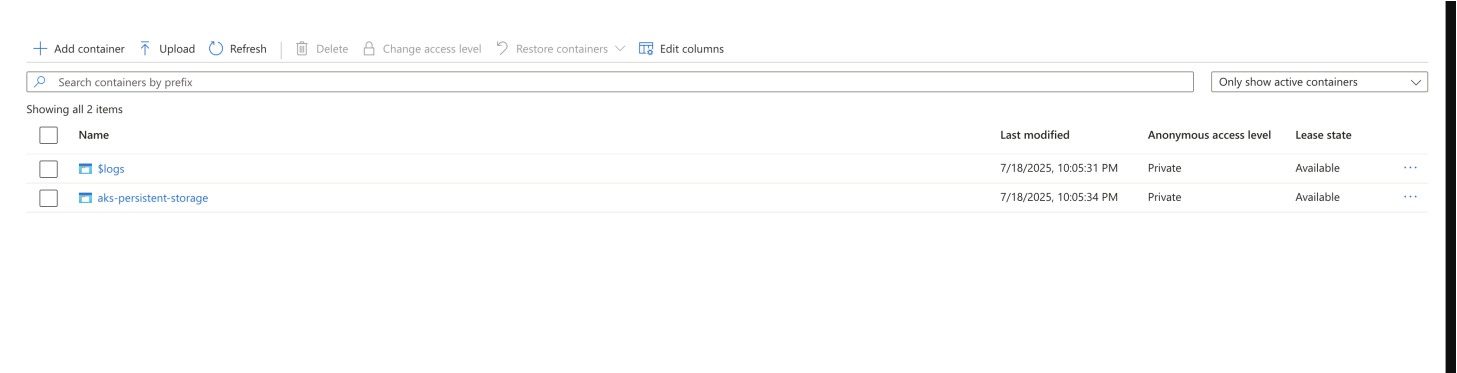
Endpoint type : Standard

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2. AKS Storage Status

```
Finalizers:      [kubernetes.io/pv-protection]
StorageClass:    azure-blob-storage
Status:          Bound
Claim:           default/aks-blob-pvc
Reclaim Policy:  Retain
Access Modes:    RWX
VolumeMode:      Filesystem
Capacity:        10Gi
Node Affinity:   <none>
Message:
Source:
  Type:          CSI (a Container Storage Interface (CSI) volume so
  Driver:         blob.csi.azure.com
  FSType:
  VolumeHandle:   staks5q074gff-aks-persistent-storage
  ReadOnly:       false
  VolumeAttributes: containerName=aks-persistent-storage
                   protocol=fuse
Events:          <none>
○ munachiernest-eze@Munachis-MacBook-Pro BCDV4034-FinalExam %
```

3. Persistent Container



Overview

This document demonstrates the integration of Azure Blob Storage with Azure Kubernetes Service (AKS) through persistent volumes. The setup includes creating a storage account, blob container, and mounting it to a deployment in AKS.

Files Submitted

1. Terraform Configuration

`storage-account.tf` - Creates Azure Storage Account and Blob Container

2. Kubernetes Storage Resources

`k8s-storage-class.yaml` - StorageClass for Azure Blob CSI driver

`k8s-persistent-volume.yaml` - PersistentVolume for blob storage

`k8s-persistent-volume-claim.yaml` - PVC for requesting storage

`k8s-storage-secret.yaml` - Secret for storage credentials

3. Application Deployment

`store-front-with-storage.yaml` - Deployment with volume mount

Current Status

- ✅ **Azure Storage Account:** staks5q074gff - Created
- ✅ **Blob Container:** aks-persistent-storage - Created
- ✅ **Persistent Volume:** aks-blob-pv - Bound
- ✅ **Storage Class:** azure-blob-storage - Active
- ✅ **Deployment:** store-front-with-storage - Deployed