

Exam Alert: Manage Azure Storage

AZURE STORAGE ACCOUNTS “NEED TO KNOW” EXAM INFORMATION



Michael Bender

AUTHOR EVANGELIST - PLURALSIGHT

@michaelbender



Exam Breakdown of Objective Domain

Implement and manage storage(10-15%)

- Manage storage accounts
- Manage data in Azure Storage
- Configure Azure files and Azure blob storage



Manage storage accounts



Manage Storage Account

Objectives

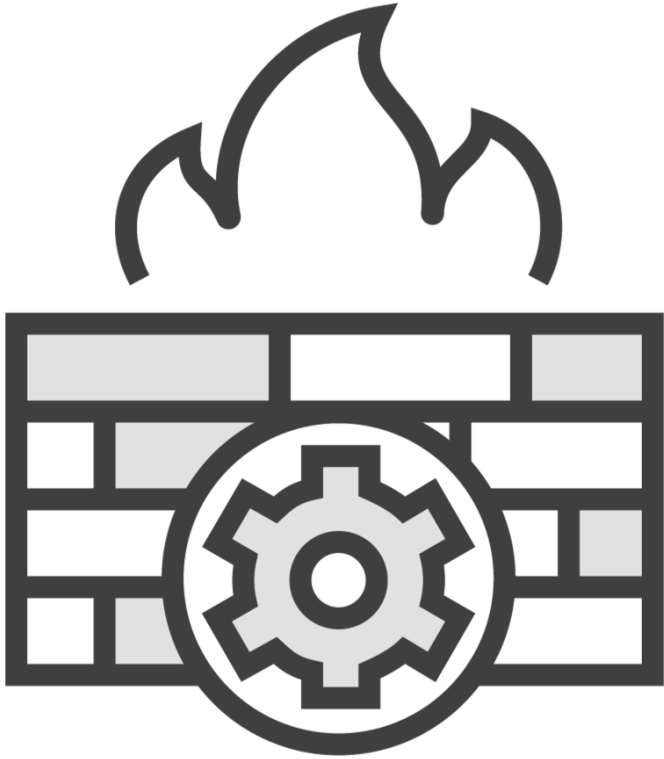
- Configure network access to storage accounts
- Create and configure storage accounts
- Generate shared access signature
- Manage access keys
- Implement Azure storage replication
- Configure Azure AD Authentication for a storage account



Configure Network Access to Storage Accounts



Azure Storage Firewalls and Virtual Networks



Layered security model

Limit access by rules

- IP addresses
- IP ranges
- Subnets in Azure vNets

Configure through Firewall and Virtual Networks blade

Service Endpoints in vNets

Requires Authorization

Create and Configure Storage Accounts



Create Storage Accounts

Contains all Azure storage objects

Unique namespace access to storage resources

- <https://stblobstorage001.blob.core.windows.net/demo/az-104-outline.pdf>

Be able to create a storage account in the Azure Portal and through the CLI



Type of Storage Accounts

General-purpose
v2

General-purpose
v1

BlockBlobStorage

FileStorage

BlobStorage



Access Tiers



Hot

Highest storage cost
Lower access cost



Cool

Lower storage cost
Higher access cost
30 day minimum



Archive

Lowest storage cost
Highest access cost
180 day minimum



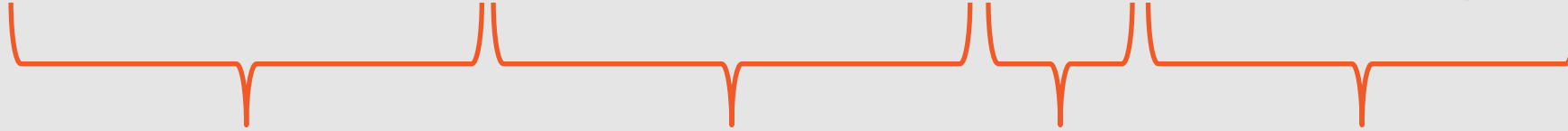
Azure Storage Account Capabilities

| | Supported Services | Performance Tiers | Access Tiers | Replication Options |
|--------------------|--|---------------------------------|--------------------|--|
| General Purpose v2 | Blob, File, Table, Disk, Queue, & Data Lake Gen2 | Standard Premium (Disk Only) | Hot, Cool, Archive | LRS, GRS, RA-GRS, ZRS, GZRS (preview), RA-GZRS (preview) |
| General Purpose v1 | Blob, File, Queue, Table, and Disk | Standard Premium (Disk Only) | N/A | LRS, GRS, RA-GRS |
| BlockBlobStorage | Blob (block blobs and append blobs) | Premium | N/A | LRS, ZRS |
| FileStorage | File Only | Premium | N/A | LRS, ZRS |
| BlobStorage | Blob (block blobs and append blobs) | Standard | Hot, Cool, Archive | LRS, GRS, RA-GRS |

Referenced from Microsoft at <http://bit.ly/azstraccts>



`https://sablostoreeastus001.blob.core.windows.net/demo/az-104-outline.pdf`



Storage
Account
Name

Storage
Service
Endpoint

Container
Name

Object
Name

Azure Storage Endpoint for BlobStorage



Implement Azure Storage Replication



Replication Options

**Local-Redundant
storage (LRS)**

**Zone-Redundant
storage (ZRS)**

**Geo-Redundant
storage (GRS)**

**Geo-Zone-
Redundant
Storage (GZRS)**

**Read-Access Geo-
Redundant
Storage (RA-GRS)**

**Read-Access Geo-
Zone-Redundant
Storage (RA-GZRS)**



Replication Options in a Nutshell

LRS and ZRS are single region replication only

ZRS provides replication across datacenters

GRS and GZRS provide cross-region replication

RA-GRS and RA-GZRS provide read-only access

Replication can be re-configured on Storage Account



Azure Storage Durability and Availability Scenarios

| Outage scenario | LRS | ZRS | GRS/ RA-GRS | GZRS/ RA-GZRS |
|---|-----|-----|-------------------|--------------------|
| Data center node becomes unavailable | Yes | Yes | Yes | Yes |
| Entire datacenter becomes unavailable | No | Yes | Yes | Yes |
| Primary region-wide outage | No | No | Yes | Yes |
| Read access in secondary region when primary is unavailable | No | No | Yes (with RA-GRS) | Yes (with RA-GZRS) |

Referenced from Microsoft at <https://bit.ly/2FeFav5>



Manage Access Keys



Managing Shared Access Keys



Access to entire storage account

Used in scenarios needed limited number of secrets

Protect your keys

Consider Azure AD instead

Use Azure Key Vault

Be familiar with retrieving and applying keys



Generate Shared Access Signatures



Generate Shared Access Signatures

Provide time-limited access to resources in a storage account.

Allow granular permissions

Can be applied at storage account or data object level

Generate SAS keys in multiple tools

Be familiar with generating and applying SAS keys



Configure Azure AD Authentication for a Storage Account



Azure AD Authorization



Supported for Blob and Queue storage

Uses role-based access control (RBAC)

Understand permissions are applied

Microsoft recommended approach

Be sure you can apply permissions properly



Authorizing Access to Azure Storage Data

| | Shared Key (storage account Key) | Shared access signature (SAS) | Azure Active Directory (Azure AD) | Anonymous public read access |
|-----------------------|--|-------------------------------------|--|------------------------------------|
| Azure Blobs | Supported | Supported | Supported | Supported |
| Azure Files (SMB) | Supported | Not Supported | *Supported using Azure AD Domain Services only | Not Supported |
| Azure Files (REST) | Supported | Supported | Not Supported | Not Supported |
| Azure Queues | Supported | Supported | Supported | Not Supported |
| Azure Tables | Supported | Supported | Not Supported | Not Supported |

More information at <https://bit.ly/2DHOGXa>



Manage Data in Azure Storage “Need to Know” Exam Information



Michael Bender

AUTHOR EVANGELIST - PLURALSIGHT

@michaelbender



Manage data in Azure Storage

Objectives

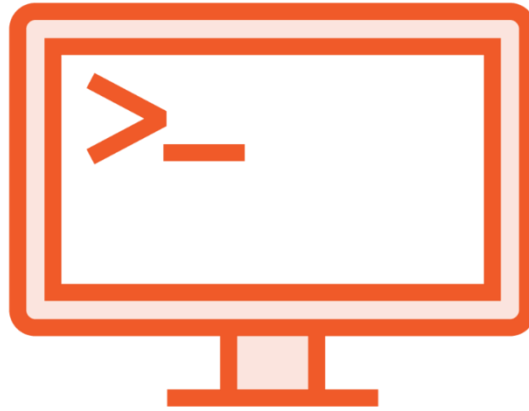
- Export from Azure job
- Import into Azure job
- Install and use Azure Storage Explorer
- Copy data by using AZCopy



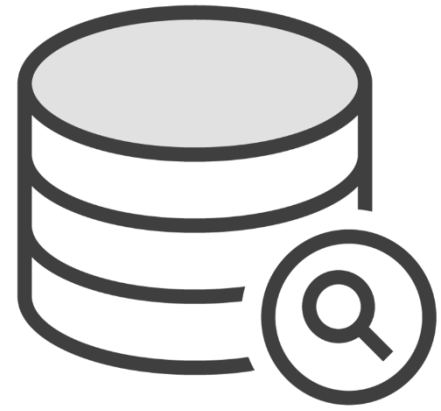
Data Management Tools



Azure Import/Export
Service



AzCopy



Azure Storage
Explorer

Export and Import with Azure Jobs



Export and Import with Azure Jobs

Securely import/export large amounts of data with physical drives

Create jobs in Azure Portal or Azure Resource Manager REST API

Import to Azure BlobStorage and Azure Files

Export to Azure BlobStorage Only

Drives shipped to Microsoft



```
.\WAImportExport.exe PrepImport  
  /j:<JournalFile>  
  /id:<SessionId>  
  [/logdir:<LogDirectory>]  
  [/sk:<StorageAccountKey>] [/silentmode]  
  [/InitialDriveSet:<driveset.csv>]  
  /DataSet:<dataset.csv>
```

WAImportExportTool

- CLI tool run on 64-bit Windows Only!
- Encryption, decryption and data copy
- Creation of journal files
- Determine number of drives needed for export job
- Understand uses for driveset.csv and dataset.csv)



Create Import Job in Azure Portal

Microsoft Azure Search resources, services, and docs (G+)

Home > New > Import export job >

Create import/export job

Create import/export job

Basics Job details Shipping Tags Review + create

Project details

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

Subscription * Visual Studio Enterprise

Resource group * ① rg-storage-001 [Create new](#)


Name * job-export-001 ✓

Type ☒ Import into Azure ☐ Export from Azure


[Review + create](#) [< Previous](#) [Next : Job details >](#)



Create Import Job in Azure Portal

 Microsoft Azure

Search resources, services, and docs (G+)




mbender@bentech.net
BENDER TECHNOLOGY CONSULT...

Home >

Create import/export job

Create import/export job

Data source

Upload journal files ⓘ 

| Drive ID | Journal file | |
|-----------------|-----------------|-----|
| S3Z8NB0M334139P | export-demo.jrn | ... |

Import destination

Destination Azure region * ▼

Storage account * ⓘ ▼

Drop-off location ▼

☒ Save verbose log in the 'waimportexport' blob container


Review + create

< Previous


Next : Shipping >



Create Import Job in Azure Portal

 Microsoft Azure

Search resources, services, and docs (G+)




mbender@bentech.net
BENDER TECHNOLOGY CONSULT...


Home >

Create import/export job


Create import/export job


 Validation passed. Click 'Create' to create the Import job.

☒ I acknowledge that all the information provided is correct and agree to the terms and conditions above.

 **Next steps**
Ship your drives to this address:

Job: job-import-002
Microsoft Azure Import/Export Service
21625 Gresham Drive
Ashburn, VA 20147 USA



 Update job status and tracking info in the settings.
Please allow 7 to 10 days for the job to complete after the disks have been received at the data center.

Create

< Previous

Next >

[Download a template for automation](#)



Verify Job Status

The screenshot displays the Microsoft Azure portal interface for an Import/export job named 'job-import-001'. The job is currently in the 'Creating' state. A warning message at the top states: 'For job to progress, provide the tracking information. The job will be deleted if tracking information is not updated within 2 weeks of job creation →'. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Manage shipping info, Encryption, Properties, Locks), Monitoring (Diagnostics), and Automation. The main content area shows job details under the 'Essentials' section, including Resource group (rg-storage-001), Location (East US), Subscription (Visual Studio Enterprise), and Subscription ID (afab04a1-b389-446a-9228-ad4d59680dc6). It also lists job properties: Overall percent completed (-), Storage account (sablostorage0001), Type (Import), Delivery tracking number (-), and Return tracking number (-). Below this, a table titled '1 drive' shows the drive details:

| Drive ID | Drive state | Copy status | Percent complete |
|-----------------|-------------|-------------|------------------|
| S3Z8NB0M334139P | Specified | - | - |



Install and use Azure Storage Explorer



Install and use Azure Storage Explorer

Download from Microsoft

Manage Azure Storage from your Desktop

**Be familiar with tasks performed with
Azure Storage Explorer**

- SAS key creation
- Blob and Blob container creation
- Configure container and object settings



Copy Data by using AZCopy



Copy Data by using AZCopy

Copies blobs or files to or from storage accounts

Installed by downloading from Microsoft

Supports Authentication with SAS and Azure AD

Understand the basic Syntax



```
azcopy [command] [arguments]  
--[flag-name]=[flag-value]
```

AzCopy Syntax



```
azcopy copy 'H:\data'  
'https://sablostore001.blob.core.windows.net/blobdata' --  
recursive
```

AzCopy Syntax



Azure Files and Azure Blobs “Need to Know” Exam Information



Michael Bender

AUTHOR EVANGELIST - PLURALSIGHT

@michaelbender



Configure Azure Files and Azure Blob storage

Objectives

- Create an Azure file share
- Create and configure Azure File Sync service
- Configure Azure blob storage
- Configure storage tiers for Azure blobs



Create an Azure File Share



Create an Azure File Share

Cloud-based SMB or NFS file share

Create shares through Azure Portal or Code

Clients use port 445

Supported in GPv1, GPv2 and FileStorage Storage Accounts

- Understand when to use each
- Know the performance and access tiers

Replication available depending on Storage Account



Azure File Share Options

| | Max Size of File Share | Performance Tiers | Access Tiers | Replication Options |
|--------------------|---|-------------------|----------------------------------|------------------------------------|
| General Purpose v2 | 5 TiB default Up to 100 TiB upon request | Standard | Hot, Cool, Transaction Optimized | LRS, GRS, ZRS, GZRS |
| General Purpose v1 | 5 TiB default Up to 100 TiB upon request | Standard | N/A | LRS, GRS |
| FileStorage | 100 TiB default | Premium | N/A | LRS, ZRS (small subset of regions) |



Authentication



Azure Active Directory Domain Services and Active Directory Domain Services

- Provides identity-based access for hybrid environments
- Allows granular share-level and file-level permissions
- Recommended best practice

Storage Account Key or Shared Access Signature

- Less granular control
- Secure the keys

Create and Configure Azure File Sync Service



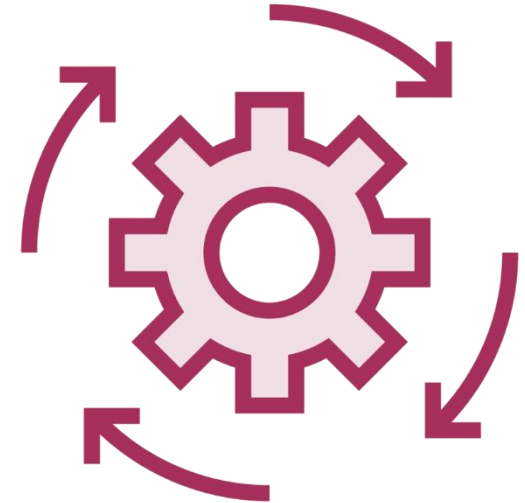
Azure File Sync Management Components



Cloud Endpoint
Azure File Share



Server Endpoint



Sync Group

Deploying Azure File Sync



Deploy the Storage Sync Service



Create a sync group and cloud endpoint



Install the Azure File Sync agent on Windows Servers



Register Windows Server with the Storage Sync Service



Create a server endpoint and wait for sync



Configure Azure Blob Storage



Configure Blob Storage

Unstructured data objects of various types

Create through various tools

Use a unique URI-based namespace

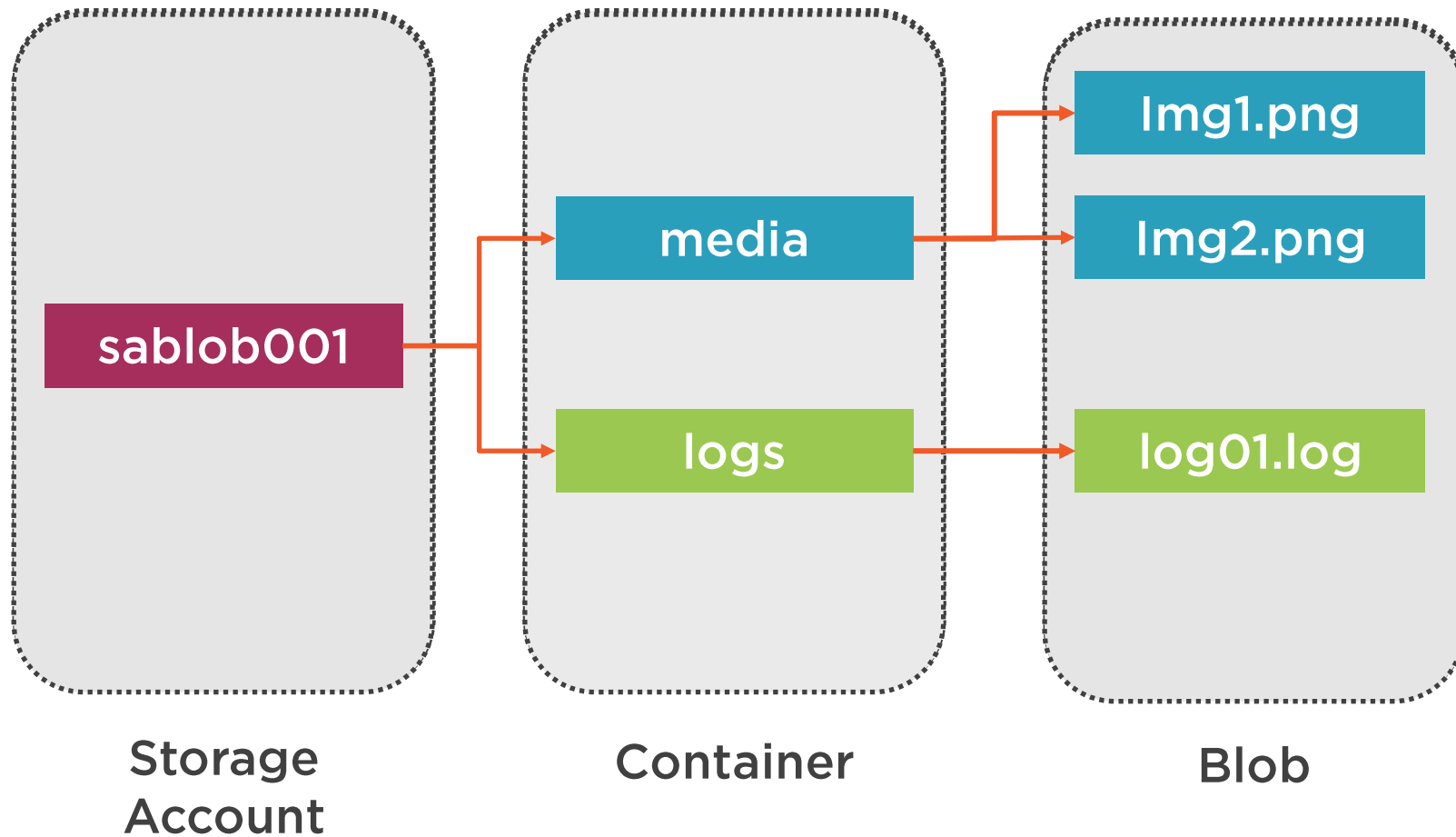
Supported in BlobStorage, General Purpose v1 and General Purpose v2 storage accounts

Manage costs with tiering

Support various replication options depending on Storage Account used



Blob Storage Resources



<https://sablob001.blob.core.windows.net/media/img001.png>



Configure Azure Blob Storage Tiers



Configuring Blob Tiering

Know the tiering options

- Understand cost-effective scenarios
- Storage-at-rest vs. storage access

Default tier established at storage account creation

Tiers can be applied when uploading blobs to Azure

Change tiers at blob level

Archive requires rehydration for access

Use Lifecycle Management for automation



Exam Strategy

Know how services fit together

Be familiar with implementations in portal and with code

Weight your study time based on exam percent

- Manage Azure Storage will be approximately 5-8 questions



Exam Strategy

Build on your weaknesses

Make sure to check the AZ-104 exam guide regularly

Remember this is an Administrator Associate Exam

Get hands-on experience



Best of Luck on the Exam!!!



Michael Bender

AUTHOR EVANGELIST - PLURALSIGHT

@michaelbender

bender@Pluralsight.com



Next Up

Managing Data in Azure Storage



Next Up

Configuring Azure Files and Azure
Blobs

