AZ-104 Azure - Storage Accounts

- Storage Account Overview
- Create Storage Account
- Data Redundancy Options

1. Azure Queue: Message Based storage for microservices.
2. Azure Table: Non-relational semi-structured data storage service.
3. Azure Files: Cloud-based file-sharing service.
4. Azure blob: object-oriented storage solutions (store jpgs, mp4s, etc).

Type of storage account	Supported storage services	Redundancy options	Usage
Standard general-purpose v2	Blob Storage (including Data Lake Storage[1]), Queue Storage, Table Storage, and Azure Files	Locally redundant storage (LRS) / geo-redundant storage (GRS) / read-access geo-redundant storage (RA-GRS) Zone-redundant storage (ZRS) / geo-zone-redundant storage (GZRS) / read-access geo-zone-redundant storage (RA-GZRS)[2]	Standard storage account type for blobs, file shares, queues, and tables. Recommended for most scenarios using Azure Storage. If you want support for network file system (NFS) in Azure Files, use the premium file shares account type.
Premium block blobs[3]	Blob Storage (including Data Lake Storage[1])	LRS ZRS[2]	Premium storage account type for block blobs and append blobs. Recommended for scenarios with high transaction rates or that use smaller objects or require consistently low storage latency. Learn more about example workloads.

Type of storageaccount	Supported storage services	Redundancy options	Usage
Premium file shares[3]	Azure Files	LRS ZRS[2]	Premium storage account type for file shares only. Recommended for enterprise or high-performance scale applications. Use this account type if you want a storage account that supports both Server Message Block (SMB) and NFS file shares.
Premium page blobs[3]	Page blobs only	LRS ZRS[2]	Premium storage account type for page blobs only. Learn more about page blobs and sample use cases.

Storage accounts

- Account type: determines feature and costs.
- Performance tier: determines performance levels.
- Replication: determines infrastructure redundancy.
- Access tier: determines access level and data costs.

Azure Storage Redundancy

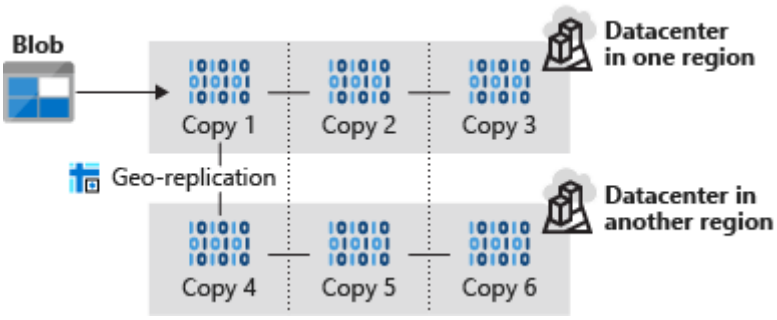
Locally redundant storage

Illustration that shows three copies of blob data stored in the same datacenter with LRS.

Locally redundant storage (LRS) copies your data three times across separate racks of hardware in a datacenter inside one region. Even if there's a hardware failure or if there's maintenance work in the datacenter, this replication type ensures data is available for use.

LRS doesn't protect you from a datacenter-wide outage. If the datacenter goes down, you could lose your data.

Geographically redundant storage



Read-access geo-redundant storage

With GRS, your secondary region isn't available for read access until the primary region fails. If you want to read from the secondary region, even if the primary region hasn't failed, use Read-access geo-redundant storage (RA-GRS) for your replication type.

Zone-redundant storage

Illustration of data copied to three storage clusters in separate availability zones with ZRS.

Zone-redundant storage (ZRS) copies your data in three storage clusters in a single region. Each cluster is in a different physical location and is considered as a single availability zone. Each cluster uses its own separate utilities for things like networking and power. If one datacenter is experiencing an outage, your data remains accessible from another availability zone in the same Azure region.

Because all availability zones are in a single region, ZRS can't protect your data from a regional-level outage.

Geo-zone-redundant storage

Geo-zone-redundant storage (GZRS) combines the high availability benefits of ZRS with GRS. With this replication type, your data is copied across three availability zones in one region. Data is also replicated three times to another secondary region that's paired with it. This way, your zone-redundant data is also secure from regional-level outages.

Read-access geo-zone-redundant storage

Read-access geo-zone-redundant storage (RA-GZRS) uses the same replication method as GZRS, but lets you read from the secondary region. If you want to read the data that's replicated to the secondary region, even if your primary isn't experiencing downtime, use RA-GZRS for your replication type.

GZRS and RA-GZRS are currently available in the following regions:

- South Africa North
- Australia East
- East Asia
- Japan East
- Korea Central
- Southeast Asia
- Central India
- France Central
- Germany West Central
- North Europe
- Norway East
- Sweden Central
- Switzerland North
- UK South
- West Europe
- Canada Central
- Central US
- East US
- East US 2
- South Central US
- West US 2
- West US 3
- US Gov Virginia
- Brazil South

Paired regions

A paired region is where an Azure region is paired with another in the same geographical location to protect against regional outage. Paired regions are used with GRS and GZRS replication types.

Illustration that shows a hierarchy of geography, regional pair, region, and datacenters.

Here's a list showing some of the regions that are paired together. You can get the full list at Azure paired regions.

	Region	Region
Asia	East Asia	Southeast Asia
Australia	Australia East	Australia Southeast
Canada	Canada Central	Canada East
China	China North	China East

	Region	Region
Europe	North Europe (Ireland)	West Europe (Netherlands)
Japan	Japan East	Japan West
North America	East US	West US
South Africa	South Africa North	South Africa West
UK	UK West	UK South

Use cases for each replication type

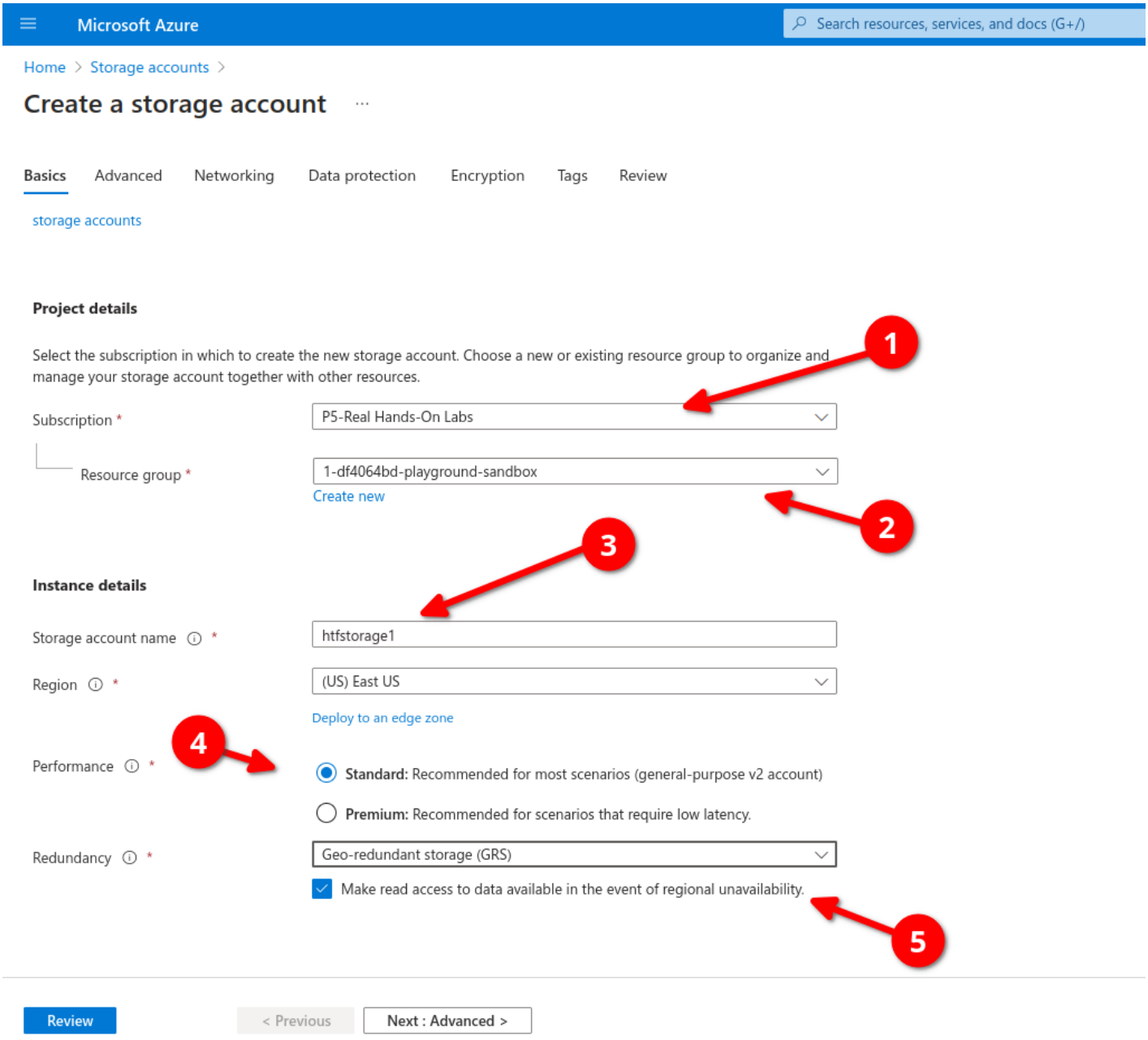
The following table summarizes how many copies you get with each replication type and when you should use it.

Replication type	Copies	Use case
LRS	3	Data remains highly available, but for compliance reasons, isn't allowed to leave the local datacenter.
GRS	6	App has access to the data, even if an entire region has an outage.
RA-GRS	6	App reads from multiple geographical locations, so you can serve users from a location that's closer to them.
ZRS	3	Need redundancy in multiple physical locations, but because of compliance, data isn't allowed to leave a region.
GZRS	6	App can access data, even if the primary region has failed, and your secondary region has a datacenter that's experiencing an outage, but you don't want to read from the secondary region unless the primary region is down.

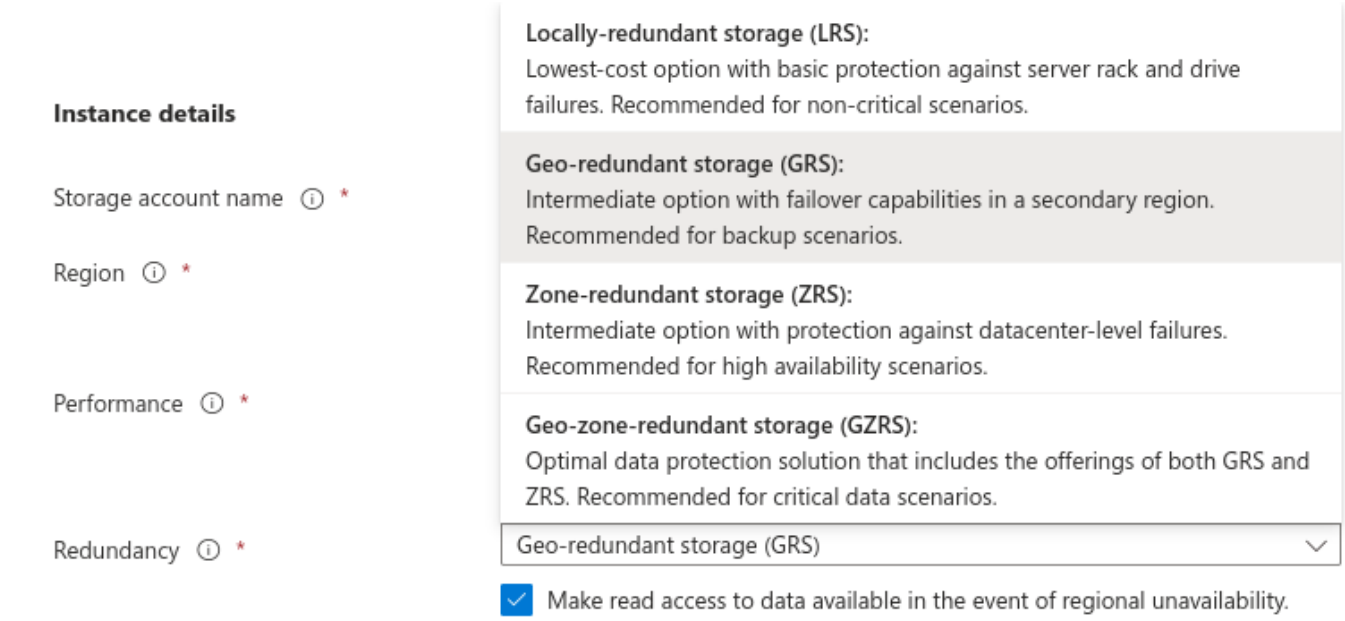
Replication type	Copies	Use case
RA-GZRS	6	Regularly read data from your secondary region, perhaps to serve users from a location closer to them, even if a datacenter is up in your primary region.

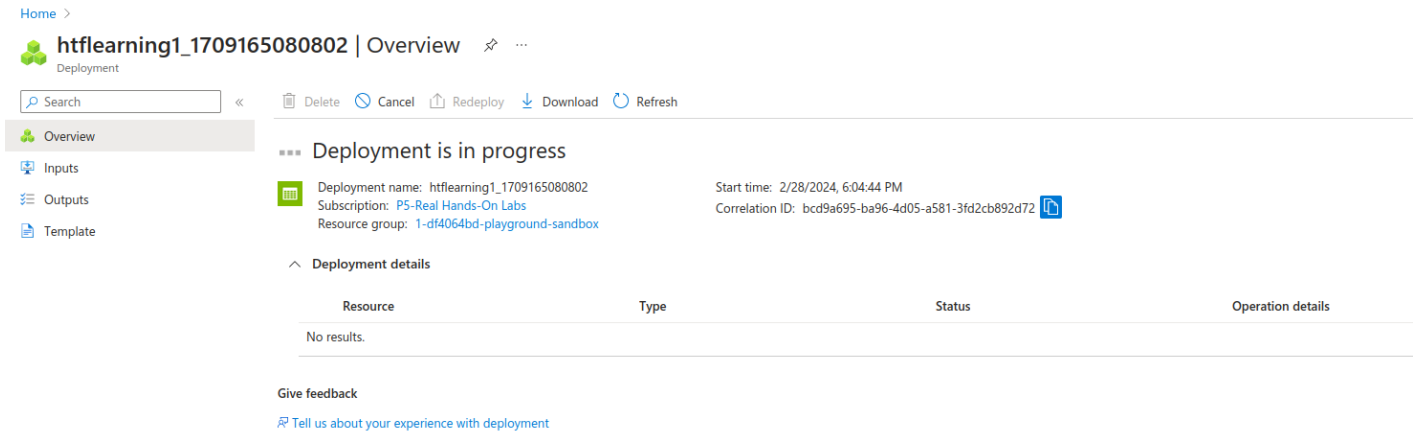
Creating a storage account

Navigate to Storage accounts and then create



Select type of redundancy





Account Type	General purpose v1	Legacy for blobs, files, queues, and tables
	General purpose v2	Recommended for blobs, files, queues, and tables
Performance Tier	Blob storage	Legacy blob-specific accounts
	Standard	Default storage performance tier
	Premium	High-performance storage tier
Replication	Locally redundant storage (LRS)	Three copies in a physical location within a region
	Zone-redundant storage (ZRS)	Three copies across zones within a region
	Geo-redundant storage (GRS)	LRS in a primary and secondary region
	Geo-zone-redundant storage (GZRS)	ZRS in a primary region and LRS in a secondary region
Access Tier	Hot	Frequently accessed data
	Cold	Infrequently accessed data
	Archive	Backup data rarely accessed

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