

Lab16 – Understanding Zone-Redundant Storage (ZRS) - Azure

Zone Redundant Storage (ZRS)

Zone-redundant storage (ZRS) replicates your data synchronously across three storage clusters in a single region. Each storage cluster is physically separated from the others and is located in its own availability zone (AZ). Each availability zone—and the ZRS cluster within it—is autonomous and includes separate utilities and networking features.

When you store your data in a storage account using ZRS replication, you can continue to access and manage your data if an availability zone becomes unavailable. ZRS provides excellent performance and low latency. ZRS offers the same [scalability targets](#) as [locally redundant storage \(LRS\)](#).

Consider ZRS for scenarios that require consistency, durability, and high availability. Even if an outage or natural disaster renders an availability zone unavailable, ZRS offers durability for storage objects of at least 99.999999999% (12 9's) over a given year.

For more information about availability zones, see [Availability Zones overview](#).

Support coverage and regional availability

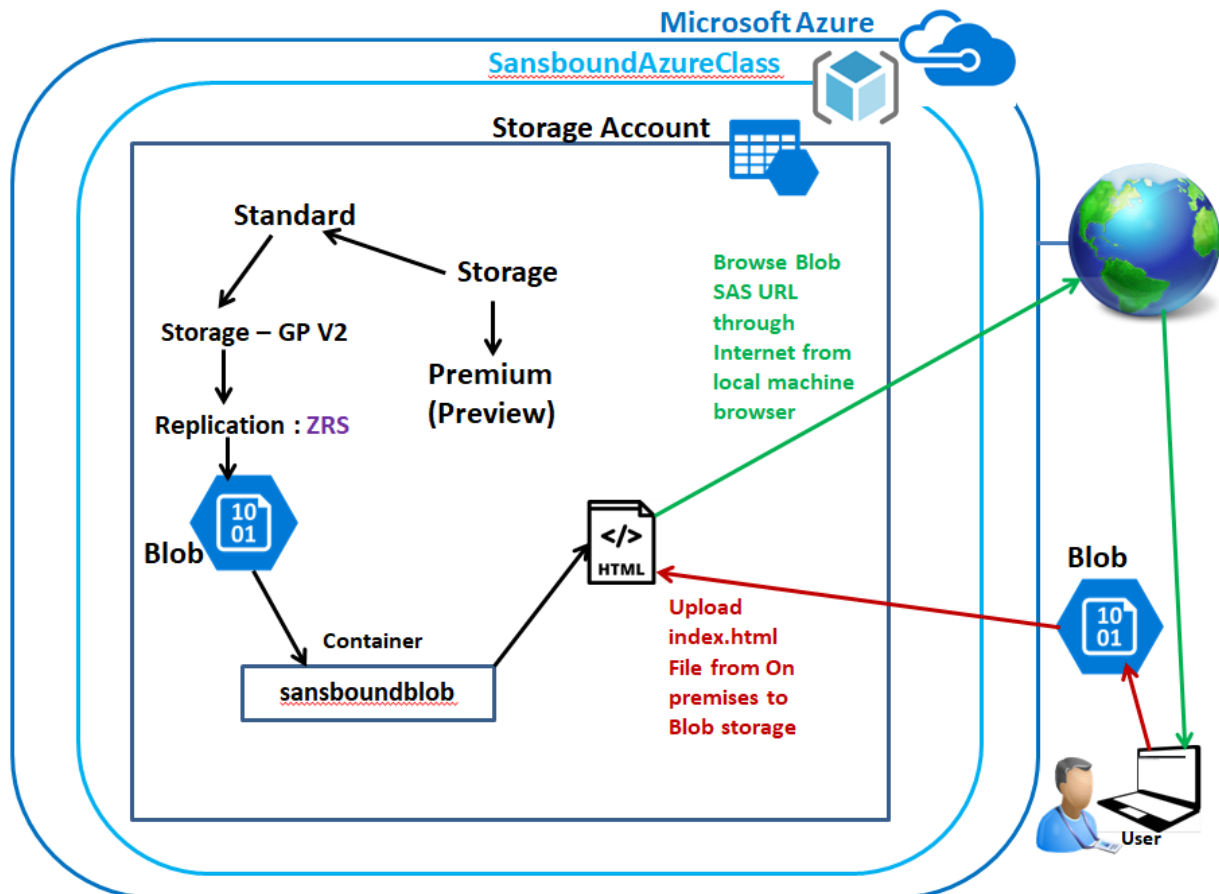
ZRS currently supports standard general-purpose v2 account types. For more information about storage account types, see [Azure storage account overview](#).

ZRS is available for block blobs, non-disk page blobs, files, tables, and queues.

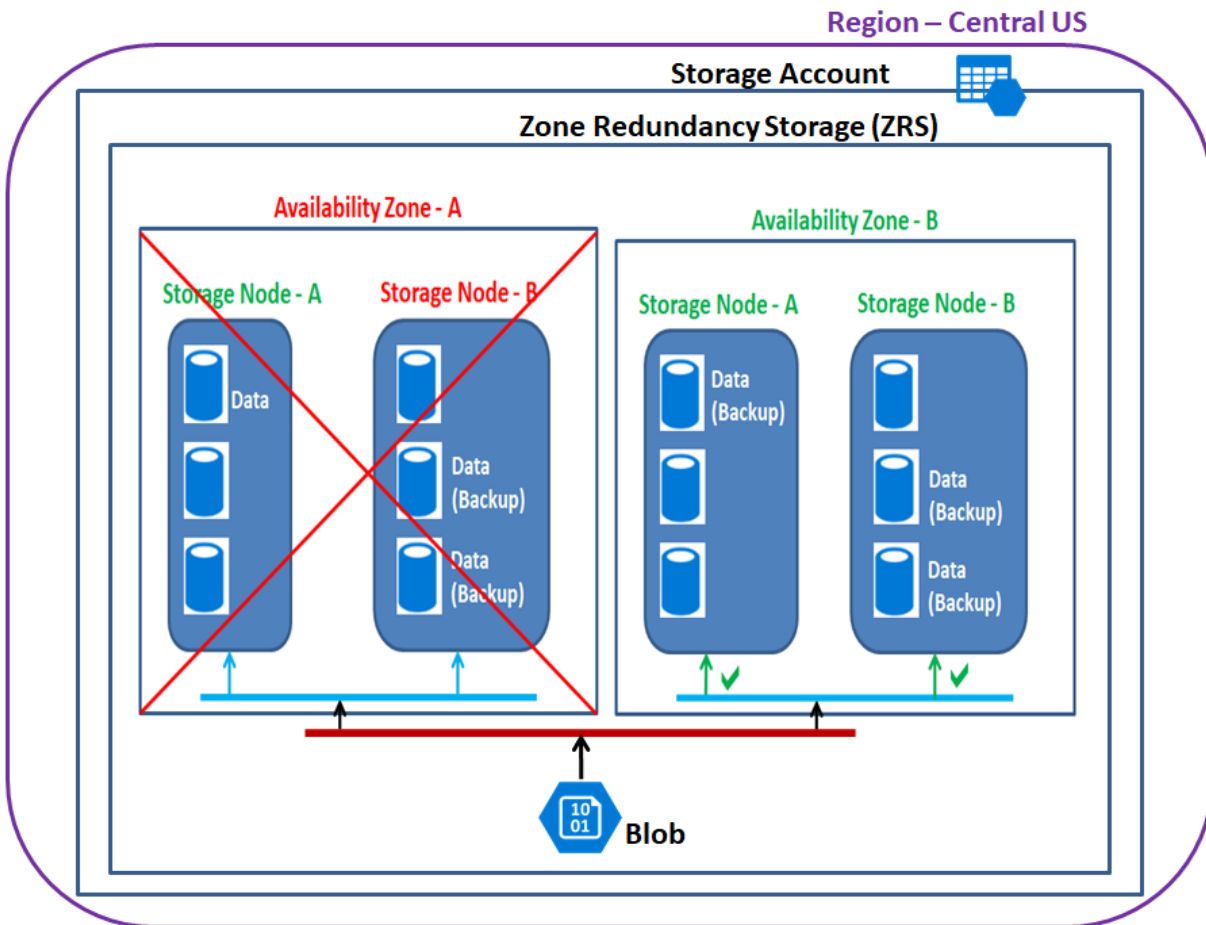
ZRS is generally available in the following regions:

- US East
- US East 2
- US West 2
- US Central
- North Europe
- West Europe
- France Central
- Southeast Asia

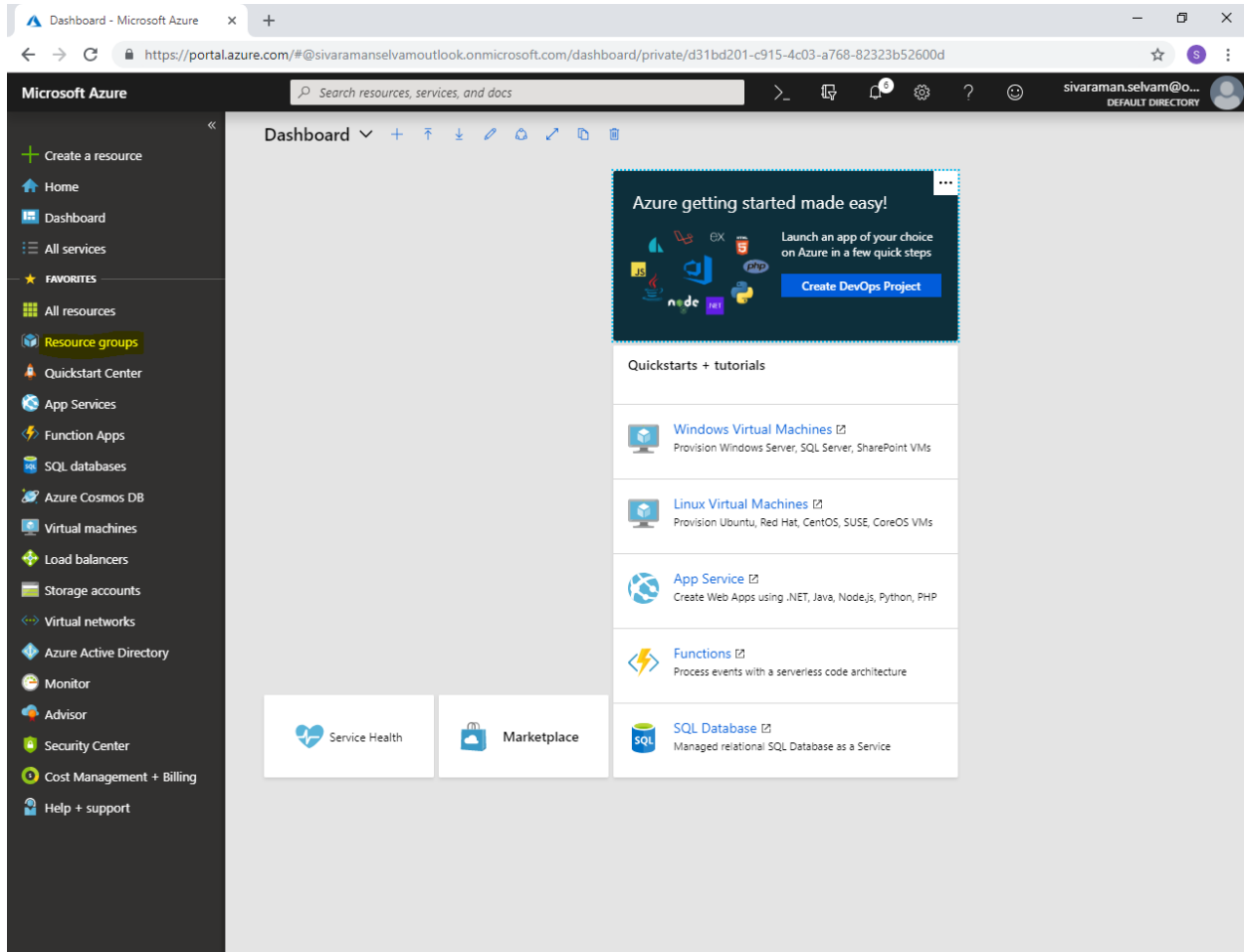
Topology



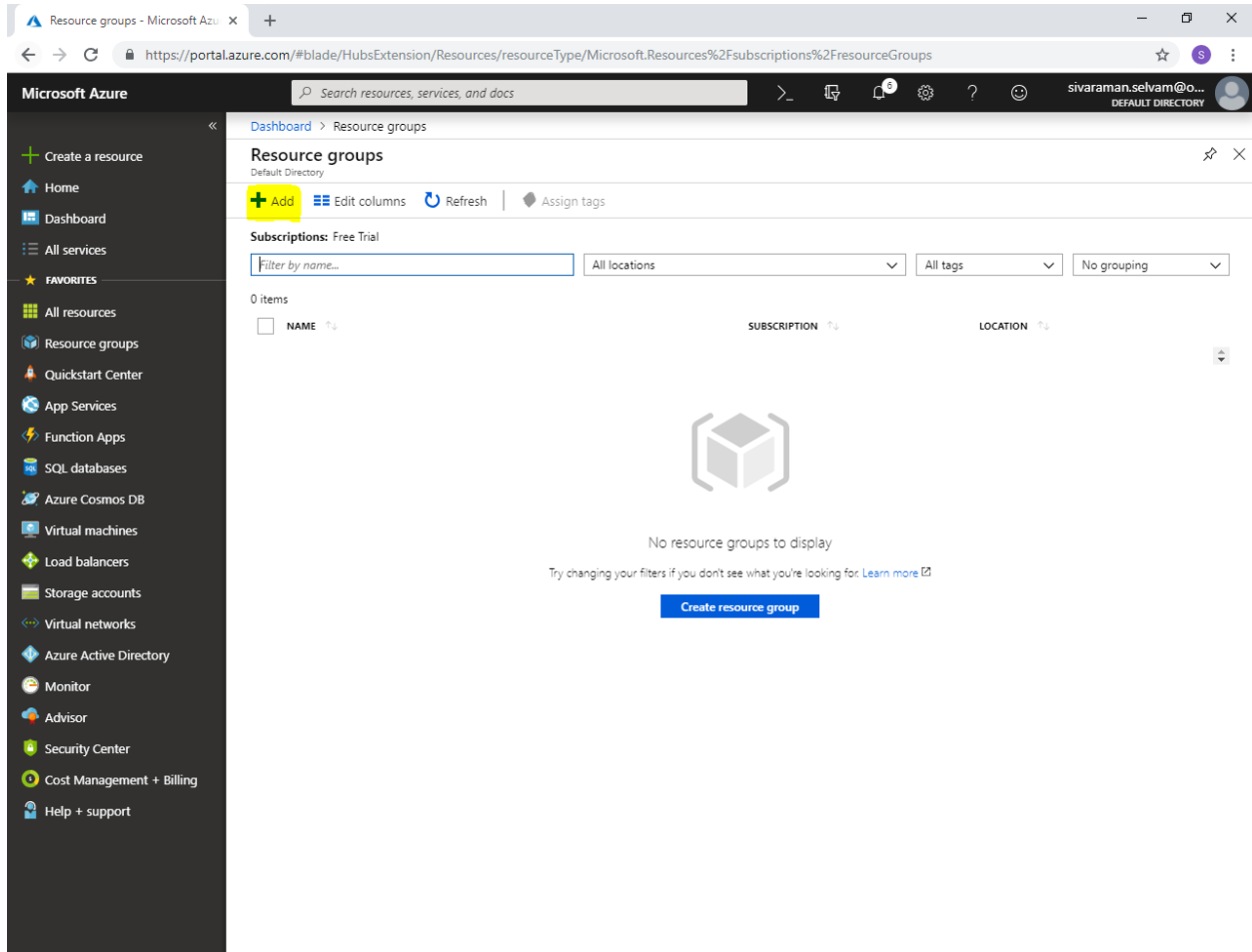
Back-End Topology (ZRS):



In Azure portal, click “Resource groups”.



In “Resource groups” click “Add”.



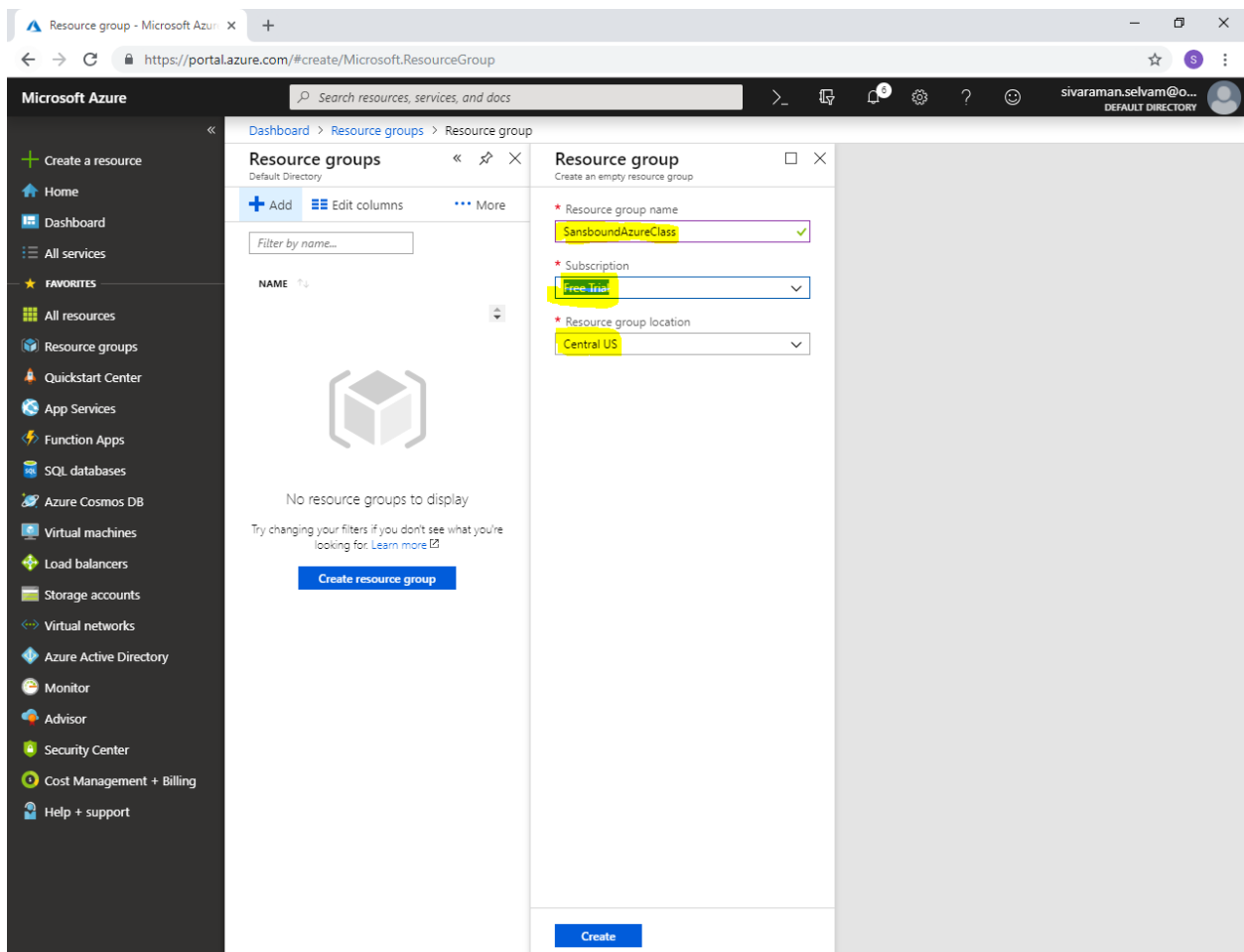
The screenshot shows the Microsoft Azure portal interface. The left sidebar contains the navigation menu with 'Resource groups' selected. The top bar shows the user's profile and search bar. The main content area displays the 'Resource groups' page, which is currently empty. A message states 'No resource groups to display' and suggests trying different filters or clicking 'Learn more'. A blue button labeled 'Create resource group' is visible at the bottom of the main content area.

In **"Resource group name"**,

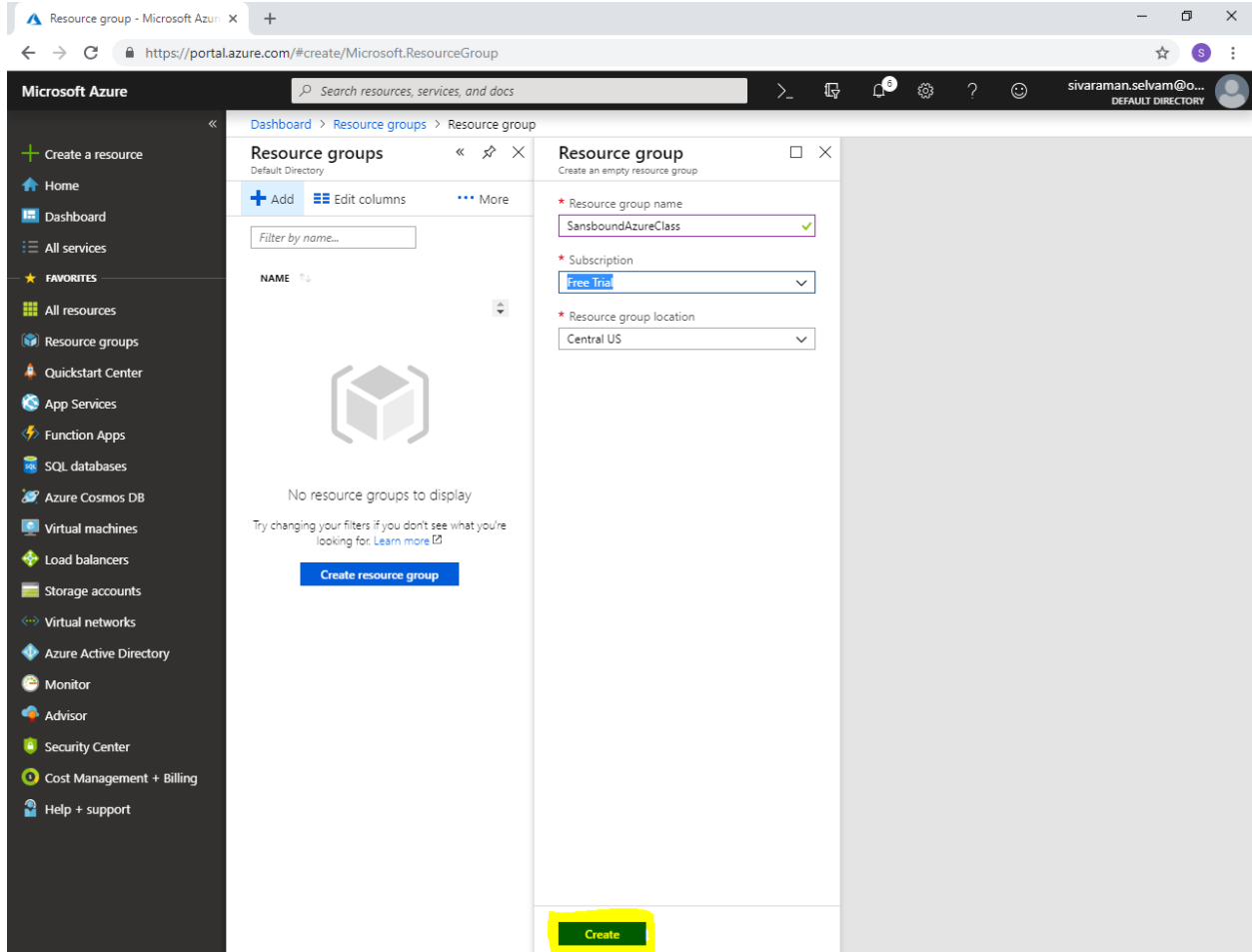
Type **"Resource group name"** as **"SansboundAzureClass"**.

Select **"Subscription"** as **"Free Trial"**.

Select **"Resource group location"** as **"Central US"**.



Click **“Create”**.

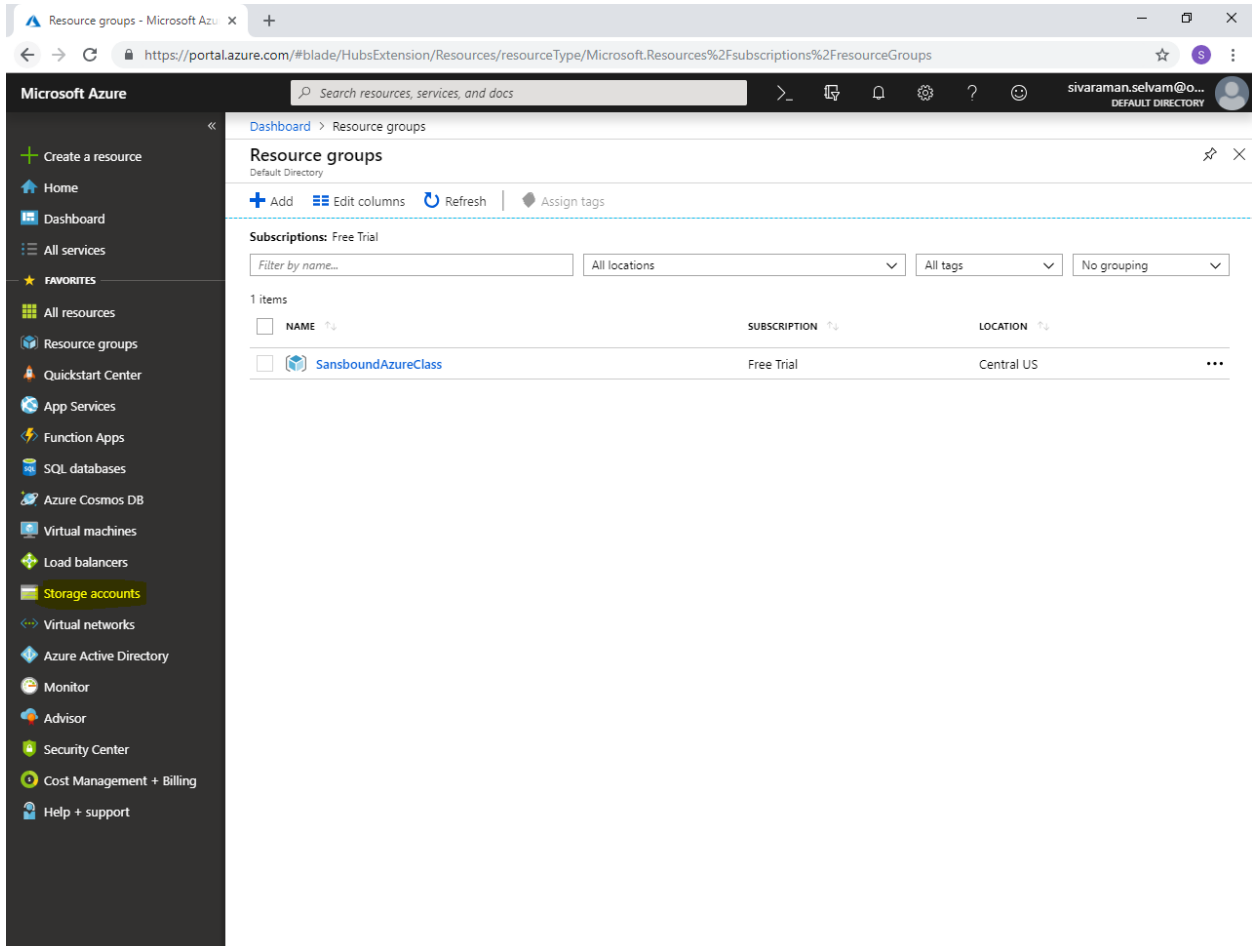


The screenshot shows the Microsoft Azure portal interface. On the left is a navigation pane with various service categories. The main area displays the 'Resource groups' page. A modal window titled 'Resource group' is open, showing the 'Create an empty resource group' form. The form includes the following fields:

- Resource group name:** SansboundAzureClass (with a green checkmark)
- Subscription:** Free Trial (dropdown menu)
- Resource group location:** Central US (dropdown menu)

At the bottom of the modal, there is a yellow button labeled **Create**.

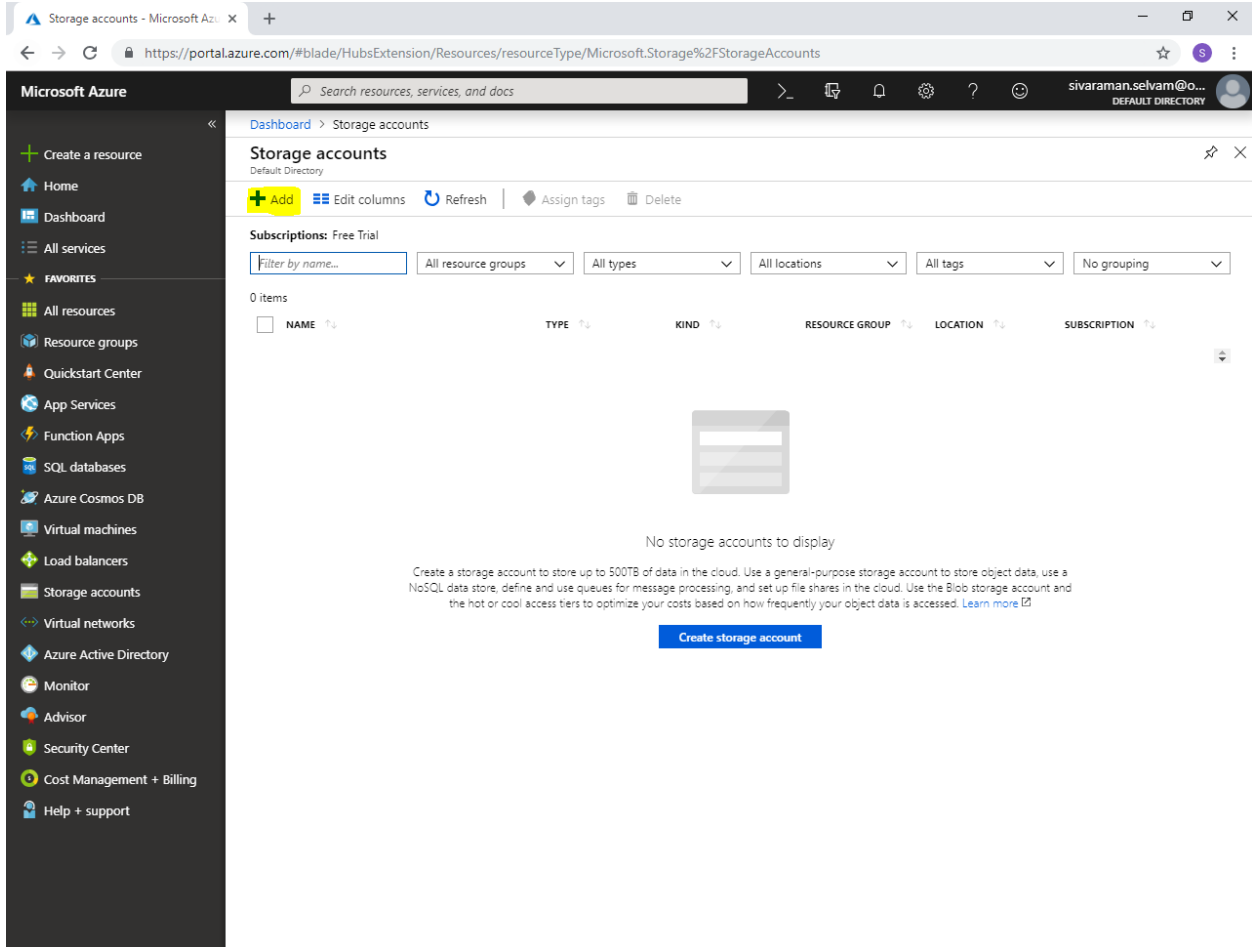
In Azure portal, click “Storage accounts”.



The screenshot displays the Microsoft Azure portal interface. The left-hand navigation pane lists various services, with 'Storage accounts' highlighted in yellow. The main pane shows the 'Resource groups' page for the 'Default Directory'. At the top, there's a search bar and a 'Subscriptions: Free Trial' filter. Below this, a table lists the resource groups. The table has columns for 'NAME', 'SUBSCRIPTION', and 'LOCATION'. One resource group, 'SansboundAzureClass', is listed under the 'Free Trial' subscription in the 'Central US' location.

NAME	SUBSCRIPTION	LOCATION
SansboundAzureClass	Free Trial	Central US

Click **"Add"**.



Storage accounts - Microsoft Azure

Dashboard > Storage accounts

Storage accounts

Default Directory

Add Edit columns Refresh Assign tags Delete

Subscriptions: Free Trial

Filter by name... All resource groups All types All locations All tags No grouping

0 items

NAME	TYPE	KIND	RESOURCE GROUP	LOCATION	SUBSCRIPTION
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No storage accounts to display

Create a storage account to store up to 500TB of data in the cloud. Use a general-purpose storage account to store object data, use a NoSQL data store, define and use queues for message processing, and set up file shares in the cloud. Use the Blob storage account and the hot or cool access tiers to optimize your costs based on how frequently your object data is accessed. [Learn more](#)

[Create storage account](#)

While create storage account,

Select “Subscription” as “Free Trial”.

Select “Resource group” as “SansboundAzureClass”.

Type “Storage account name” as “sansboundblob”.

Select “Location” as “Central US”.

Select “Performance” as “Standard”.

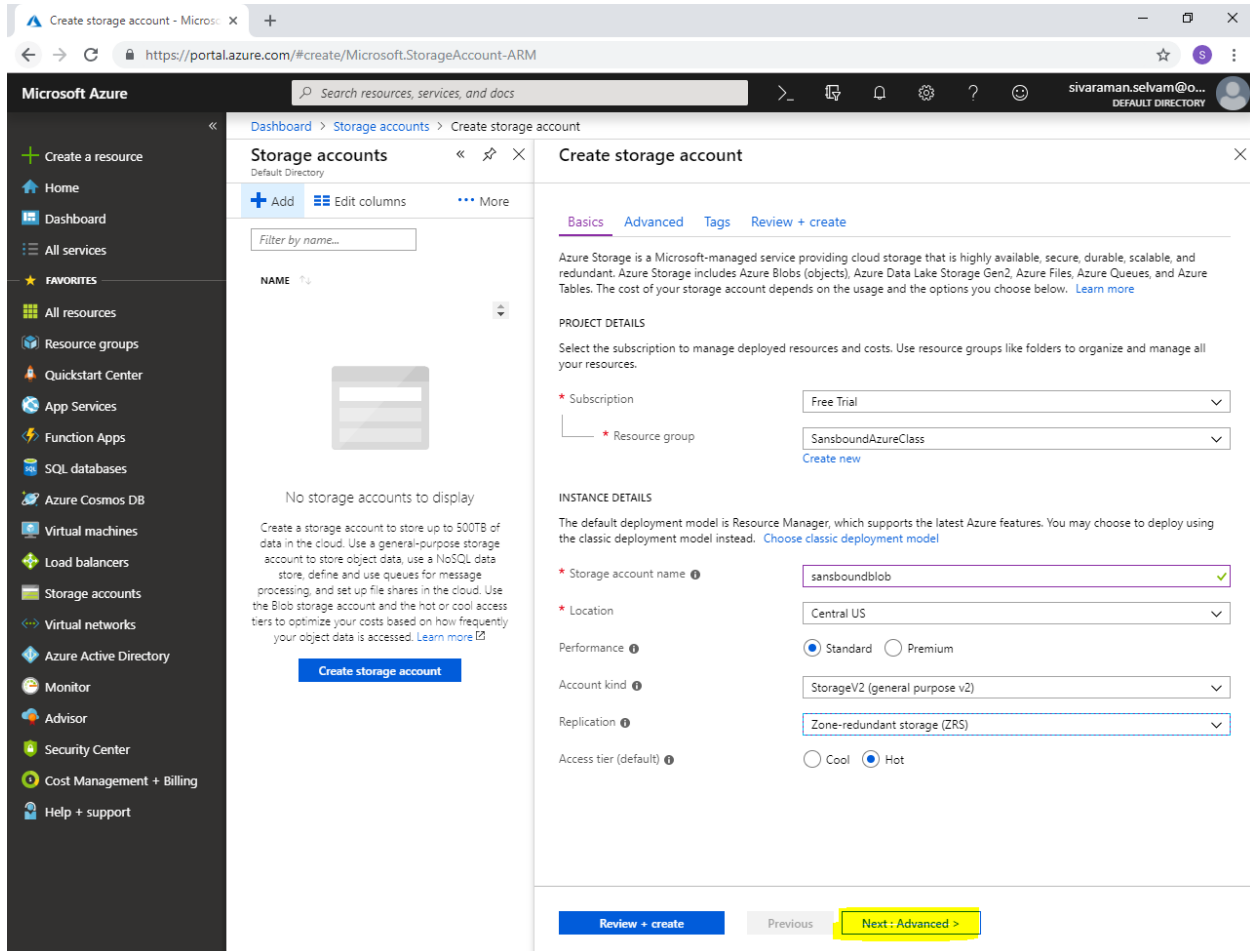
Select “Account kind” as “Storage V2”.

Select “Replication” as “Zone Redundant storage”.

Select “Access tier” as “Hot”.

The screenshot displays the 'Create storage account' wizard in the Microsoft Azure portal. The interface includes a left-hand navigation pane with options like 'Create a resource', 'Home', 'Dashboard', and 'All services'. The main content area is titled 'Create storage account' and shows the 'Basics' tab selected. The 'Project Details' section requires selecting a 'Subscription' (Free Trial) and a 'Resource group' (SansboundAzureClass). The 'Instance Details' section configures the storage account: 'Storage account name' is sansboundblob, 'Location' is Central US, 'Performance' is Standard, 'Account kind' is StorageV2 (general purpose v2), 'Replication' is Zone-redundant storage (ZRS), and 'Access tier' is Hot. A 'Review + create' button is at the bottom.

Click **"Next : Advanced >"**.



Microsoft Azure

Create storage account - Microsoft

https://portal.azure.com/#create/Microsoft.StorageAccount-ARM

Search resources, services, and docs

sivaraman.selvam@o...
DEFAULT DIRECTORY

Dashboard > Storage accounts > Create storage account

Storage accounts

+ Add Edit columns More

Filter by name...

NAME

No storage accounts to display

Create a storage account to store up to 500TB of data in the cloud. Use a general-purpose storage account to store object data, use a NoSQL data store, define and use queues for message processing, and set up file shares in the cloud. Use the Blob storage account and the hot or cool access tiers to optimize your costs based on how frequently your object data is accessed. [Learn more](#)

Create storage account

Create storage account

Basics Advanced Tags Review + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more](#)

PROJECT DETAILS

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

* Subscription Free Trial

* Resource group SansboundAzureClass

Create new

INSTANCE DETAILS

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

* Storage account name sansboundblob

* Location Central US

Performance Standard Premium

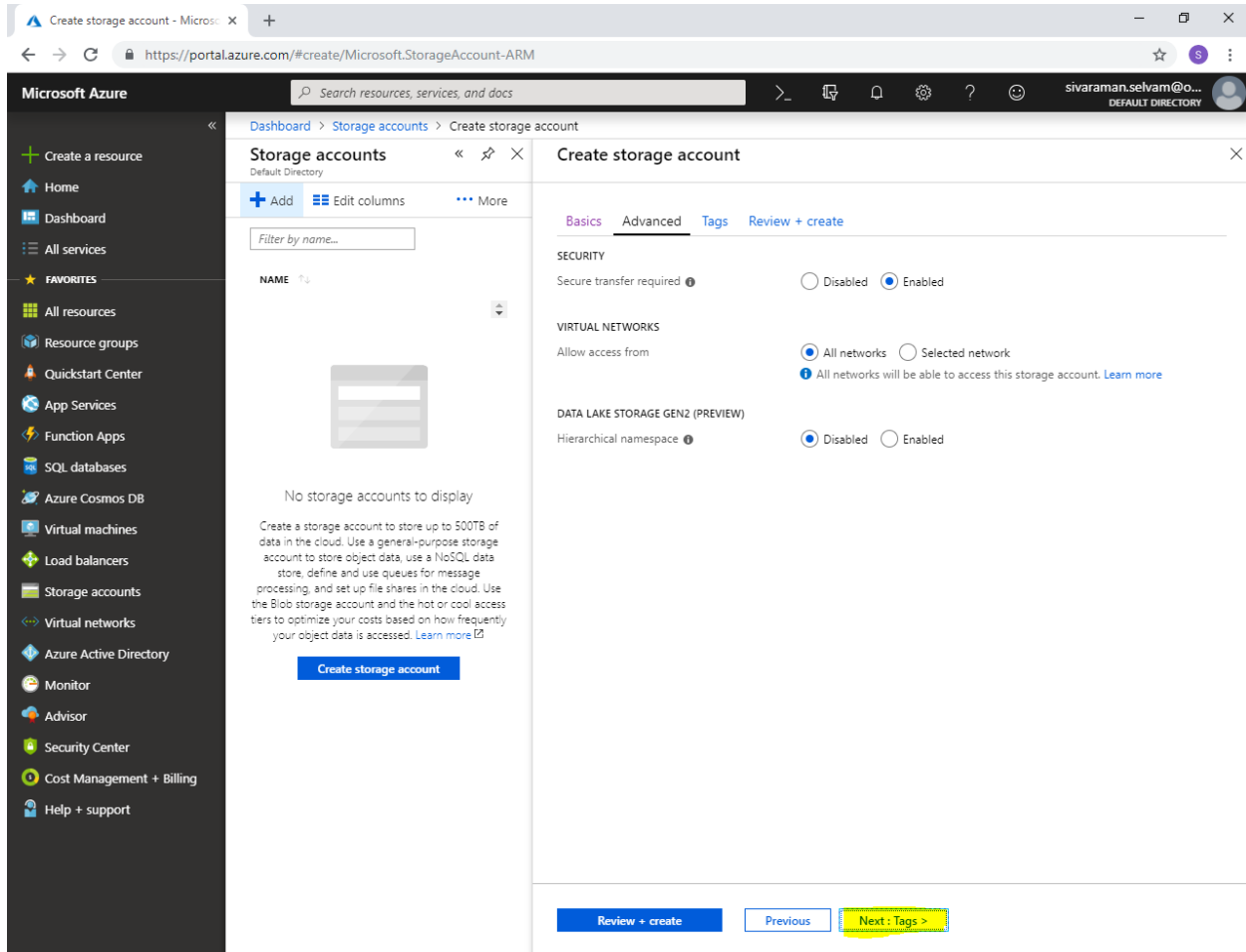
Account kind StorageV2 (general purpose v2)

Replication Zone-redundant storage (ZRS)

Access tier (default) Cool Hot

Review + create Previous Next : Advanced >

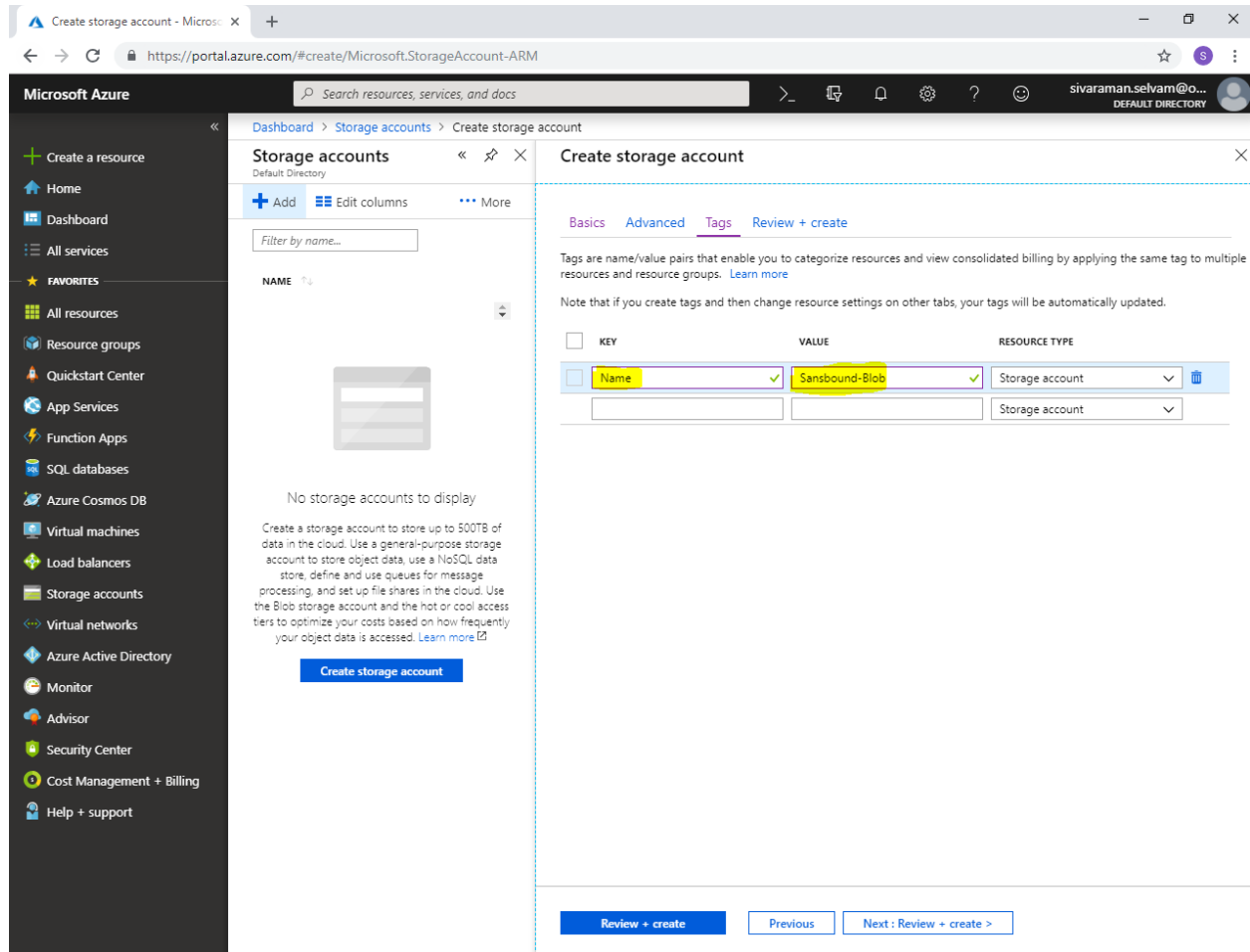
Click **“Next : Tags >”**.



The screenshot shows the Azure portal interface for creating a storage account. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main area displays the 'Create storage account' wizard with tabs for 'Basics', 'Advanced', 'Tags', and 'Review + create'. The 'Tags' tab is currently selected and highlighted in yellow. Below the tabs, there are sections for 'SECURITY', 'VIRTUAL NETWORKS', and 'DATA LAKE STORAGE GEN2 (PREVIEW)'. At the bottom of the wizard, there are three buttons: 'Review + create', 'Previous', and 'Next : Tags >'. The 'Next : Tags >' button is highlighted in yellow.

In “Tags”,

Type “KEY” as “Name” and “VALUE” as “Sansbound-Blob”.

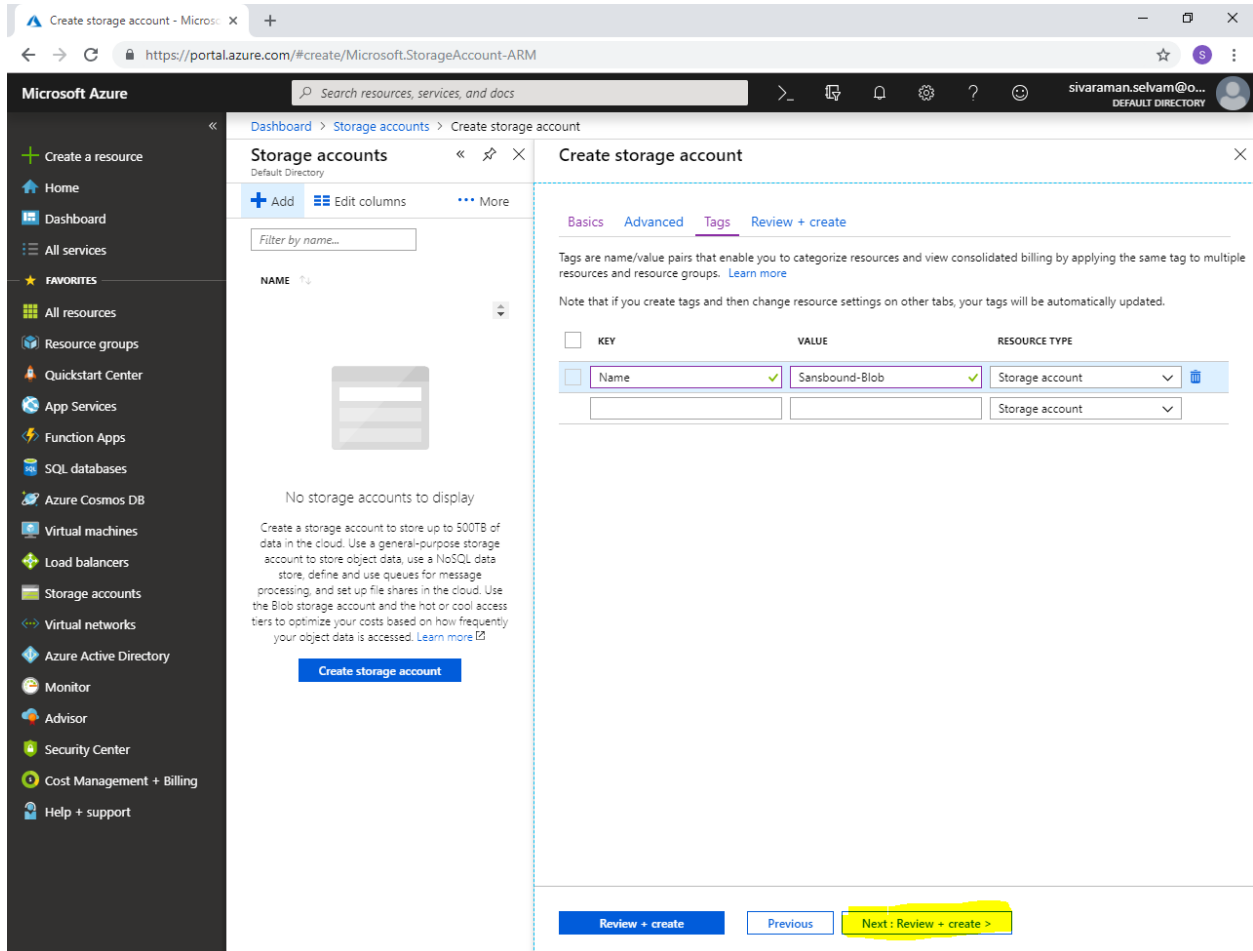


The screenshot shows the Microsoft Azure portal interface for creating a storage account. The left sidebar contains navigation links for various Azure services. The main content area is titled 'Create storage account' and has tabs for 'Basics', 'Advanced', 'Tags', and 'Review + create'. The 'Tags' tab is active, displaying a table with the following content:

KEY	VALUE	RESOURCE TYPE
Name	Sansbound-Blob	Storage account
		Storage account

Below the table, there are buttons for 'Review + create', 'Previous', and 'Next : Review + create >'. The 'Review + create' button is highlighted in blue.

Click **“Next : Review + create”**.



The screenshot shows the Azure portal interface for creating a storage account. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main area is titled 'Storage accounts' and 'Create storage account'. It shows a list of storage accounts (currently empty) and a 'Create storage account' button. The right pane displays the 'Review + create' step, which includes a summary of the account details and a 'Next : Review + create >' button highlighted in yellow.

Microsoft Azure

Search resources, services, and docs

Dashboard > Storage accounts > Create storage account

Storage accounts

Default Directory

+ Add Edit columns More

Filter by name...

NAME

No storage accounts to display

Create a storage account to store up to 500TB of data in the cloud. Use a general-purpose storage account to store object data, use a NoSQL data store, define and use queues for message processing, and set up file shares in the cloud. Use the Blob storage account and the hot or cool access tiers to optimize your costs based on how frequently your object data is accessed. [Learn more](#)

Create storage account

Basics Advanced Tags Review + create

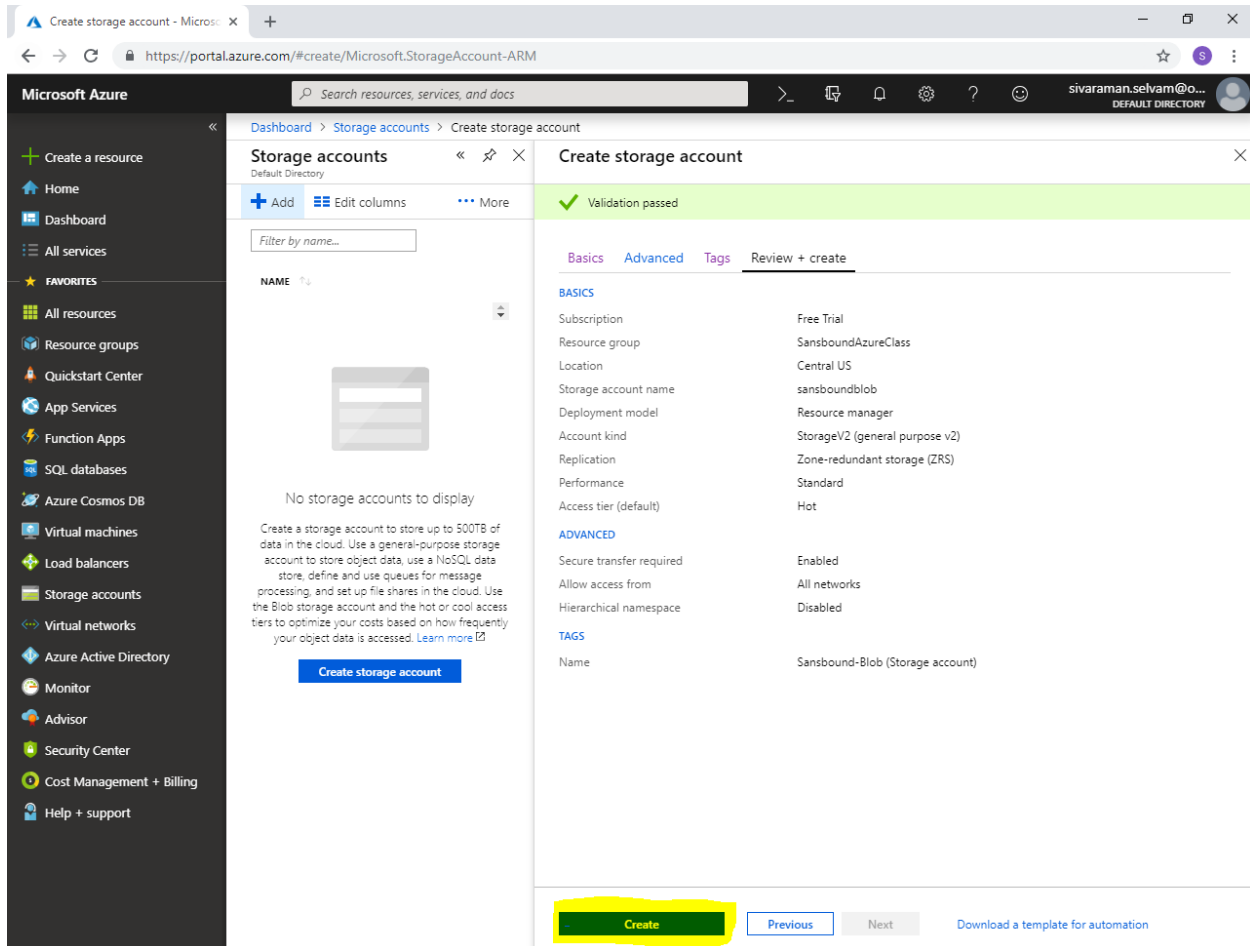
Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

KEY	VALUE	RESOURCE TYPE
Name	Sansbound-Blob	Storage account
		Storage account

Review + create Previous Next : Review + create >

Click **“Create”**.



Microsoft Azure

Search resources, services, and docs

Dashboard > Storage accounts > Create storage account

Storage accounts

Validation passed

Basics Advanced Tags Review + create

BASICS

Subscription	Free Trial
Resource group	SansboundAzureClass
Location	Central US
Storage account name	sansboundblob
Deployment model	Resource manager
Account kind	StorageV2 (general purpose v2)
Replication	Zone-redundant storage (ZRS)
Performance	Standard
Access tier (default)	Hot

ADVANCED

Secure transfer required	Enabled
Allow access from	All networks
Hierarchical namespace	Disabled

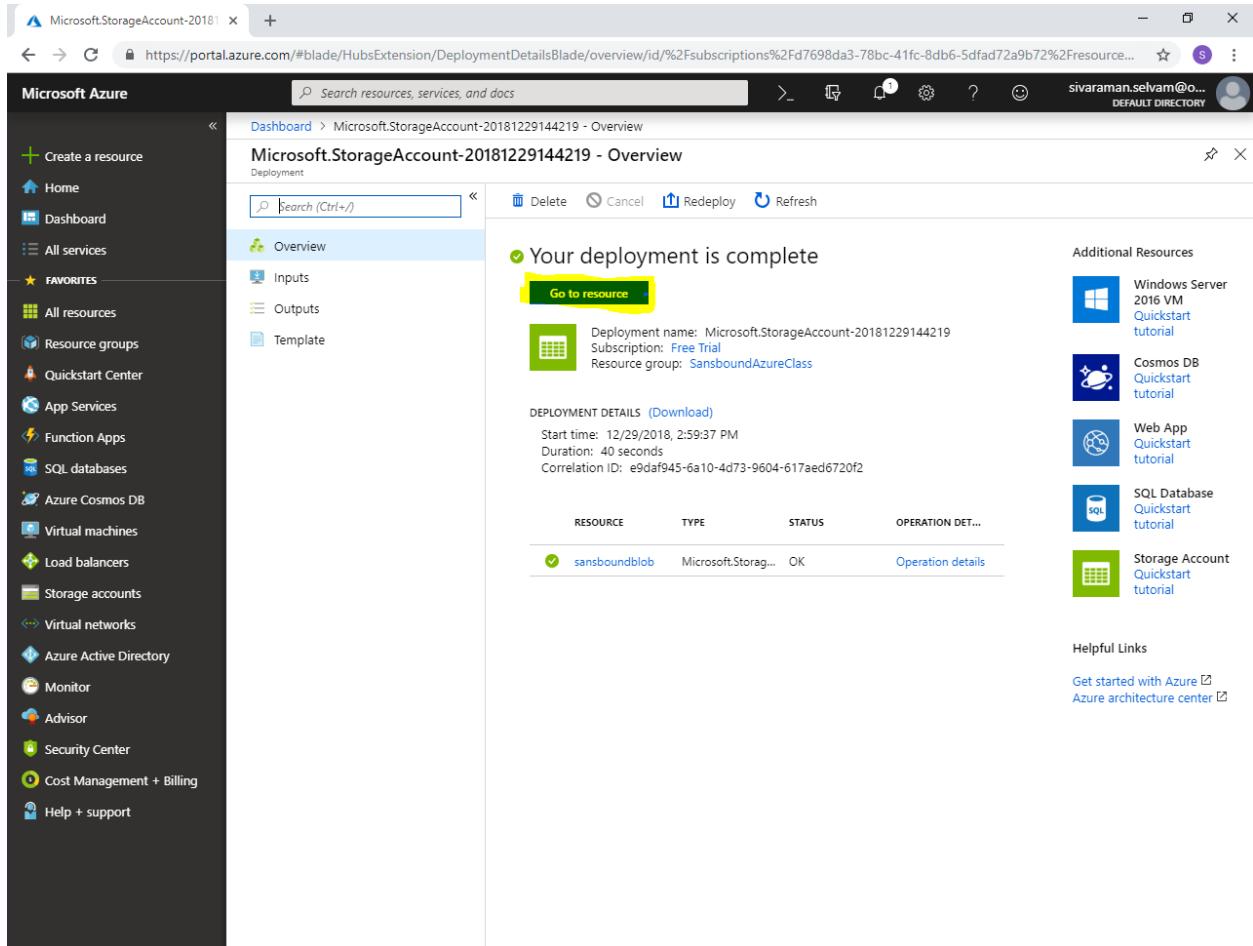
TAGS

Name	Sansbound-Blob (Storage account)
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Create storage account

Previous Next Download a template for automation

Click **“Go to resource”**.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains navigation options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area displays the 'Overview' page for a deployment named 'Microsoft.StorageAccount-20181229144219'. A green checkmark indicates 'Your deployment is complete'. A yellow box highlights the 'Go to resource' button. Below this, deployment details are shown: Start time: 12/29/2018, 2:59:37 PM; Duration: 40 seconds; Correlation ID: e9daf945-6a10-4d73-9604-617aed6720f2. A table lists the resource 'sansboundblob' with status 'OK'. On the right, 'Additional Resources' includes links to Windows Server 2016 VM, Cosmos DB, Web App, SQL Database, and Storage Account quickstart tutorials. 'Helpful Links' include 'Get started with Azure' and 'Azure architecture center'.

Microsoft Azure

Search resources, services, and docs

Dashboard > Microsoft.StorageAccount-20181229144219 - Overview

Microsoft.StorageAccount-20181229144219 - Overview

Deployment

Search (Ctrl+F)

Overview

Inputs

Outputs

Template

Delete Cancel Redeploy Refresh

✓ Your deployment is complete

Go to resource

Deployment name: Microsoft.StorageAccount-20181229144219
Subscription: Free Trial
Resource group: SansboundAzureClass

DEPLOYMENT DETAILS (Download)

Start time: 12/29/2018, 2:59:37 PM
Duration: 40 seconds
Correlation ID: e9daf945-6a10-4d73-9604-617aed6720f2

RESOURCE	TYPE	STATUS	OPERATION DET...
✓ sansboundblob	Microsoft.Storage...	OK	Operation details

Additional Resources

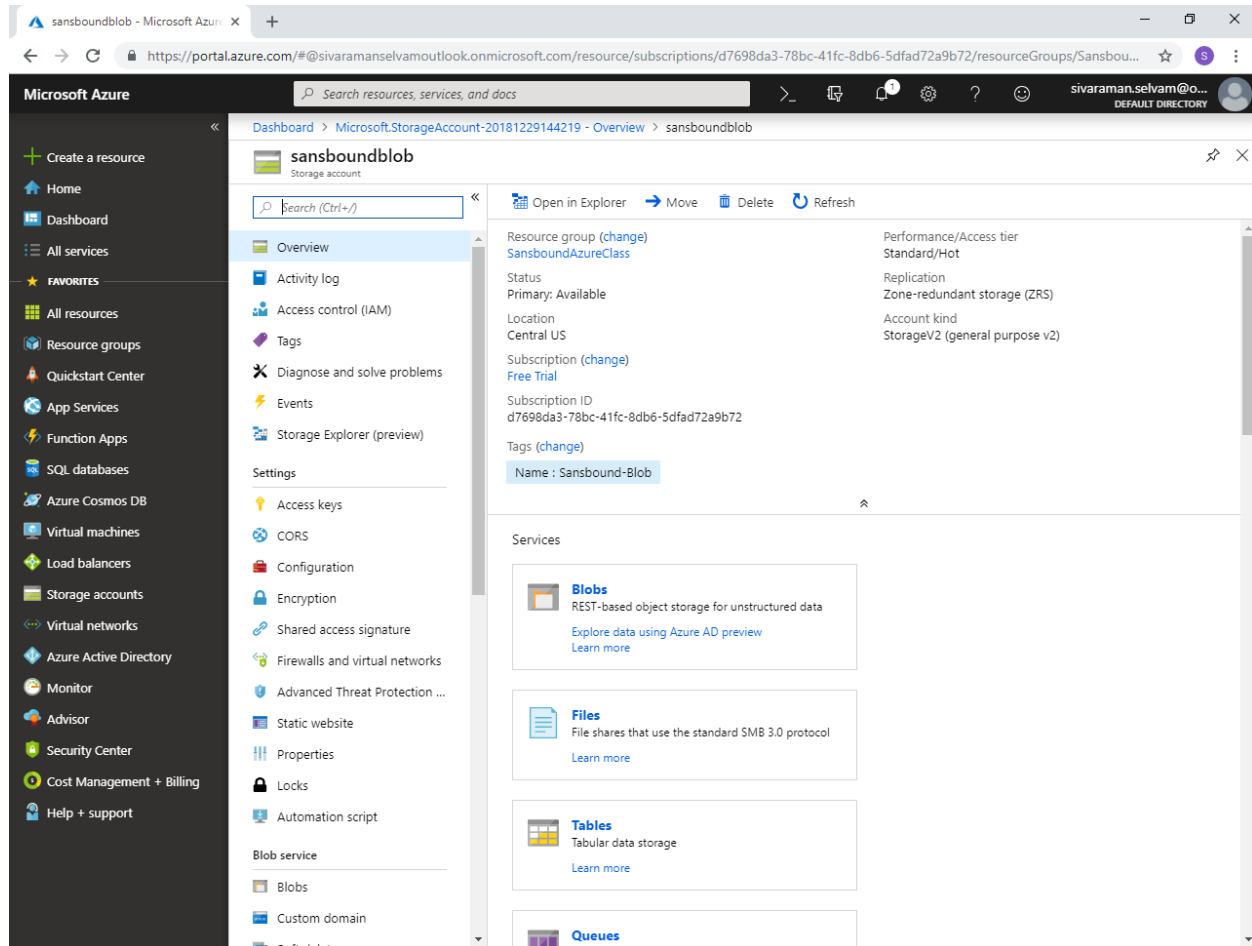
- Windows Server 2016 VM Quickstart tutorial
- Cosmos DB Quickstart tutorial
- Web App Quickstart tutorial
- SQL Database Quickstart tutorial
- Storage Account Quickstart tutorial

Helpful Links

- Get started with Azure
- Azure architecture center

In “sansboundblob” storage account, click blobs.

Then create container and upload the files into the container.



Note : Whatever the data you have stored in that container it will kept three copies in each Availability zone. If the Availability Zone – A fails, then you can able to access data from Availability Zone – B. That’s the reason we have preferred Zone-based Redundant Storage.