

Lab20 – Understanding Table Storage – Azure

Table storage

Azure Table storage is a service that stores structured NoSQL data in the cloud, providing a key/attribute store with a schemaless design. Because Table storage is schemaless, it's easy to adapt your data as the needs of your application evolve. Access to Table storage data is fast and cost-effective for many types of applications, and is typically lower in cost than traditional SQL for similar volumes of data.

You can use Table storage to store flexible datasets like user data for web applications, address books, device information, or other types of metadata your service requires. You can store any number of entities in a table, and a storage account may contain any number of tables, up to the capacity limit of the storage account.

What is Table storage

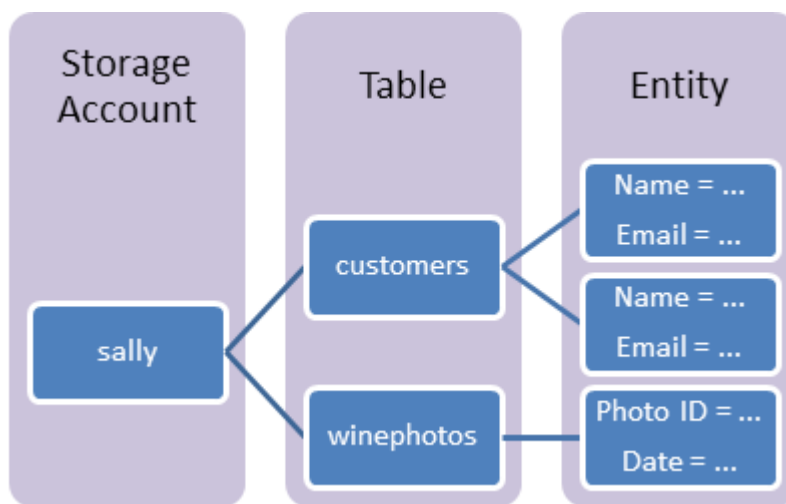
Azure Table storage stores large amounts of structured data. The service is a NoSQL datastore which accepts authenticated calls from inside and outside the Azure cloud. Azure tables are ideal for storing structured, non-relational data. Common uses of Table storage include:

- Storing TBs of structured data capable of serving web scale applications
- Storing datasets that don't require complex joins, foreign keys, or stored procedures and can be denormalized for fast access
- Quickly querying data using a clustered index
- Accessing data using the OData protocol and LINQ queries with WCF Data Service .NET Libraries

You can use Table storage to store and query huge sets of structured, non-relational data, and your tables will scale as demand increases.

Table storage concepts

Table storage contains the following components:



- **URL format:** Azure Table Storage accounts use this format: `http://<storage account>.table.core.windows.net/<table>`

Azure Cosmos DB Table API accounts use this format: `http://<storage account>.table.cosmosdb.azure.com/<table>`

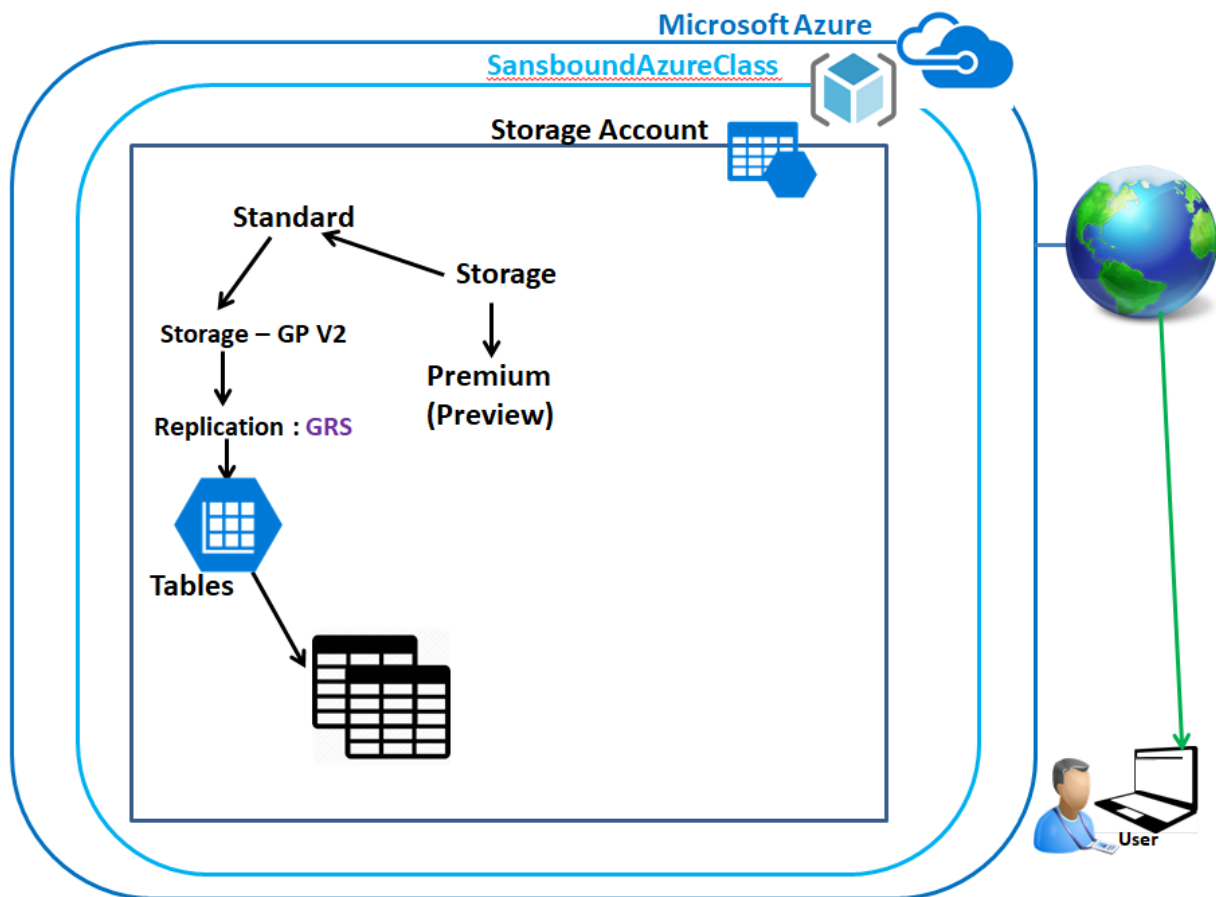
You can address Azure tables directly using this address with the OData protocol. For more information, see [OData.org](http://odata.org).

- **Accounts:** All access to Azure Storage is done through a storage account. See [Azure Storage Scalability and Performance Targets](#) for details about storage account capacity.

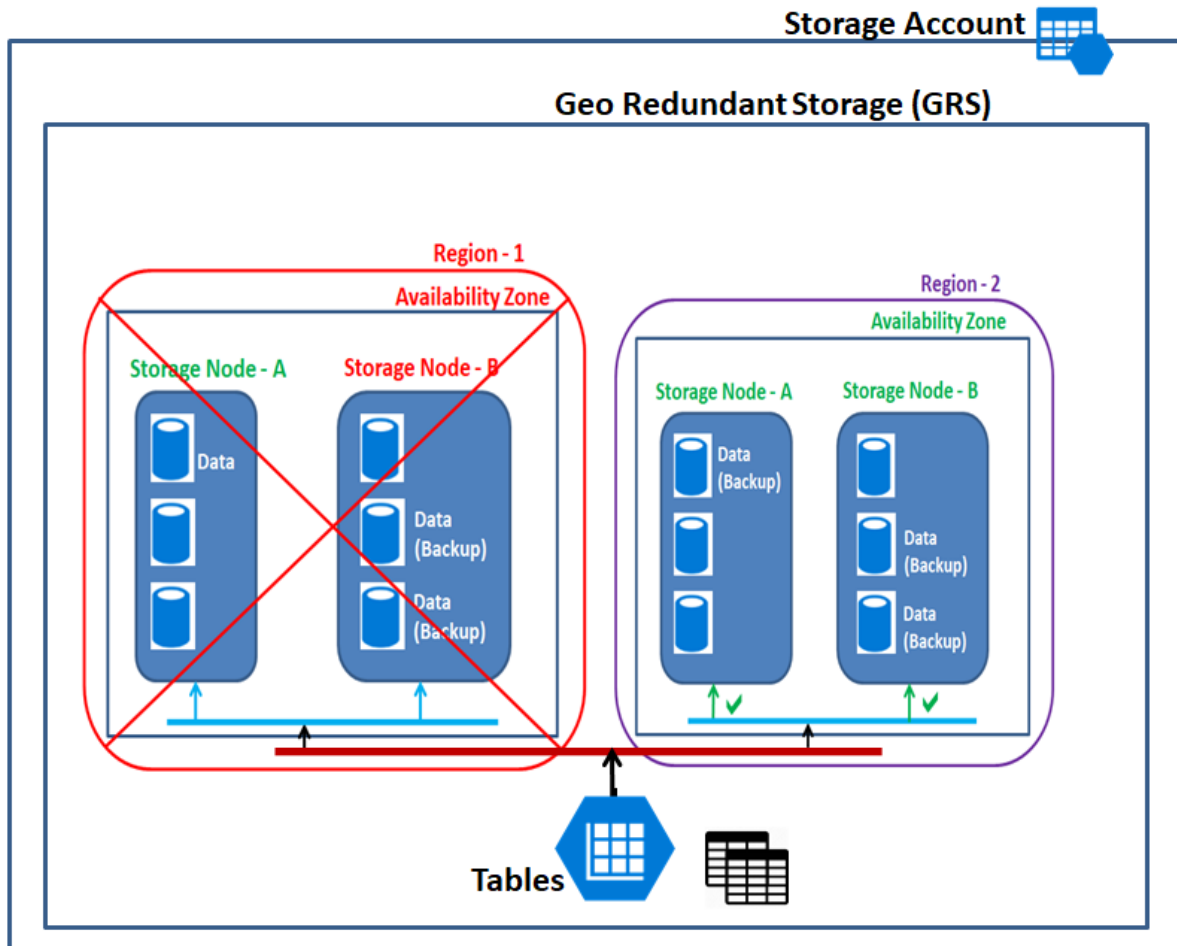
All access to Azure Cosmos DB is done through a Table API account. See [Create a Table API account](#) for details creating a Table API account.

- **Table:** A table is a collection of entities. Tables don't enforce a schema on entities, which means a single table can contain entities that have different sets of properties.
- **Entity:** An entity is a set of properties, similar to a database row. An entity in Azure Storage can be up to 1MB in size. An entity in Azure Cosmos DB can be up to 2MB in size.
- **Properties:** A property is a name-value pair. Each entity can include up to 252 properties to store data. Each entity also has three system properties that specify a partition key, a row key, and a timestamp. Entities with the same partition key can be queried more quickly, and inserted/updated in atomic operations. An entity's row key is its unique identifier within a partition.

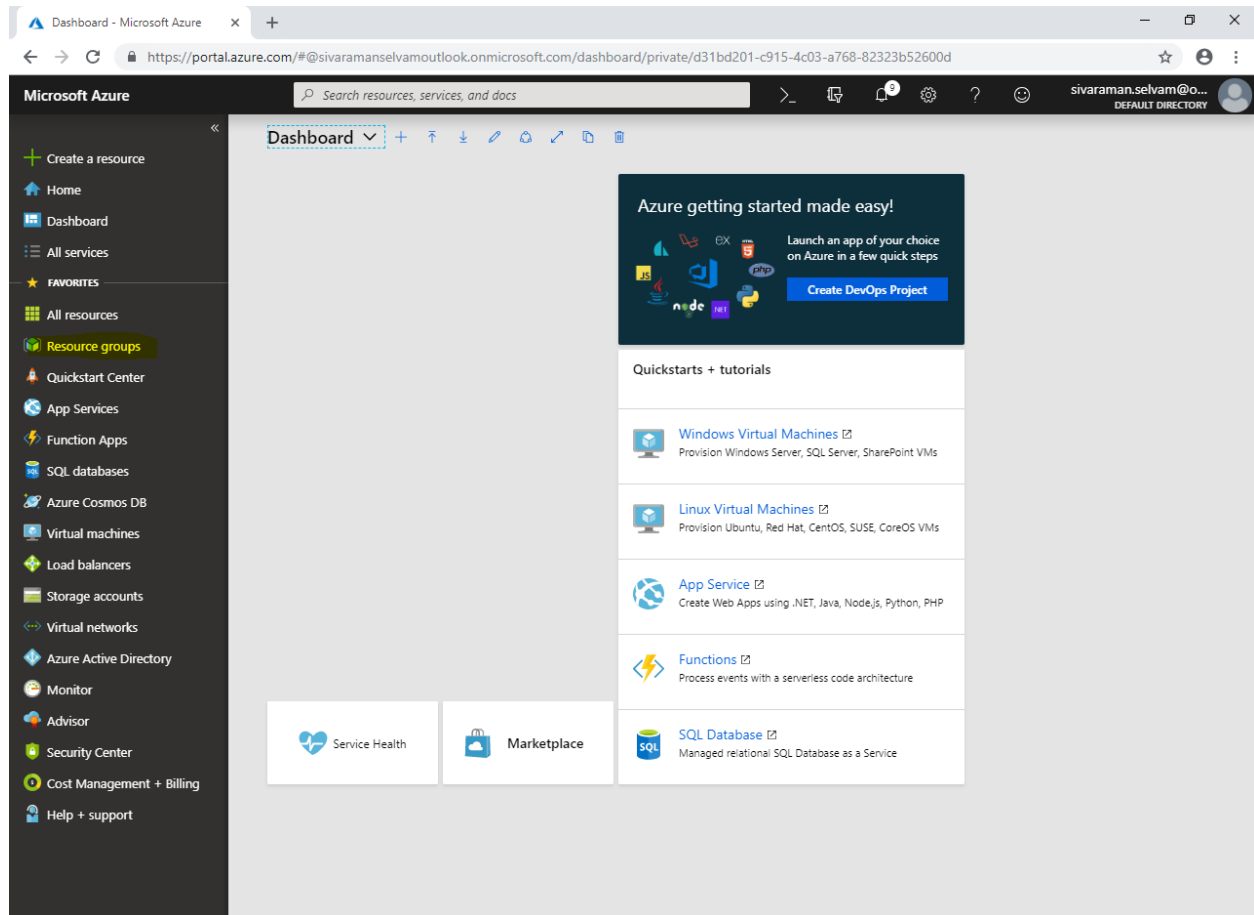
Topology:



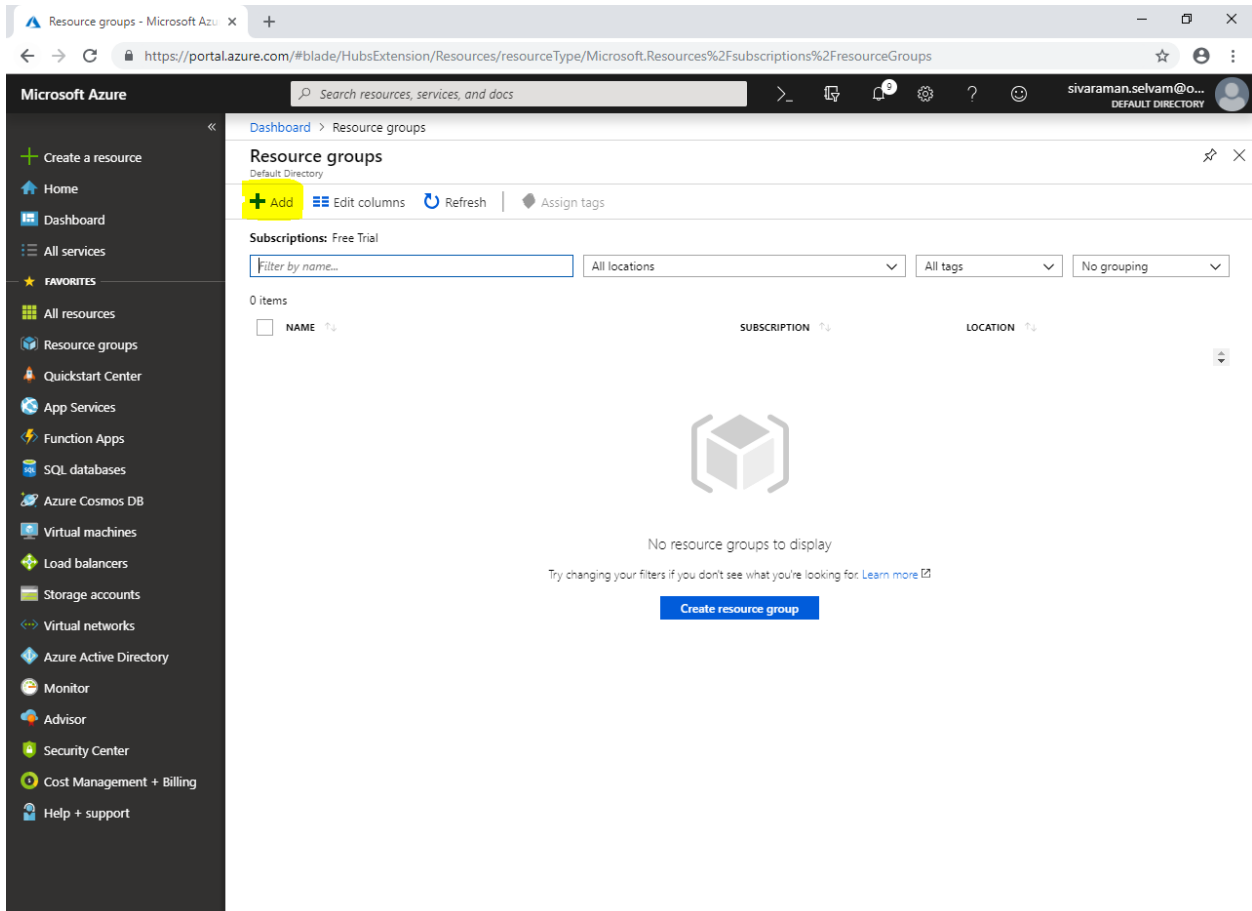
Back-End Topology:



Click **“Resource groups”**.



Click **"Add"**.



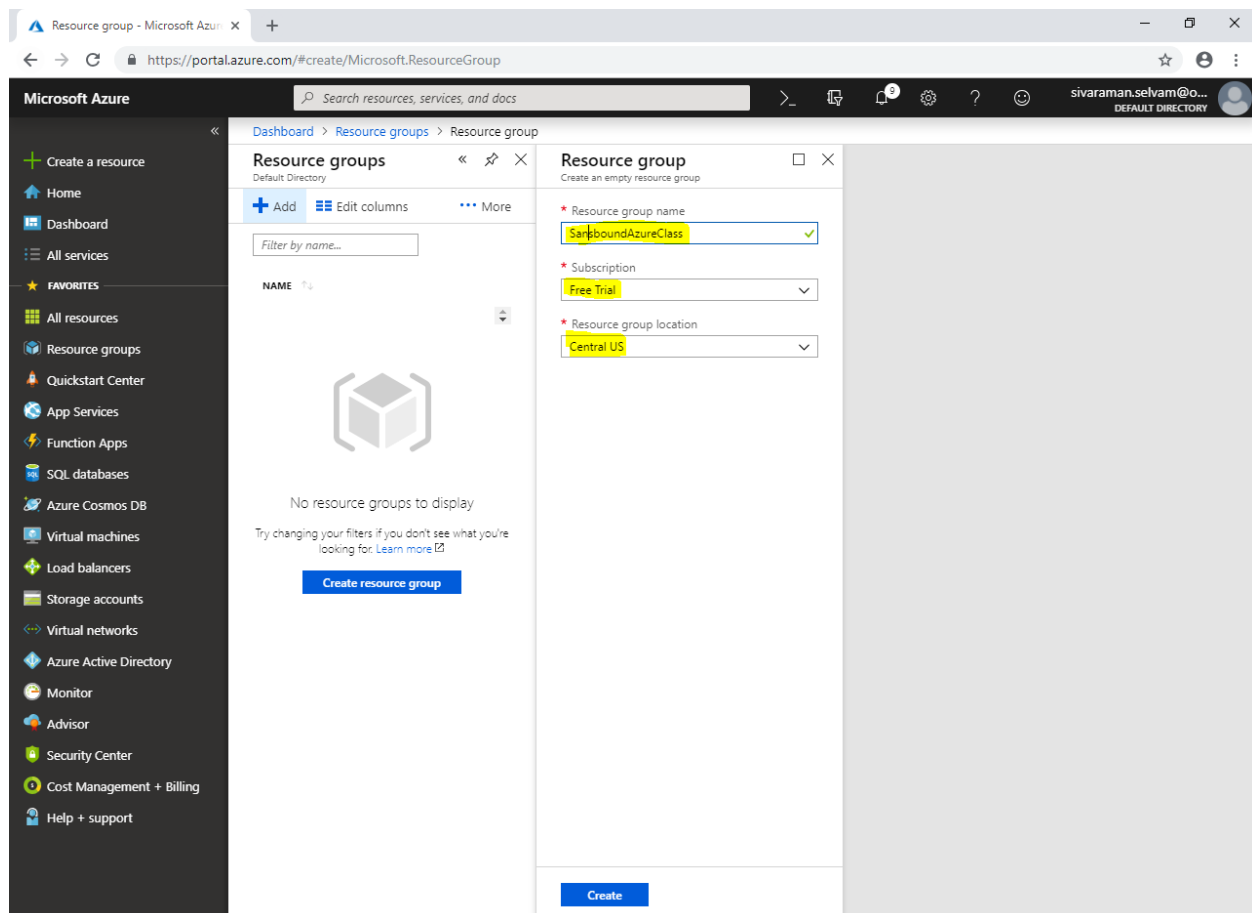
The screenshot shows the Microsoft Azure portal interface. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area is titled 'Resource groups' and shows a list of resource groups. The list is currently empty, with a message stating 'No resource groups to display' and a button to 'Create resource group'. The filters at the top show 'Subscriptions: Free Trial' and 'All locations'.

While create “Resource group”,

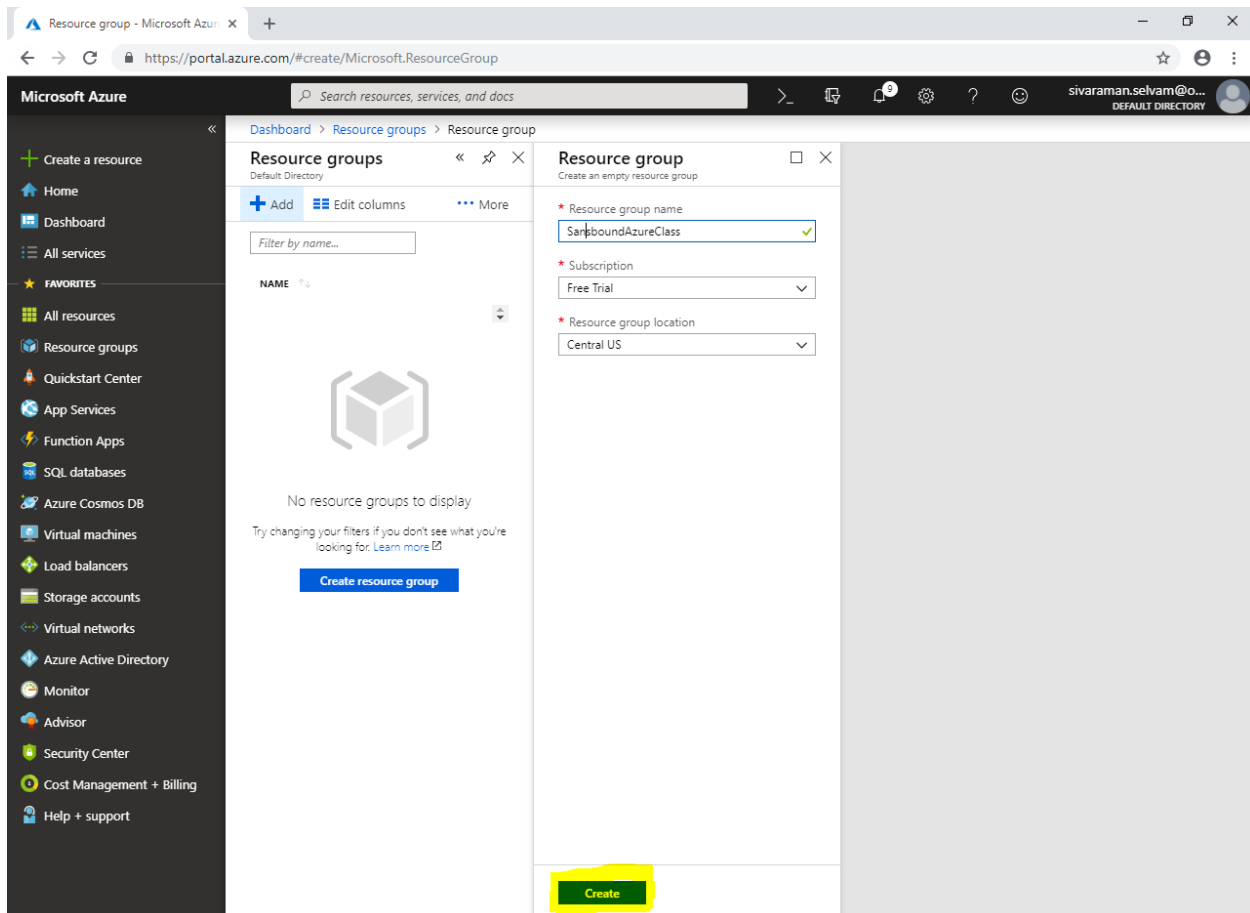
It requires “Resource group name”, type as “SansboundAzureClass”.

Select “Subscription” as “Free Trial”.

Select “Resource group location” as “Central US”.

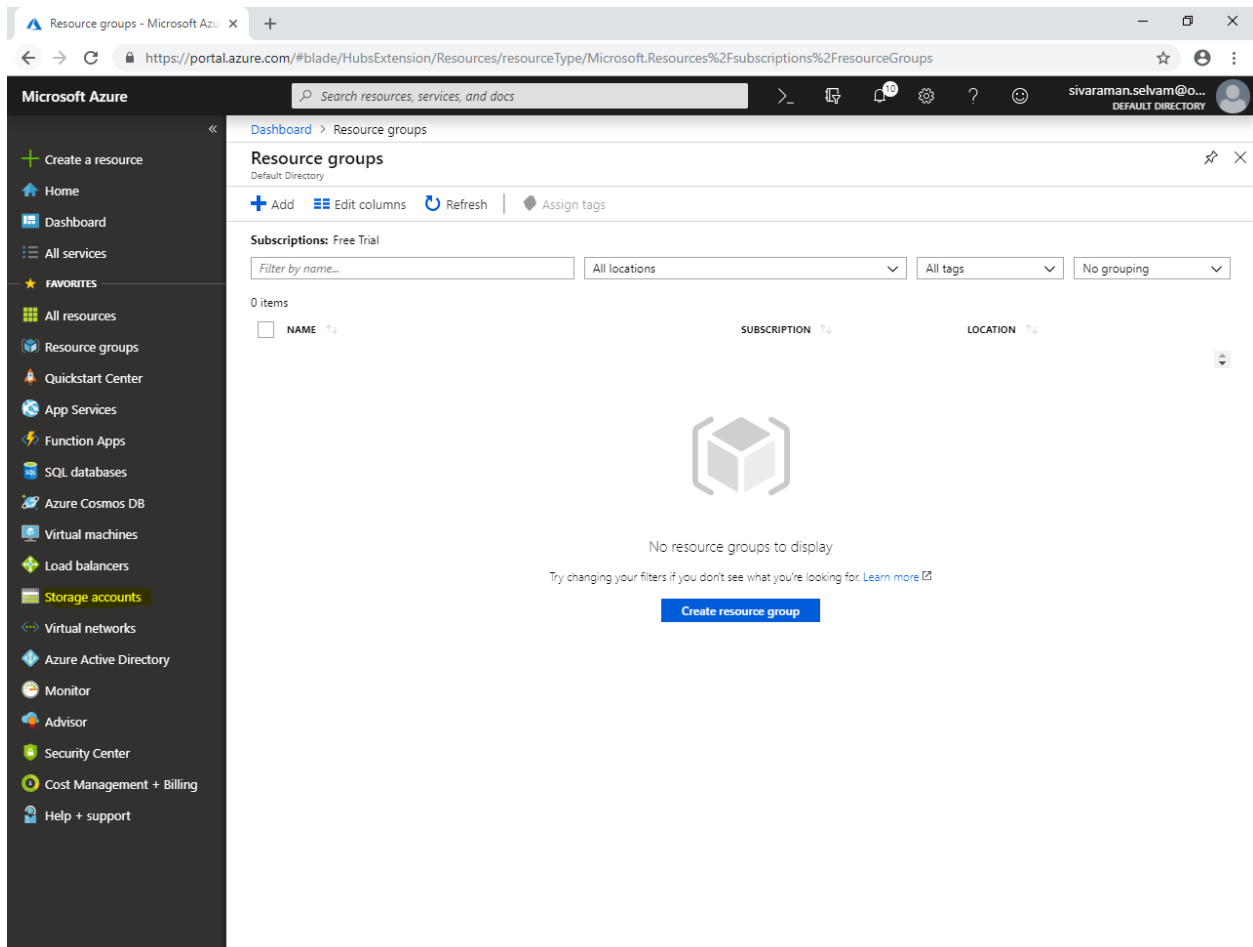


Click **“Create”**.



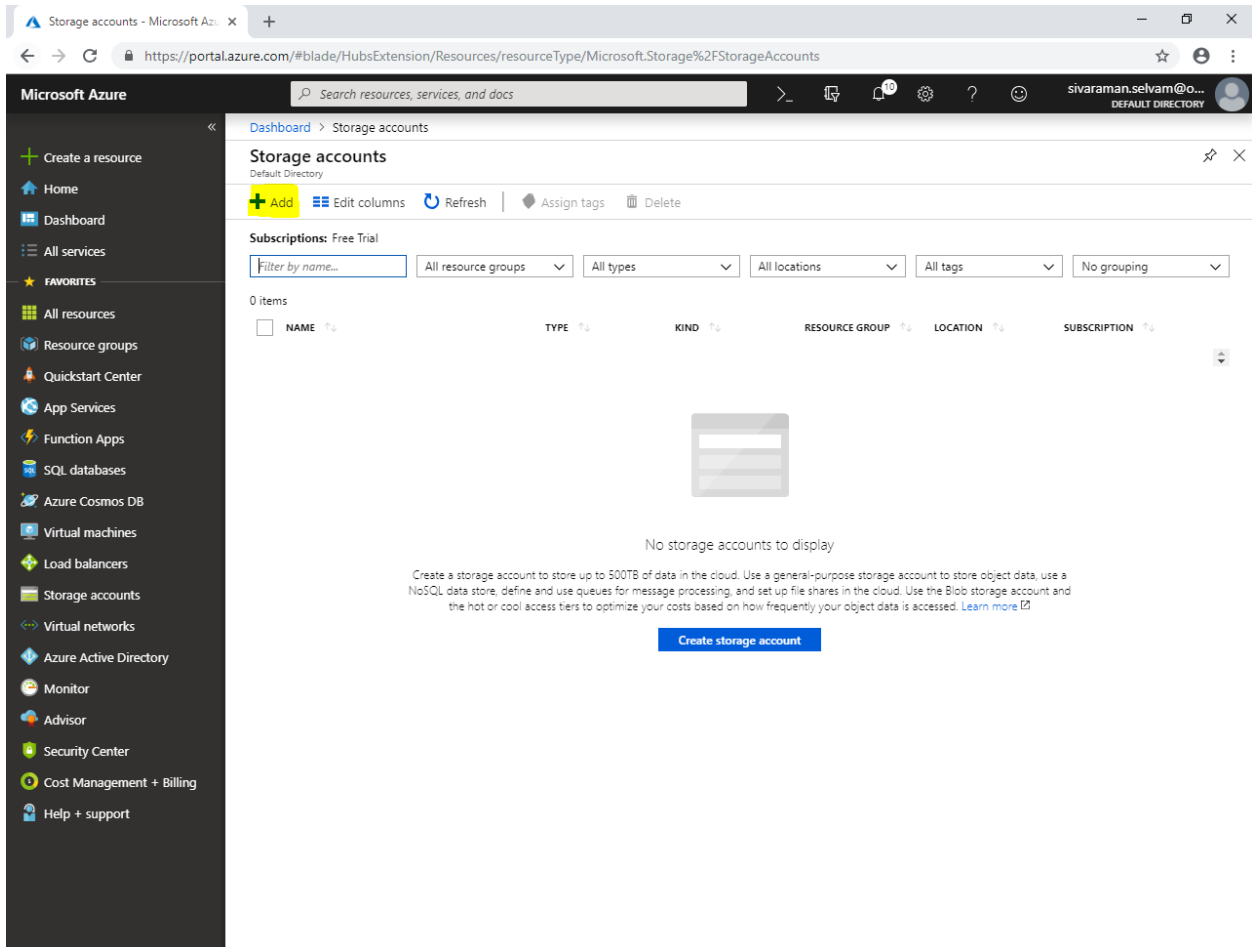
The screenshot displays the Microsoft Azure portal interface for creating a new resource group. The left-hand navigation pane includes options such as 'Create a resource', 'Home', 'Dashboard', 'All services', and a 'FAVORITES' section with various Azure services listed. The main content area is titled 'Resource groups' and shows a message: 'No resource groups to display. Try changing your filters if you don't see what you're looking for. [Learn more](#)'. A blue 'Create resource group' button is visible. On the right, a 'Resource group' creation pane is open, showing fields for 'Resource group name' (filled with 'SanboundAzureClass'), 'Subscription' (set to 'Free Trial'), and 'Resource group location' (set to 'Central US'). At the bottom of this pane, a green 'Create' button is highlighted with a yellow rectangular box.

Click **“Storage accounts”** in left side of the panel.



The screenshot shows the Microsoft Azure portal interface. On the left sidebar, under the 'FAVORITES' section, 'Storage accounts' is highlighted. The main content area is titled 'Resource groups' and shows a message: 'No resource groups to display'. Below this message is a button labeled 'Create resource group'. The interface includes a search bar at the top, a navigation pane on the left, and a top bar with the user's name 'sivaraman.selvam@o...' and the role 'DEFAULT DIRECTORY'.

Click **"Add"**.



Storage accounts - Microsoft Azure

https://portal.azure.com/#blade/HubsExtension/Resources/resourceType/Microsoft.Storage%2FStorageAccounts

Microsoft Azure

Search resources, services, and docs

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

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

Select **"Resource group"** as **"SansboundAzureClass"**.

Type **"Storage account name"** as **"sansboundstorage"**.

Select **"Location"** as **"Central US"**.

Select **"Performance"** as **"Standard"**.

Select **"Account kind"** as **"Storage V2"**.

Select **"Replication"** as **"Geo-redundant Storage (GRS)"**.

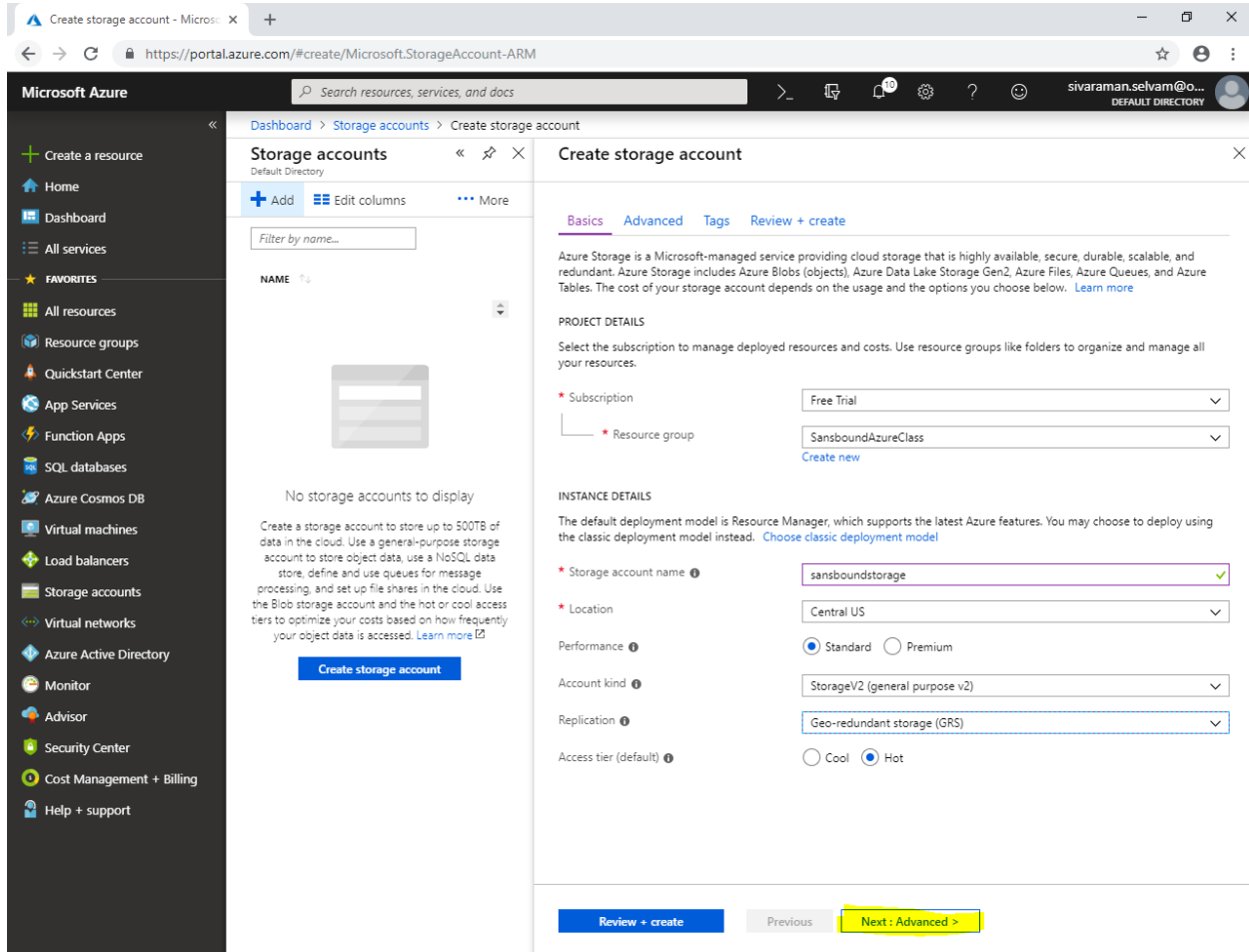
Click **"Access Tier"** as **"Hot"**.

The screenshot displays the Microsoft Azure portal interface for creating a new storage account. The left-hand navigation pane lists various Azure services, with 'Storage accounts' currently selected. The main content area is titled 'Create storage account' and features a 'Basics' tab. Under the Basics tab, the following configuration details are visible:

- Subscription:** Free Trial
- Resource group:** SansboundAzureClass
- Storage account name:** sansboundstorage
- Location:** Central US
- Performance:** Standard (selected over Premium)
- Account kind:** StorageV2 (general purpose v2)
- Replication:** Geo-redundant storage (GRS)
- Access tier (default):** Hot (selected over Cool)

At the bottom of the form, there are three buttons: 'Review + create', 'Previous', and 'Next : Advanced >'. The 'Next : Advanced >' button is highlighted in blue, indicating the next step in the wizard.

Click **“Next : Advanced >”**.



Microsoft Azure

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

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 sansboundstorage

* Location Central US

Performance Standard Premium

Account kind StorageV2 (general purpose v2)

Replication Geo-redundant storage (GRS)

Access tier (default) Cool Hot

Review + create Previous Next: Advanced >

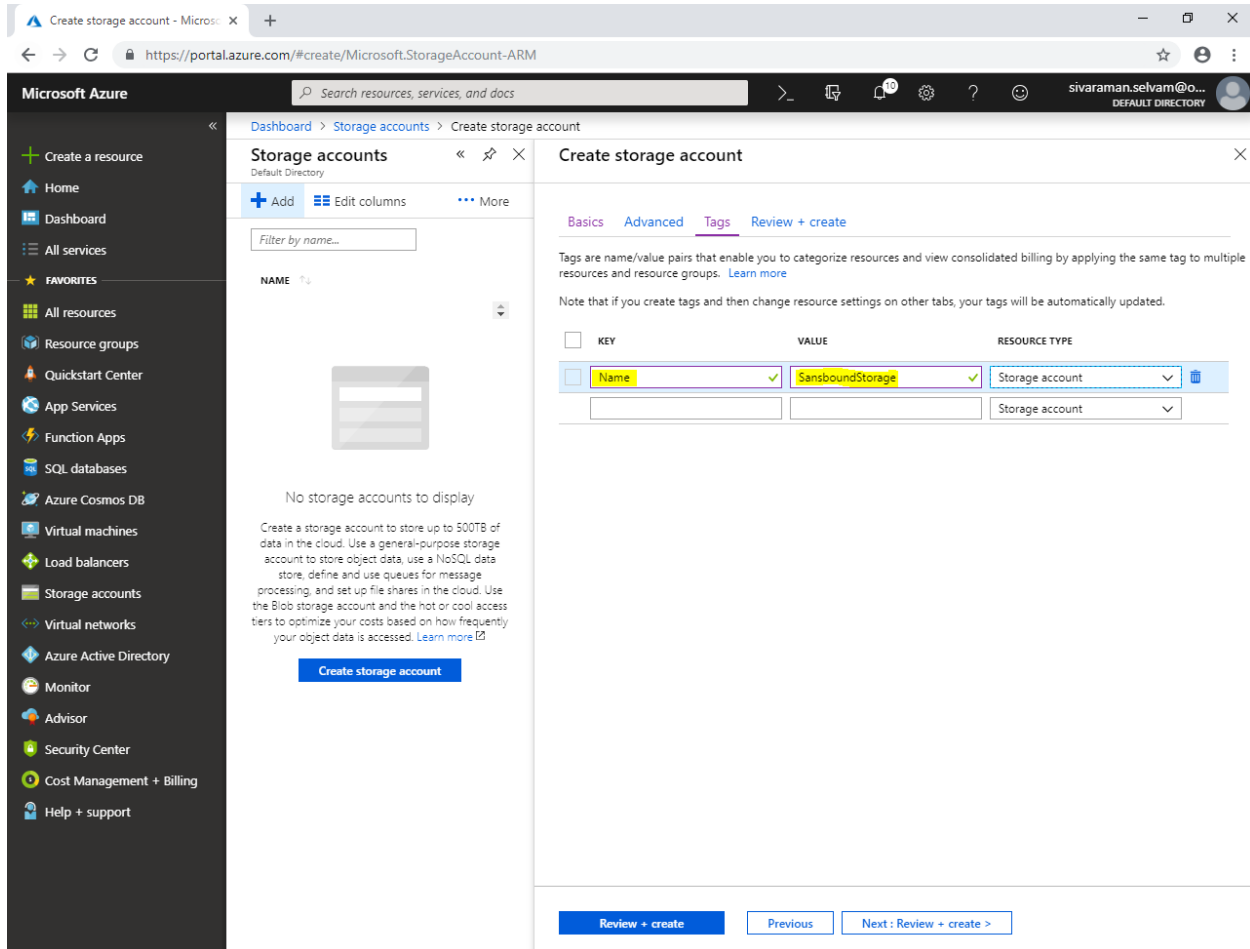
In “Advanced”

Click **"Next : Tags >"**.

The screenshot shows the Microsoft Azure portal interface. On the left is a navigation sidebar with various service categories. The main area is titled 'Storage accounts' and 'Create storage account'. The 'Create storage account' wizard is in progress, with tabs for 'Basics', 'Advanced', 'Tags', and 'Review + create'. The 'Tags' tab is currently selected. 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 with a yellow border.

In **"Tags"**.

Click “KEY” as “Name” and “VALUE” as “SansboundStorage”.



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 divided into two panes. The left pane, titled 'Storage accounts', shows a list of existing storage accounts (currently empty) and a 'Create storage account' button. The right pane, titled 'Create storage account', shows the 'Tags' tab selected. Below the tabs, there is a text box explaining that tags are name/value pairs used for categorizing resources and consolidated billing. A note states that tags will be automatically updated if resource settings are changed on other tabs. Below this, there is a table for adding tags:

KEY	VALUE	RESOURCE TYPE
<input checked="" type="checkbox"/> Name	SansboundStorage	Storage account
<input type="checkbox"/>		Storage account

At the bottom of the right pane, there are three buttons: 'Review + create' (highlighted in blue), 'Previous', and 'Next: Review + create >'.

Click “Review + create”.

Create storage account - Microsoft

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

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

Create storage account

Basics Advanced Tags Review + create

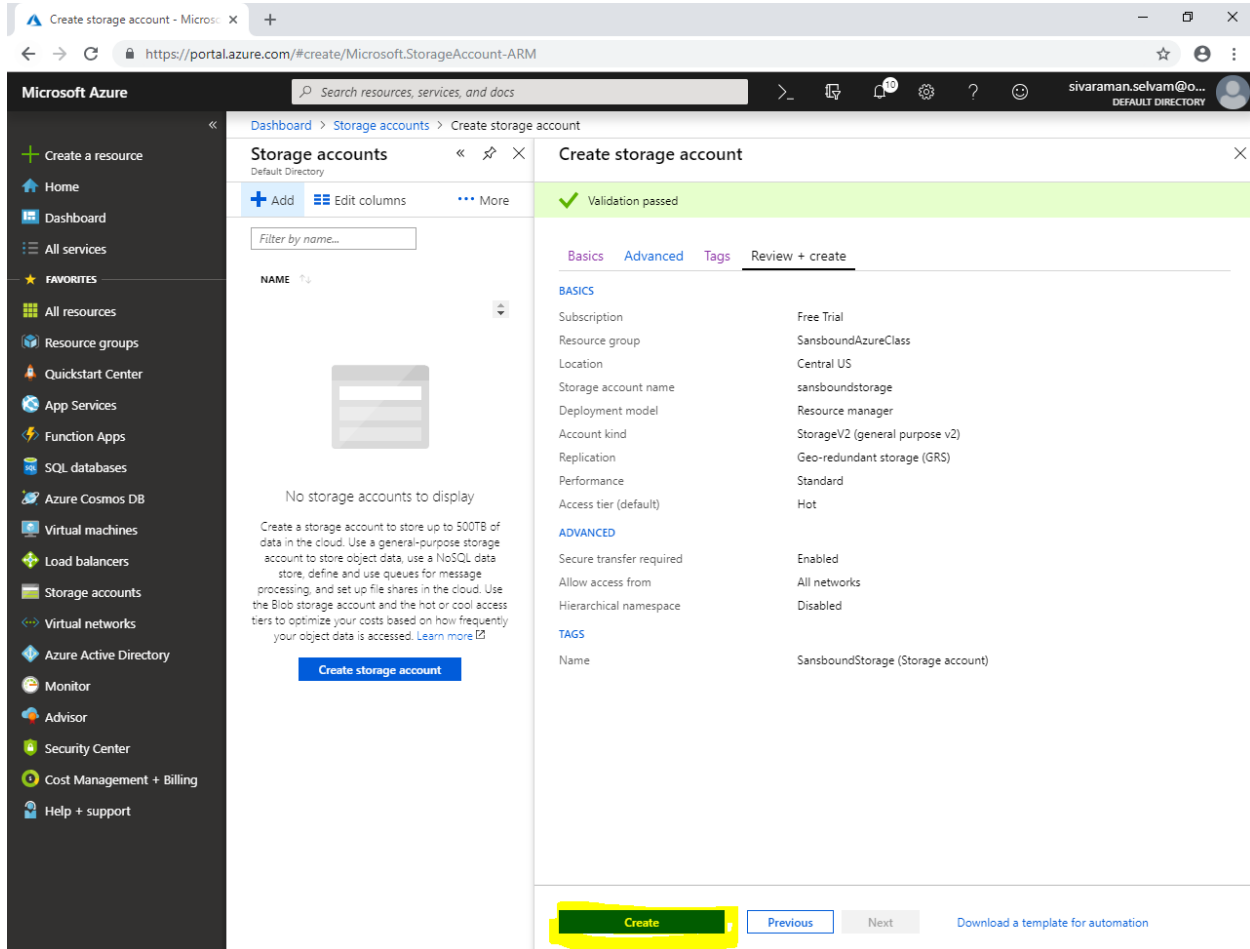
Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more](#)

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	SansboundStorage	Storage account
		Storage account

Review + create Previous Next: Review + create >

Click **Create**.



Microsoft Azure

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	sansboundstorage
Deployment model	Resource manager
Account kind	StorageV2 (general purpose v2)
Replication	Geo-redundant storage (GRS)
Performance	Standard
Access tier (default)	Hot

ADVANCED

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

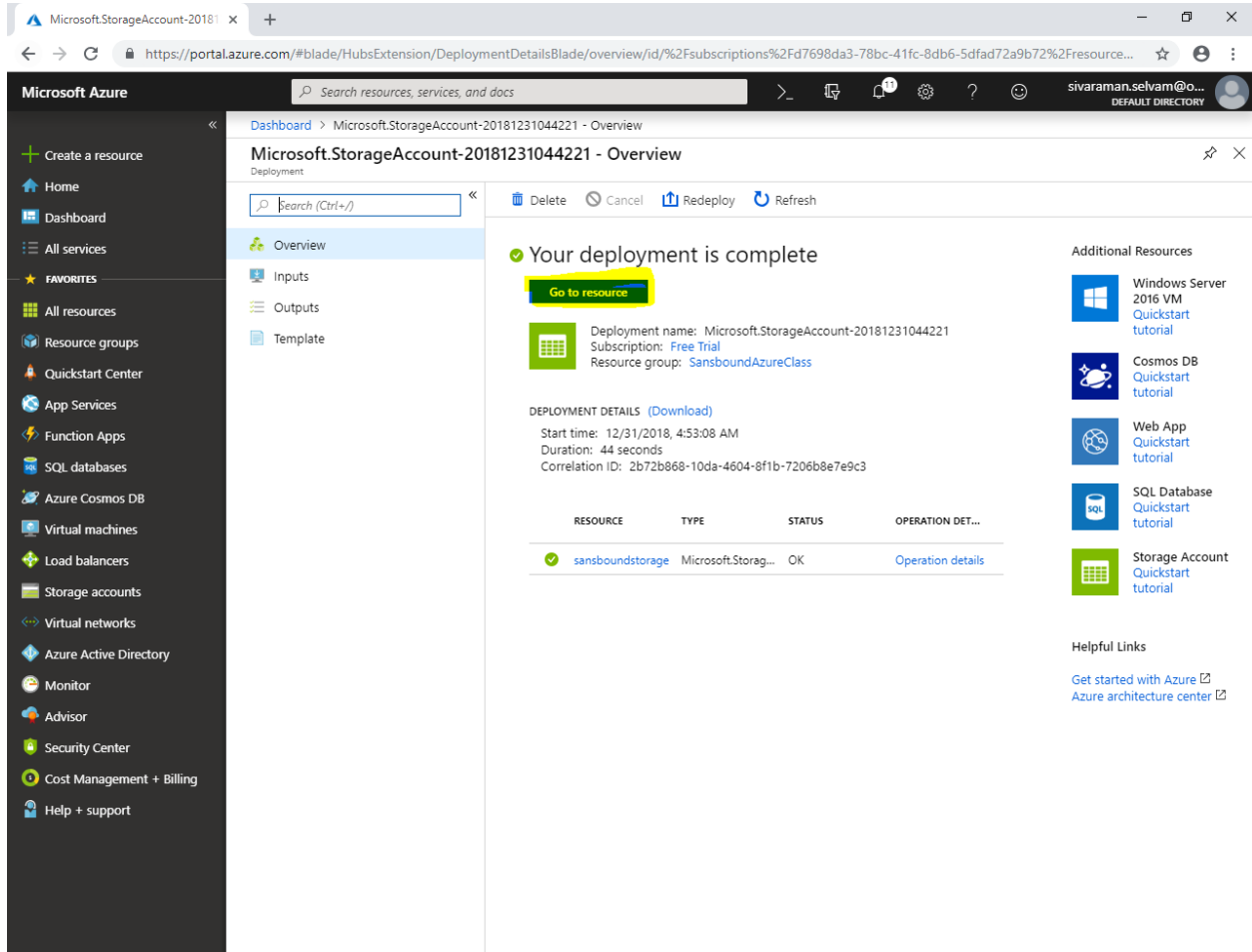
TAGS

Name	SansboundStorage (Storage account)
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Create storage account

Create 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', 'FAVORITES', 'All resources', 'Resource groups', 'Quickstart Center', 'App Services', 'Function Apps', 'SQL databases', 'Azure Cosmos DB', 'Virtual machines', 'Load balancers', 'Storage accounts', 'Virtual networks', 'Azure Active Directory', 'Monitor', 'Advisor', 'Security Center', 'Cost Management + Billing', and 'Help + support'. The main content area displays the 'Overview' page for a deployment named 'Microsoft.StorageAccount-20181231044221'. The deployment status is 'Complete', and the 'Go to resource' button is highlighted. The deployment details show a start time of 12/31/2018, 4:53:08 AM, a duration of 44 seconds, and a correlation ID. A table below lists the resource 'sansboundstorage' with a status of 'OK'. The right sidebar features 'Additional Resources' with links to 'Windows Server 2016 VM Quickstart tutorial', 'Cosmos DB Quickstart tutorial', 'Web App Quickstart tutorial', 'SQL Database Quickstart tutorial', and 'Storage Account Quickstart tutorial', along with 'Helpful Links' to 'Get started with Azure' and 'Azure architecture center'.

Microsoft Azure

Search resources, services, and docs

Dashboard > Microsoft.StorageAccount-20181231044221 - Overview

Microsoft.StorageAccount-20181231044221 - Overview

Deployment

Search (Ctrl+/)

Overview

Inputs

Outputs

Template

Delete Cancel Redeploy Refresh

✓ Your deployment is complete

Go to resource

Deployment name: Microsoft.StorageAccount-20181231044221
Subscription: Free Trial
Resource group: SansboundAzureClass

DEPLOYMENT DETAILS (Download)

Start time: 12/31/2018, 4:53:08 AM
Duration: 44 seconds
Correlation ID: 2b72b868-10da-4604-8f1b-7206b8e7e9c3

RESOURCE	TYPE	STATUS	OPERATION DET...
✓ sansboundstorage	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

Click **"Tables"**.

The screenshot displays the Microsoft Azure portal interface. The top navigation bar shows the user's profile as 'sivaraman.selvam@o...' and the current page as 'Dashboard > Microsoft.StorageAccount-20181231044221 - Overview > sansboundstorage'. The left sidebar contains a navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area is titled 'sansboundstorage' and shows the 'Overview' tab selected. It displays various properties of the storage account, including its resource group, status, location, subscription ID, and tags. Below the properties, there is a 'Services' section listing 'Blobs', 'Files', 'Tables', and 'Queues' with brief descriptions and links to learn more.

Microsoft Azure

Search resources, services, and docs

Dashboard > Microsoft.StorageAccount-20181231044221 - Overview > sansboundstorage

sansboundstorage
Storage account

Search (Ctrl+/)

Open in Explorer Move Delete Refresh

Resource group (change)
[SansboundAzureClass](#)

Status
Primary: Available, Secondary: Available

Location
Central US, East US 2

Subscription (change)
[Free Trial](#)

Subscription ID
d7698da3-78bc-41fc-8db6-5dfad72a9b72

Tags (change)
Name : SansboundStorage

Performance/Access tier
Standard/Hot

Replication
Geo-redundant storage (GRS)

Account kind
StorageV2 (general purpose v2)

Services

Blobs
REST-based object storage for unstructured data
[Explore data using Azure AD preview](#)
[Learn more](#)

Files
File shares that use the standard SMB 3.0 protocol
[Learn more](#)

Tables
Tabular data storage
[Learn more](#)

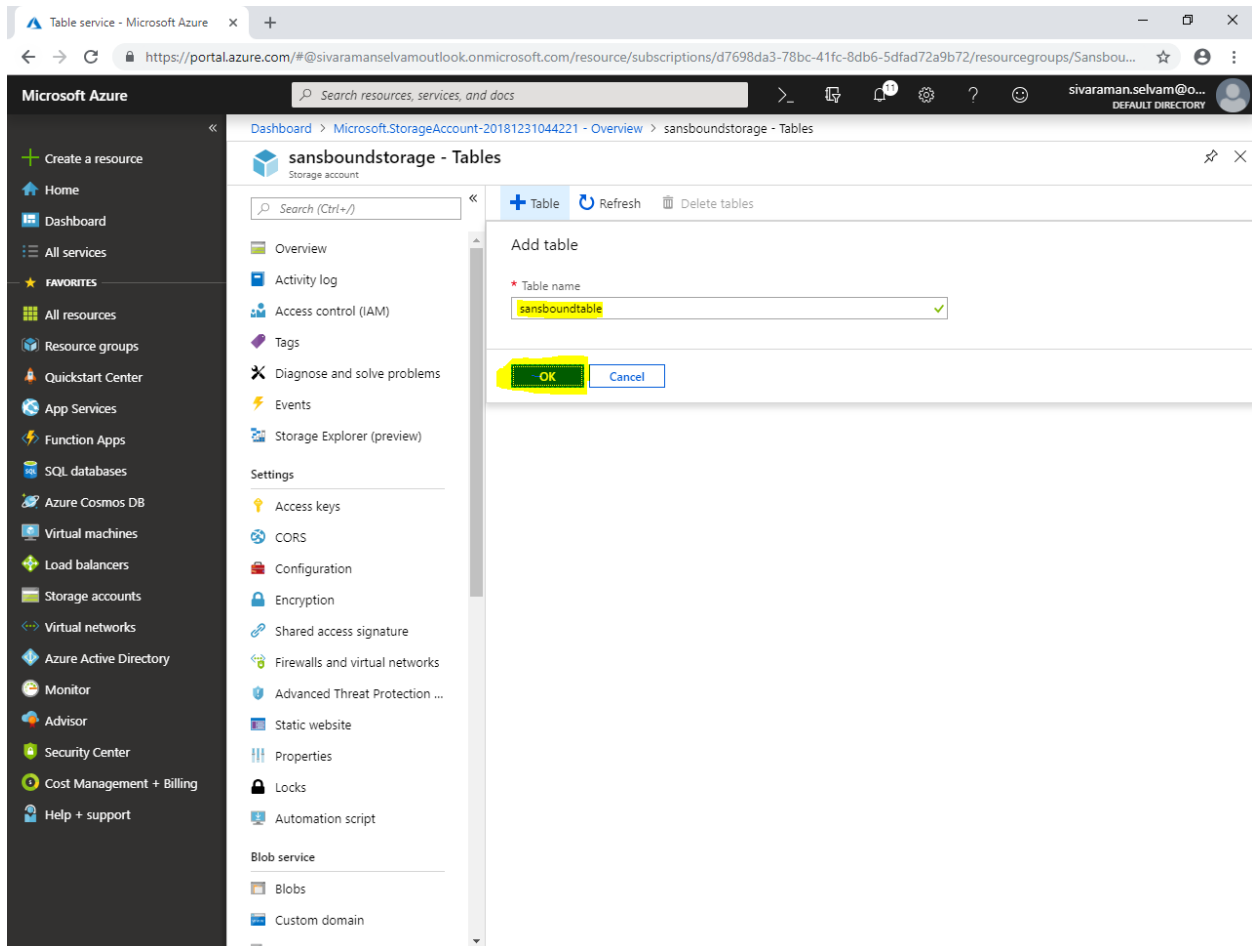
Queues

Click **"Table"**.

The screenshot shows the Microsoft Azure portal interface. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area is titled 'sansboundstorage - Tables' and shows a search bar, a '+ Table' button, and a 'Refresh' button. Below this, there is a message: 'Check out premium Table experience with Azure Cosmos DB →'. The storage account name 'sansboundstorage' is displayed. A search bar for tables is present, and a table with columns 'TABLE' and 'URL' is shown, but it is empty with the message 'You don't have any tables yet.'

While add table, type “Table name” as “**sansboundtable**”.

Click “**OK**”.



You can apply policy for this tables, we will see it later.

The screenshot shows the Microsoft Azure portal interface. The left sidebar contains the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'. The main content area is titled 'sansboundstorage - Tables' and shows a list of tables. A table named 'sansboundtable' is listed with its URL. The interface includes a search bar, a 'Check out premium Table experience with Azure Cosmos DB' link, and a table with columns 'TABLE' and 'URL'.

TABLE	URL
<input checked="" type="checkbox"/> sansboundtable	https://sansboundstorage.table.core.windows.net/sansboun...