

Capgemini



Azure MASTER CLASS PARTICIPANT GUIDE

Online Retail Application



Document Revision History

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12-FEB-2021	1.0	Nachiket I	Draft Version created for BU Approval
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21-APR-2021	2.0	Nachiket I	Approved by BU SME Ahmed Shaikh, Kasam kasam.ahmed-shaikh@capgemini.com)

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Introduction

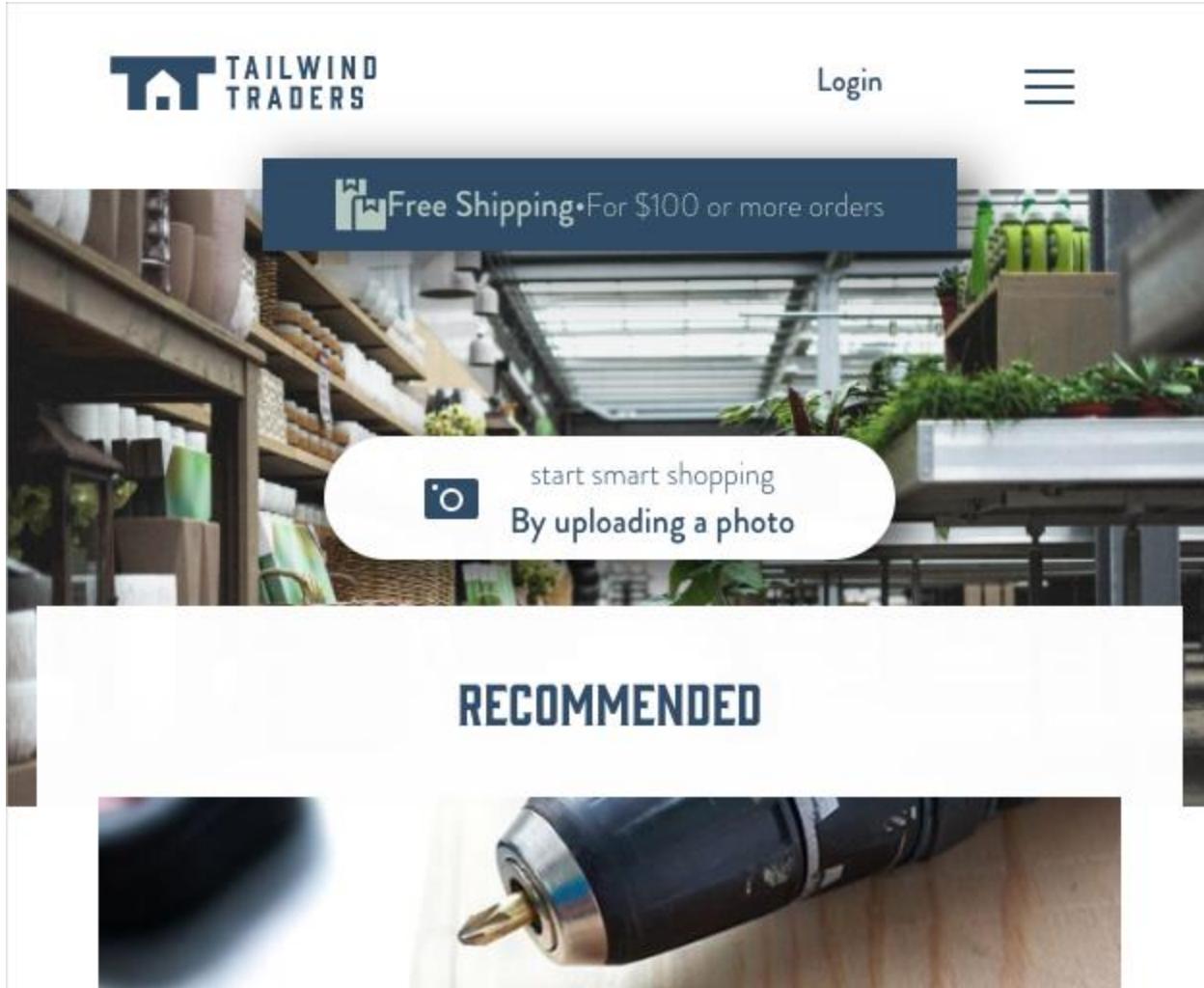
This workshop introduces you to the Microsoft Azure (cloud computing platform from Microsoft) by walking you through a case study. This case study will acquaint you with various Microsoft Azure services. It would be great if you already have Microsoft Azure subscription. In case you don't have Microsoft Azure subscription, you can sign up for a free trial subscription.

By the end of this class you will be able to do the following:

- Create a Microsoft Azure Account
- Navigate through Azure portal and understand how to create resources using Azure portal
- Create, edit, and clone a custom Azure dashboard
- Create a Resource Group, tag resources, apply resource policy and use locks
- Install SQL Server, create a SQL Server database, connect to, and retrieve data from a SQL server database
- Create a Storage Account and Use BLOB Storage to Store and Retrieve Images
- Use Application Insights to Monitor the Web Application Performance
- Use Azure Monitor to Monitor the Health of Azure Resources
- Use Azure Service Health to get Notifications about Planned Maintenance of Azure Resources

Retail Application Walkthrough

Tailwind Traders is a home improvement retailer. It operates retail hardware stores across the globe and online.



Tailwind Traders currently manages an on-premises datacenter that hosts the company's retail website. The datacenter also stores all the data and streaming video for its applications. The IT department is currently responsible for all the management tasks for its computing hardware and software. For example, let's suppose that you work as an IT specialist for the company's IT department. Your IT team handles the procurement process to buy new hardware, installs and configures software, and deploys everything throughout the datacenter.

These management responsibilities create some obstacles for delivering your applications to your users in a timely fashion. As an IT pro, you realize it would be advantageous to have servers, storage, databases, and other services immediately available when you develop and deploy applications. You want to easily start a new server or add services to your solutions.

The services that are available through Microsoft Azure can help Tailwind Traders conduct its business more efficiently.

We'll analyze the challenges that Tailwind Traders is facing. You'll see how you can use Microsoft Azure services to address each of the issues as they arise. After you've completed each of the modules, the

knowledge that you gained from resolving the challenges that the Tailwind Traders company encountered should benefit you in your real-world environments.

Create Microsoft Azure Account

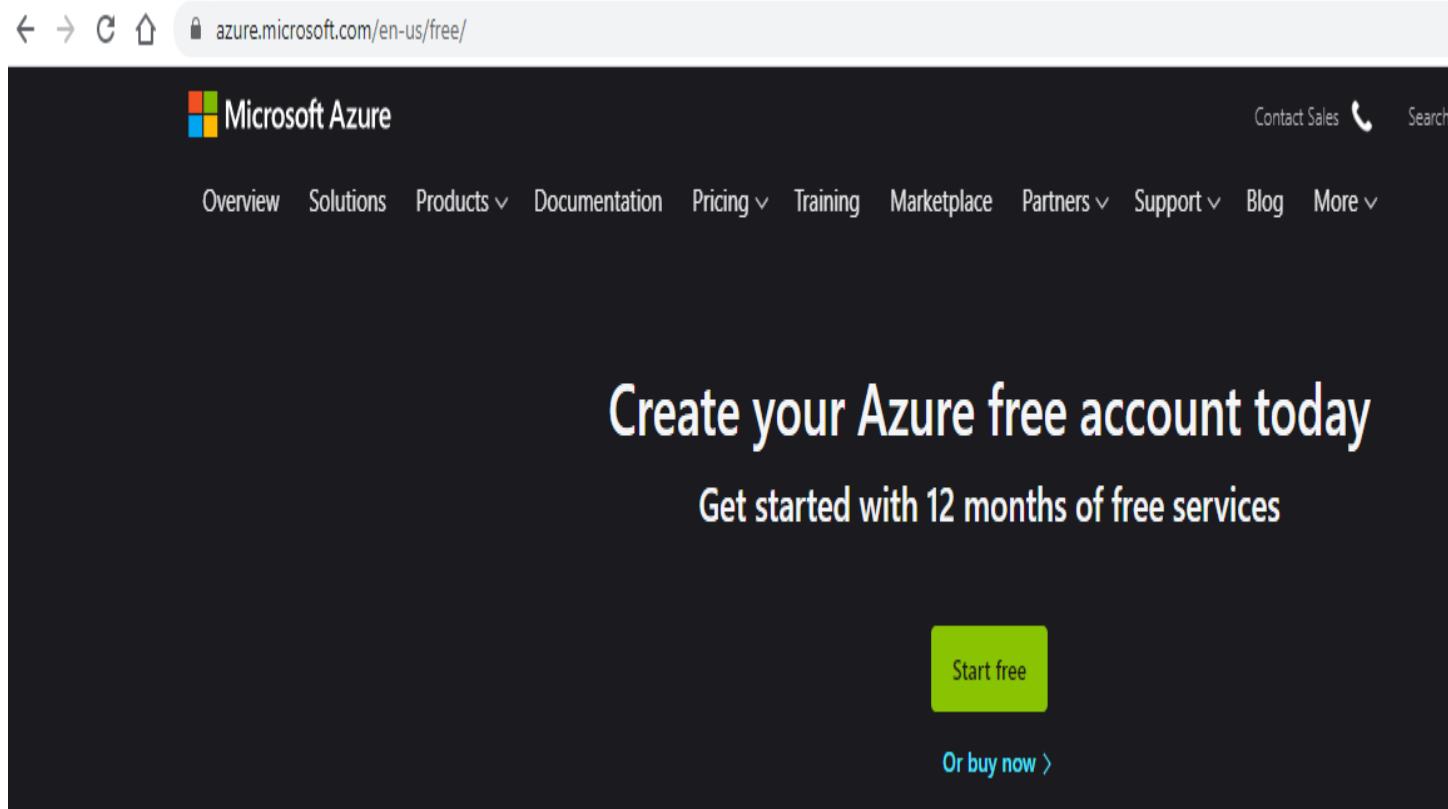
Estimated Time : 15 mins

Please follow these steps only if you do not have Microsoft Azure account.

Please use your Capgemini Email ID while creating this account so that you are not prompted for entering your credit card details.

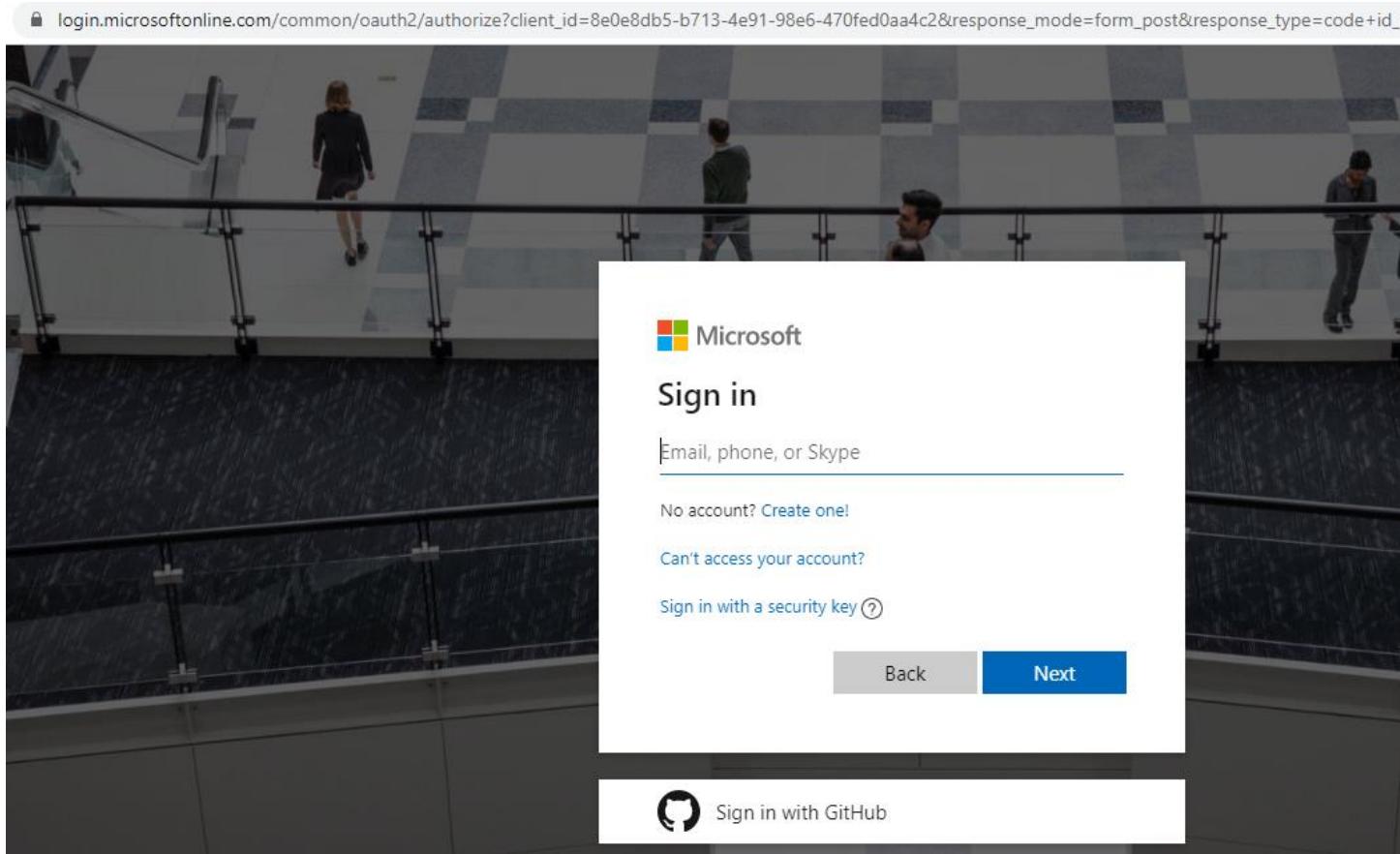
Sign up for a free account

- 1) In a web browser, go to <https://azure.microsoft.com/free>.



The screenshot shows the Microsoft Azure website with a dark theme. At the top, there is a navigation bar with links for Overview, Solutions, Products, Documentation, Pricing, Training, Marketplace, Partners, Support, Blog, and More. On the right side of the header, there are Contact Sales and Search icons. The main content area features a large call-to-action button with the text "Start free". Below this button, there is a link "Or buy now >". The background has a large, faint watermark-like text "Create your Azure free account today" and "Get started with 12 months of free services".

- 2) Scroll down through the page to learn more about the benefits and free services available.
- 3) Select Start free.
- 4) Key in your Capgemini email ID and click Next.



5) Follow the instructions that come up and complete the sign-up process.

Congratulations! You have successfully set up a free account and should be on the Azure portal home page.

Task 01: Navigate through Azure Portal

Estimated Time : 90 mins

Task : In this task you will navigate through Azure portal and understand how to find various Azure services.

Learnings:

- Accessing Azure Services, Settings, Help
- Viewing Azure Notifications
- Using Azure Portal Search Box

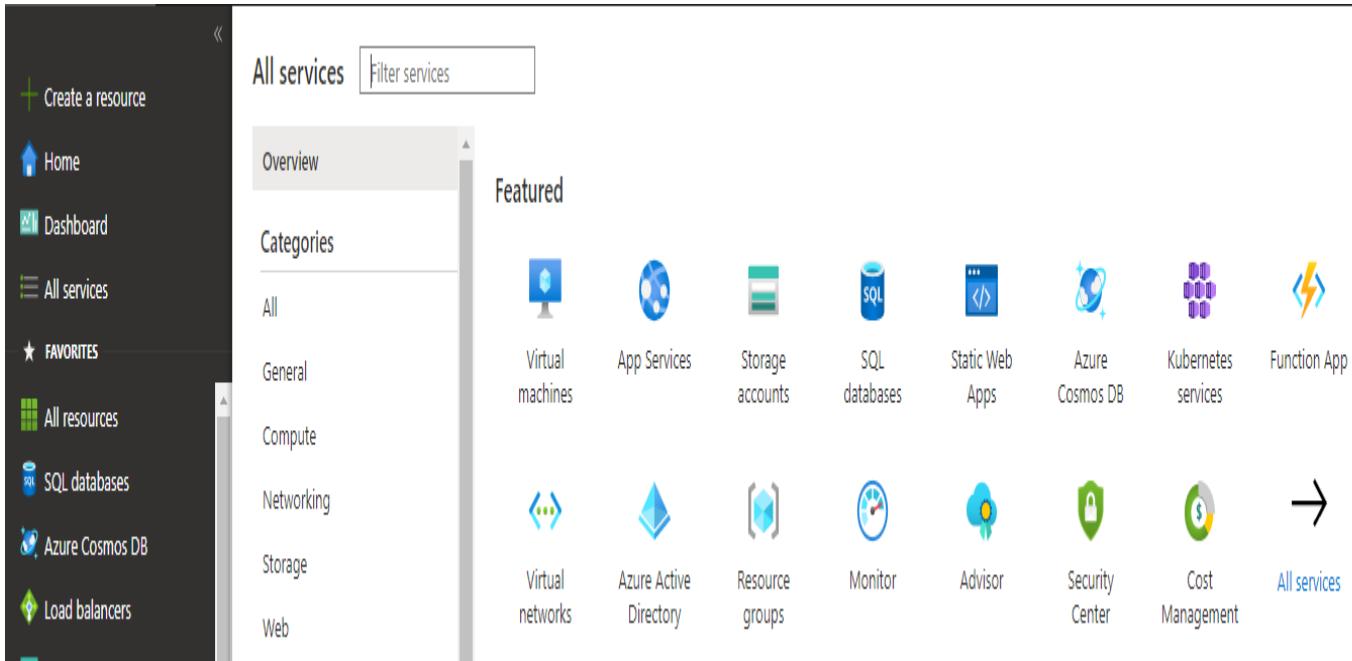
Outcome:

After completion of this task, you will be familiar with the Microsoft Azure portal.

Guided Steps :

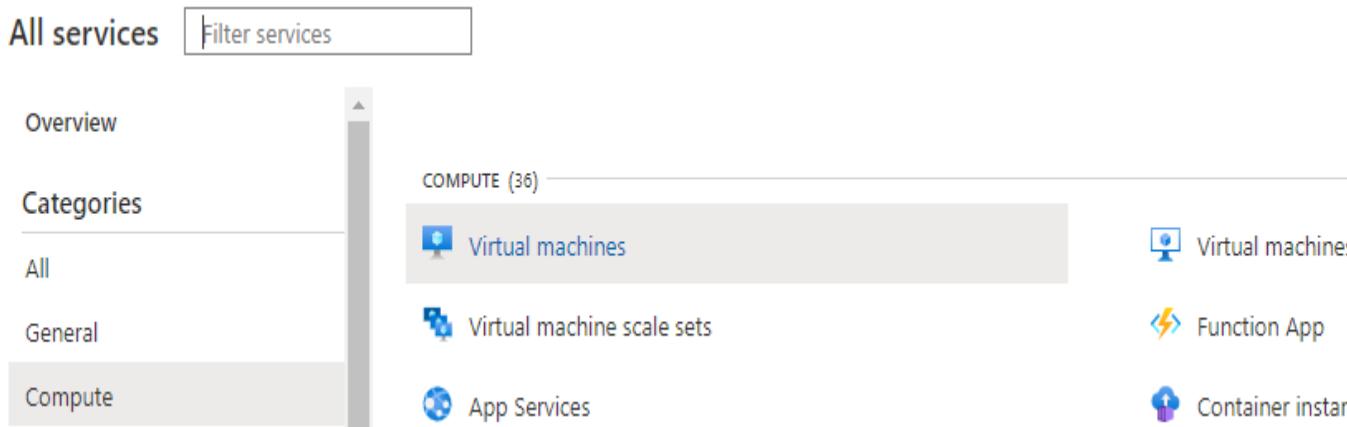
- Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials.

- Expand the section on the left-hand side and click on All Services.



The screenshot shows the Azure portal's 'All services' page. On the left, a dark sidebar lists navigation options like 'Create a resource', 'Home', 'Dashboard', 'All services', 'FAVORITES' (with a star icon), 'All resources', 'SQL databases', 'Azure Cosmos DB', and 'Load balancers'. The main content area has a header 'All services' with a 'Filter services' input field. Below it is a 'Categories' section with tabs for 'Overview' (selected) and 'All'. A grid of service icons is shown under 'Featured' categories: Virtual machines, App Services, Storage accounts, SQL databases, Static Web Apps, Azure Cosmos DB, Kubernetes services, and Function App. To the right, there are additional service icons for Virtual networks, Azure Active Directory, Resource groups, Monitor, Advisor, Security Center, and Cost Management, with an 'All services' link at the bottom right.

You can click on the category name on the left to see the services under that category.



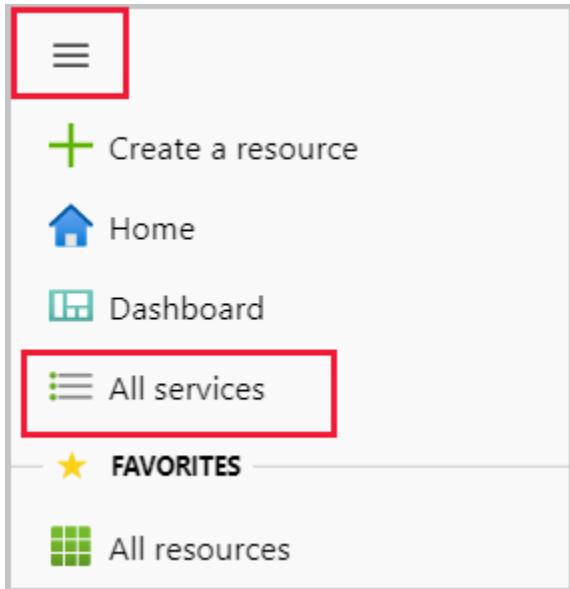
The screenshot shows the Azure portal's 'All services' page with the 'Compute' category selected in the sidebar. The main content area shows a list of services under the 'COMPUTE (36)' heading. The first three items are: 'Virtual machines' (with an icon of a computer monitor), 'Virtual machine scale sets' (with an icon of a blue square), and 'App Services' (with an icon of a blue circle). To the right of these items are their respective icons and names: 'Virtual machines', 'Function App', and 'Container instan...' (partially visible).

Add a Favorite:

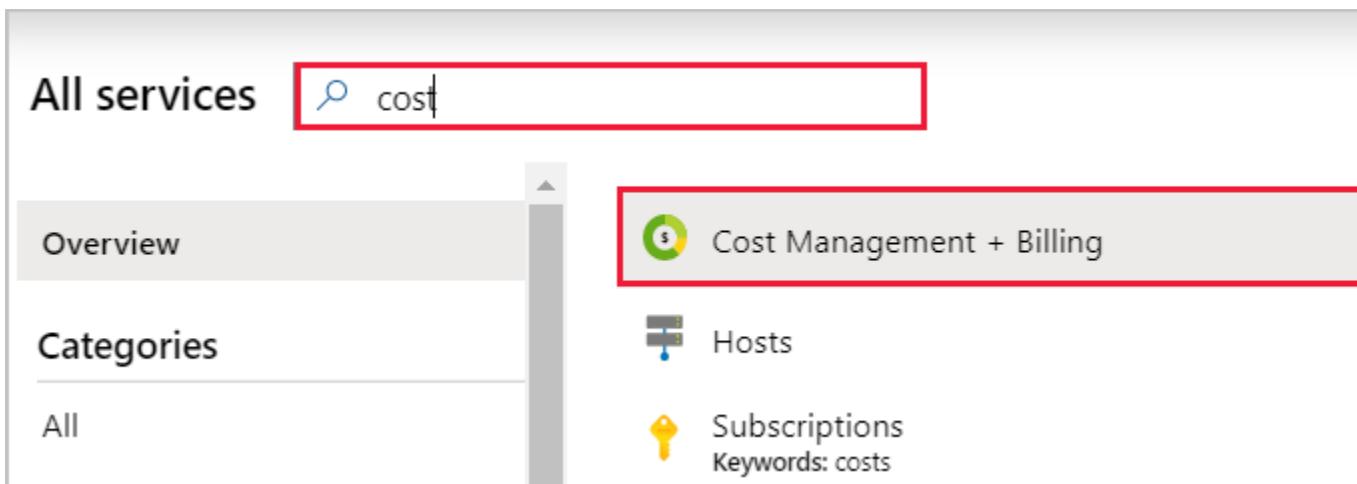
Items that are listed under Favorites are selected from All services. Hover over a service name to display information and resources related to the service. A filled star icon Filled star icon next to the service name indicates that the item appears on the Favorites list. Select the star icon to add a service to the Favorites list.

Add Cost Management + Billing to Favorites

1) Select **All services** from the Azure portal menu.

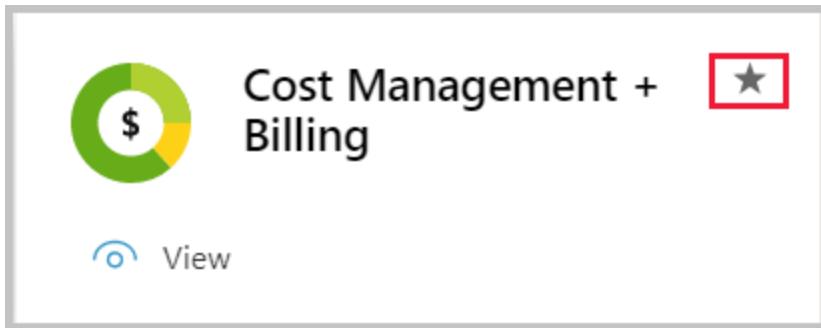


2) Enter the word "cost" in the search field. Services that have "cost" in the title or that have "cost" as a keyword are shown.



The image shows the 'All services' search results. On the left, there's a sidebar with 'All services' at the top, followed by 'Overview' and 'Categories' sections. The main area has a search bar with 'cost' typed in. Below the search bar, a card for 'Cost Management + Billing' is highlighted with a red box. Other cards visible include 'Hosts' and 'Subscriptions' with the note 'Keywords: costs'.

3) Hover over the service name to display the **Cost Management+ Billing** information card. Select the star icon.



4) **Cost Management + Billing** is now added as the last item in your **Favorites** list.

To Do: Go to All Services and view the options available under Databases category.

c. Azure Cloud Shell



The Azure Cloud Shell allows you to use a command-line interface (CLI) to execute commands in your Azure subscription. You can access it by selecting the (>_) icon in the toolbar. You can also navigate to <https://shell.azure.com> to launch a Cloud Shell in the browser independent of the portal.

The Azure Cloud Shell is available in the Sandbox environment, but the Sandbox version of the shell has reduced functionality. To use all the Azure Cloud Shell features, use your own Azure subscription.

When you launch the shell, you see a Welcome window. You can choose either a Bash or PowerShell environment, depending on your personal preferences. You can also change the shell at any time through the language drop-down on the left side of the shell.

Finally, there are a variety of management and programming tools included in the created environment.

Azure command-line tools (Azure CLI, AzCopy, etc.)

Languages / Frameworks including .NET Core, Python, and Java

Container management support for Docker, Kubernetes, etc.

Code editors such as vim, emacs, code, and nano

Build tools (make, maven, npm, etc.)

Database query tools such as sqlcmd

You will need Storage Account to connect to Cloud Shell. Hence use this option after creating storage account.

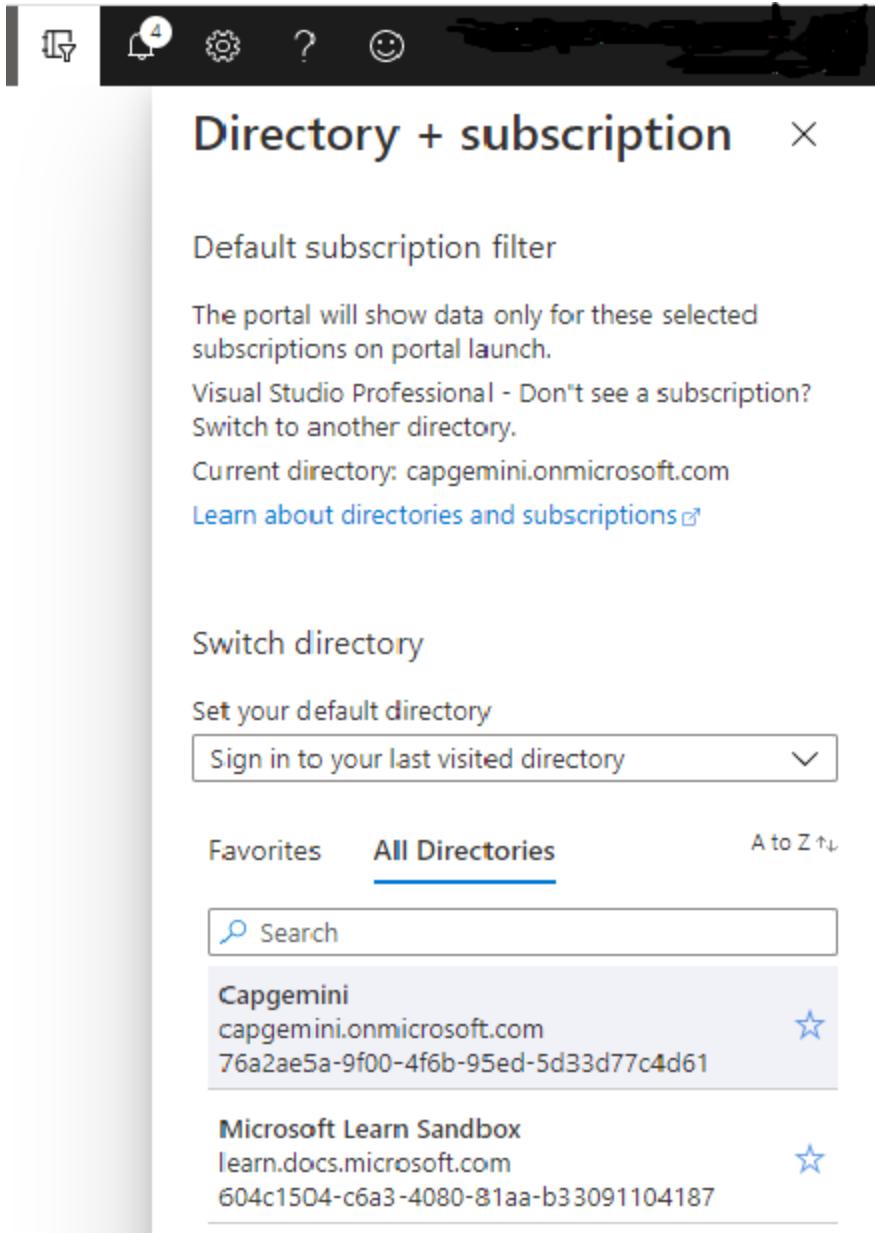
d. Directory and subscription



1) Select the Directory + Subscription (book and filter) icon to show the Directory + subscription pane.

This is where you can switch between multiple subscriptions or directories. You should see your Subscription details here. If you have other Azure directories tied to the same email address, those subscriptions will be available as well.

There is also a link to learn more about directories and subscriptions.



The screenshot shows the Azure portal interface with the 'Directory + subscription' pane open. At the top, there's a dark header bar with icons for search, notifications (with a '4' badge), settings, help, and a user profile. Below this is a light gray sidebar on the left. The main content area has a title 'Directory + subscription' with a close button ('X').

Default subscription filter

The portal will show data only for these selected subscriptions on portal launch.

Visual Studio Professional - Don't see a subscription?
Switch to another directory.

Current directory: capgemini.onmicrosoft.com
[Learn about directories and subscriptions](#)

Switch directory

Set your default directory

Sign in to your last visited directory ▾

Favorites All Directories A to Z ↑

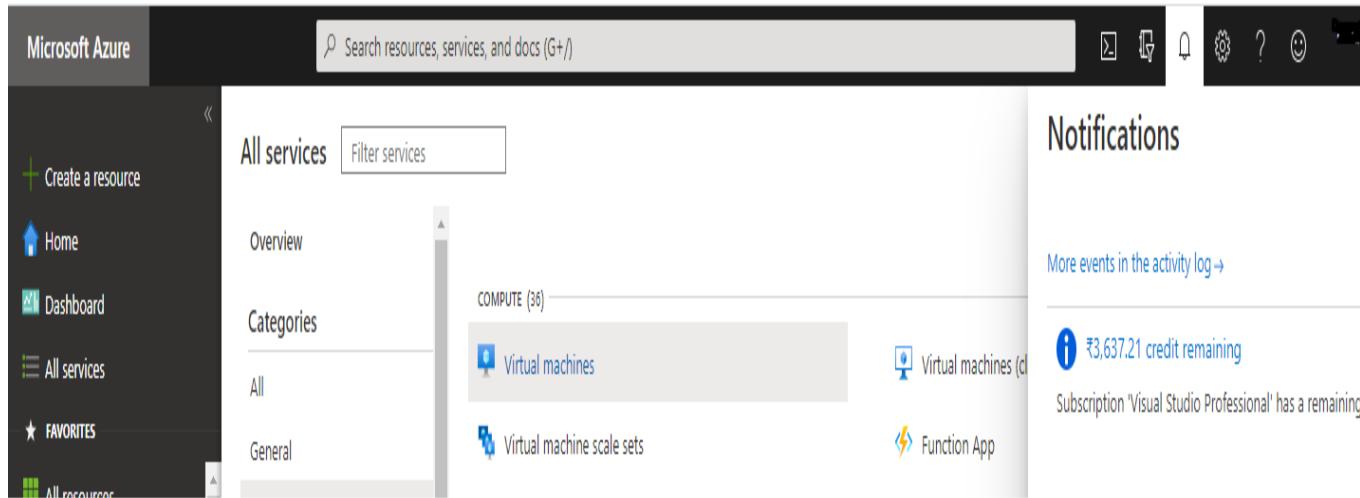
Search

Capgemini
capgemini.onmicrosoft.com 
76a2ae5a-9f00-4f6b-95ed-5d33d77c4d61

Microsoft Learn Sandbox
learn.docs.microsoft.com 
604c1504-c6a3-4080-81aa-b33091104187

2) Select the X in the top right-hand corner to close the Directory + subscription pane.

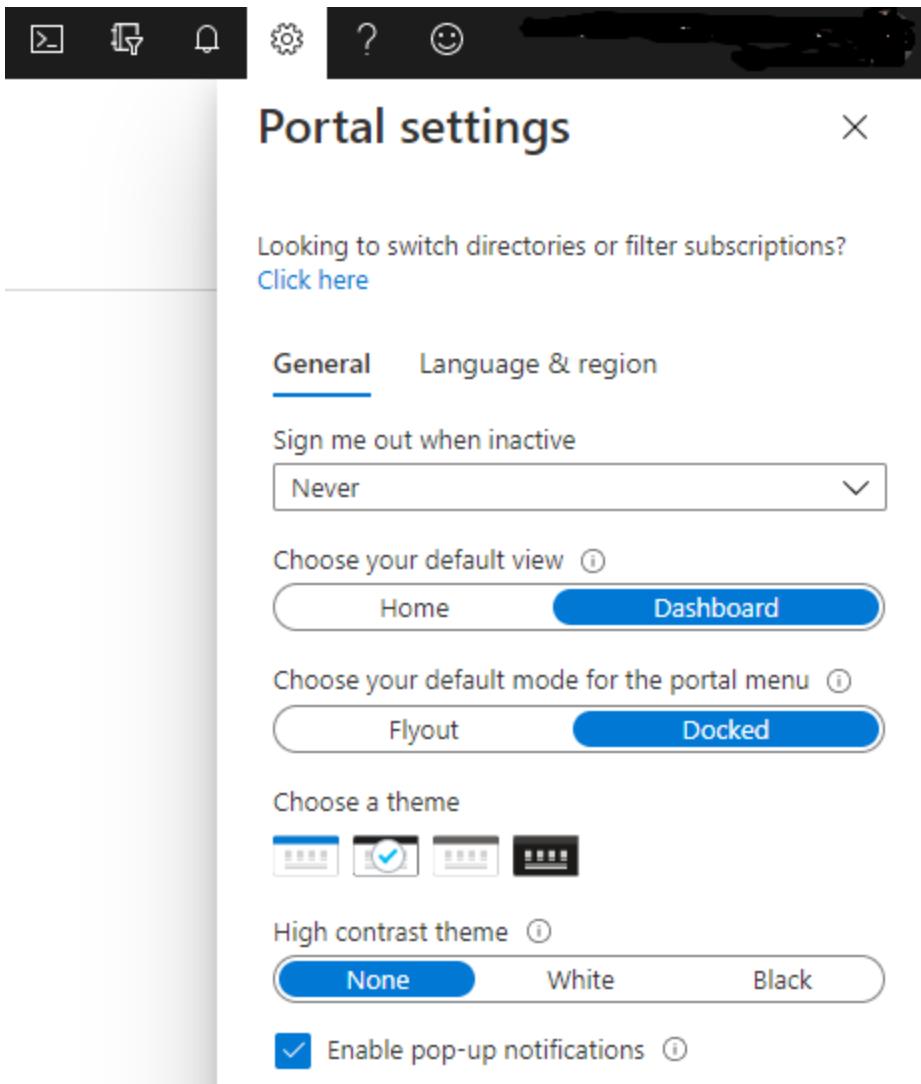
- e. Click on the bell icon to see the notifications (Along with any information or details Azure needs to communicate, Notification icon also lists things like Microsoft Azure subscription validity, remaining credit limit, errors like Region not permissible etc.).



- 1) If any notifications appear, hover your mouse over one of them. Select the X that appears in that notification to dismiss it.

 - 2) Select Dismiss all. You should have no notifications showing.

 - 3) Select the X in the top right-hand corner to close the Notifications pane.
- c. Select the Settings (cog) icon to open the Portal settings pane, showing the General settings by default.



The screenshot shows the 'Portal settings' page with a dark header bar containing icons for search, refresh, notifications, help, and smiley face.

Portal settings ×

Looking to switch directories or filter subscriptions? [Click here](#)

General [Language & region](#)

Sign me out when inactive

Never ▼

Choose your default view ⓘ

Home Dashboard

Choose your default mode for the portal menu ⓘ

Flyout Docked

Choose a theme

✓

High contrast theme ⓘ

None White Black

Enable pop-up notifications ⓘ

- 1) Drop down the Sign me out when inactive setting and select After one hour.
- 2) Under Choose a theme, select the different colored themes, and observe the changes to the portal UI. Leave it set to the one you like the best.
- 3) Under High contrast theme, try the three different options (Sample screenshot is shown below).

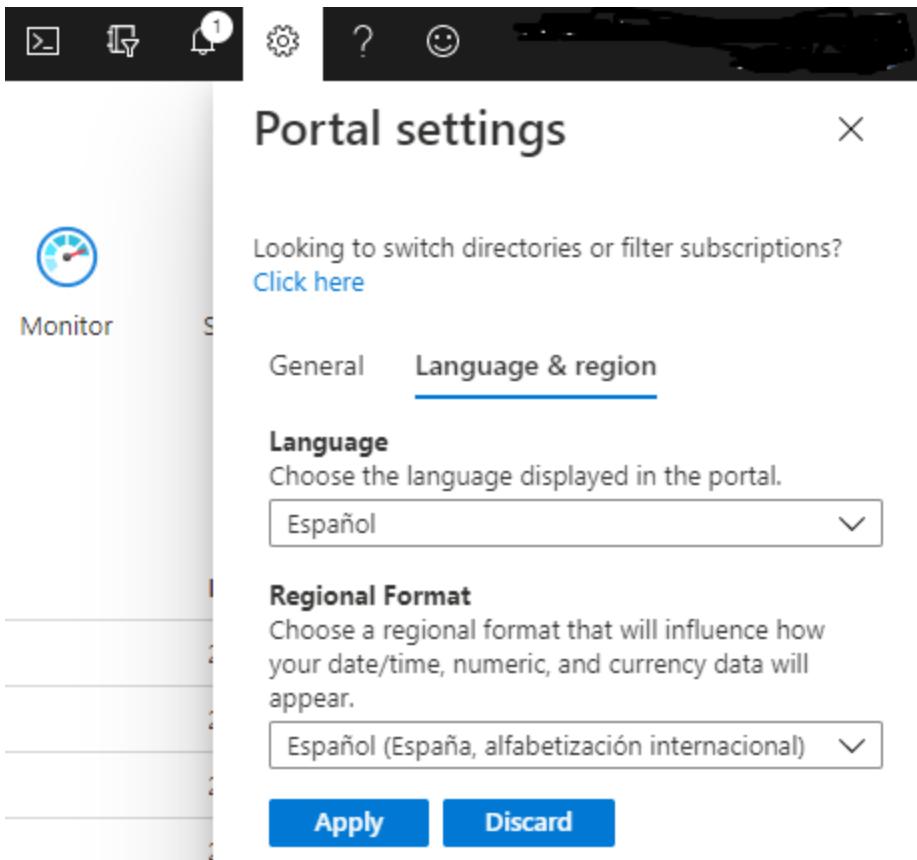


Portal settings

- General
- Language & Region
- Sign me out when inactive
- Choose your default view (Home)
- Choose your default mode (Flyout)
- Choose a theme
- High contrast theme (None)
- Enable pop-up notifications

4) Select Enable pop-up notifications. When this option is checked, notifications will appear as pop-up "toast"-style notifications. They will still show up in the Notifications (bell) icon as well.

5) Select the Language & region tab in the settings. Select Language and pick Español, and then select the Apply button. If a Translate this page dialog box appears, close the box. The whole portal is now in Spanish.



The screenshot shows the 'Portal settings' page with the 'Language & region' tab selected. On the left, there's a sidebar with icons for Monitor, Settings, and Help. A message at the top right says 'Looking to switch directories or filter subscriptions? Click here'. The 'Language' section is active, showing 'Español' in a dropdown menu. The 'Regional Format' section is also visible, showing 'Español (España, alfabetización internacional)' in its dropdown. At the bottom are 'Apply' and 'Discard' buttons.

- 6) To revert to English, select the Settings (cog) icon in the top menu bar, and switch to the Idioma y región settings. Select Idioma, and pick English. Select the Aplicar button. The portal returns to English.

Configuración del portal X

¿Quiere cambiar los directorios o filtrar suscripciones?
[Haga clic aquí](#)

General Idioma y región

Idioma

Elija el idioma que se muestra en el portal.

English ▼

Formato regional

Elija un formato regional que influya sobre el aspecto de los datos de fecha y hora, numéricos y de divisa.

English (United States) ▼

Aplicar

Descartar

To Do: Change the Language to Francais and Regional Format to Francais (France). Observe the change in the user interface of Azure portal.

Revert Language to English and Regional Format to English (United States).

- d. Click on Help(?) icon to obtain help from Microsoft regarding the Azure issue you are facing.

The screenshot shows the Microsoft Azure portal interface. The left sidebar includes options like 'Create a resource', 'Home', 'Dashboard', 'All services', 'FAVORITES', 'All resources', 'SQL databases', 'Azure Cosmos DB', 'Load balancers', and 'Storage accounts'. The main content area is titled 'All services' with a 'Filter services' search bar. Under the 'Categories' section, 'Compute' is selected. The 'COMPUTE (36)' section lists several services: Virtual machines, Virtual machine scale sets, App Services, Batch accounts, Mesh applications (marked as 'PREVIEW'), Kubernetes services, and Availability sets. On the right, there's a 'Help' pane with links for 'Ask the Azure team', 'Check Azure status', 'Explore Azure', 'Resolve billing issues', and 'Help + support'.

1) Select the **Help + support** button.

2) In the **Help + support** pane, under **Support**, select **New support request**. To create a new support request, you would fill in the information in each of the following sections, and then select **Create** to lodge the issue.

Basics: the issue type

Problem: severity of the problem, a summary and description, and any additional information

Contact information: preferred contact method and the information associated with this contact method

You can view the status of your support requests by selecting on All support requests.

Home >

Help + support

 Search (Ctrl+ /)

«

Have you tried one of these?

Overview

Support

-  New support request
-  All support requests
-  Support Plans
-  Service Health

Advisor



Getting started

Set up your cloud environment and start your projects with confidence.

[Go to Quickstart Center](#)



Billing FAQs

Get answers to common questions about your usage and charges.

[View billing FAQs](#)



Documentation

Explore popular services with quickstarts, samples, and tutorials.

[Explore documentation](#)



Support plans

Choose the right service plan for your needs.

[View support plans](#)

Community



Microsoft Q&A

Information and discussion by Microsoft and the community

[Microsoft Q&A](#)



Stack Overflow

Answers to a wide range of Azure programming issues

[Azure @ Stack Overflow](#)



@AzureSupport

Quickly connect with our problem-solving experts

[Tweet @AzureSupport](#)



Serverfault

Answers to real-world IT infrastructure problems

[Azure @ Serverfault](#)

Recent support requests

 Create a support request  Choose the right support plan

Title	ID	Created	Subscription	Resource type	Updated
No recent support requests					

[See all support requests](#)

Support requests can only be created using an active paid subscription. Creating support requests from a free Microsoft Learn sandbox is not supported.

What's new and other information

- 1) Select the Help icon and select What's new.

Help

X

Support resources

 Ask the Azure community [↗](#)

 Check Azure service issues

 Explore Azure documentation [↗](#)

 Resolve billing issues [↗](#)

Need more help? Visit the help and support center
to create and manage support requests and
support plans.

[Help + support](#)

More Azure resources

[What's new](#)

[Azure updates](#) [↗](#)

[Launch guided tour](#)

[Keyboard shortcuts](#)

[Show diagnostics](#) [↗](#)

[Privacy statement](#) [↗](#)

2) Review the features that have recently been released.

Dashboard >

What's new

Latest updates

Azure updates Azure blogs Videos

 Search

Tag : All

Timespan : All Recent Updates

Feb 09, 2021 General availability: Azure mobile app now supports Azure Government

You can now manage and monitor your Azure Government subscriptions with the Azure mobile app.

General availability: Ingest up to 10 files and blobs with the new Azure Data Explorer intuitive UX

Azure Data Explorer ingestion wizard allows you to automatically create a table and ingest data from up to 10 files or blobs.

Azure Automation is now available in Japan West

Automate tasks across Azure & Non-Azure environment using PowerShell and Python based scripts.

Announcing Power BI Embedded Generation 2 public preview

We are announcing the second generation of Power BI Embedded, referred to as Embedded Gen 2, is available for its Azure subscribers to use during the public preview period. All of the Power BI Embedded Gen 1 capabilities such as pausing and resuming the capacity, are preserved in Gen 2 and the price per SKU remains the same, however the Gen 2 capacity resource provides substantial improvements in performance, scale and much more.

OCR support for 73 languages in the Cognitive Services Computer Vision public preview

Computer Vision Read 3.2 API for Optical Character Recognition (OCR), part of Cognitive Services, announces its public preview with support for Simplified Chinese, Traditional Chinese, Japanese, and Korean, and several Latin languages, with option to use the cloud service or deploy the Docker container on premise.

[Check out more updates !\[\]\(86c2f7bc2f66706a9bd8bd95d5e850cd_img.jpg\)](#)

Also note and explore the other Help menu options, such as:

Azure updates
Launch guided tour
Keyboard shortcuts
Show diagnostics
Privacy statement

3) Select the X in the top right-hand corner to close the Help pane.

4) Close the What's new pane. You should now be back to the Dashboard.

To Do:

In the **Help + support** pane, under **Support**, select **Support Plans**. Read about the various support plans available in Azure and the facilities provided by these support plans.

f. Feedback pane

1) Select the Feedback (smiley face) icon to open the Send us feedback pane.

Send us feedback

X

Thank you for taking the time to give us feedback.



If you need help, please contact support.

*Are you satisfied with your experience?



Tell us about your experience...

Microsoft can email you about your feedback

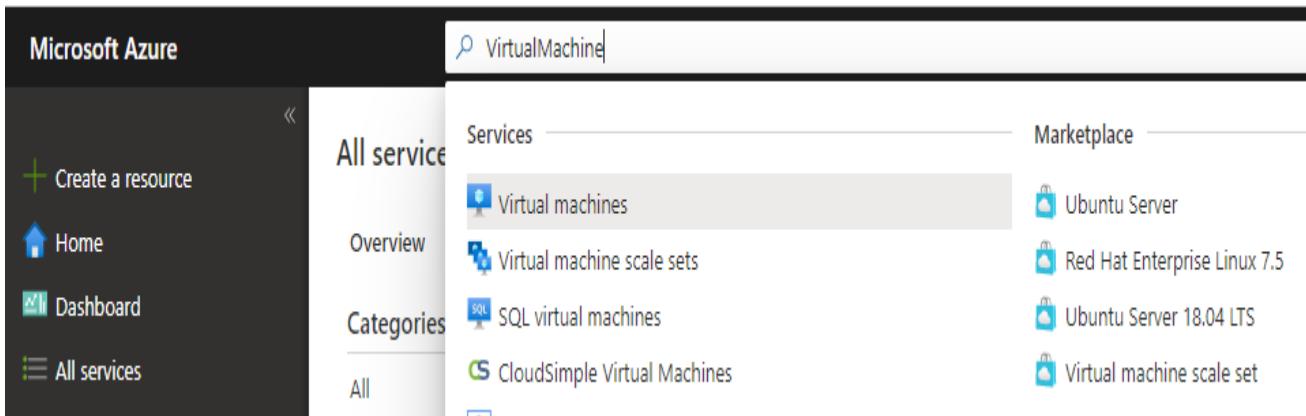
[Privacy statement](#)

[Submit feedback](#)

2) Type your impressions of Azure in the Tell us about your experience box, select the box that says Microsoft can email you about your feedback, and select Submit Feedback.

3) A Feedback sent message will appear, and then close. You should now be back at the Dashboard.

g. Click on the search box (Textbox on the top of the page) and key in Azure resource or service you are looking for (E.g. – Virtual Machine).



The screenshot shows the Microsoft Azure portal interface. At the top left is the 'Microsoft Azure' logo. To its right is a search bar containing the text 'VirtualMachine'. On the far left is a vertical sidebar with icons for 'Create a resource', 'Home', 'Dashboard', and 'All services'. The main content area has a header 'All services' with tabs for 'Overview', 'Categories', and 'All'. Below this is a list of services under 'Services': 'Virtual machines' (which is highlighted), 'Virtual machine scale sets', 'SQL virtual machines', and 'CloudSimple Virtual Machines'. To the right of this list is a 'Marketplace' section with items: 'Ubuntu Server', 'Red Hat Enterprise Linux 7.5', 'Ubuntu Server 18.04 LTS', and 'Virtual machine scale set'.

Reference Links :

<https://docs.microsoft.com/en-us/azure/azure-portal/azure-portal-overview>

<https://docs.microsoft.com/en-us/learn/modules/tour-azure-portal/5-exercise-navigate-the-portal>

You can visit <https://preview.portal.azure.com/#home> for looking into new things/features that are coming up in Azure Portal

Task 02: Working with Panes

Estimated Time : 30 mins

Few members in Tailwind Traders IT team are getting familiar with Azure. They want to know how to create Azure resources using Azure portal.

Task : In this task you will understand the process of creating a resource using Azure portal but won't create any Azure resource.

Learnings:

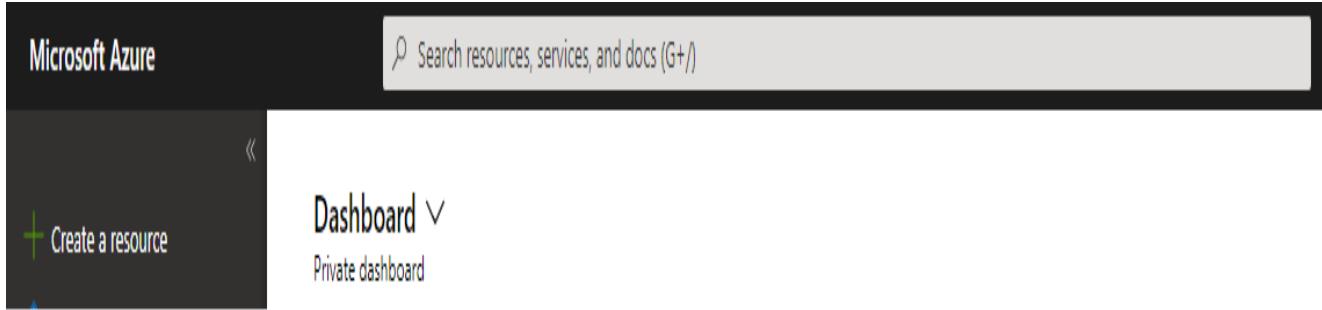
- How to work with the Panes in the Azure portal User Interface (UI).

Outcome:

After completion of this task, you will be able to create web app using Microsoft Azure portal.

Guided Steps

- Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials.
- On the home page, select **Create a resource**.



- c. A pane labeled **New** appears and displays a list of categories on the left-hand side, labeled **Azure Marketplace**. This initial view is somewhat like a "Popular Categories" menu, with some of the most common categories visible. If you'd like, you can expand this list to see everything in the Marketplace pane with the **See all** link next to the heading. If you do, you can get back to the New pane by selecting the X icon in the upper right of any panes you have opened.

Microsoft Azure

Search resources, services, and docs (G+/)

Dashboard > New

Search the Marketplace

Azure Marketplace See all Popular

Get started	 Windows Server 2016 Datacenter Quickstarts + tutorials
Recently created	 Ubuntu Server 18.04 LTS Learn more
AI + Machine Learning	 Web App Quickstarts + tutorials
Analytics	 SQL Database Quickstarts + tutorials
Blockchain	 Function App Quickstarts + tutorials
Compute	 Azure Cosmos DB Quickstarts + tutorials
Containers	 DevOps Quickstarts + tutorials
Databases	 Identity Quickstarts + tutorials
Developer Tools	 Integration Quickstarts + tutorials
DevOps	 Internet of Things Quickstarts + tutorials
Identity	 IT & Management Tools Quickstarts + tutorials
Integration	 Media Quickstarts + tutorials
Internet of Things	Migration Quickstarts + tutorials
IT & Management Tools	Mixed Reality Quickstarts + tutorials
Media	Kubernetes Service Quickstarts + tutorials
Migration	DevOps Starter Quickstarts + tutorials
Mixed Reality	

- d. Selecting any of items in the Azure Marketplace list will show popular services for that category on the right of the **New** pane. This list is a subset of the entire range of computing resources

available for that category. As with the Azure Marketplace, you can select on the **See all** link for a more comprehensive list.

- e. Returning to the **New** pane, select on **Get started** and you should see a list on the right side of the pane that includes services such as Windows Server 2016 Datacenter, Ubuntu Server VM, SQL Database, and so on. Most of these items include a **Quickstarts + tutorials** link directly below the name. This link opens a new browser tab with the quickstart Microsoft documentation for that item.

Microsoft Azure

Search resources, services, and docs (G+/)

Create a resource

Home

Dashboard

All services

FAVORITES

All resources

SQL databases

Azure Cosmos DB

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Help + support

Marketplace

Cost Management + Bill...

App Service plans

Resource groups

Container instances

Virtual machines

Dashboard >

New

Search the Marketplace

Azure Marketplace See all Popular

Get started

Recently created

AI + Machine Learning

Analytics

Blockchain

Compute

Containers

Databases

Developer Tools

DevOps

Identity

Integration

Internet of Things

IT & Management Tools

Media

Migration

Mixed Reality

Windows Server 2016 Quickstarts + tutorials

Ubuntu Server 18.04 Learn more

Web App Quickstarts + tutorials

SQL Database Quickstarts + tutorials

Function App Quickstarts + tutorials

Azure Cosmos DB Quickstarts + tutorials

Kubernetes Service Quickstarts + tutorials

DevOps Starter Quickstarts + tutorials

- f. Optional: select **Quickstarts + tutorials** under **Windows Server 2016 Datacenter** and, in the new browser window, look through the Windows VM tutorials. When you are finished, close this new tab to return to the Azure portal.



To Do: Go to DevOps and view the options available under DevOps category.

View Resources

- 1) Click on All Services-> Key in Web App in Search Box and select Web App under Marketplace.
- 2) In the Create Web App screen, fill the required details and click Review + Create button.

All services >

Create Web App

Subscription * ⓘ Visual Studio Professional

Resource Group * ⓘ AZ900

Instance Details

Name * az900webapp .azurewebsites.net

Publish * Code Docker Container

Runtime stack * ASP.NET V4.8

Operating System * Linux Windows

Region * East US
Not finding your App Service Plan? Try a different region.

App Service Plan

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app.
[Learn more](#)

Windows Plan (East US) * ⓘ (New) ASP-AZ900-8b88

Create new

Sku and size * Standard S1
100 total ACU, 1.75 GB memory
[Change size](#)

[Review + create](#) [< Previous](#) [Next : Deployment \(Preview\) >](#)

Task 03: Creating a Custom Dashboard

Estimated Time : 75 minutes

Tailwind Traders wants to display commonly used Azure resources by its employees in a single place. They also want to give option to employees to customize these resources.

You have suggested them to use Dashboards available on Azure portal.

Task : In this task you will create a dashboard which will display commonly used Azure resources in a single place and allow users to customize (add/edit/delete) of these resources.

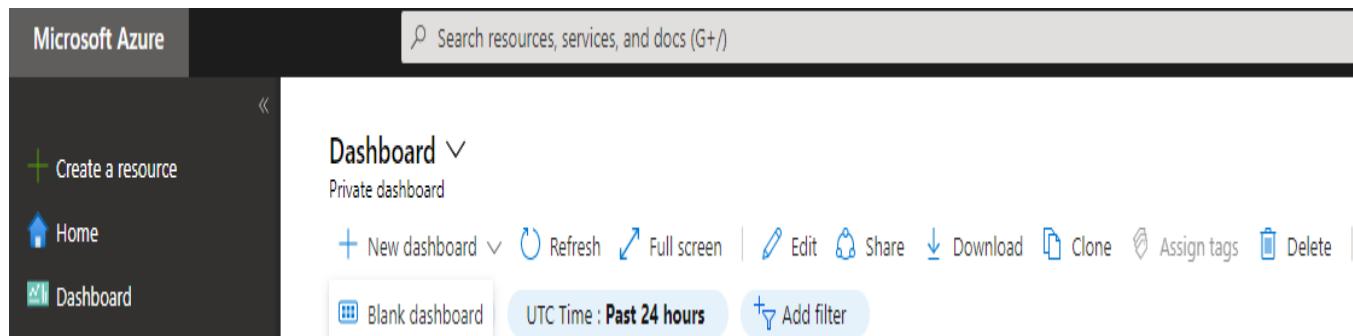
Learnings:

- How to create a Dashboard
- Editing, Cloning and Deleting Dashboard

Guided Steps:

Create a new dashboard

- a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials.
- b. Expand the section on the left-hand side and click on Dashboard.
- c. Select the New Dashboard->Blank Dashboard.



- d. In the center pane, change My Dashboard to Tailwind Dashboard.



Add and configure the Clock Tile

- 1) In the tile gallery, drag the clock onto the workspace. Place it on the top right of the available space.
- 2) On the Edit clock pane, change the Location to Indian Standard Time. Click on Done button.

Tile Gallery

Search tiles

23 tiles (i) You can drag any tile to the dashboard

- Metrics chart
- Resource groups
- All resources
- Clock
- User Activity Summary
- Users and groups
- Resource graph single value ...
- Resource graph chart tile
- Resource graph grid tile
- Markdown

Tailwind Dashboard

Edit clock

Location: (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi

Time format: 12 hour 24 hour

India Standard T. Edit

1:49 PM

Wednesday, February 10, 2021

Done Reset

3) Repeat the preceding four steps, except select Eastern Time (US & Canada). You should now have two clocks, one showing the Indian Standard Time and the other one on the East Coast.

Resize a tile

- 1) Under Tile Gallery, drag an All resources tile and drop it onto the top left-hand side of the new dashboard workspace.
- 2) Hover over the new All resources tile and select the ellipsis icon (...); then select the 6x6 size.

Tile Gallery

23 tiles ⓘ You can drag any tile to the dashboard

Metrics chart	Add
Resource groups	Add
All resources	Add
Clock	Add
User Activity Summary	Add
Users and groups	Add
Resource graph single value ...	Add
Resource graph chart tile	Add
Resource graph grid tile	Add
Markdown	Add

Tailwind Dashboard

	All resources	All subscriptions	...
Metrics chart	Add	testRecoveryServiceVault Recovery Services vault East US	2 x 1
Resource groups	Add	DefaultWorkspace-df33c13b-ad65... Log Analytics workspace East US	2 x 2
All resources	Add	PizzaDb (pizzass/PizzaDb) SQL database East US	4 x 2
Clock	Add	az900stracc Storage account East US	4 x 4
User Activity Summary	Add	site-reco-55y-asr-automationacco... Automation Account West US	6 x 4
Users and groups	Add	cgmastercase Lab Account East US	4 x 6
Resource graph single value ...	Add	DefaultWorkspace-df33c13b-ad65... Log Analytics workspace East US 2	Refresh
Resource graph chart tile	Add	NetworkWatcher_centralus Network Watcher Central US	Remove from dashboard
Resource graph grid tile	Add	NetworkWatcher_eastus Network Watcher East US	
Markdown	Add	NetworkWatcher_eastus2 Network Watcher East US 2	
		NetworkWatcher_southcentralus Network Watcher South Central US	
		NetworkWatcher_westindia Network Watcher West India	
		NetworkWatcher_westus Network Watcher West US	
		See more...	

3) Select the gray corner on the bottom right-hand side of the tile and resize the horizontally.

4) In the Tile Gallery, drag the Resource Groups tile onto the workspace. Place it beside the All resources tile.

5) Continue to add the following tiles, rearranging them to fit:

Help + support

Marketplace

Now, the Tailwind Dashboard should look as shown below (You may see different timing on the clock and may not see anything under All Resources and Resource Groups. This is OK since you have not yet created any Azure resource):

This dashboard has unsaved changes. [Preview](#) [Save](#) [Discard](#)

» Tailwind Dashboard

Eastern Standard Time
2:13 PM
[Edit](#)

Wednesday, February 10, 2021
[Edit](#)

All resources
All subscriptions
[Refresh](#)

 testRecoveryServiceVault	Recovery Services vault	East US
 DefaultWorkspace-df33c13b-ad65-...	Log Analytics workspace	East US
 PizzaDb (pizzass/PizzaDb)	SQL database	East US
 az900stracc	Storage account	East US
 site-reco-55y-asr-automationacco...	Automation Account	West US
 cgmastercase	Lab Account	East US
 DefaultWorkspace-df33c13b-ad65-...	Log Analytics workspace	East US 2
 NetworkWatcher_centralus	Network Watcher	Central US
 NetworkWatcher_eastus	Network Watcher	East US
 NetworkWatcher_eastus2	Network Watcher	East US 2

Resource groups
All subscriptions
[Refresh](#)

 Az303	East US 2
 BackupRecovery	East US
 MasterCase	East US
 Site-recovery-vault-RG	West US
 BackupRecovery-asr	West US
 cloud-shell-storage-westeurope	West Europe
 AZ900	East US

[See more...](#)

[Help + support](#)

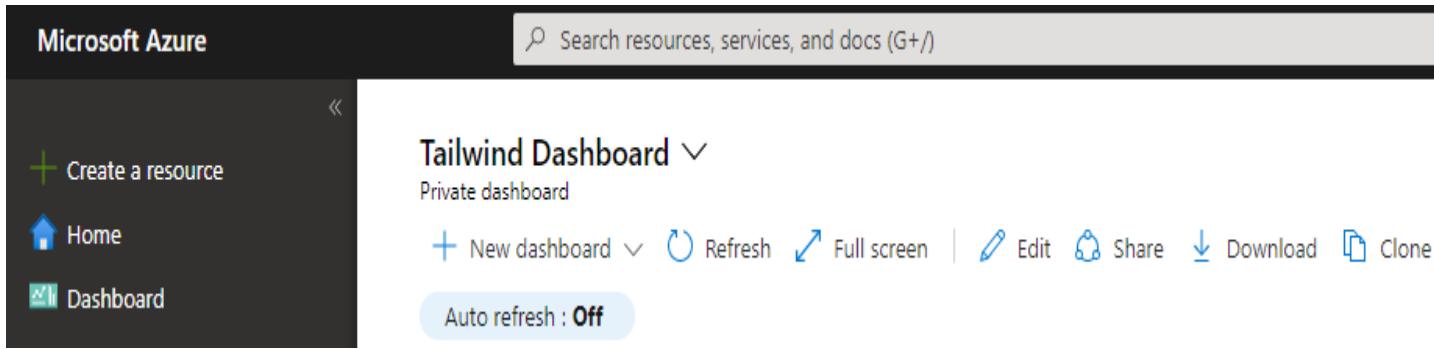

[Marketplace](#)


6) When you have added these tiles, click on Save button. The Tailwind Dashboard should appear.

Clone a dashboard

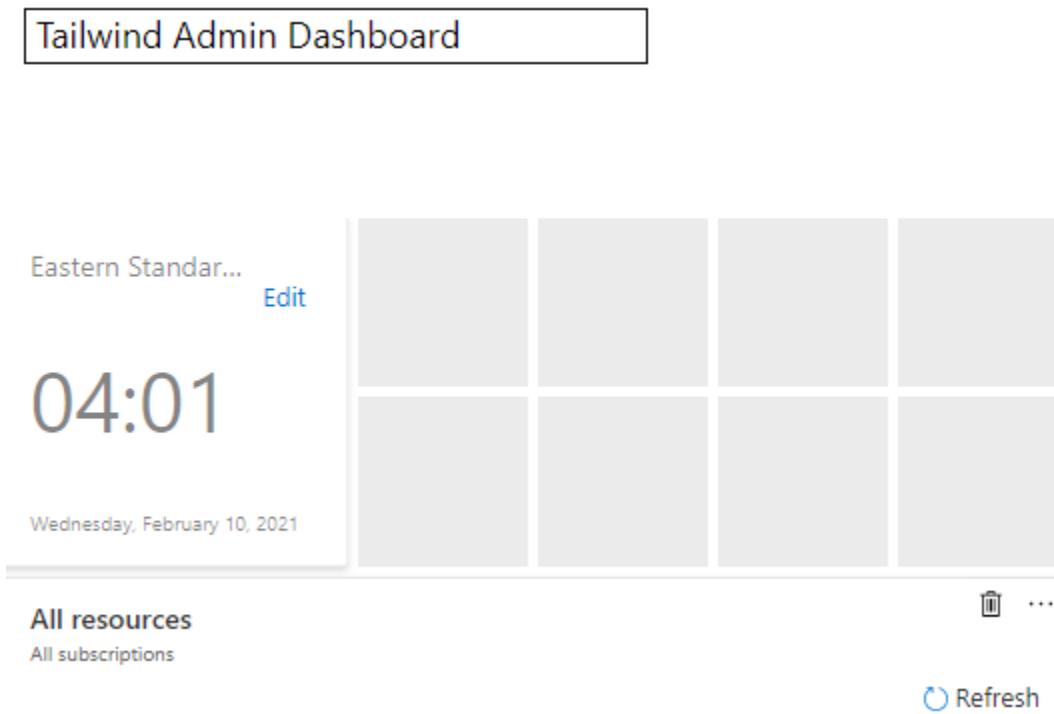
You now want to create a similar dashboard for some other customers.

1) Click on the Clone button.



2) Rename the dashboard from Clone of Tailwind Dashboard to Tailwind Admin Dashboard.

3) On the Resource Groups tile, select the Remove from dashboard trash can icon to delete this tile.



From the Tile Gallery, add the following tile:

Security Metric

Reposition the tiles as necessary, and then click Save button.

This dashboard has unsaved changes. [Preview](#) [Save](#) [Discard](#)

Tailwind Admin Dashboard

Search tiles

23 tiles ⓘ You can drag any tile to the dashboard

Eastern Standard Time Edit

04:07 Wednesday, February 10, 2021

India Standard Time Edit

2:37 PM Wednesday, February 10, 2021

Organization Identity Add

Quick Tasks Add

Marketplace Add

Help + support Add

Application map Add

Application Insights Add

Quickstarts + tutorials Add

Security metric Add

Search Application Insights Add

ARM Data Add

ARM Actions Add

Security metric

Secure Score 23%

Coverage 0 OF 1 subscription have full security coverage

Improve coverage >

Resource groups All subscriptions

Refresh

Resource Group	Location
Az303	East US 2
BackupRecovery	East US
MasterCase	East US
Site-recovery-vault-RG	West US
BackupRecovery-asr	West US
cloud-shell-storage-westeurope	West Europe
AZ900	East US

See more...

Help + support Add

Marketplace Add

Delete a dashboard

- 1) Ensure that the Tailwind Admin Dashboard is selected.

2) Select the Delete button.

The screenshot shows the Tailwind Admin Dashboard. In the center, there is a section titled "Resource groups" under "All subscriptions". It lists several resource groups with their names and locations:

Resource Group	Location
Az303	East US 2
BackupRecovery	East US
MasterCase	East US
Site-recovery-vault-RG	West US
BackupRecovery-asr	West US
cloud-shell-storage-westeurope	West Europe
AZ900	East US

At the bottom right of the dashboard, a delete confirmation dialog box is overlaid on the interface. The dialog box has the title "Confirmation" and the question "Delete this dashboard?". It contains two buttons: "OK" and "Cancel".

3) In the Confirmation message box, click OK button to confirm the Delete operation.

The screenshot shows the Tailwind Dashboard. On the right side, a delete confirmation dialog box is displayed. The dialog box has the title "Confirmation" and the question "Delete this dashboard?". It contains two buttons: "OK" and "Cancel".

To Do:

- 1) Create a new Dashboard named Customer Dashboard.
- 2) Add a clock to this dashboard with following settings:
Location : Pacific Time (US & Canada).
Time format : 24 hour.
- 3) Add another clock to this dashboard with following settings:
Location : Eastern Time (US & Canada).
Time format : 24 hour.
- 4) Add All Resources tile to this dashboard and resize this tile to 4*4.
- 5) Click on Save button.
- 6) Ensure that Customer Dashboard is selected. Delete the Customer Dashboard.

References:

<https://docs.microsoft.com/en-us/learn/modules/tour-azure-portal/7-exercise-customize-the-dashboard>

Task 04: Working with Resource Groups

Estimated Time : 90 mins

Tailwind Traders has been moving to the cloud. This movement happened organically across different departments and resulted in a lack of awareness of what's already been created and where everything is. There's no ability to easily determine who owns which resources. There's no enforcement of standards for things like resource names, resource sizes, and geographic locations. There's also been several instances where critical resources were inadvertently deleted, causing business-critical outages.

Your manager has asked you to head up an effort to put some order into the chaos, but you're new to Azure and aren't entirely sure what you can do to make this better.

Azure Resource Manager has several features that you can use to organize resources, enforce standards, and protect critical Azure resources from accidental deletion.

Task : In this task you will use various features of Azure Resource Manager to organize resources, enforce standards, and protect critical Azure resources from accidental deletion.

Learnings:

- Use resource groups to organize Microsoft Azure resources
- Use tags to organize resources
- Apply policies to enforce standards in your Azure environments
- Use resource locks to protect critical Azure resources from accidental deletion

Outcome:

At the end of this task, you will be able to:

- 1) Create resource groups and organize Microsoft Azure resources using resource groups.
- 2) Add tags to and filter Microsoft Azure resources using tags.
- 3) Create a policy to prevent creation of a Microsoft Azure resource if specified condition(s) are not met.
- 4) Create and use resource locks to prevent accidental deletion of Microsoft Azure resources.

Create a Resource Group:

Guided Steps:

- a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials.
- b. On the home page, select **Create a resource**.



- c. Type Resource group in the search box and hit Enter. If this doesn't go immediately to the resource group creation, select Resource group from the search results and select the Create button.



- d. Select the subscription it should be in and select the region for the resource group.
- e. Enter your resource group name, let's use msftlearn-core-infrastructure-rg.

Dashboard >

Create a resource group

Basics Tags Review + create

Resource group - A container that holds related resources for an Azure solution. The resource group can include resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more](#)

Project details

Subscription * ⓘ

Visual Studio Professional

Resource group * ⓘ

msftlearn-core-infrastructure-rg

Resource details

Region * ⓘ

(US) East US

Review + create

< Previous

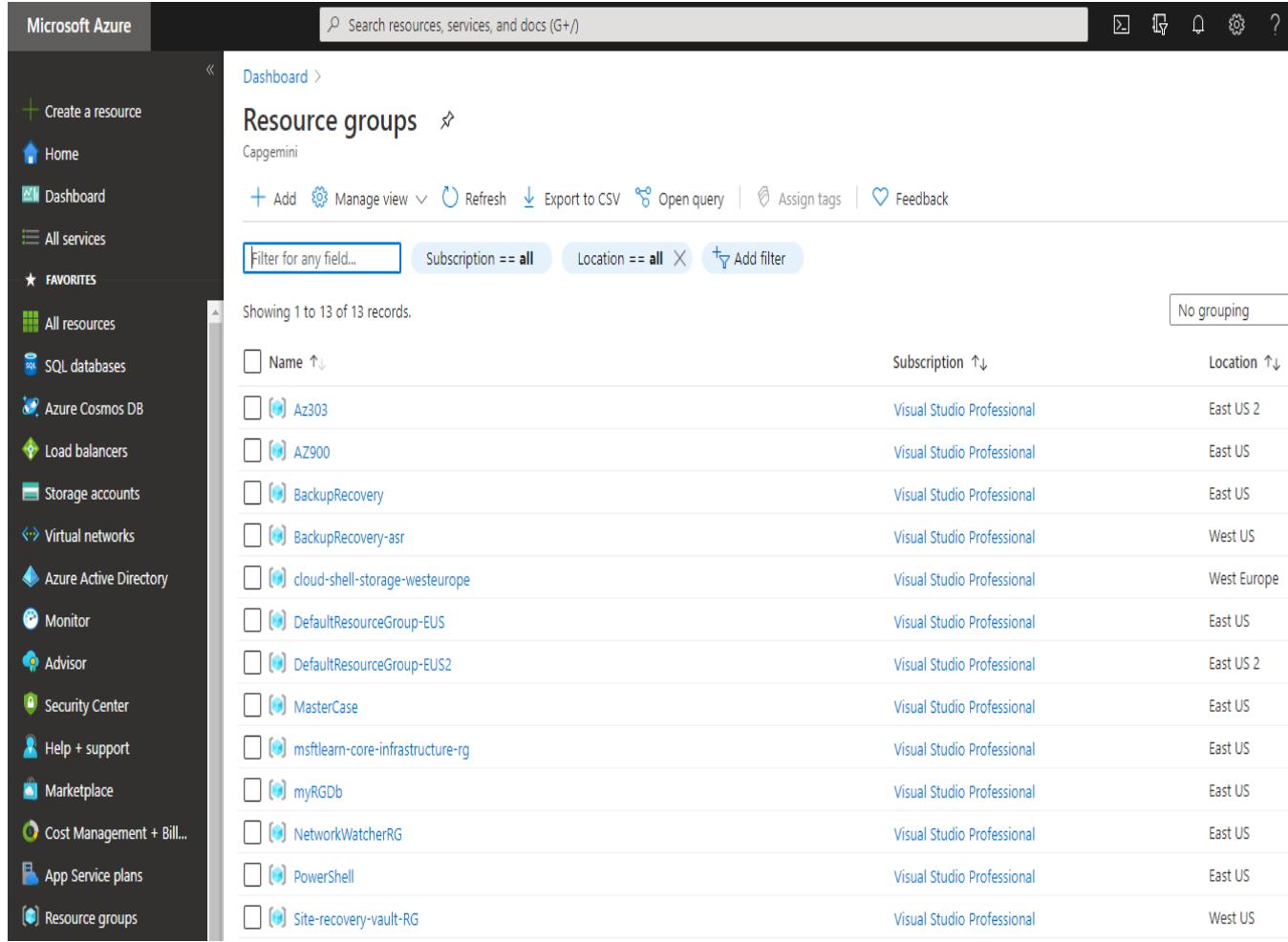
Next : Tags >

- f. Select Review + Create and then, once it is validated, select Create to create the resource group.

That's it, you've created a resource group that you can now use when you deploy Azure resources. Let's take a closer look at this resource group and some important things to consider.

Explore a resource group and add a resource

- a. On the Azure portal menu or from the Home page, select Resource groups, and select your newly created resource group. Note that you may also see a resource group called NetworkWatcherRG. You can ignore this resource group; it's created automatically to enable Network Watcher in Azure virtual networks.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains a navigation menu with various options like 'Create a resource', 'Home', 'Dashboard', 'All services', 'FAVORITES' (which includes 'All resources', 'SQL databases', 'Azure Cosmos DB', 'Load balancers', 'Storage accounts', 'Virtual networks', 'Azure Active Directory', 'Monitor', 'Advisor', 'Security Center', 'Help + support', 'Marketplace', 'Cost Management + Bill...', 'App Service plans', and 'Resource groups'), and a 'Capgemini' section. The main content area is titled 'Resource groups' and shows a list of 13 resource groups. The columns in the list are 'Name', 'Subscription', and 'Location'. The resource groups listed are: Az303 (Visual Studio Professional, East US 2), AZ900 (Visual Studio Professional, East US), BackupRecovery (Visual Studio Professional, East US), BackupRecovery-asr (Visual Studio Professional, West US), cloud-shell-storage-westeurope (Visual Studio Professional, West Europe), DefaultResourceGroup-EUS (Visual Studio Professional, East US), DefaultResourceGroup-EUS2 (Visual Studio Professional, East US 2), MasterCase (Visual Studio Professional, East US), msftlearn-core-infrastructure-rg (Visual Studio Professional, East US), myRGDb (Visual Studio Professional, East US), NetworkWatcherRG (Visual Studio Professional, East US), PowerShell (Visual Studio Professional, East US), and Site-recovery-vault-RG (Visual Studio Professional, West US). There are also buttons for 'Add', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', and 'Feedback'.

Name	Subscription	Location
Az303	Visual Studio Professional	East US 2
AZ900	Visual Studio Professional	East US
BackupRecovery	Visual Studio Professional	East US
BackupRecovery-asr	Visual Studio Professional	West US
cloud-shell-storage-westeurope	Visual Studio Professional	West Europe
DefaultResourceGroup-EUS	Visual Studio Professional	East US
DefaultResourceGroup-EUS2	Visual Studio Professional	East US 2
MasterCase	Visual Studio Professional	East US
msftlearn-core-infrastructure-rg	Visual Studio Professional	East US
myRGDb	Visual Studio Professional	East US
NetworkWatcherRG	Visual Studio Professional	East US
PowerShell	Visual Studio Professional	East US
Site-recovery-vault-RG	Visual Studio Professional	West US

Resource groups

Capgemini

[+ Add](#) [Manage view](#) [...](#)

Filter for any field...

Name ↑↓

[R] Az303	...
[R] AZ900	...
[R] BackupRecovery	...
[R] BackupRecovery-asr	...
[R] cloud-shell-storage-westeurope	...
[R] DefaultResourceGroup-EUS	...
[R] DefaultResourceGroup-EUS2	...
[R] MasterCase	...
[R] msftlearn-core-infrastructure-rg	...
[R] myRGDb	...
[R] NetworkWatcherRG	...
[R] PowerShell	...
[R] Site-recovery-vault-RG	...

< Page 1 >

msftlearn-core-infrastructure-rg

Resource group

[Search \(Ctrl+ /\)](#)

[Overview](#)

[Activity log](#)

[Access control \(IAM\)](#)

[Tags](#)

[Events](#)

[Settings](#)

[Deployments](#)

[Security](#)

[Policies](#)

[Properties](#)

[Locks](#)

[Cost Management](#)

[Cost analysis](#)

[Cost alerts \(preview\)](#)

[Budgets](#)

[Advisor recommendations](#)

[Monitoring](#)

[Insights \(preview\)](#)

[Add](#) [Edit columns](#) [Delete resource group](#) [Refresh](#) [Export to CSV](#) [Open qu...](#)

Essentials

Subscription (change)

Visual Studio Professional

Subscription ID

Deployments

No deployments

Location

East US

Tags (change)

[Click here to add tags](#)

Filter for any field...

Type == all

Location == all

[+ Add filter](#)

Showing 0 to 0 of 0 records. Show hidden types

No grouping

[List](#)

Name ↑↓

Type ↑↓

Location



No resources to display

The resources are currently filtered and not all resources may be displayed, such as hidden resources.

Try changing your filters if you don't see what you're looking for.

[Learn more](#)

[Create resources](#)

[Clear filters / Show hidden](#)

You don't have any resources in this resource group yet, so the list at the bottom is empty. Let's create a couple resources inside the resource group.

a. Select **+ Add** at the top or select the **Create resources**; either will work.

b. Search for **Virtual Network**. The first result should be the virtual network resource. Select it, and on the next screen select **Create**.

Dashboard > Resource groups > msftlearn-core-infrastructure-rg >

New



Dashboard > Resource groups > msftlearn-core-infrastructure-rg > New >

Virtual Network ✎

Microsoft



Virtual Network

 Add to Favorites

Microsoft

 0.0 (0 ratings)

Azure benefit eligible 

Create

- c. Name the virtual network msftlearn-vnet1. For the **Resource group** drop-down, select the resource group that you created earlier.

Create virtual network

Basics IP Addresses Security Tags Review + create

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation. [Learn more about virtual network](#)

Project details

Subscription * ⓘ

Visual Studio Professional

Resource group * ⓘ

msftlearn-core-infrastructure-rg

[Create new](#)

Instance details

Name *

msftlearn-vnet1

Region *

(US) East US

[Review + create](#)

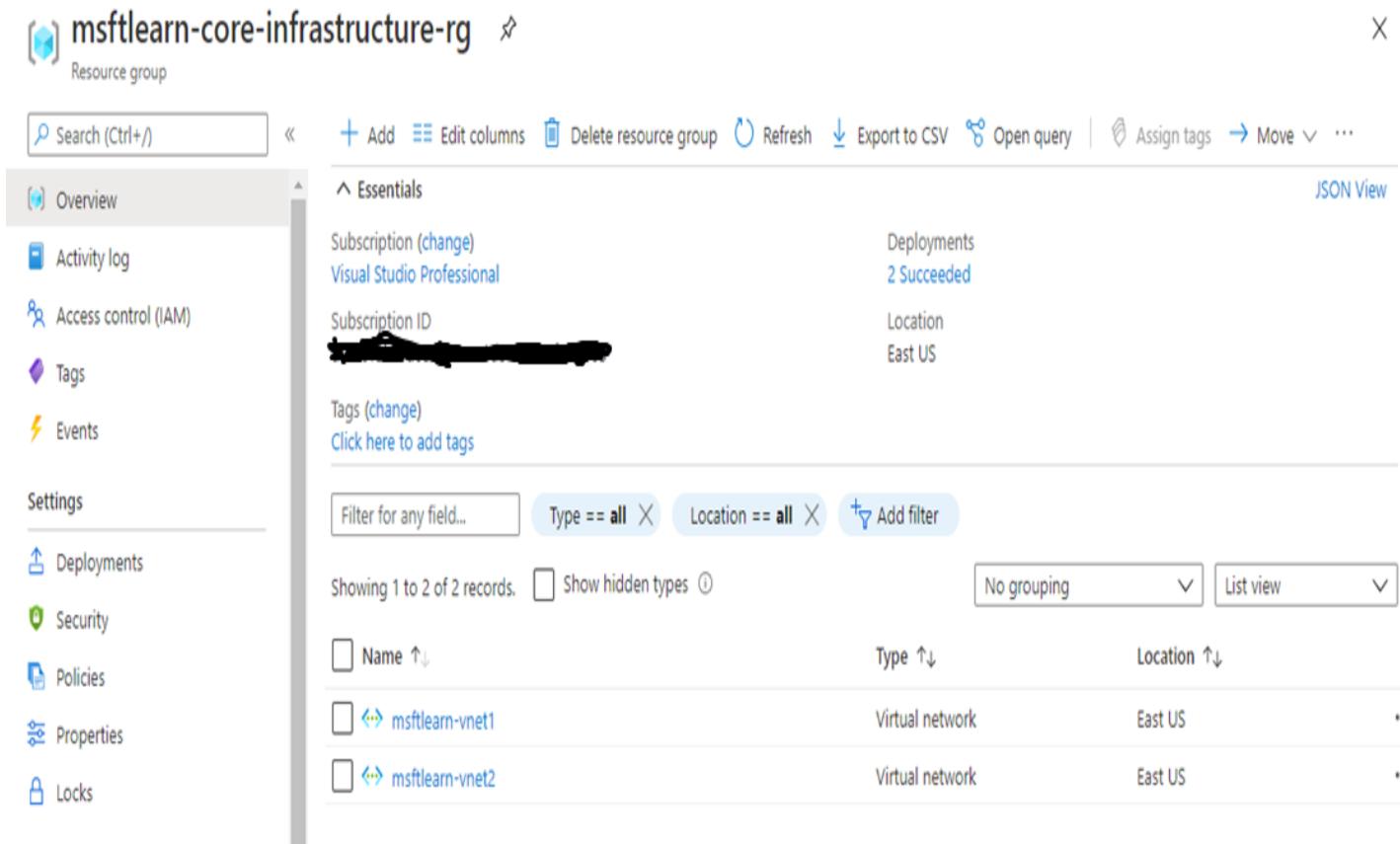
[< Previous](#)

[Next : IP Addresses >](#)

[Download a template for automation](#)

d. Repeat the virtual network creation steps again to create one more virtual network. Name the network msftlearn-vnet2 and make sure to place the virtual network in the resource group that you created earlier.

e. Go back to your resource group, and on the Overview panel you should see the two virtual networks you created.



The screenshot shows the Azure portal interface for the 'msftlearn-core-infrastructure-rg' resource group. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Events, Settings, Deployments, Security, Policies, Properties, and Locks. The main content area is titled 'Essentials' and shows subscription details: Visual Studio Professional, 2 Succeeded deployments, and location East US. It also shows a section for Tags with a link to 'Click here to add tags'. Below this is a search bar and filter options for 'Type = all' and 'Location = all'. A message indicates 'Showing 1 to 2 of 2 records.' The results table lists two virtual network resources: 'msftlearn-vnet1' and 'msftlearn-vnet2', both categorized as Virtual network and located in East US.

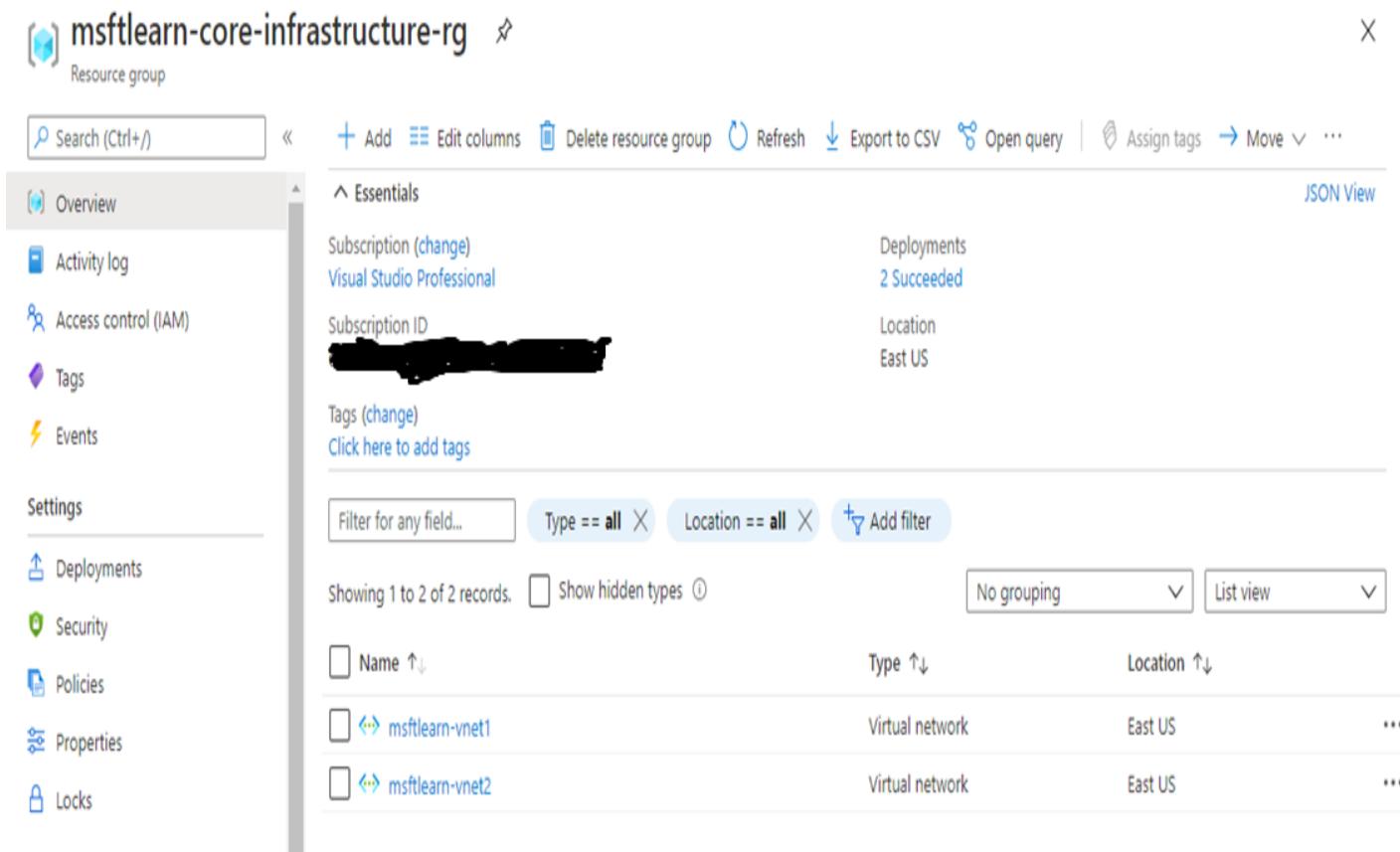
Name	Type	Location
msftlearn-vnet1	Virtual network	East US
msftlearn-vnet2	Virtual network	East US

Our resource group now contains two virtual network resources because you specified in our deployment (when you created the resources) which resource group you wanted the virtual network to be placed in. You could create additional resources inside this resource group, or you could create additional resource groups in the subscription to deploy resources into.

When creating resources, you usually have the option to create a new resource group as an alternative to using an existing resource group. This simplifies the process a bit, but as you see in your new organization, can lead to resources spread across resource groups with little thought as to how to organize them.

Apply tags to resources

- Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials.
- Navigate to your **msftlearn-core-infrastructure-rg** resource group.



The screenshot shows the Azure Resource Group Overview page for 'msftlearn-core-infrastructure-rg'. The left sidebar includes links for Overview, Activity log, Access control (IAM), Tags, Events, Settings, Deployments, Security, Policies, Properties, and Locks. The main content area displays the following details:

- Subscription (change)**: Visual Studio Professional
- Subscription ID**: [REDACTED]
- Deployments**: 2 Succeeded
- Location**: East US
- Tags (change)**: Click here to add tags

Below these details is a search bar and filter options. The filter dropdowns show 'Type == all' and 'Location == all'. The results section shows two records:

Name	Type	Location	Actions
msftlearn-vnet1	Virtual network	East US	...
msftlearn-vnet2	Virtual network	East US	...

c. On the **Overview** tab of your resource group, you should see your two virtual networks listed. The default view doesn't display the tags column, so you'll add that to the display. Select **Edit columns** at the top. In the **Available columns** list, select **Tags** and click **->** to add it to the **Selected columns** list. Click **Apply** to apply your changes.

Edit columns

X

All resources

Available columns

Select columns below to display in your grid.

Learn how to [create your own columns with tags](#).

Properties ▾

Kind ⓘ
Location ID ⓘ
Resource group
Resource group ID ⓘ
Resource ID ⓘ
Resource type ⓘ
Subscription
Subscription ID

Selected columns

Drag the column names below to reorder how they will appear above your grid.

Type ⓘ
Location ⓘ
Tags

Apply

Reset

You should now see the tags column, but it will be empty since you haven't added any tags yet. You'll add the tags directly here.

d. You can also add tags to any resource that supports it on the resource's Tags panel. In the list of resources, you should see an ellipsis menu (...). Select the ... for the msftlearn-vnet1resource, then select Edit tags to display the Edit tags dialog.

Dashboard > Resource groups >

msftlearn-core-infrastructure-rg

Resource group

Search (Ctrl+ /)

Add Edit columns Delete resource group Refresh Export to CSV Open query Assign tags Move Delete Export template ...

Overview

Subscription (change) : Visual Studio Professional Deployments : 2 Succeeded

Subscription ID : [REDACTED] Location : East US

Tags (change) : Click here to add tags

Filter for any field... Type == all X Location == all X Add filter

Showing 1 to 2 of 2 records. Show hidden types ⓘ

Name ↑	Type ↓	Location ↑	Tags
<input checked="" type="checkbox"/> msftlearn-vnet1	Virtual network	East US	
<input type="checkbox"/> msftlearn-vnet2	Virtual network	East US	

No grouping List view

Deployments Security Policies Properties

Pin to dashboard Edit tags

e. You'll add a couple tags to this virtual network. In the **Name** box type Department, and in the **Value** box type Finance. Click **Save** to save your changes.

Edit tags

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. Tag names are case insensitive, but tag values are case sensitive. [Learn more about tags](#)

Tags

Name ⓘ	Value ⓘ
Department	: Finance
	:

Resource

msftlearn-vnet1 (Virtual network)
1 to be added ⓘ

Save

Cancel

f. Do the same steps for the msftlearn-vnet2 virtual network. For this virtual network, add a Department tag to the resource with value Marketing.

You should now see your tags applied to each resource.

Dashboard > Resource groups >

 msftlearn-core-infrastructure-rg X

Resource group

Add Edit columns Delete resource group Refresh Export to CSV Open query Assign tags Move Delete Export template ...

Overview Activity log Access control (IAM) Tags Events

Subscription (change) : Visual Studio Professional Deployments : 2 Succeeded

Subscription ID : XXXXXXXXXX Location : East US

Tags (change) : [Click here to add tags](#)

Type == all Location == all Add filter

Showing 1 to 2 of 2 records. Show hidden types No grouping List view

<input type="checkbox"/> Name ↑	Type ↑	Location ↑	Tags
<input type="checkbox"/> msftlearn-vnet1	Virtual network	East US	Department: Finance
<input type="checkbox"/> msftlearn-vnet2	Virtual network	East US	Department: Marketing

g. Add tags to both resources in bulk. Select the checkbox on the left for each of the virtual networks and click Assign tags in the top menu. (The option may be contained inside an ... menu.) By selecting multiple resources, you can add a tag to them in bulk, making it easy if you have multiple resources you want to apply the same tag to.

Add the Environment:Training tag to the resources. You should see in the dialog that the tag will be applied to each of the virtual networks.

Assign tags

Assign tags to 2 resources

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. Tag names are case insensitive, but tag values are case sensitive. [Learn more about tags](#)

Tags

Name ⓘ

Environment

Value ⓘ

Training

Resources

msftlearn-vnet1 (Virtual network)

Department : Finance

1 to be added ⓘ

msftlearn-vnet2 (Virtual network)

Department : Marketing

1 to be added ⓘ

Save

Cancel

Back in the resource list you'll now see the tags column with multiple values. If your window width is limited, you may see an ellipsis indicating more tags are applied to each resource that are not shown.

msftlearn-core-infrastructure-rg X

Resource group

« Add Edit columns Delete resource group Refresh Export to CSV Open query ...

Overview Activity log Access control (IAM) Tags Events

Settings Deployments Security Policies Properties Locks

Essentials Subscription (change) Visual Studio Professional Deployments 2 Succeeded Subscription ID Location East US Tags (change) Click here to add tags JSON View

Type == all Location == all + Add filter

Showing 1 to 2 of 2 records. Show hidden types No grouping List view

Name ↑↓	Type ↑↓	Location ↑↓	Tags
msftlearn-vnet1	Virtual network	East US	Environment: Training...
msftlearn-vnet2	Virtual network	East US	Environment: Training...

h. Take a look at how you can use tags to filter your resources. On the Azure portal menu or from the Home page, select All resources.

i. Select Add filter. In the Tags, select Environment, then select Training. You should see only your two virtual networks displayed, since you tagged those resources with the Environment tag set to Training.

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

[Home >](#)

All resources

Capgemini

[Create a resource](#) [Home](#) [Dashboard](#) [All services](#) [FAVORITES](#)

[Add](#) [Manage view](#) [Refresh](#) [Export to CSV](#) [Open query](#) [Assign tags](#) [Delete](#) [Feedback](#)

Filter for any field... [Subscription == all](#) [Resource group == all](#) [Type == all](#) [Location == all](#) [+ Add filter](#)

Showing 1 to 22 of 22 records. Show hidden types

Name ↑	Type ↑	Resource group ↑
az900stracc	Storage account	AZ900
cgmastercase	Lab Account	MasterCase
db1 (sqlservercg12/db1)	SQL database	myRGDb
DefaultWorkspace-df33c13b-ad65-441e-a1d3-38d09f6b9603-EUS	Log Analytics workspace	DefaultResourceGroup-EUS
DefaultWorkspace-df33c13b-ad65-441e-a1d3-38d09f6b9603-EUS2	Log Analytics workspace	DefaultResourceGroup-EUS2
msftlearn-vnet1	Virtual network	msftlearn-core-infrastructure-rg

Add filter

Filter: Environment
Operator: ==
Value: all

Apply

Select all Training

Home >

All resources

Capgemini

[Add](#) [Manage view](#) [Refresh](#) [Export to CSV](#) [Open query](#) [Assign tags](#) [Delete](#) [Feedback](#)

Filter for any field... [Subscription == all](#) [Resource group == all](#) [Type == all](#) [Location == all](#) [Environment == all](#) [+ Add filter](#)

Showing 1 to 2 of 2 records. Show hidden types

No grouping

Name ↑	Type ↑	Resource group ↑	Location ↑	Subscription
msftlearn-vnet1	Virtual network	msftlearn-core-infrastructure-rg	East US	Visual Studio
msftlearn-vnet2	Virtual network	msftlearn-core-infrastructure-rg	East US	Visual Studio

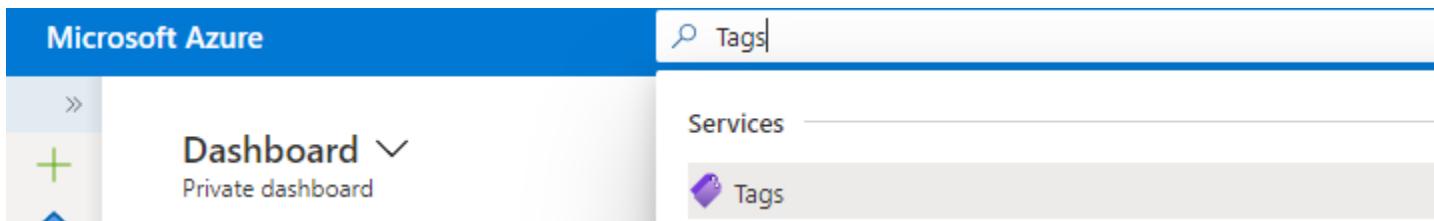
j. You can further filter these resources by additionally filtering on a **Department** tag with a value of **Finance** or **Marketing**.

Move Resources between Azure resource groups:

To Do: Create a new resource group named Devgroup with the following tag:

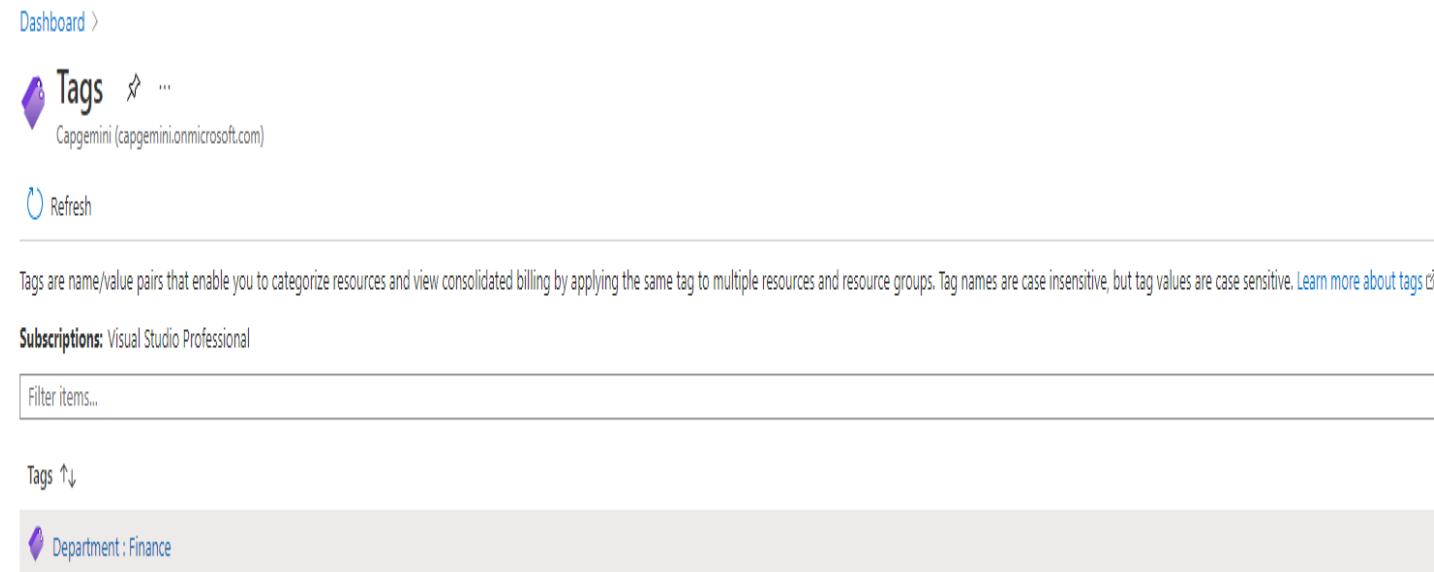
Environment: Development

a. At the top of the Azure portal, search on **tags**.



The screenshot shows the Microsoft Azure portal interface. At the top, there is a blue header bar with the text "Microsoft Azure" on the left and a search bar on the right containing the placeholder "Tags". Below the header, there is a navigation bar with a plus sign icon, the text "Dashboard" followed by a dropdown arrow, and the subtitle "Private dashboard". To the right of the dashboard, there is a "Services" section and a "Tags" button.

b. Select the **Department:Finance** tag.



The screenshot shows the "Tags" page in the Azure portal. At the top, there is a breadcrumb navigation "Dashboard > Tags". Below the navigation, there is a "Refresh" button and a "Filter items..." input field. A message states: "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. Tag names are case insensitive, but tag values are case sensitive. [Learn more about tags](#)". Under the message, it says "Subscriptions: Visual Studio Professional". Below the subscriptions, there is a "Tags ↑↓" button and a list of tags. One tag, "Department : Finance", is highlighted with a purple background and a checkmark icon.

c. Select the storage account that you want to move.

Resources with tag Department : Finance ⚡ ...

Capgemini (capgemini.onmicrosoft.com)

Edit columns Refresh Export to CSV Open query | Assign tags | Feedback

Filter for any field... Subscription == all Type == all Add filter

Showing 1 to 2 of 2 records. Show hidden types

No grouping List view

Name ↑	Type ↑↓	Resource group ↑↓	Location ↑↓	Subscription ↑↓
azappdevstracc	Storage account	msftlearn-core-infrastructure-rg	East US	Visual Studio Professional

d. Select **Move > Move to another resource group**.

Dashboard > Tags > Resources with tag Department : Finance >

The screenshot shows the Azure portal interface for a storage account named 'azappdevstracc'. At the top, there's a search bar with 'Search (Ctrl+I)' and navigation links for 'Open in Explorer', 'Move', 'Refresh', 'Delete', and 'Feedback'. Below the header, there are two tabs: 'Overview' (selected) and 'Microsoft recommend'. A prominent button labeled 'Move to another resource group' is visible. A tooltip for this button states: 'Move the resource to a different resource group. Ensure no interruptions in your alerts. Classic alerts will be retired starting in 2021. Upgrade to the new alerts platform.' A link to 'Learn more' is also present.

e. Under **Resource group**, select **Devgroup**.

Dashboard > Tags > Resources with tag Department: Finance > azappdevstracc >

Move resources ...

Resources to move



azappdevstracc

Storage account

Related resources to move (optional)



Type



msftlearn-vnet1

Virtual network



msftlearn-vnet2

Virtual network

Move these resources to

Resource group *

Devgroup

Create a new g

I understand that tools and scripts associated with moved resources will not work until I update them to use new resource IDs ⓘ

OK

f. Select the reminder for you to update the resource IDs in your tools and scripts.

g. Select **OK**.

Please refer the following to obtain more information about moving the resources:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/move-resource-group-and-subscription>

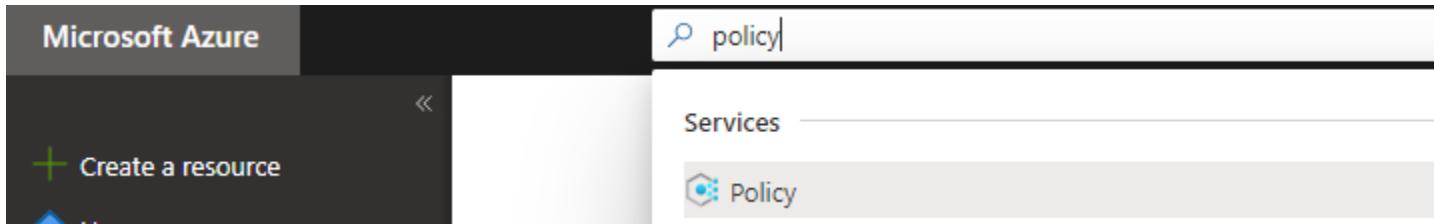
<https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/move-support-resources>

Create a Policy:

You'd like to ensure that all resources have the **Department** tag associated with them and block creation if it doesn't exist. You'll need to create a new policy definition and then assign it to a scope; in this case the scope will be our **msftlearn-core-infrastructure-rg** resource group. Policies can be created and assigned through the Azure portal, Azure PowerShell, or Azure CLI. This exercise takes you through creating a policy in the portal.

Create the policy definition:

- Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal. In the search box in the top navigation bar, search for **Policy** and select the **Policy** service.



- Select the **Definitions** pane from the **Authoring** section in the left menu.

Policy | Definitions

« [+ Policy definition](#) [+ Initiative definition](#) [Export definitions](#) [Refresh](#)

Scope	Definition type	Type	Category	Search
Visual Studio Professional	All definition types	All types	All categories	Filter by name or ID...

Now export your definitions and assignments to GitHub and manage them using actions! Click on 'Export definition' menu option. Learn more [here](#)

Name	Definition location	Policies	Type	Definition type	Category	...
test	Visual Studio Professional	1	Custom	Initiative	Compute	...
[Preview]: NIST SP 800-171 R2		77	Built-in	Initiative	Regulatory Compliant...	...
Audit machines with insecure passw...		9	Built-in	Initiative	Guest Configuration	...
IRS1075 September 2016		62	Built-in	Initiative	Regulatory Compliant...	...
[Preview]: Deploy prerequisites to e...		4	Built-in	Initiative	Guest Configuration	...
CIS Microsoft Azure Foundations Be...		90	Built-in	Initiative	Regulatory Compliant...	...
Azure Security Benchmark		176	Built-in	Initiative	Security Center	...
[Preview]: Australian Government IS...		61	Built-in	Initiative	Regulatory Compliant...	...
UK OFFICIAL and UK NHS		59	Built-in	Initiative	Regulatory Compliant...	...
[Preview]: SWIFT CSP-CSCF v2020		61	Built-in	Initiative	Regulatory Compliant...	...
Kubernetes cluster pod security rest...		8	Built-in	Initiative	Kubernetes	...
PCI v3.2.1:2018		39	Built-in	Initiative	Regulatory Compliant...	...
Canada Federal PBMM		60	Built-in	Initiative	Regulatory Compliant...	...

c. You should see a list of built-in policies that you can use. In this case, you're going to create our own custom policy. Click **+ Policy definition** in the top menu.

d. This button brings up the **New policy definition** dialog. To set the **Definition location**, click the blue Select the subscription for the policy to be stored in, which should be the same subscription as our resource group. Click **Select**.

Policy definition

New Policy definition

BASICS

Definition location *

...

Name * ⓘ

Description

Category ⓘ

Create new Use existing

POLICY RULE

Import sample policy definition from GitHub

Learn more about policy definition structure

```

1  {
2    "mode": "All",
3    "policyRule": {
4      "if": {

```

Definition location

Subscription

Visual Studio Professional

Select

Cancel

Clear All Selections

e. Back on the **New policy definition** dialog, for **Name** give your policy a name of Enforce tag on resource.

f. For the **Description**, enter This policy enforces the existence of a tag on a resource.

g. For **Category** select **Use existing** and then select the **General** category.

h. For the **Policy rule**, delete all text in the box and paste in the following JSON.

```
{
  "mode": "Indexed",
  "policyRule": {
    "if": {
      "field": "[concat('tags[' , parameters('tagName'), ','])]",
      "exists": "false"
    }
  }
}
```

```
},
"then": {
    "effect": "deny"
},
},
"parameters": {
    "tagName": {
        "type": "String",
        "metadata": {
            "displayName": "Tag Name",
            "description": "Name of the tag, such as 'environment'"
        }
    }
}
}
```

Your policy definition should look like below. Click **Save** to save your policy definition.

Policy definition

New Policy definition

BASICS

Definition location *

Visual Studio Professional

Name * ⓘ

Enforce tag on resource

Description

This policy enforces the existence of a tag on a resource.

Category ⓘ

Create new Use existing

General

POLICY RULE

↓ Import sample policy definition from GitHub

↗ Learn more about policy definition structure

```
1 [ {  
2   "mode": "Indexed",  
3   "policyRule": {  
4     "if": {  
5       "field": "[concat('tags[', parameters('tagName'), ']')]",  
6       "exists": "false"  
7     },  
8     "then": {  
9       "effect": "deny"  
10    }  
11  },  
12  "parameters": {  
13    "tagName": {  
14      "type": "String",  
15      "metadata": {  
16        "displayName": "Tag Name",  
17        "description": "Name of the tag, such as 'environment'"  
18      }  
19    }  
20  }  
21 }
```

Create a policy assignment

You've created the policy, but you haven't put it into effect yet. To enable the policy, you need to create an assignment. In this case, you'll assign it to the scope of your **msftlearn-core-infrastructure-rg** resource group, so that it applies to anything inside the resource group.

- In the policy pane, select **Assignments** from the **Authoring** section on the left.

b. Select **Assign policy at the top.**

Home > Policy

Policy | Assignments

Search (Ctrl+ /)

Assign policy Assign initiative Refresh

Overview

Getting started

Compliance

Remediation

Authoring

Assignments

Definitions

Exemptions

Related Services

Blueprints (preview)

Resource Graph

User privacy

Scope

Visual Studio Professional

Definition type

All definition types

Search

Filter by name or ID...

Now create custom non-compliance messages for policy assignments. Learn more <https://aka.ms/policyassignmentnoncompliancmessage>

Total Assignments ⓘ

1

Initiative Assignments ⓘ

1

Policy Assignments ⓘ

0

Assignment name ↑↓

ASC Default (subscription: df33c13b-ad65-441e-a1d3-38d09f6b9603)

Scope ↑↓

Visual Studio Professional

Type ↑↓

Initiative

c. In the **Assign policy pane, you'll assign your policy to your resource group. For **Scope**, click the blue Select your subscription and the **msftlearn-core-infrastructure-rg** resource group, then click **Select**.**

Home > Policy >

Assign policy

Basics Parameters Remediation Non-compliance messages Review + create

Scope

Learn more about setting the scope *

Visual Studio Professional

Scope

Subscription

Visual Studio Professional

Resource Group

msftlearn-core-infrastructure-rg

Exclusions

Optionally select resources to exclude from the policy assignment.

Basics

Policy definition *

[]

Assignment name * ⓘ

[]

Description

[]

Policy enforcement ⓘ

Review + create

Cancel

Previous

Next

Select

Cancel

Clear All Selections

d. For **Policy definition**, click the blue In the **Type** drop-down, select **Custom**, select the **Enforce tag on resource** policy you created, then click **Select**.

Available Definitions

X

Type

Search

All types

▼

Filter by name or ID...

Policy Definitions (512)

Enforce tag on resource

Custom

This policy enforces the existence of a tag on a resource.

Enforce tag on resource

Custom

This policy enforces the existence of a tag on a resource.

Disk encryption should be enabled on Azure Data Explorer

Built-in

Enabling disk encryption helps protect and safeguard your data to meet your organizational security and compliance commitments.

Azure Data Explorer encryption at rest should use a customer-managed key

Built-in

Enabling encryption at rest using a customer-managed key on your Azure Data Explorer cluster provides additional control over the key being used by the encryption at rest. This feature is oftentimes applicable to customers with special compliance requirements and requires a Key Vault to managing the keys.

App Configuration should use private link

Built-in

Azure Private Link lets you connect your virtual network to Azure services without a public IP address at the source or destination. The private link platform handles the connectivity between the consumer and services over the Azure backbone network. By connecting your virtual network to Azure services via a private link, you can reduce latency, increase bandwidth, and improve security.

Select

Cancel

The screen should look as shown below now (You may see a different subscription name in scope).

Home > Policy >

Assign policy

Basics Parameters Remediation Non-compliance messages Review + create

Scope

Scope [Learn more about setting the scope *](#)

Visual Studio Professional/msftlearn-core-infrastructure-rg  

Exclusions

Optionally select resources to exclude from the policy assignment. 

Basics

Policy definition *

Enforce tag on resource  

Assignment name * ⓘ

Enforce tag on resource  

Description

(Empty text area)

Policy enforcement ⓘ

Enabled Disabled

[Review + create](#)

[Cancel](#)

[Previous](#)

[Next](#)

e. Select **Next** to go to the **Parameters** pane.

f. On the **Parameters** pane, for **Tag name** enter Department.

Home > Policy >

Assign policy

Basics Parameters Remediation Non-compliance messages Review + create

Specify parameters for this policy assignment.

Tag Name * ⓘ

Department ✓

Review + create

Cancel

Previous

Next

g. Select **Review + create** then select **Create** to create the assignment.

Test out the policy

Now that you have assigned the policy to your resource group, any attempts to create a resource without the Department tag should fail.

- a. On the Azure portal menu or from the **Home** page, select **Create a resource**.
- b. Search for **Storage account** and select **Storage account** - in the results, select **Create**.

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

Home > New > Marketplace >

Storage account

Microsoft



Storage account Microsoft Add to Favorites

4.2 (1731 ratings) Azure benefit eligible

Create

- c. Select your subscription, and the **msftlearn-core-infrastructure-rg** resource group.
- d. For **Storage account name**, give it any name of your choice, but note that it does have to be a globally unique name.
- e. Leave the rest of the options at their default, click **Review + create**.

Validation of your resource creation will fail because you don't have a **Department** tag applied to the resource. If the policy has not caused a validation failure, you may need to wait a few more minutes for it to be enabled.

Home > New > Marketplace > Storage account >

Create storage account

 Validation failed. Click here to view details. →

Basics Networking Data protection Advanced Tags Review + create

Basics

Subscription	Visual Studio Professional
Resource group	msftlearn-core-infrastructure-rg
Location	East US
Storage account name	azappdevstracc
Deployment model	Resource manager
Account kind	StorageV2 (general purpose v2)
Replication	Read-access geo-redundant storage (RA-GRS)
Performance	Standard

Fix the violation so you can successfully deploy the storage account.

f. Select **Tags** at the top of the **Create storage account** pane.

g. Add a **Department:Finance** tag to the list.

Errors

Summary Raw Error

ERROR DETAILS

Resource 'azappdevstracc' was disallowed by policy. (Code: RequestDisallowedByPolicy)

Policy: [Enforce tag on resource](#)

WAS THIS HELPFUL?  

Troubleshooting Options

[Check Usage + Quota](#) 

[New Support Request](#) 

Home > New > Marketplace > Storage account >

Create storage account

Basics Networking Data protection 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 about tags](#)

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

Name ⓘ	Value ⓘ	Resource
Department	: Finance	Storage account
	:	Storage account

Review + create

< Previous

Next : Review + create >

- h. Now click **Review+ create**. Validation should now pass, and if you click **Create** your storage account will be created.

Use resource locks to protect resources

Tailwind Traders have created few Azure resources. Now, they want to prevent accidental deletion of those resources. You plan to use resource locks to achieve this functionality.

Create a resource lock

- Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal.
- In the search box in the top navigation bar, search for msftlearn-core-infrastructure-rg, and select the resource group.

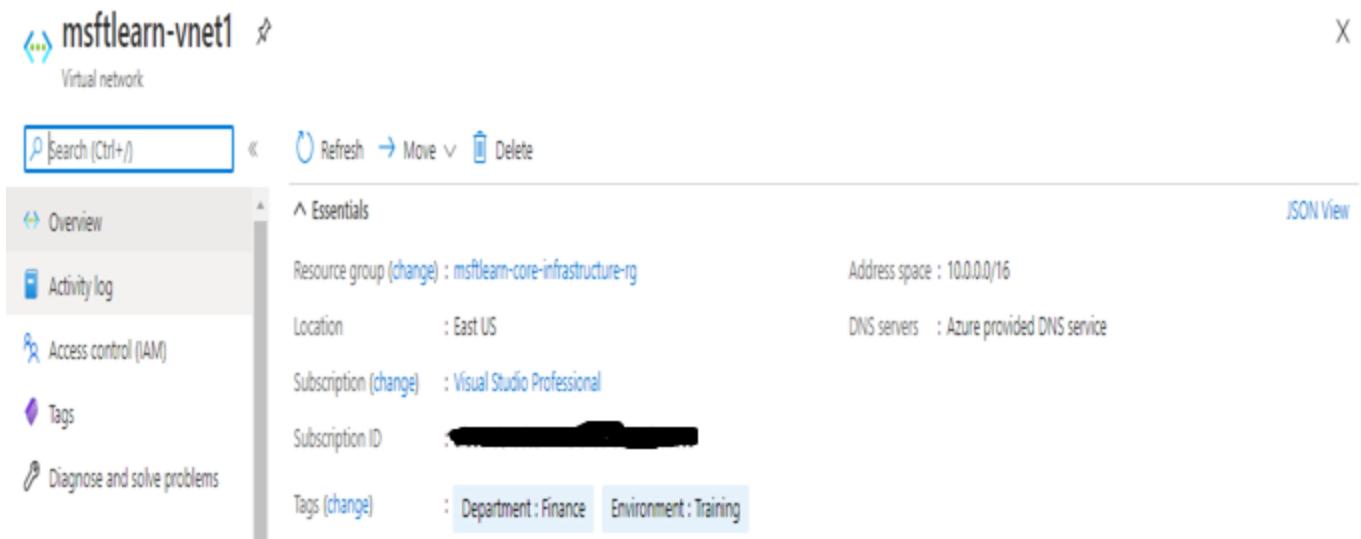
c. In the left menu, in the **Settings** section, select **Locks**. You should see that the resource currently has no locks. You'll add one.

d. Select **+ Add**. Name the lock **BlobDeletion** and select a **Lock type** of **Delete**. Select **OK**.

You now have a lock applied to the resource group that will prevent deletion of the resource group. This lock is inherited by all resources within the resource group. You'll try to delete one of the virtual networks to see what happens.

e. Go back to **Overview**, and to view the resource, select **msftlearn-vnet1**.

Dashboard > msftlearn-core-infrastructure-rg >



The screenshot shows the Azure portal interface for a virtual network named 'msftlearn-vnet1'. The left sidebar has a 'Virtual network' section with options: Overview (selected), Activity log, Access control (IAM), Tags, and Diagnose and solve problems. The main pane displays the 'Essentials' section with the following details:

Resource group (change) :	msftlearn-core-infrastructure-rg	Address space :	10.0.0.0/16
Location	: East US	DNS servers	: Azure provided DNS service
Subscription (change)	: Visual Studio Professional		
Subscription ID	: [REDACTED]		
Tags (change)	: Department : Finance	Environment	: Training

At the top right, there are 'Refresh', 'Move', 'Delete' buttons, and a 'JSON View' link.

- f. In the **Overview** pane for **msftlearn-vnet1**, at the top, select **Delete**, then to confirm, select **Yes**. You should receive an error, stating that there is a lock on the resource preventing its deletion.

Notifications

X

More events in the activity log →

Dismiss all ▾



Failed to delete virtual network

X

Failed to delete virtual network 'msftlearn-vnet1'. Error: The scope 'msftlearn-core-infrastructure-rg/providers/Microsoft.Network/virtualNetworks/msftlearn-vnet1' cannot perform delete operation because following scope(s) are locked: '/subscriptions/[REDACTED]/resourceGroups/msftlearn-core-infrastructure-rg'. Please remove the lock and try again.

- g. In the left menu, in the **Settings** section, select **Locks**. You should see here that our **msftlearn-vnet1** has a lock that is inherited by from the resource group.

Dashboard > msftlearn-core-infrastructure-rg > msftlearn-vnet1

msftlearn-vnet1 | Locks

Virtual network

Search (Ctrl+ /) Add Resource group Subscription Refresh

Overview Activity log Access control (IAM) Tags Diagnose and solve problems

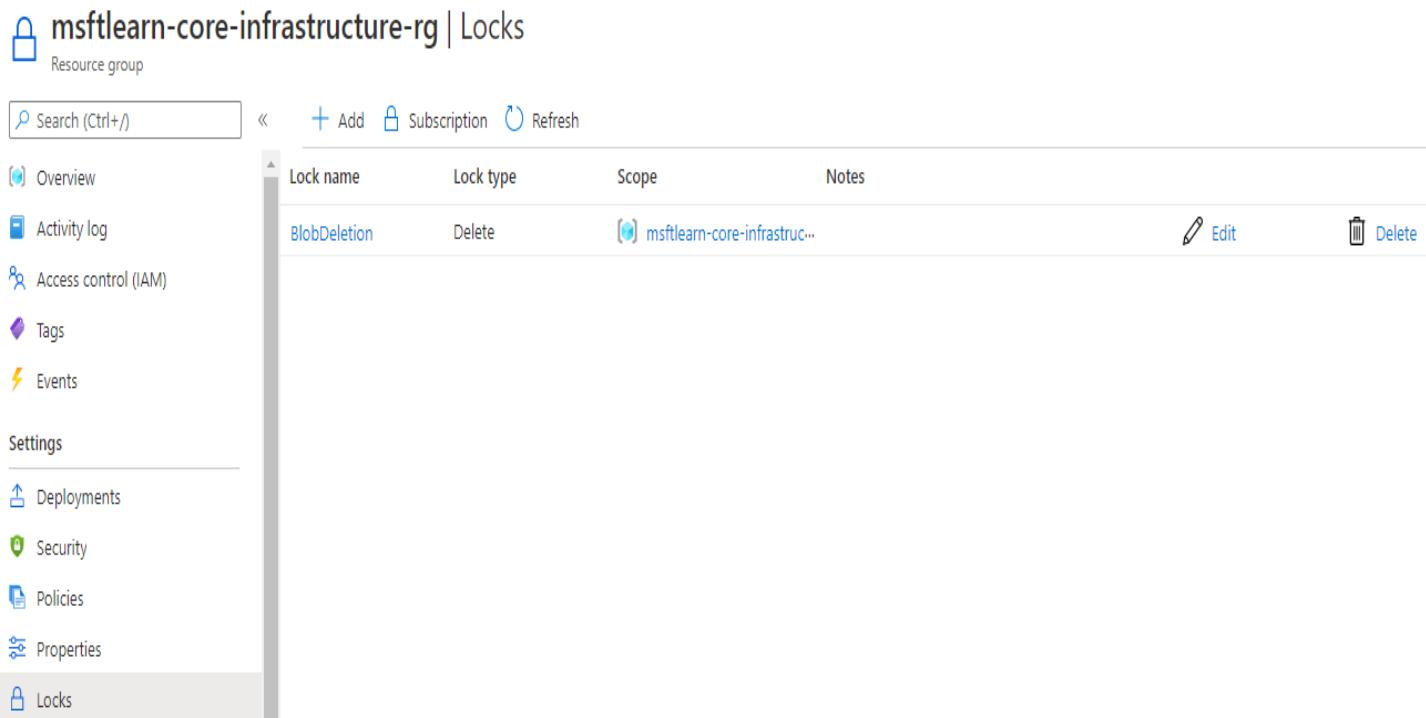
Address space Connected devices Subnets DDoS protection Firewall Security DNS servers Peerings Service endpoints Private endpoints Properties Locks

⚠️ Parent resource locks can't be edited here. Click on the locks scope to go to that scope.

Lock name	Lock type	Scope
BlobDeletion	Delete	[msftlearn-core-infrastruc...]

h. Navigate back to the **msftlearn-core-infrastructure-rg** resource group and bring up the **Locks** pane. You'll remove our lock so you can clean up. Select the ... on the **BlockDeletion** lock, and then select **Delete**.

Dashboard > msftlearn-core-infrastructure-rg



The screenshot shows the Azure portal interface for the resource group 'msftlearn-core-infrastructure-rg'. The 'Locks' blade is open, displaying a table with one row. The table columns are 'Lock name', 'Lock type', 'Scope', and 'Notes'. The row contains 'BlobDeletion', 'Delete', 'msftlearn-core-infrastructure-rg...', and an ellipsis. Action buttons for 'Edit' and 'Delete' are at the bottom right. The left sidebar shows various navigation options like Overview, Activity log, Access control (IAM), Tags, Events, Settings, Deployments, Security, Policies, Properties, and Locks, with 'Locks' being the active tab.

Lock name	Lock type	Scope	Notes
BlobDeletion	Delete	msftlearn-core-infrastructure-rg...	

Now, you should be able to delete any resources in the **msftlearn-core-infrastructure-rg** resource group.

Task 05: Working with SQL Server Database

Creating a SQL Server Database

Estimated Time : 90 minutes

Tailwind Traders need to store customers and orders data permanently. They also need to retrieve this data and view the orders status. Presently they are using Microsoft SQL Server to store this data.

They want to continue using SQL Server after migrating their existing system to Microsoft Azure.

Task : In this task you will create a SQL Server database, connect to it from Azure portal and run SQL queries to extract data from the table.

Learnings:

- How to create a SQL Server and a SQL Database using Azure portal
- How to connect to SQL Database from Azure portal
- Writing and executing SQL queries to extract data from the table.

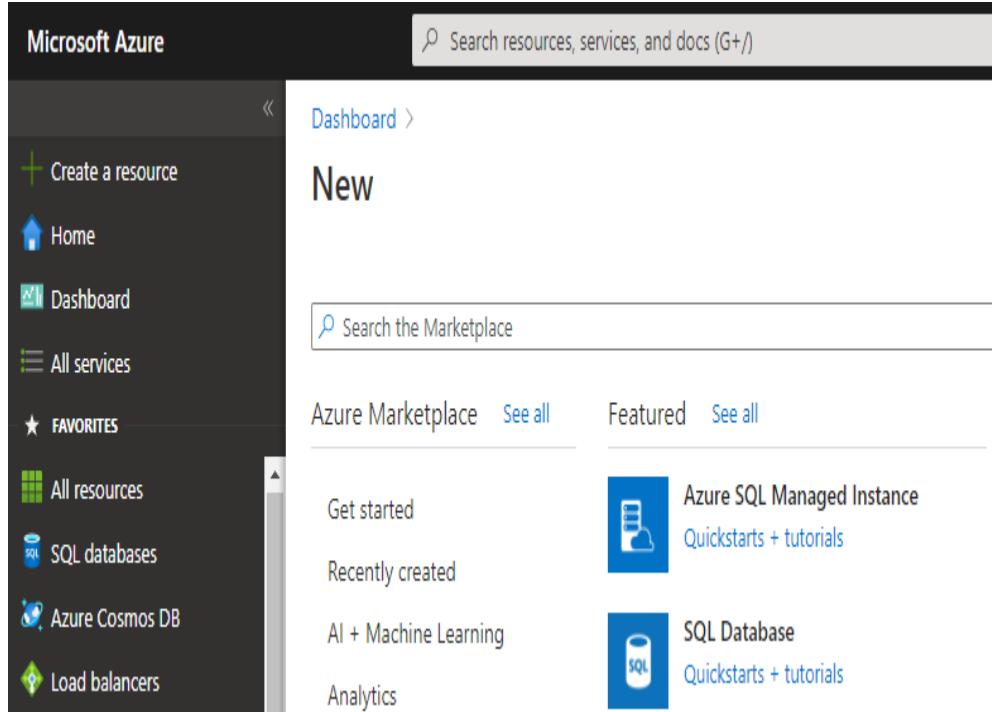
Outcome:

At the end of this task, you will be able to:

- 1) Create a SQL Server and a SQL Database using Microsoft Azure portal
- 2) Connect to and query SQL Database on Microsoft Azure cloud.

Guided Steps:

- a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials.
- b. Select Create a resource > Databases > SQL database.



Fill in the following information.

Setting	Value
On the Basics tab, under Project details section:	
Subscription	Select your subscription
Resource group	Select your Resource Group. If you have not created a Resource Group yet, select Create New. Specify Resource Group and click OK (Sample screenshot is shown below).

Setting	Value
	<p>Subscription * ⓘ</p> <ul style="list-style-type: none"> Resource group * ⓘ <p>Visual Studio Professional</p> <p>MasterCase</p> <p>Create new</p>
	<p>Database details</p> <p>Enter required settings for this database, including resources</p> <p>Database name *</p> <p>Server * ⓘ</p> <p>A resource group is a container that holds related resources for an Azure solution.</p> <p>Name *</p> <p>myRGDb</p> <p>OK Cancel</p>
Under Database details section:	
Database name	db1
Server	Select Create new.

c. The **New server** panel appears.

Enter the following information (replace **nnnn** in the name of the server with letters and digits, such that the name is globally unique).

Setting	Value
Servername	sqlservernnnn (must be unique)
Server admin login	Sqluser
Password	Capgemini@123
Location	(US) East US

Dashboard > SQL databases >

Create SQL Database

Microsoft

Basics • Networking Additional settings Tags Review + create

Create a SQL database with your preferred configurations. Complete the Basics tab then go to Review + Create to provision with smart defaults, or visit each tab to customize. [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 * ⓘ

Visual Studio Professional

Resource group * ⓘ

(New) myRGDb

[Create new](#)

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name *

db1

Server * ⓘ

Select a server

[Create new](#)

The value must not be empty.

Want to use SQL elastic pool? * ⓘ

Yes No

[Review + create](#)

[Next : Networking >](#)

OK

Click OK button.

In Compute+Storage, select **Configure database**. Choose **Looking for basic,standard,premium?**

Choose **Basic** and click **Apply** button.

New serve

Microsoft

Server name *

sqlservercg12

Server admin login

sqluser

Password *

.....

Confirm password

.....

Location *

(US) East US

Configure

 Feedback

Basic

For less demanding workloads

Standard

For workloads with typical performance requirements

Premium

For IO-intensive workloads.

vCore-based purchasing

Click here to customize your vCores

DTUs [What is a DTU?](#)

5 (Basic)

Data max size



Apply

The Create SQL Database screen should now look as shown below:

Cost summary

Cost per DTU (in INR)

DTUs selected

ESTIMATED COST / MONTH

Dashboard > SQL databases >

Create SQL Database

Microsoft

Project details

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

Subscription * ⓘ	<input type="text" value="Visual Studio Professional"/>
Resource group * ⓘ	<input type="text" value="(New) myRGDb"/> Create new

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name *	<input type="text" value="db1"/>
Server * ⓘ	<input type="text" value="(new) sqlservercg12 (East US)"/> Create new
Want to use SQL elastic pool? * ⓘ	<input type="radio"/> Yes <input checked="" type="radio"/> No
Compute + storage * ⓘ	<div style="border-left: 2px solid #ccc; padding-left: 10px;"> Basic 2 GB storage Configure database </div>

[Review + create](#)

[Next : Networking >](#)

d. Select **Next : Networking** and configure the following settings (leave defaults for remainder of fields).

Setting	Value
Under Network connectivity section:	
Connectivity method	Public endpoint (default)

Home > New >

Create SQL Database

Microsoft

Basics **Networking** Additional settings Tags Review + create

Configure network access and connectivity for your server. The configuration selected below will apply to the selected server 'sqlserverskj' and all databases it manages. [Learn more](#)

Network connectivity

Choose an option for configuring connectivity to your server via public endpoint or private endpoint. Choosing no access creates with defaults and you can configure connection method after server creation. [Learn more](#)

Connectivity method * ⓘ

- No access
- Public endpoint
- Private endpoint

Firewall rules

Setting 'Allow Azure services and resources to access this server' to Yes allows communications from all resources inside the Azure boundary, that may or may not be part of your subscription. [Learn more](#)

Setting 'Add current client IP address' to Yes will add an entry for your client IP address to the server firewall.

Allow Azure services and resources to access this server *

No Yes

Add current client IP address *

No Yes

e. Select **Next : Additional settings** and configure the following settings.

Setting	Value
Under Data source section:	
Use existing data	Sample (this will create the AdventureWorksLT sample database)

Setting	Value
Under Database collation section:	
Collation	Default
Under Azure Defender for SQL section:	
Enable Azure Defender for SQL	Not now

Home > New >

Create SQL Database

Microsoft

Basics Networking Additional settings Tags Review + create

Customize additional configuration parameters including collation & sample data.

Data source

Start with a blank database, restore from a backup or select sample data to populate your new database.

Use existing data *

None Backup Sample

AdventureWorksLT will be created as the sample database.

Database collation

Database collation defines the rules that sort and compare data, and cannot be changed after database creation. The default database collation is SQL_Latin1_General_CI_AS. [Learn more](#)

Collation ⓘ

SQL_Latin1_General_CI_AS

Azure Defender for SQL

Protect your data using Azure Defender for SQL, a unified security package including vulnerability assessment and advanced threat protection for your server. [Learn more](#)

Get started with a 30 day free trial period, and then 15 USD/server/month.

Enable Azure Defender for SQL * ⓘ

[Start free trial](#) Not now

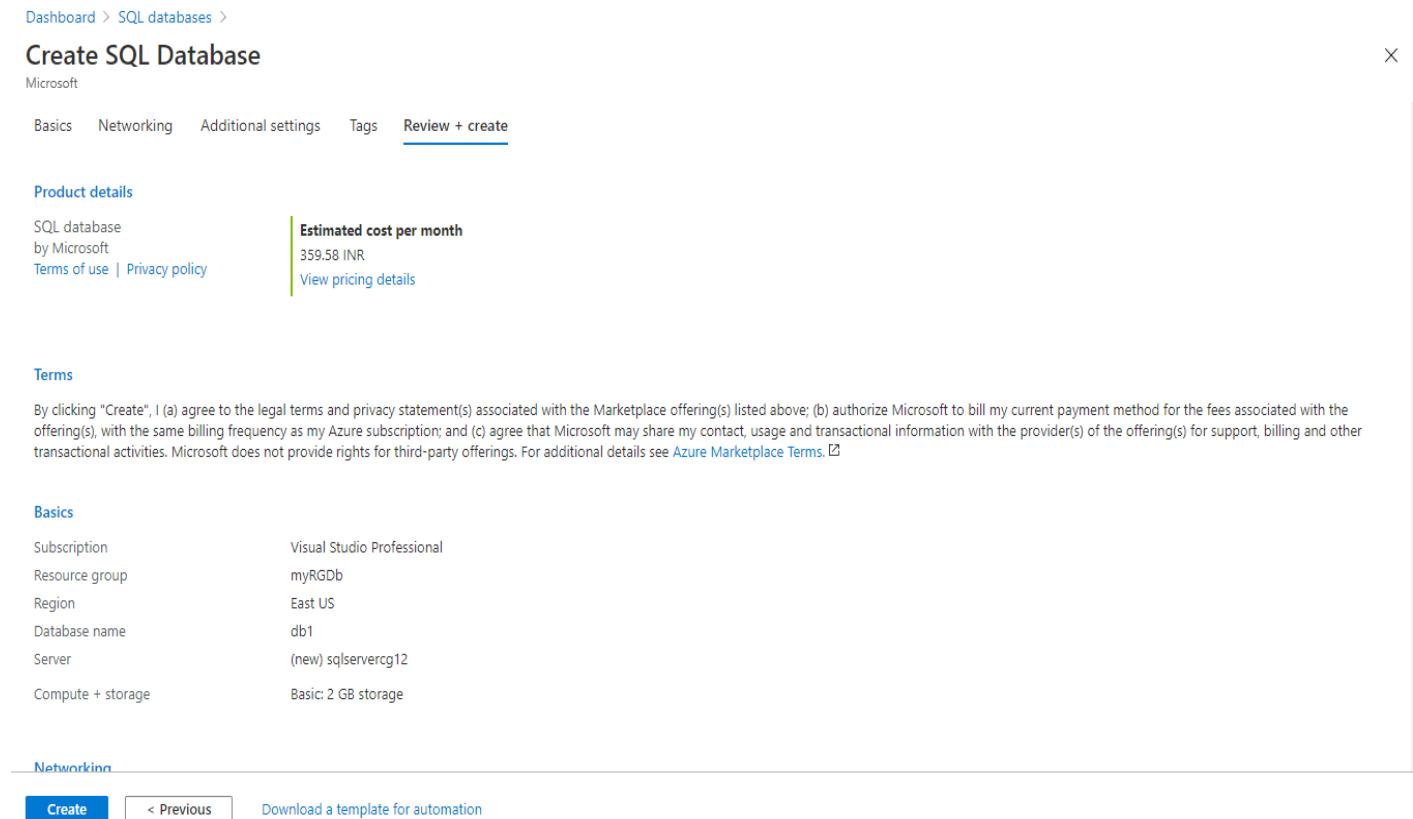
[Review + create](#)

< Previous

Next : Tags >

f. Click **Review+create** button.

g. After validation success, on the Create SQL Database window, select Create to deploy the server and database.



The screenshot shows the 'Create SQL Database' wizard in the Azure portal. The top navigation bar includes 'Dashboard > SQL databases >' and a Microsoft logo. The main title is 'Create SQL Database'. Below it, tabs for 'Basics', 'Networking', 'Additional settings', 'Tags', and 'Review + create' are present, with 'Review + create' being the active tab. A large green button labeled 'Create' is at the bottom right of the page.

Product details

SQL database by Microsoft
359.58 INR
[View pricing details](#)

Terms

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. For additional details see [Azure Marketplace Terms](#).

Basics

Subscription	Visual Studio Professional
Resource group	myRGDb
Region	East US
Database name	db1
Server	(new) sqlservercg12
Compute + storage	Basic: 2 GB storage

Networking

Create < Previous [Download a template for automation](#)

h. It can take approximately two to five minutes to create the server and deploy the sample database.

i. Select Go to resource.

Dashboard >

Microsoft.SQLDatabase.newDatabaseNewServer_3ec6097569054a4ba3039 | Overview X

Deployment

« Delete Cancel ↑ Redeploy ↻ Refresh

Overview We'd love your feedback! →

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name: Microsoft.SQLDatabase.newDatabaseNewServer_3ec6097569054a4ba3039 Start time: 2/10/2021, 4:30:07 PM
Subscription: Visual Studio Professional Correlation ID: e3652635-2d0d-4029-9364-6a85dbd6fdec
Resource group: myRGDb

Deployment details (Download) Next steps

[Go to resource](#)

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j. Select Set server firewall, and then select Yes to Allow Azure services and resources to access this server.

Enabling this feature would allow any traffic from resources/services hosted in Azure (not just your Azure subscription) to access the database.

E.g. – Any Web App (web site) hosted on Azure can access this SQL Server database.

For more information on this, please refer to the following link:

<https://docs.microsoft.com/en-us/azure/azure-sql/database/firewall-configure>

Dashboard > Microsoft.SQLDatabase.newDatabaseNewServer_3ec6097569054a4ba3039 >

db1 (sqlservercg12/db1) X

SQL database

« Copy Restore ↑ Export Set server firewall Delete Connect with... Feedback

Overview

Activity log

Tags

Diagnose and solve problems

Quick start

Query editor (preview)

Essentials

Resource group (change) : myRGDb	Server name :	sqlservercg12.database.windows.net
Status : Online	Elastic pool :	No elastic pool
Location : East US	Connection strings :	Show database connection strings
Subscription (change) : Visual Studio Professional	Pricing tier :	Basic
Subscription ID : [REDACTED]	Earliest restore point :	No restore point available
Tags (change) : Click here to add tags		

[JSON View](#)

Dashboard > Microsoft.SQLDatabase.newDatabaseNewServer_3ec6097569054a4ba3039 > db1 (sqlservercg12/db1) >

Firewall settings

sqlservercg12 (SQL server)

 Save  Discard  Add client IP

Deny public network access 

Yes No

 Click here to create a new private endpoint.

[Create Private Endpoint](#)

Minimum TLS Version 

> 1.0 >1.1 >1.2

Connection Policy 

Default Proxy Redirect

Allow Azure services and resources to access this server 

Yes No

k. Select Save.

l. Select OK.

Dashboard > Microsoft.SQLDatabase.newDatabaseNewServer_3ec6097569054a4ba3039 > db1 (sqlservercg12/db1) >

Firewall settings

sqlservercg12 (SQL server)

 Save  Discard  Add client IP

Success!

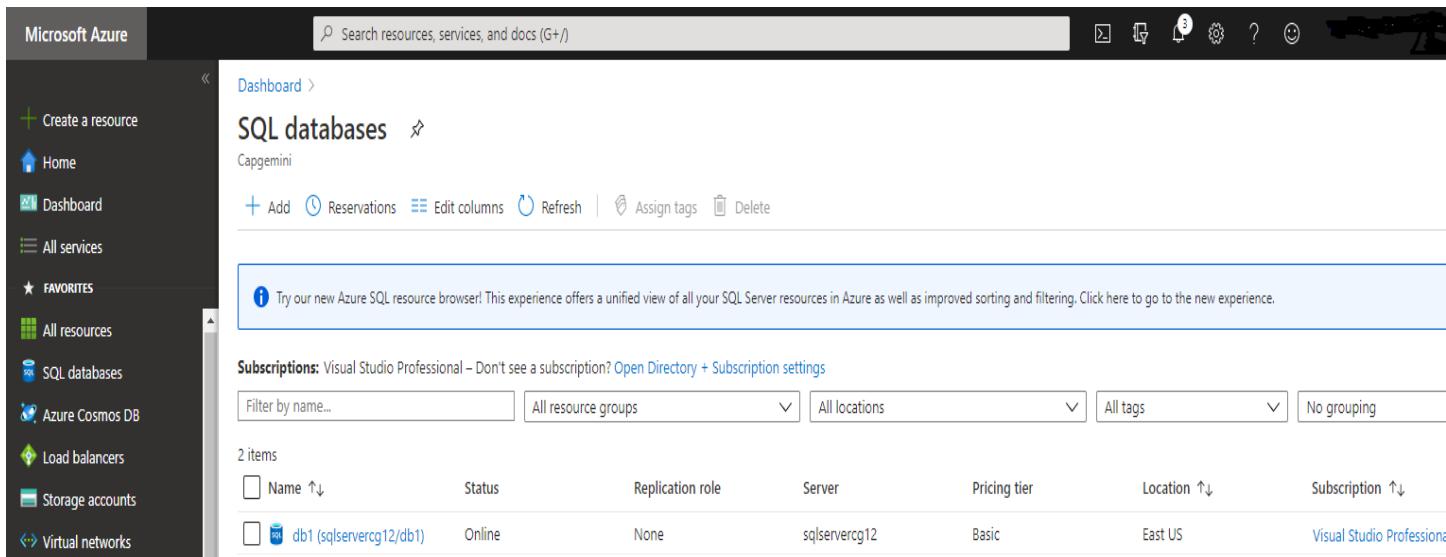
Successfully updated server firewall rules

 OK

Test the Database

In this task, you configure the server and run a SQL query.

- 1) From the All resources pane, search and select SQL databases and ensure that your new database was created. You might need to refresh the page.



The screenshot shows the Microsoft Azure portal interface. On the left, there is a sidebar with various service icons: Create a resource, Home, Dashboard, All services, Favorites (with All resources selected), SQL databases, Azure Cosmos DB, Load balancers, Storage accounts, and Virtual networks. The main content area is titled "SQL databases" under the "Capgemini" subscription. It includes buttons for Add, Reservations, Edit columns, Refresh, Assign tags, and Delete. A message box says: "Try our new Azure SQL resource browser! This experience offers a unified view of all your SQL Server resources in Azure as well as improved sorting and filtering. Click here to go to the new experience." Below this, it says "Subscriptions: Visual Studio Professional – Don't see a subscription? Open Directory + Subscription settings". There are filter options for "Filter by name...", "All resource groups", "All locations", "All tags", and "No grouping". A table lists two items: db1 (sqlservercg12/db1) which is Online, None, sqlservercg12, Basic, East US, and Visual Studio Professional.

Name	Status	Replication role	Server	Pricing tier	Location	Subscription
db1 (sqlservercg12/db1)	Online	None	sqlservercg12	Basic	East US	Visual Studio Professional

- 2) Select the db1 entry representing the SQL database you created, and then select Query editor (preview) in the nav bar.

SQL databases

Capgemini

[+ Add](#) [Reservations](#) ...

Try our new Azure SQL resource browser! This experience offers a unified view of all your SQL Server resources in Azure as well as improved sorting and filtering. Click here to go to the new experience.

Filter by name...

 Name ↑

 db1 (sqlservercg12/db1) ...

 PizzaDb (pizzass/PizzaDb) ...

db1 (sqlservercg12/db1) | Query editor (preview)

SQL database

[Search \(Ctrl+J\)](#)

Login

+ New Query

Open query

Feedback

[Overview](#)
[Activity log](#)
[Tags](#)
[Diagnose and solve problems](#)
[Quick start](#)
[Query editor \(preview\)](#)
Power Platform
[Power BI \(preview\)](#)
[Power Apps \(preview\)](#)
[Power Automate \(preview\)](#)
Settings
[Configure](#)
[Geo-Replication](#)
[Connection strings](#)


Welcome to SQL Database Query Editor

SQL server authentication

Login *

sqluser

Active Directory authentication

[Continue as nachiket-shrikant.inamdar...](#)

OR

Password *

OK

3) Sign in as sqluser, with the password Capgemini@123.

4) You will not be able to sign in. Read the error closely and make note of the IP address that needs to be allowed through the firewall.

The screenshot shows the Azure SQL Database Query editor (preview) interface. On the left, there's a sidebar with various options like Overview, Activity log, Tags, Diagnose and solve problems, Quick start, and Query editor (preview). Below that are sections for Power Platform (Power BI (preview), Power Apps (preview), Power Automate (preview)) and Settings (Configure, Geo-Replication, Connection strings, Sync to other databases, Add Azure Search, Properties, Locks). A message box on the left says: "Try our new Azure SQL resource browser! This experience offers a unified view of all your SQL Server resources in Azure as well as improved sorting and filtering. Click here to go to the new experience." At the bottom of the sidebar, there's a "Filter by name..." input field and some sorting options (Name ↑↓). The main area is titled "db1 (sqlservercg12/db1) | Query editor (preview)" and shows a large "SQL" icon. It has a search bar at the top with "Search (Ctrl+/" and icons for Login, New Query, Open query, and Feedback. Below the search bar is a "Welcome to SQL Database Query Editor" message. The "Login" section contains fields for "Login *" (set to "sqluser") and "Password *". To the right, it says "Active Directory authentication" with a blurred "OR" option. A red error message states: "Cannot open server 'sqlservercg12' requested by the login. Client with IP address '103.53.61.199' is not allowed to access the server. To enable access, use the Windows Azure Management Portal or run sp_set_firewall_rule on the master database to create a firewall rule for this IP address or address range. It may take up to five minutes for this change to take effect." Below the error message is a link "Set server firewall (sqlservercg12)". At the bottom right is a blue "OK" button.

5) When you create a new server in Azure SQL Database named sqlservercg12, for example, a server-level firewall blocks all access to the public endpoint for the server (which is accessible at sqlservercg12.database.windows.net). Server-level IP firewall rules enable clients to access your entire server, that is, all the databases managed by the server. To set the server firewall rules,

Select Overview > Set server firewall.

The screenshot shows the Azure SQL Database Overview page for the db1 database. At the top, there's a "SQL databases" header and a "Capgemini" logo. Below that is a toolbar with "Add", "Reservations", and other options. The main area shows the database name "db1 (sqlservercg12/db1)" and a "SQL database" icon. At the bottom of the page is a "Set server firewall" button. There's also a search bar with "Search (Ctrl+/" and icons for Copy, Restore, Export, Connect with..., and Feedback.

6) Click Add Client IP. In **Client IP address** your IP will be shown. Select **Rule name**, add your IP in both the **Start IP** and **End IP** fields, and then select **Save**.

Dashboard > SQL databases > db1 (sqlservercg12/db1) >

Firewall settings X

sqlservercg12 (SQL server)

Deny public network access ①

Yes No

i Click here to create a new private endpoint.
[Create Private Endpoint](#)

Minimum TLS Version ①

> 1.0 >1.1 >1.2

Connection Policy ①

Default Proxy Redirect

Allow Azure services and resources to access this server ①

Yes No

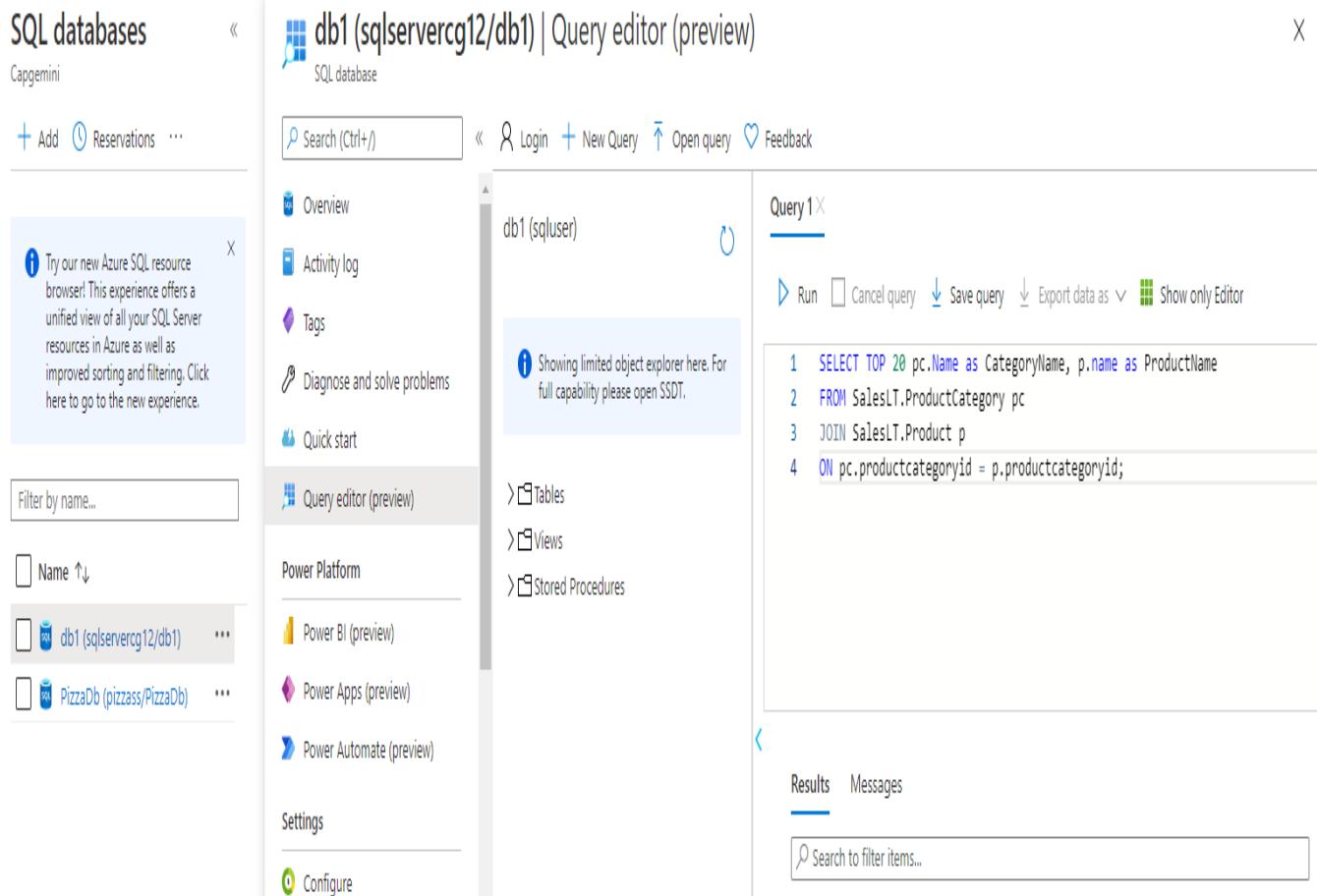
Client IP address 103.53.61.199

Rule name	Start IP	End IP	...
			...
ClientIPAddress_2021-2-...	103.53.61.199	103.53.61.199	...

7) Return to your SQL database and the Query Editor sign-in page. Try to sign in again as **sqluser**, with the password **Capgemini@123**. This time you should succeed. It might take a couple of minutes for the new firewall rule to be deployed. If you wait and still get an error, try selecting **Firewall settings** > again.

8) After you sign in successfully, the query pane appears. Enter the following query into the editor pane.

Dashboard > SQL databases > db1 (sqlservercg12/db1)



The screenshot shows the Azure SQL Database browser for the db1 database. The left sidebar lists other databases like db1 (sqlservercg12/db1) and PizzaDb (pizzass/PizzaDb). The main area displays a query editor with the following code:

```

1 SELECT TOP 20 pc.Name as CategoryName, p.name as ProductName
2 FROM SalesLT.ProductCategory pc
3 JOIN SalesLT.Product p
4 ON pc.productcategoryId = p.productcategoryId;
    
```

The Results pane at the bottom is currently empty.

9) Select **Run**, and then review the query results in the **Results** pane. The query should run successfully.

Query 1 X

Run Cancel query Save query Export data as Show only Editor

```
1 SELECT TOP 20 pc.Name as CategoryName, p.name as ProductName
2 FROM SalesLT.ProductCategory pc
3 JOIN SalesLT.Product p
4 ON pc.productcategoryid = p.productcategoryid;
```

Results Messages

Search to filter items...

CategoryName	ProductName
Road Frames	HL Road Frame - Black, 58
Road Frames	HL Road Frame - Red, 58
Helmets	Sport-100 Helmet, Red
Helmets	Sport-100 Helmet, Black
Socks	Mountain Bike Socks, M

✓ Query succeeded | 0s

Congratulations! You've created a SQL database in Azure and successfully queried the data in that database.

To Do:

- 1) Add a new SQL Server. Use the combination of your name and Employee Id as server name.
- 2) Place this server in a new resource group. Give name of your choice to this resource group.
- 3) Use cgsa as Username and Capgemini@123 as password for this server.
- 4) Create a database named MyDb on this SQL Server. This database should be based on AdventureWorks sample database.
- 5) Connect to this database from Query Editor and write a query that retrieves all records from the Products table.

Task 06: Creating a Storage Account

Estimated Time : 1 hour

Tailwind Traders need to store images of their products and videos containing customer testimonials about their products. They wish to use Azure Blob Storage for this.

Task : In this task you will use create Storage Account and store images in the Azure Blob Storage.

Learnings:

- How to create Storage Account in Azure and How to store and retrieve images from Blob Storage.

Outcome:

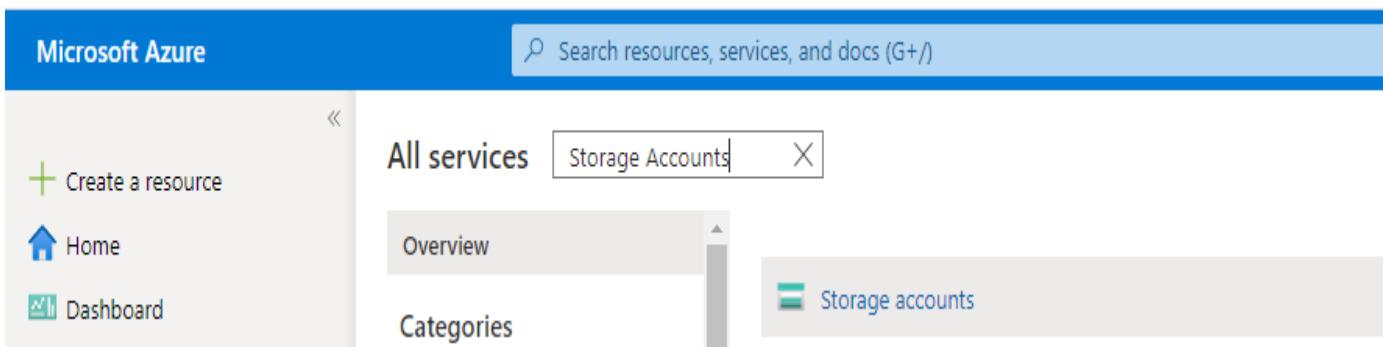
At the end of this task, you will be able to:

- 1) Create a Storage Account using Microsoft Azure portal
- 2) Store image in and retrieve image from the blob storage.

Guided Steps:

1) Creating a Storage Account

- a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal.
- b. Expand the left-hand navigation from the top-left menu and select **All Services**. In the list of resources, type **Storage Accounts**. As you begin typing, the list filters based on your input. Select **Storage Accounts**.



- c. On the **Storage Accounts** window that appears, choose **Add**.

All services >

Storage accounts ⚡ ...

Capgemini (capgemini.onmicrosoft.com)

+ Add Manage view Refresh Export to CSV Open query Assign tags Delete

- c. On the **Basics** tab, select the subscription in which to create the storage account.
- d. Under the **Resource group** field, select your desired resource group, or create a new resource group.
- e. Next, enter a name for your storage account. The name you choose must be unique across Azure. The name also must be between 3 and 24 characters in length and may include only numbers and lowercase letters.
- f. Select a location for your storage account or use the default location.
- g. Select a performance tier. The default tier is Standard.
- h. Set the Account kind field to Storage V2 (general-purpose v2).
- i. Specify how the storage account will be replicated. The default replication option is Read-access geo-redundant storage (RA-GRS). For more information about available replication options, see Azure Storage redundancy.
- j. Additional options are available on the **Networking**, **Data protection**, **Advanced**, and **Tags** tabs.
- k. Select **Review + Create** to review your storage account settings and create the account.
- l. Select **Create**.

The following image shows the settings on the **Basics** tab for a new storage account:

Create storage account

Tables. The cost of your storage account depends on the usage and the options you choose below.

[Learn more about Azure storage accounts](#)

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 Professional
Resource group *	AZ900
	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 * ⓘ	azureappstracc
Location *	(US) East US
Performance ⓘ	<input checked="" type="radio"/> Standard <input type="radio"/> Premium
Account kind ⓘ	StorageV2 (general purpose v2)
Replication ⓘ	Read-access geo-redundant storage (RA-GRS)

[Review + create](#)

< Previous

Next : Networking >

2) Working with Blob Storage:

- a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal.
- b. Expand the left-hand navigation from the top-left menu and select **All Services**. In the list of resources, type **Storage Accounts**. As you begin typing, the list filters based on your input. Select **Storage Accounts**.

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

[Create a resource](#)
All services Storage Accounts X

- [Home](#)
- [Dashboard](#)

Overview
Categories
Storage accounts

c. You will see **Storage Account** created in Step 1.

Storage accounts ⚡ ...

Capgemini (capgemini.onmicrosoft.com)

+ Add Manage view Refresh Export to CSV Open query | Assign tags Delete Feedback

Filter for any field... Subscription == all Resource group == all Location == all Add filter

Showing 1 to 4 of 4 records. No grouping

Name ↑	Type ↑	Kind ↑	Resource group ↑	Location ↑
az900stracc	Storage account	StorageV2	AZ900	East US
azappdevstracc	Storage account	StorageV2	msftlearn-core-infrastructure...	East US

d. Click on storage account name (azappdevstracc in this case) and click on **Containers**.

azappdevstracc Storage account

Search (Ctrl+ /) Open in Explorer Move Refresh Delete Feedback

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Access Control (IAM)
- Data migration
- Events
- Storage Explorer (preview)

Essentials

Resource group (change) : msftlearn-core-infrastructure-rg	Performance/Access tier : Standard
Status : Primary: Available, Secondary: Available	Replication : Read-Only
Location : East US, West US	Account kind : Storage
Subscription (change) : Visual Studio Professional	
Subscription ID : df33c13b-ad65-441e-a1d3-38d09f6b9603	
Tags (change) : Department : Finance	

Containers
Scalable, cost-effective storage for unstructured data
[Learn more](#)

File shares
Serverless SMB and NFS file shares
[Learn more](#)

Tables
Tabular data storage
[Learn more](#)

Queues
Effectively scale apps according to traffic
[Learn more](#)

e. You cannot directly store the files inside blob storage. You need to create a container first.

Click on **+ Container** to add a new container to the blob storage. This container can contain images, videos, files etc.

f. Enter the container name and keep default values for rest of the settings. Click on Create button.

New container ×

Name *	<input type="text" value="azappdeveloperblobs"/> ✓
Public access level (i)	<input type="button" value="Private (no anonymous access)"/>
▼ Advanced	

g. Click on **container name**.

Dashboard > Storage accounts > azappdevstracc

The screenshot shows the Azure Storage Accounts - Containers blade for the storage account 'azappdevstracc'. The left sidebar contains navigation links: Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, and Storage Explorer (preview). The main area displays a table of containers:

Name	Last modified	Public access level	Lease
azappdeveloperblobs	4/5/2021, 3:19:14 PM	Private	Available

h. Click on **Upload**.

Dashboard > Storage accounts > azappdevstracc >

azappdeveloperblobs ...

Container

Search (Ctrl+J) < Upload Change access level Refresh Delete Change tier Acquire lease Break lease View snaps

Overview Diagnose and solve problems Access Control (IAM)

Authentication method: Access key ([Switch to Azure AD User Account](#))
Location: azappdeveloperblobs

Search blobs by prefix (case-sensitive) Show del

Name	Modified	Access tier	Blob type	Size
No results				

Settings

Shared access signature Access policy Properties Metadata

i. Choose the **file to upload** and click on Upload button.

Upload blob ×

azappdeveloperblobs/

Files (1)

"GoogleApp.PNG" File

Overwrite if files already exist

Advanced

Upload

j. You should be able to see the uploaded file.

Dashboard > Storage accounts > azappdevstracc >

azappdeveloperblobs ...

Container

Search (Ctrl+ /) «

Upload Change access level Refresh Delete Change tier Acquire lease Break lease View snapshots

Overview Diagnose and solve problems Access Control (IAM)

Authentication method: Access key (Switch to Azure AD User Account)
Location: azappdeveloperblobs

Search blobs by prefix (case-sensitive)

Show deleted blob

Name	Modified	Access tier	Blob type	Size	Last modified
GoogleApp.PNG	4/5/2021, 3:27:18 PM	Hot (Inferred)	Block blob	101.14 KiB	4/5/2021, 3:27:18 PM

Settings Shared access signature Access policy Properties Metadata

k. Click on Eclipse (...) button. You will see the option to download the file.

Dashboard > Storage accounts > azappdevstracc >

azappdeveloperblobs ...

Container

Search (Ctrl+ /) «

Upload Change access level Refresh Delete Change tier Acquire lease Break lease View snapshots

Overview Diagnose and solve problems Access Control (IAM)

Authentication method: Access key (Switch to Azure AD User Account)
Location: azappdeveloperblobs

Search blobs by prefix (case-sensitive) Show deleted blobs

Name	Modified	Access tier	Blob type	Size	Actions
GoogleApp.PNG	4/5/2021, 3:27:18 PM	Hot (Inferred)	Block blob	101.14 KiB	          

Shared access signature
Access policy
Properties
Metadata

I. Go back to Storage Accounts. Click on your **storage account name** and choose **Storage Explorer (Preview)**.

Storage accounts

Capgemini (capgemini.onmicrosoft.com)

[+ Add](#) [Manage view](#) [...](#)

[Filter for any field...](#)

Name ↑↓

	az900stracc	...
	azappdevstracc	...
	csb10037ffeadca8fb9	...
	demstracc	...



azappdevstracc | Storage Explorer (p)

Storage account

[Search \(Ctrl+/\)](#)

[Search](#)

[Overview](#)

[BLOB CONTAINERS](#)

[Activity log](#)

[FILE SHARES](#)

[Tags](#)

[QUEUES](#)

[Diagnose and solve problems](#)

[TABLES](#)

[Access Control \(IAM\)](#)

[Data migration](#)

[Events](#)

[Storage Explorer \(preview\)](#)

j. Expand **BLOB CONTAINERS**. You should be able to see the blob container created by you. Click on the **Container name**.

azappdevstracc | Storage Explorer (preview)

Storage account

[Search](#)

Upload Download Open New Folder Copy URL Select All Copy Paste More

[BLOB CONTAINERS](#)

[azappdeveloperblobs](#)

[FILE SHARES](#)

[QUEUES](#)

[TABLES](#)

Active blobs (default) azappdeveloperblobs

Search by prefix (ca

NAME	ACCESS TIER	ACCESS TIER LAST MODIFIED	LAST MODIFIED	BLOB TYPE	CONTENT TYPE	SIZE	STATUS	REMAINING DAYS
GoogleApp.PNG	Hot (inferred)		4/5/2021, 3:27:18 PM	Block Blob	image/png	101.1 KB	Active	

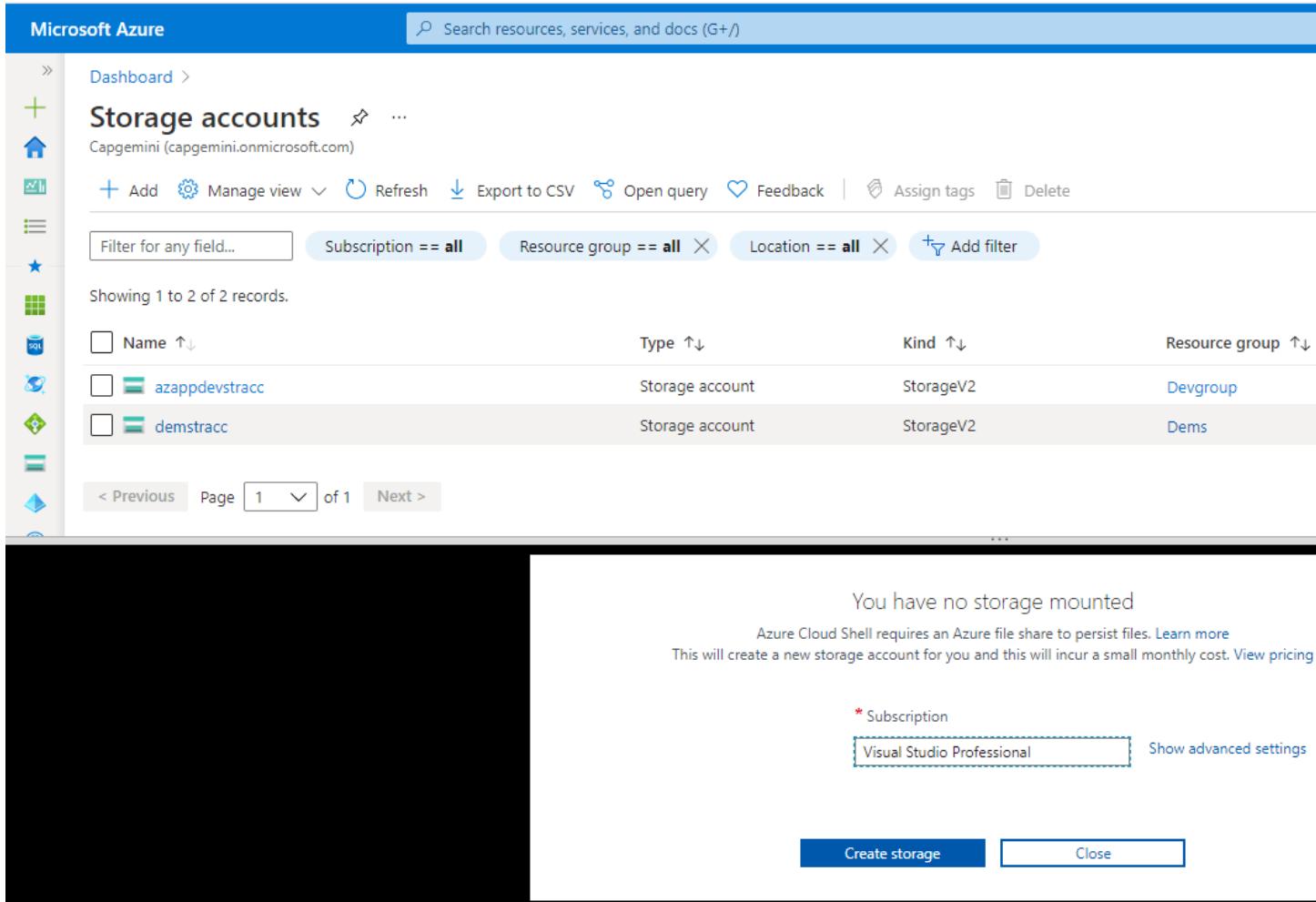
k. You should be able to see the file uploaded by you along with **Download** option at the top.

Using Azure Cloud Shell:

Estimated Time : 30 minutes

Azure Cloud Shell is an interactive, authenticated, browser-accessible shell for managing Azure resources. It provides the flexibility of choosing the shell experience that best suits the way you work, either Bash or PowerShell.

- a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal.
- b. Click on Azure Cloud Shell icon. You will be prompted for selecting storage account.



The screenshot shows the Microsoft Azure Storage accounts page. The left sidebar has icons for Dashboard, Storage accounts, SQL, App Services, Functions, Logic Apps, and Container Registry. The main area shows 'Storage accounts' for the 'Capgemini (capgemini.onmicrosoft.com)' subscription. There are filters for Subscription == all, Resource group == all, and Location == all. The table lists two storage accounts:

Name	Type	Kind	Resource group
azappdevstracc	Storage account	StorageV2	Devgroup
demstracc	Storage account	StorageV2	Dems

At the bottom, there are navigation buttons: < Previous, Page 1 of 1, and Next >. A large black rectangular area is overlaid on the bottom right of the table, obscuring some text. To the right of this area, a modal window is displayed:

You have no storage mounted

Azure Cloud Shell requires an Azure file share to persist files. [Learn more](#)

This will create a new storage account for you and this will incur a small monthly cost. [View pricing](#)

* Subscription: Visual Studio Professional

Show advanced settings

Create storage Close

- c. Click on “Show advanced settings” and key in the information as shown below:

You have no storage mounted

* Subscription <input type="text" value="XXXXXXXXXX"/>	* Cloud Shell region <input type="text" value="East US"/>	Hide advanced settings
		<input type="checkbox"/> Show VNET isolation settings PREVIEW
* Resource group <input type="radio"/> Create new <input checked="" type="radio"/> Use existing <input type="text" value="Devgroup"/>	* Storage account <input type="radio"/> Create new <input checked="" type="radio"/> Use existing <input type="text" value="azappdevstracc"/>	* File share <input checked="" type="radio"/> Create new <input type="radio"/> Use existing <input type="text" value="azappdevfs"/>
<input style="background-color: #0072BC; color: white; padding: 5px 20px; border-radius: 5px; border: none; font-weight: bold; margin-right: 10px;" type="button" value="Create storage"/> <input style="border: 1px solid #0072BC; padding: 5px 20px; border-radius: 5px; font-weight: bold;" type="button" value="Close"/>		

Subscription will your Microsoft Azure subscription which will be populated automatically.

d. Click on Create storage button.

e. Azure Cloud Shell will be launched. You can choose PowerShell or bash to key in commands in Azure Cloud Shell.

```

PowerShell < 
Terminal...
Bash

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

MOTD: Customize your experience: save your profile to $HOME/.config/PowerShell

VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/nachiket-shrikant_inamdar> []

```

Choose PowerShell.

f. Key in “cls” command on Azure Cloud Shell to clear the screen.

```
PowerShell | ⌂ ? ⌂ { } ⌂
Connecting terminal...
Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

MOTD: Customize your experience: save your profile to $HOME/.config/PowerShell

VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/nachiket-shrikant_inamdar> cls
```

Key in Get-Help New-AzWebApp command. New-AzWebApp command is used to create a new Azure Web App. Get-Help command is used to display detailed help about any command.

```
PowerShell | ⌂ ? ⌂ { } ⌂
PS /home/nachiket-shrikant_inamdar> Get-Help New-AzWebApp

NAME
    New-AzWebApp

SYNOPSIS
    Creates an Azure Web App.

SYNTAX
    New-AzWebApp [-Location] <System.String> [-ResourceGroupName] <System.String> [-Name] <System.String> [[-AppServicePlan] <System.String>] [[-SourceWebApp]
        <Microsoft.Azure.Commands.WebApps.Models.PSSite>] [[-TrafficManagerProfile] <System.String>] [[-AppSettingsOverrides] <System.Collections.Hashtable>] [[-AseName] <System.String>] [[-AseResourceGroupName] <System.String>] [-AsJob] [-DefaultProfile <Microsoft.Azure.Commands.Common.Authentication.Abstractions.IAzureContextContainer>]
```

Please refer the following link for more details on Azure Cloud Shell:

<https://docs.microsoft.com/en-us/azure/cloud-shell/overview>

Using Azure CLI:

Estimated Time : 30 minutes

The Azure command-line interface (Azure CLI) is a set of commands used to create and manage Azure resources. The Azure CLI is available across Azure services and is designed to get you working quickly with Azure, with an emphasis on automation.

Ways to use Azure CLI:

Azure CLI can be used in the following **two ways**:

1) Install Azure CLI locally: Please install the Azure CLI on your computer using steps mentioned in the following link:

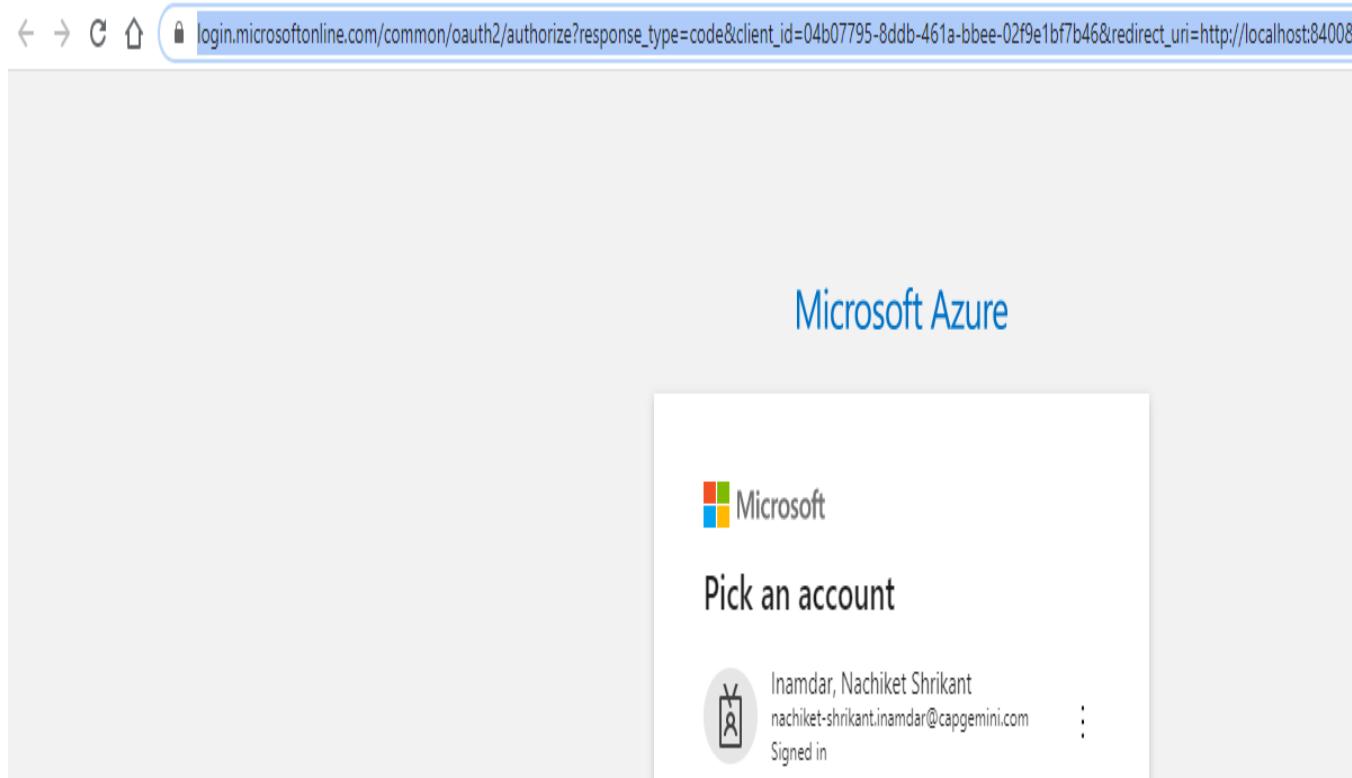
<https://docs.microsoft.com/en-us/cli/azure/install-azure-cli-windows?tabs=azure-cli>

a) Once the Azure CLI is installed, open the Command Prompt and key the “az login” command and press Enter key.

```
Microsoft Windows [Version 10.0.17763.1577]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\nainamda>az login
```

b) Sign into the Microsoft Azure portal using your Microsoft Azure credentials:



You will see the message indicating that you have successfully logged in.

You have logged into Microsoft Azure!

You can close this window, or we will redirect you to the [Azure CLI documents](#) in 10 seconds.

Once you sign into the Microsoft Azure portal successfully, command prompt will show the output like the one shown below (You will see details of your Microsoft Azure subscription):

```
C:\Users\nainamda>az login
The default web browser has been opened at https://login.microsoftonline.com/common/oauth2/authorize. Please continue in your browser. If no web browser is available or if the web browser fails to open, use device code flow with `az login --use-device-code`.
You have logged in. Now let us find all the subscriptions to which you have access...
[
  {
    "cloudName": "AzureCloud",
    "homeTenantId": "REDACTED",
    "id": "df33c13b-ad65-441e-a1d3-38d09f6b9603",
    "isDefault": true,
    "managedByTenants": [],
    "name": "Visual Studio Professional",
    "state": "Enabled",
    "tenantId": "REDACTED",
    "user": {
      "name": "nachiket-shrikant.inamdar@capgemini.com",
      "type": "user"
    }
  }
]
```

c) Key in the following command on the command prompt:

```
az help
```

You will see the commands to manage various Microsoft Azure resources:

```
C:\Users\nainamda>az help
```

Group

```
az
```

Subgroups:

```
account
```

: Manage Azure subscription information.

```
acr
```

: Manage private registries with Azure Container Registries.

```
ad
```

: Manage Azure Active Directory Graph endpoint for Role Based Access Control.

```
advisor
```

: Manage Azure Advisor.

```
afd
```

[Preview]

: Manage Azure Kubernetes Services.

```
aks
```

: Manage Azure Media Services resources.

```
ams
```

: Manage Azure API Management services.

```
apim
```

: Manage App Configurations.

```
appconfig
```

: Manage App Service plans.

```
appservice
```

: Manage Azure Red Hat OpenShift clusters.

```
aro
```

: Manage Azure Backups.

```
backup
```

: Manage Azure Batch.

```
batch
```

: Bicep CLI command group.

```
bicep
```

: Manage Azure Billing.

```
billing
```

: Manage Microsoft Azure Bot Service.

```
bot
```

: Commands to manage CLI objects cached using the `--defer` argument.

```
cache
```

: Manage Azure Content Delivery Networks.

```
cdn
```

: Manage registered Azure clouds.

```
cloud
```

: Manage Azure Cognitive Services accounts.

```
cognitiveservices
```

[Experimental] : Manage Azure CLI configuration.

```
config
```

[Preview] : Manage consumption of Azure resources.

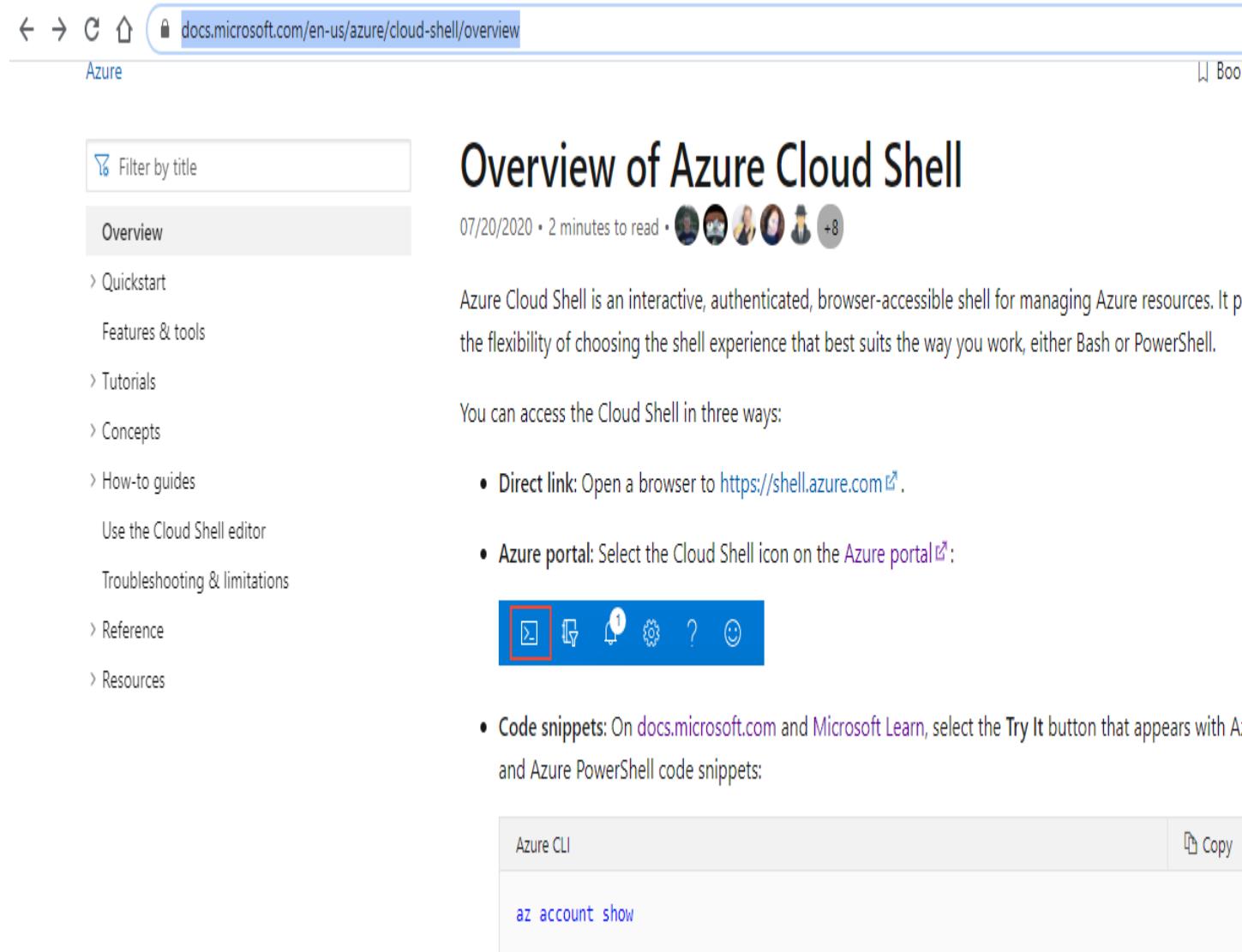
```
consumption
```

2) Using Azure CLI Online:

Please key the following URL in the browser:

<https://docs.microsoft.com/en-us/azure/cloud-shell/overview>

Click on “**Try It**” button against the Azure CLI and **follow the steps**.



The screenshot shows a browser window with the URL docs.microsoft.com/en-us/azure/cloud-shell/overview. The page title is "Overview of Azure Cloud Shell". On the left, there's a sidebar with a "Filter by title" input field and a list of links: Overview, Quickstart, Features & tools, Tutorials, Concepts, How-to guides, Use the Cloud Shell editor, Troubleshooting & limitations, Reference, and Resources. The "Overview" link is highlighted. To the right, the main content area starts with a date ("07/20/2020") and a reading time ("2 minutes to read"). Below this is a summary: "Azure Cloud Shell is an interactive, authenticated, browser-accessible shell for managing Azure resources. It provides the flexibility of choosing the shell experience that best suits the way you work, either Bash or PowerShell." A section titled "You can access the Cloud Shell in three ways:" lists three methods: "Direct link: Open a browser to <https://shell.azure.com>", "Azure portal: Select the Cloud Shell icon on the [Azure portal](#)", and "Code snippets: On [docs.microsoft.com](#) and [Microsoft Learn](#), select the Try It button that appears with Azure CLI and Azure PowerShell code snippets:". There's also a "Copy" button at the bottom right of the code snippet area.

Using both Azure Cloud Shell and Azure CLI, you can Microsoft Azure resources by using commands.

Task07: Working with Application Insights

Estimated Time : 30 mins

Tailwind Traders wants to view the statistics pertaining to the web application such as number of requests, average response time etc.

Task : In this task you will use Application Insights to monitor the performance of the web application created in Task 02.

Learnings:

- How to use application insights to monitor the web application performance.

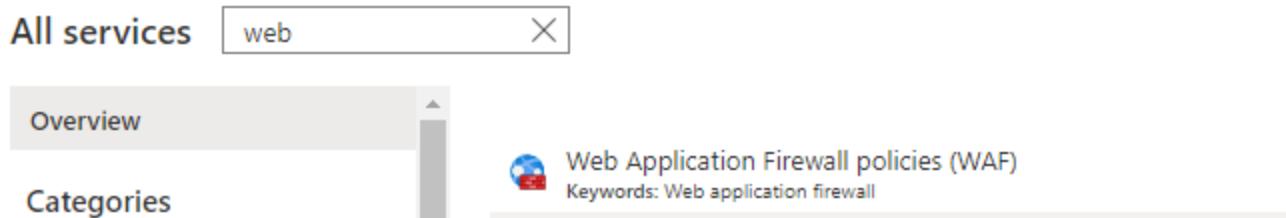
Outcome:

At the end of this task, you will be able to:

1) Use applications insights to view the web application telemetry.

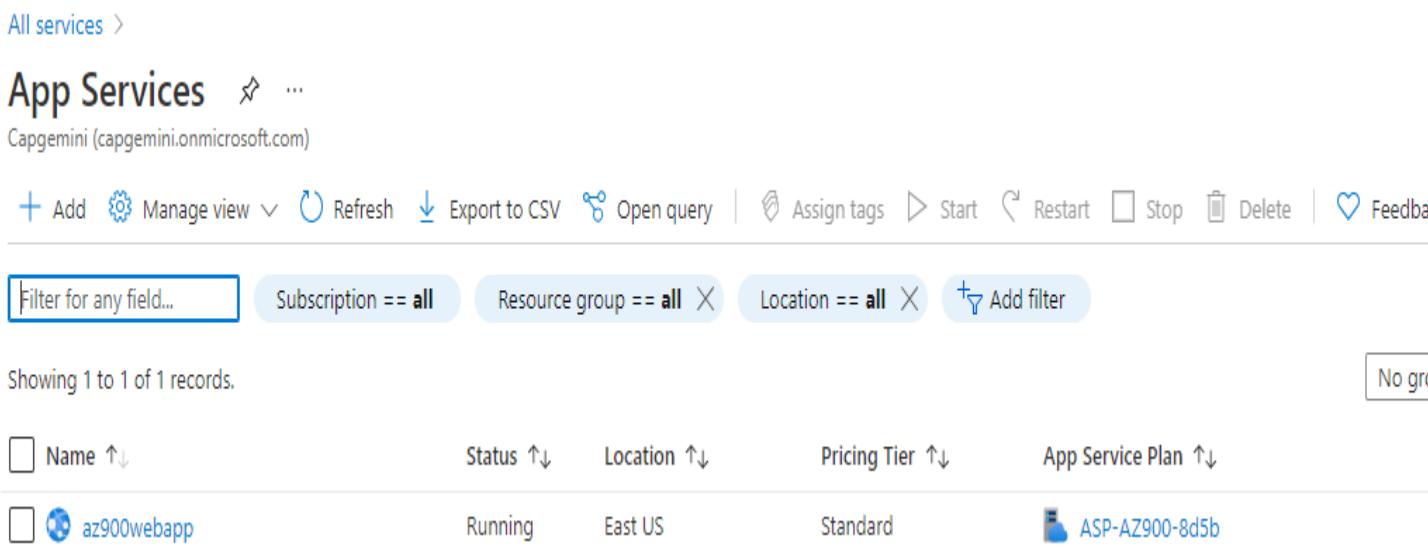
a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal.

b. Click on All Services-> Key in **Web App** in Search Box and select App Services Keywords: web app under Marketplace.



The screenshot shows the Azure portal's search interface. The search bar at the top contains the text "web". Below it, the "Categories" tab is selected, showing a list of service categories. A specific card for "Web Application Firewall policies (WAF)" is highlighted, with the text "Keywords: Web application firewall" below its name.

c. Locate the web app created in Task 02 and click on web app name.



The screenshot shows the "App Services" blade in the Azure portal. It displays a single web app named "az900webapp". The app's details are listed as follows:

Name	Status	Location	Pricing Tier	App Service Plan
az900webapp	Running	East US	Standard	ASP-AZ900-8d5b

d. Copy the web app URL and paste it in the browser.

All services > App Services >

 az900webapp ⚡ ...

App Service

Search (Ctrl+ /) «

Browse Stop Swap Restart Delete | Refresh Get publish profile Reset publish pr

 Overview

 Activity log

 Access control (IAM)

 Tags

 Diagnose and solve problems

 Security

 Events (preview)

 Deployment

Click here to access our Quickstart guide for deploying code to your app →

^ Essentials

Resource group (change) : AZ900	URL : http://
Status : Running	Health Check : Not checked
Location : East US	App Service Plan : ASP.NET Core
Subscription (change) : Visual Studio Professional	FTP/deployment username : No value
Subscription ID : df33c13b-ad65-441e-a1d3-38d09f6b9603	FTP hostname : ftp://
	FTPS hostname : ftps://

e. You will see the default home page of the web app.



Hey, App Service developers!

Your app service is up and running.

Time to take the next step and deploy your code.

Have your code ready?

Use deployment center to get code published from your client or setup continuous deployment.

Don't have your code yet?

Follow our quickstart guide and you'll have a full app ready in 5 minutes or less.

[Deployment Center](#)

[Quickstart](#)



f. Browse to the **web app** in **Azure portal** and click on **Application Insights** under **Settings**.

Dashboard >

az900webapp ⚡ ...

App Service

Search (Ctrl+ /)

Browse Stop Swap Restart Delete Refresh Get publish profile Reset publish

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Security Events (preview)

Deployment Quickstart Deployment slots Deployment Center Deployment Center (Classic)

Settings Configuration Authentication Authentication (classic) Application Insights

Click here to access our Quickstart guide for deploying code to your app →

Essentials

Resource group (change) : AZ900	URL : https://az900webapp.azurewebsites.net
Status : Running	Health Check : Check Health
Location : East US	App Service Plan : Standard
Subscription (change) : Visual Studio Professional	FTP/deployment username : VSProfessional
Subscription ID : df33c13b-ad65-441e-a1d3-38d09f6b9603	FTP hostname : df33c13b-ad65-441e-a1d3-38d09f6b9603.ftp.azurewebsites.net
Tags (change) : Click here to add tags	FTPS hostname : df33c13b-ad65-441e-a1d3-38d09f6b9603.ftpss.azurewebsites.net

Diagnose and solve problems
Our self-service diagnostic and troubleshooting experience helps you identify and resolve issues with your web app.

Application Insights
Application Insights helps you detect and diagnose quality issues in your apps, and helps you understand what your users actually do with it.

App Service Advisor
App Service Advisor provides insights for improving app experience on the App Service platform. Recommendations are sorted by freshness, priority and impact to your app.

g. Click on **View Application Insights Data**.

Dashboard > az900webapp

 az900webapp | Application Insights ...

App Service

«

-  Overview
-  Activity log
-  Access control (IAM)
-  Tags
-  Diagnose and solve problems
-  Security
-  Events (preview)

Deployment

-  Quickstart
-  Deployment slots
-  Deployment Center
-  Deployment Center (Classic)

Settings

-  Configuration
-  Authentication
-  Authentication (classic)
-  Application Insights

[View Application Insights data !\[\]\(d86a103762aa57963c286da4c86d2ee2_img.jpg\)](#)

Application Insights

Collect application monitoring data using Application Insights

Enable Disable ? Feedback 

Link to an Application Insights resource

 Your app is connected to Application Insights resource: **az900webapp**

Change your resource 

Instrument your application

.NET .NET Core Node.js Java Python

Collection level

Gain full APM visibility with correlation across boundaries, improved accuracy and reliability.

 [How to get the most out of your APM data collection](#)

Recommended Basic

h. Observe the statistics like **Server Requests**, **Server Response Time**, **Failed Requests** etc. The sample screenshot is shown below:

Dashboard > az900webapp >

az900webapp ⚡ ...

Application Insights

» ★ Application Dashboard 🔍 Getting started 🔎 Search 📁 Logs 💡 Monitor resource group 😊 Feedback ⭐ Favorites → Rename 🗑 Delete

^ Essentials

Resource group (change) : AZ900 Instrumentation Key : 974775d5-6eea-424b-9112-15f055374c01

Location : East US Connection String : InstrumentationKey=974775d5-6eea-424b-

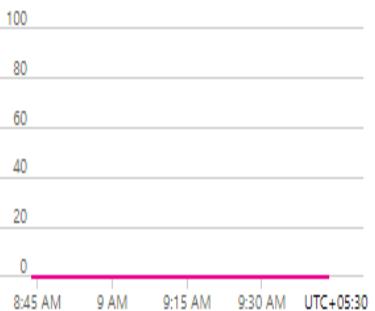
Subscription (change) : Visual Studio Professional Workspace : defaultworkspace-df33c13b-ad65-441e-a1

Subscription ID : df33c13b-ad65-441e-a1d3-38d09f6b9603

Tags (change) : Click here to add tags

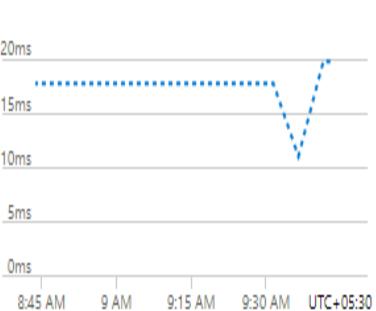
Show data for last: 30 minutes 1 hour 6 hours 12 hours 1 day 3 days 7 days 30 days

Failed requests



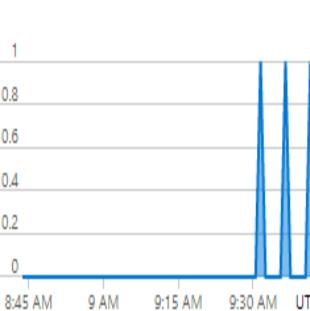
Failed requests (Count)
az900webapp
0

Server response time



Server response time (Avg)
az900webapp
16.26 ms

Server requests



Server requests (Count)
az900webapp
3

Task08: Working with Azure Monitor

Estimated Time : 1 hour

Tailwind Traders wants to be notified when the web application is stopped.

Task : In this task you will use Azure Monitor to create an alert.

Learnings:

- How to create an alert using Azure Monitor.

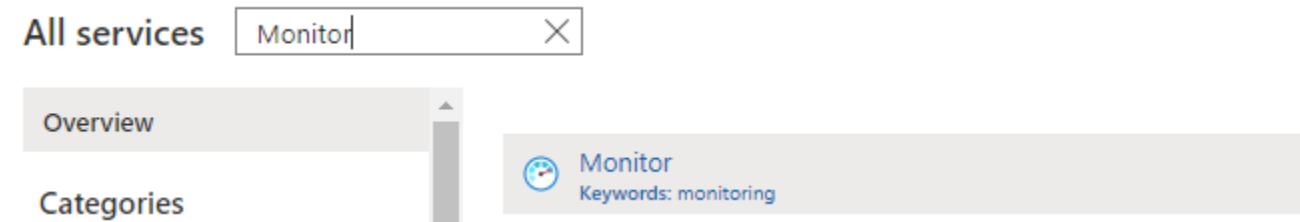
Outcome:

At the end of this task, you will be able to:

- 1) Create an alert using Azure Monitor.
- 2) Send an email to the concerned user when the alert fires.

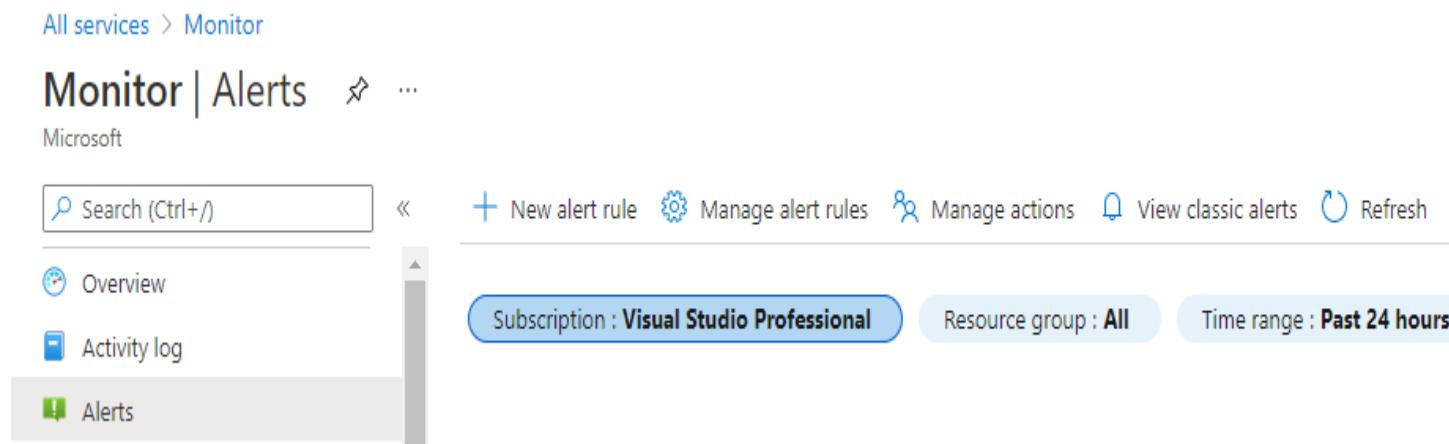
a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal.

b. Expand the left-hand navigation from the top-left menu and select **All Services**. In the list of resources, type **Monitor**. As you begin typing, the list filters based on your input. Select **Monitor**.



The screenshot shows the Azure portal's search interface. A search bar at the top contains the text "Monitor". Below it, the "Categories" sidebar is visible, listing "Overview" and "Monitor". A detailed card for "Monitor" is shown, featuring a blue circular icon with a white monitor, the word "Monitor" in bold, and the text "Keywords: monitoring".

- c. On the Overview screen, select Alerts.



The screenshot shows the "Monitor | Alerts" page. At the top, there is a search bar with "Search (Ctrl+ /)" and a "New alert rule" button. Below the search bar, there are links for "Overview", "Activity log", and "Alerts". The "Alerts" link is highlighted. On the right side, there are buttons for "Manage alert rules", "Manage actions", "View classic alerts", and "Refresh". At the bottom, there are filters for "Subscription : Visual Studio Professional", "Resource group : All", and "Time range : Past 24 hours".

- d. Click on **New Alert Rule**.

- e. On Create Alert Rule screen, under **Scope**, click on **Select resource**.

All services > Monitor >

Create alert rule ...

Rules management

Create an alert rule to identify and address issues when important conditions are found in your monitoring data. [View tutorial](#)
When defining the alert rule, check that your inputs do not contain any sensitive content.

Scope

Select the target resource you wish to monitor.

Resource	Hierarchy
No resource selected yet	
Select resource	

f. On Select a resource screen, choose your **Microsoft Azure Subscription**, choose **App Services** in Filter by resource type dropdown, select the **web app** created in task 02 and click on Done button.

Select a resource

Select the resource(s) you want to monitor. Available signal types for your selection will show up on the bottom right.

Filter by subscription *	Filter by resource type	Filter by location
Visual Studio Professional	App Services	All
<input type="text"/> Search to filter items...		
Resource	Resource type	Available signal types: Me
Visual Studio Professional	Subscription	
AZ900	Resource group	
az900webapp	App Service	

Selection preview

az900webapp
Visual Studio Professional > AZ900

[Done](#)

g. On Create Alert Rule screen, under **Condition**, click on **Add Condition**. Configure signal logic screen will pop up.

h. On **Configure Signal Logic** screen, choose **Activity Log** as **Signal Type** and **Stop Web App (microsoft.web/sites)** as **Signal name**, accept default values in the screen that comes up and click on Done button.

All services > Monitor >

Create alert rule

Rules management

Create an alert rule to identify and address issues when important conditions are found. When defining the alert rule, check that your inputs do not contain any sensitive con...

Scope

Select the target resource you wish to monitor.

Resource

- az900webapp

Edit resource

Condition

Configure when the alert rule should trigger by selecting a signal and defining its log...

Condition name

No condition selected yet

Add condition

Actions

Send notifications or invoke actions when the alert rule triggers, by selecting or creat...

Action group name

Create alert rule

Configure signal logic

Choose a signal below and configure the logic on the next screen to define the alert condition.

Signal type ⓘ

Activity Log

Monitor service ⓘ

All

Displaying 1 - 20 signals out of total 27 signals

Search by signal name

Signal name	Signal type
All Administrative operations	Activity Log
Create or Update Web App (microsoft.web/sites)	Activity Log
Delete Web App (microsoft.web/sites)	Activity Log
Create Web App Backup (microsoft.web/sites)	Activity Log
Get Web App Publishing Profile (microsoft.web/sites)	Activity Log
Publish Web App (microsoft.web/sites)	Activity Log
Restart Web App (microsoft.web/sites)	Activity Log
Start Web App (microsoft.web/sites)	Activity Log
Stop Web App (microsoft.web/sites)	Activity Log
Swap Web App Slots (microsoft.web/sites)	Activity Log
Get Web App Slots Differences (microsoft.web/sites)	Activity Log
Apply Web App Configuration (microsoft.web/sites)	Activity Log
Reset Web App Configuration (microsoft.web/sites)	Activity Log
Anonymous Private Endpoint Connections (microsoft.web/sites)	Activity Log

Done

i. On Create Alert Rule screen, under **Actions**, click on Select **Add action groups** and click on **Create action group**.

All services > Monitor >

Create alert rule ...

Rules management

 You can define only one activity log signal per alert rule. To alert on more signals, create multiple alert rules.

Actions

Send notifications or invoke actions when the alert rule triggers, by selecting or creating action groups.

Action group name

No action group selected yet

[Add action groups](#)

Select an action group to attach to this alert rule

The action group selected will attach to this alert rule

 [Create action group](#)

Subscription 

Visual Studio Professional

 [Search to filter items...](#)

Action group name	↑↓	Resource group	↑↓	Co
<input type="checkbox"/> AlertEmails		Dems		1 E
<input type="checkbox"/> Application Insights Smart Detection		Dems		2 E
<input type="checkbox"/> DemsEmailAlert		Dems		1 E

j. On **Create action group** screen, key in Mandatory details under **Basics** tab and click on Next:notifications > button.

All services > Monitor > Create alert rule >

Create action group ...

Basics Notifications Actions Tags Review + create

An action group invokes a defined set of notifications and actions when an alert is triggered. [Learn more](#)

Project details

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

Subscription * ⓘ

Visual Studio Professional

Resource group * ⓘ

AZ900

[Create new](#)

Instance details

Action group name * ⓘ

webappag

Display name * ⓘ

webappag

This display name is limited to 12 characters

[Review + create](#)

[Previous](#)

[Next: Notifications >](#)

k. Under **Notifications** tab, Select **Email/SMS message/Push/Voice** and give it some **name**. Choose Email checkbox and key in **email address** of the person who will receive email after web app is stopped (Please key in your Capgemini email address now so that you will receive that email). Click on OK button.

Create action group

[Basics](#) [Notifications](#) [Actions](#) [Tags](#) [Review + create](#)

Notifications

Configure the method in which users will be notified when the action group triggers. Select notification types, provide receiver details and add a unique description. This step is optional.

Notification type ⓘ	Name ⓘ	Selected ⓘ
Email/SMS message/Push/Voice	azwebappnotification	<input checked="" type="checkbox"/> Email ⓘ

Email/SMS message/Push/Voice

Add or edit an Email/SMS/Push/Voice action

 Email

Email * ⓘ nachiket-shrikant.inamdar@capgemini.com

SMS (Carrier charges may apply)

Country code

Phone number

Azure app Push Notifications

Azure account email ⓘ

Voice

Country code ⓘ

Phone number

Enable the common alert schema. [Learn more](#)

Yes

No

OK

[Review + create](#)

[Previous](#)

[Next: Actions >](#)

I. Click on **Review + Create** button.

m. Click on **Create** button.

All services > Monitor > Create alert rule >

Create action group

...

Basics Notifications Actions Tags **Review + create**

Review + create

This is a summary of your action group. Please review to ensure the information is correct and consider [Azure Alerts Pricing](#) and the [Azure Privacy Statement](#).

Basics

Subscription	Visual Studio Professional
Resource group	AZ900
Action group name	webappag
Display name	webappag

Notifications

Selected	Description
Email ⓘ	azwebappnotification

Actions

None

Tags

Create

[Previous](#)

- n. On **Create Alert Rule** screen, under **Alert rule details**, key in alert name and description and click on **Create alert rule** button.

All services > Monitor >

Create alert rule

Rules management

i You can define only one activity log signal per alert rule. To alert on more signals, create another alert rule.

Actions

Send notifications or invoke actions when the alert rule triggers, by selecting or creating a new action group. [Learn more](#)

Action group name	Contains actions
webappag	1 Email ⓘ
Manage action groups	

Alert rule details

Provide details on your alert rule so that you can identify and manage it later.

Alert rule name * ⓘ	webappemail ✓
Description	This alert sends an email when the web app is stopped ✓
Save alert rule to resource group * ⓘ	AZ900
Enable alert rule upon creation	<input checked="" type="checkbox"/>

[Create alert rule](#)

- o. Once the alert is created, browse to the **App Services** (Steps for this are mentioned in the previous task).

All services >

App Services ⚙ ...

Capgemini (capgemini.onmicrosoft.com)

+ Add ⚙ Manage view ⓘ ⟳ Refresh ⬇ Export to CSV 🔗 Open query | 🏷 Assign tags ▶ Start ⟳ Restart ⏻ Stop 🗑 Delete | ❤ Feedback

Filter for any field...

Subscription == all

Resource group == all X

Location == all X

+ ↴ Add filter

Showing 1 to 1 of 1 records.

No grouping

List view

Name ↑↓	Status ↑↓	Location ↑↓	Pricing Tier ↑↓	App Service Plan ↑↓	Subscription ↑↓
<input checked="" type="checkbox"/> az900webapp	Running	East US	Standard	 ASP-AZ900-8d5b	Visual Studio Professio...

- p. Select the **web app** created in task 02 and click on **Stop** button. When prompted, click on **Yes** to confirm the action.

- q. Check the email you have received.

To Do: Create an alert that will send an email when the web application starts.

Task09: Working with Azure Service Health

Estimated Time : 1 hour

Tailwind Traders wants to be notified when Microsoft schedules any planned maintenance of Azure resources used by Tailwind Traders.

Task : In this task you will learn how to create activity log alerts on service notifications.

Learnings:

- How to create an alert using Azure Service Health.

Outcome:

At the end of this task, you will be able to:

- 1) Create an alert using Azure Service Health which will notify the user about planned maintenance activities undertaken by Microsoft for Azure resources.

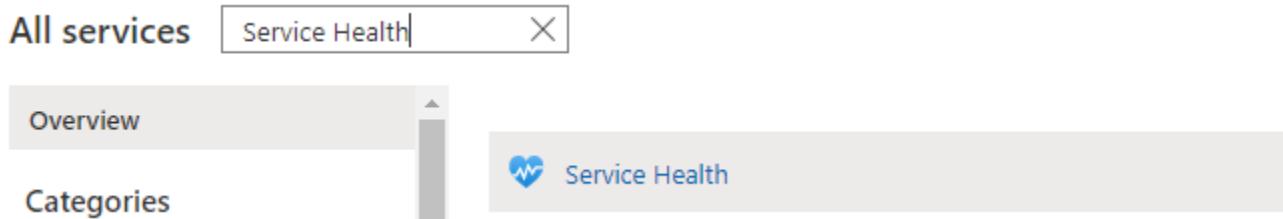
Azure offers a suite of experiences to keep you informed about the health of your cloud resources. This information includes current and upcoming issues such as service impacting events, planned maintenance, and other changes that may affect your availability.

Service health provides a personalized view of the health of the Azure services and regions you're using. This is the best place to look for service impacting communications about outages, planned maintenance activities, and other health advisories because the authenticated Service Health experience knows which services and resources you currently use. The best way to use Service Health is to set up Service Health alerts to notify you via your preferred communication channels when service issues, planned maintenance, or other changes may affect the Azure services and regions you use.

Use the following steps to create an Azure Service Health Alert:

a. Access <https://portal.azure.com> from your browser. Sign into the Azure portal using your credentials. Ignore this step if you are already signed into the Azure portal.

b. Click on **All Services**-> Key in **Service Health** in Search Box and select **Service Health** under Marketplace.



- c. In the **Alerts** section, select **Health alerts**.

Service Health | Health alerts

Search (Ctrl+ /) <<

ACTIVE EVENTS

- Service issues
- Planned maintenance
- Health advisories
- Security advisories

HISTORY

- Health history

RESOURCE HEALTH

- Resource health

ALERTS

- Health alerts

d. Select **Add service health alert** and fill in the fields.

Service Health | Health alerts ⚡

Search (Ctrl+ /) << **+ Add service health alert**

e. Select the **Subscription, Services, and Regions** for which you want to be alerted.

Create alert rule ...

Rules management

Create an alert rule to identify and address issues when important conditions are found in your monitoring data. [View tutorial + read more](#)
When defining the alert rule, check that your inputs do not contain any sensitive content.

Condition

Configure when the alert rule should trigger by selecting a signal and defining its logic.

Alert target

Subscription * ⓘ
Visual Studio Professional

Service(s) * ⓘ
2 selected

Region(s) * ⓘ
4 selected

Service health criteria

Event type * ⓘ
4 selected

Actions

Send notifications or invoke actions when the alert rule triggers, by selecting or creating a new action group. [Learn more](#)

Action group name

Contains actions

webappag

1 Email ⓘ

[Manage action groups](#)

Alert rule details

Provide details on your alert rule so that you can identify and manage it later.

Alert rule name * ⓘ

Sample Service Health Alert ✓

Description

Alert whenever an Azure service health issue affects this subscription. ✓

Save alert rule to resource group * ⓘ

AZ900 ✓

[Create alert rule](#)

f. Choose the **Event types** you want to be alerted for: *Service issue, Planned maintenance, Health advisories, and Security advisory*.

g. Click **Select action group** to choose an existing action group and choose the action group created in the previous task i.e. Task 08. You may choose to create a new action group using the steps mentioned in Task 08.

h. Define your alert details by entering an **Alert rule name** and **Description**.

i. Select the **Resource group** where you want the alert to be saved. Click on **Create alert rule** button.

Within a few minutes, the alert is active and begins to trigger based on the conditions you specified during creation.

For more information on this, please refer to the following links:

<https://docs.microsoft.com/en-in/azure/service-health/overview>

<https://docs.microsoft.com/en-in/azure/service-health/alerts-activity-log-service-notifications-portal>



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