

## Azure Major Project 03 =>

**KUSHAGRA BANSAL**

Step-1 : Create a Resource group by Name (VerzeRG01)

**Resource groups:** A resource group is a logical container into which **Azure resources** like web apps, databases, and storage accounts are deployed and managed.

**Resources:** Resources are instances of services that you create, like virtual machine, storage, or SQL databases.

Creating a resource group is the first most important thing to do before starting deploying anything in Azure.

[Home](#) > [Resource groups](#) >

### Create a resource group

✓ Validation passed.

Basics   Tags   Review + create

#### Basics

Subscription	Azure for Students
Resource group	VerzeRG01
Region	West US

#### Tags

Domain	Major Project
Environment	Cloud_Base

Step-2 : Create a virtual network (verzvnet01)

**Azure Virtual Network (VNet)** is the fundamental building block for your private **network in Azure**.

A **virtual network** is a **network** where all devices, servers, **virtual** machines, and data centers that are connected are done so through software and wireless technology.

Results in secure communication among each other, the internet, and on-premises **networks**.

[Home](#) > [Virtual networks](#) >

## Create virtual network

✔ Validation passed

### Basics

Subscription	Azure for Students
Resource group	VerzeRG01
Name	verzvnet01
Region	West US

### IP addresses

Address space	10.0.0.0/16,163.0.0.0/8
Subnet	default (10.0.0.0/24),verzsubnet01 (163.192.0.0/24)

### Tags

Domain	Major Project
Environment	Cloud_Base

### Security

BastionHost	Disabled
DDoS protection plan	Basic
Firewall	Disabled

## Step-3: Create a virtual machine in the portal(VerzVM01) =>

A **virtual machine (VM)** is a virtual environment that functions as a virtual computer system with its own CPU, memory, network interface, and storage, created on a physical hardware system (located off- or on-premises).

Microsoft Azure

Search resources, services, and docs (G+)

[Home](#) > [Virtual machines](#) >

## Create a virtual machine

✓ Validation passed

Basics

Disks

Networking

Management

Advanced

Tags

Review + create

PRODUCT DETAILS

Standard B1s

by Microsoft

[Terms of use](#) | [Privacy policy](#)

Subscription credits apply ⓘ

0.9253 INR/hr

[Pricing for other VM sizes](#)

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. See the [Azure Marketplace Terms](#) for additional details.

Basics

Subscription

Resource group

Virtual machine name

Azure for Students

VerzeRG01

VerzVM01

## Step-4 : Create blob storage(VerzSTR01)

1. go to Storage Account.

Create storage account - Microsoft | Editing Azure\_Cloud/README.m... | portal.azure.com/#create/Microsoft.StorageAccount

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

Home > Storage accounts >

### Create storage account

Subscription \* Azure for Students

Resource group \* MyFirsResouce [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 \* myfirststorageone

Location \* (Asia Pacific) Central India

Performance ☒ Standard ☐ Premium

Account kind ☐ StorageV2 (general purpose v2)

Replication ☐ Locally-redundant storage (LRS)

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

## 2. Networking: default configurations

Create storage account - Microsoft | Editing Azure\_Cloud/README.m... | New Issue - kushagra67414/Azu... | portal.azure.com/#create/Microsoft.StorageAccount

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

Home > Storage accounts >

### Create storage account

Connectivity method \* ☐ Public endpoint (all networks) ☒ Public endpoint (selected networks) ☐ Private endpoint

**Virtual networks**

Only the selected network will be able to access this storage account. [Learn more about service endpoints](#)

Virtual network subscription ☐ Azure for Students

Virtual network ☐ None [Create virtual network](#)

**Network routing**

Determine how to route your traffic as it travels from the source to its Azure endpoint. Microsoft network routing is recommended for most customers.

Routing preference \* ☒ Microsoft network routing (default) ☐ Internet routing

☒ The current combination of storage account kind, performance, replication, and location does not support 'Internet routing'.

[Review + create](#) < Previous Next : Data protection >

## 3. Data Protection: Turn on SOFT DELETE for BLOBS AND FILE SHARES

Home > Storage accounts >

## Create storage account

Use point-in-time restore to restore one or more containers to an earlier state. If point-in-time restore is enabled, then versioning, change feed, and blob soft delete must also be enabled. [Learn more](#)

☐ Turn on soft delete for blobs  
Soft delete enables you to recover blobs that were previously marked for deletion, including blobs that were overwritten. [Learn more](#)

☐ Turn on soft delete for containers  
Soft delete enables you to recover containers that were previously marked for deletion. [Learn more](#)  
**Sign up is required on a per-subscription basis to use container soft delete. [Sign up for Container soft delete](#)**

☒ Turn on soft delete for file shares  
Soft delete enables you to recover file shares that were previously marked for deletion. [Learn more](#)

Keep deleted file shares for (in days)

**Tracking**

☐ Turn on versioning for blobs  
Use versioning to automatically maintain previous versions of your blobs for recovery and restoration. [Learn more](#)

☐ Turn on blob change feed

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

Home > Storage accounts >

## Create storage account

☐ Turn on soft delete for blobs  
Soft delete enables you to recover blobs that were previously marked for deletion, including blobs that were overwritten. [Learn more](#)

☐ Turn on soft delete for containers  
Soft delete enables you to recover containers that were previously marked for deletion. [Learn more](#)  
**Sign up is required on a per-subscription basis to use container soft delete. [Sign up for Container soft delete](#)**

☒ Turn on soft delete for file shares  
Soft delete enables you to recover file shares that were previously marked for deletion. [Learn more](#)

Keep deleted file shares for (in days)

**Tracking**

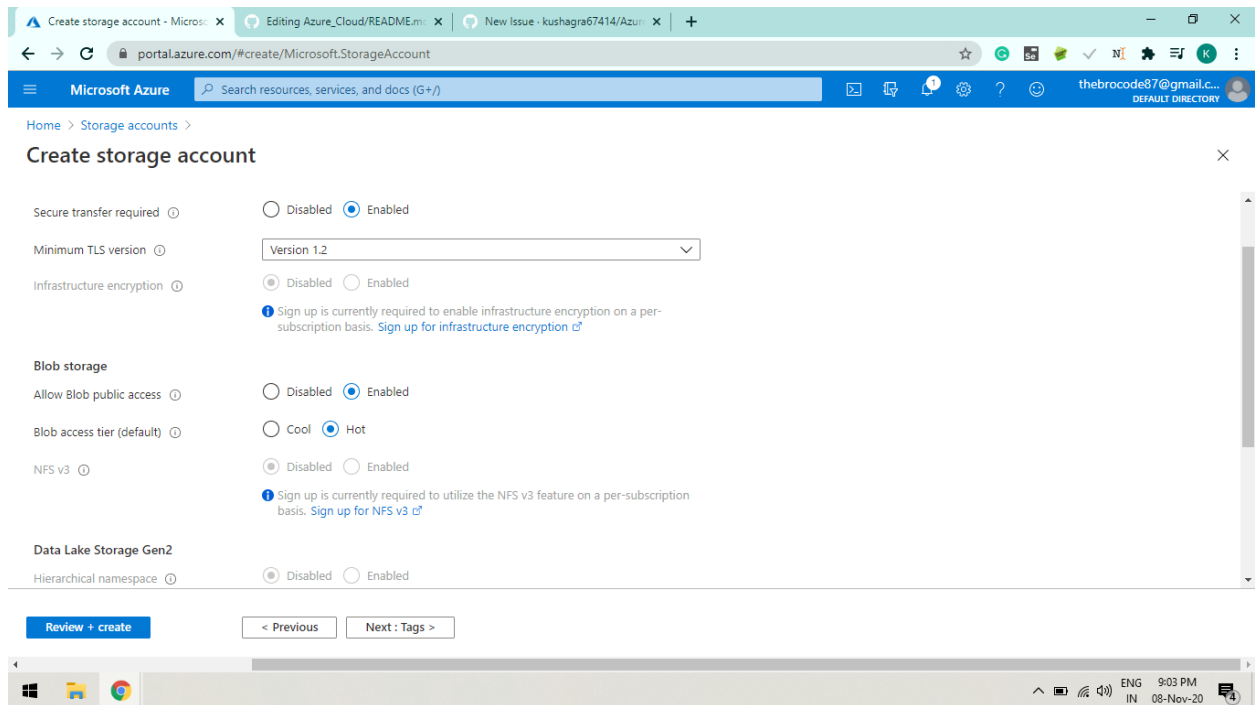
☒ Turn on versioning for blobs  
Use versioning to automatically maintain previous versions of your blobs for recovery and restoration. [Learn more](#)

☐ Turn on blob change feed  
Keep track of create, modification, and delete changes to blobs in your account. [Learn more](#)

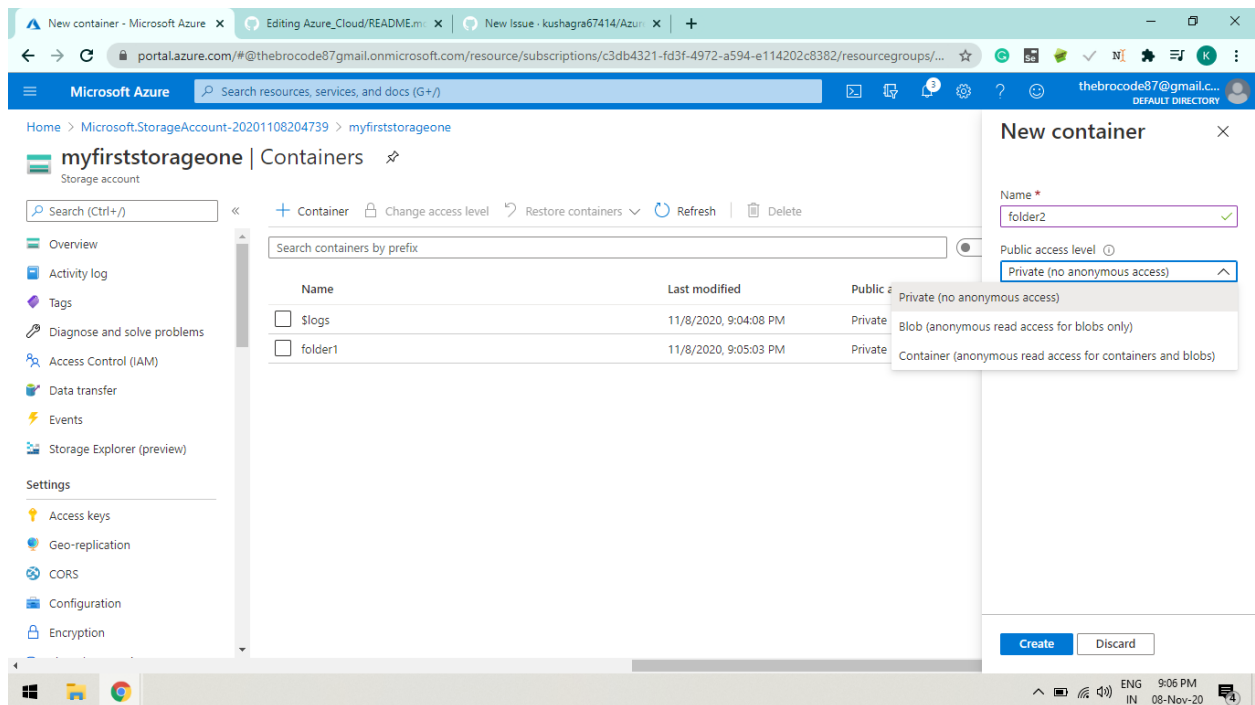
[Review + create](#) [< Previous](#) [Next : Advanced >](#)

Here,

4. Advance :



Now create the container, 5. Go To Container, option you will see inside your storage account



When you will access it, it will show "AUTHORIZATION FAILED" because At starting we didnt provide any network and our default setting is "SELECTED NETWORK" Which include no network connection. thats why the error comes.

6. Go to "FIREWALLS AND VIRTUAL NETWORKS" and Select "ALL NETWORKS"

The screenshot shows the Microsoft Azure portal interface. The breadcrumb navigation at the top indicates the path: Home > Microsoft.StorageAccount-20201108204739 > myfirststorageone. The main heading is 'myfirststorageone | Firewalls and virtual networks'. On the left sidebar, the 'Firewalls and virtual networks' option is selected. The main content area shows two settings: 'Allow access from' and 'Network Routing'. Under 'Allow access from', the 'All networks' radio button is selected, with a note stating 'All networks, including the internet, can access this storage account.' Under 'Network Routing', the 'Microsoft network routing' radio button is selected, with a note stating 'The current combination of storage account kind, performance, replication, and location does not support network routing.'

after this when you will access it again it will give the access to the container.

The screenshot shows the Microsoft Azure portal interface for a container named 'folder1'. The breadcrumb navigation at the top indicates the path: Home > Microsoft.StorageAccount-20201108204739 > myfirststorageone > folder1. The main heading is 'folder1'. On the left sidebar, the 'Overview' option is selected. The main content area shows the 'Authentication method' as 'Access key' and the 'Location' as 'folder1'. Below this, there is a search bar for blobs and a table with columns: Name, Modified, Access tier, Blob type, Size, and Lease state. The table currently shows 'No results'.

7. Now you can add any data just go to "UPLOAD" AND select data what you want from your local machine.

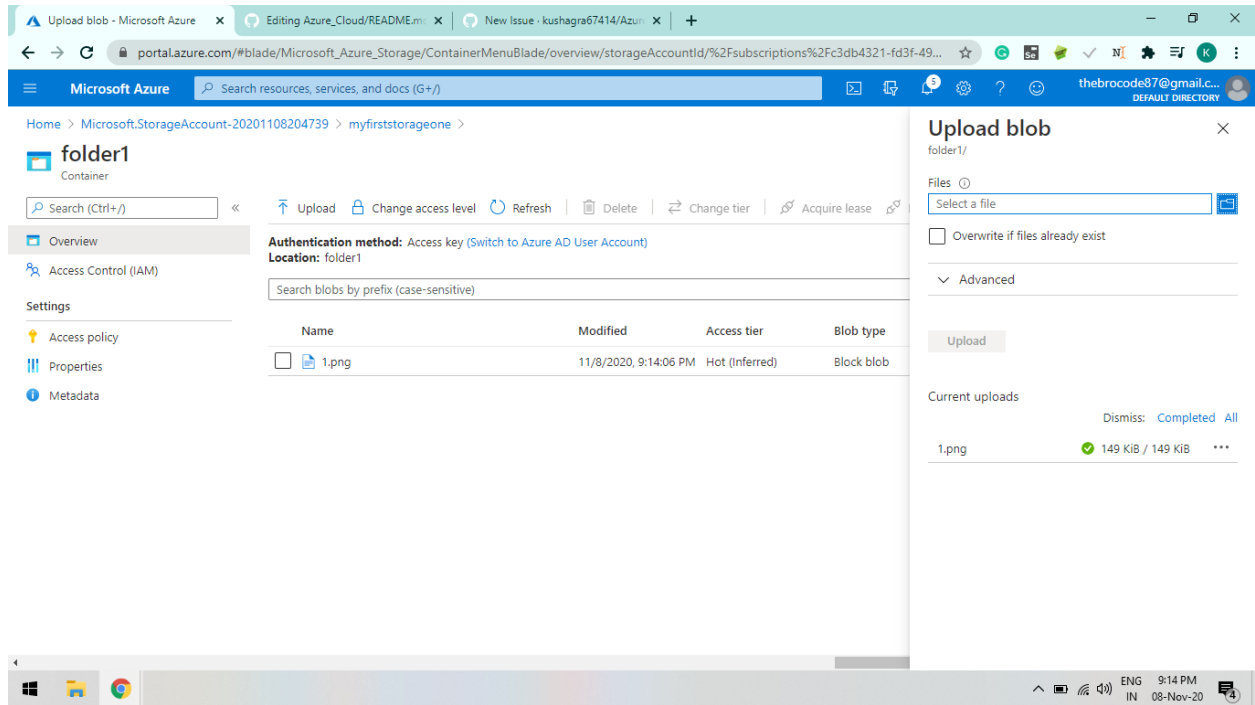
The screenshot shows the Microsoft Azure portal interface. On the left, a sidebar lists navigation options: Overview, Access Control (IAM), Settings, Access policy, Properties, and Metadata. The main content area displays the 'folder1' container overview. It includes a search bar, a list of actions (Upload, Change access level, Refresh, Delete, Change tier, Acquire lease), and authentication details. A table lists blobs, with one entry: '1.png' modified on 11/8/2020 at 9:14:06 PM, with a 'Hot' access tier and 'Block blob' type. On the right, the 'Upload blob' dialog is open for 'folder1/'. It features a 'Select a file' button, an 'Overwrite if files already exist' checkbox, and an 'Advanced' section. Below, the 'Current uploads' section shows '1.png' as a completed upload of 149 KiB.

after this when you will access it again it will give the access to the container.

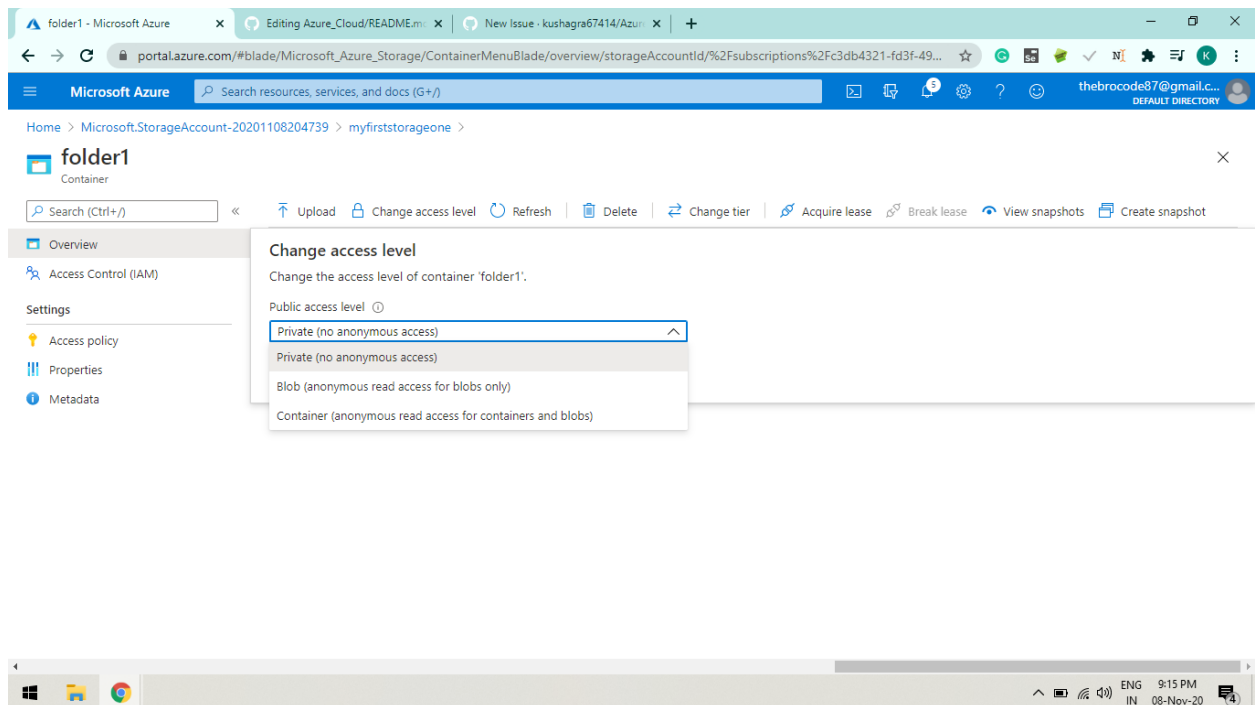
This screenshot shows the same Microsoft Azure portal interface, but the 'Upload blob' dialog is closed. The main content area for 'folder1' now shows a search bar and a table with columns: Name, Modified, Access tier, Blob type, Size, and Lease state. The table displays 'No results'. The sidebar and navigation options remain the same.



7. Now you can add any data just go to "UPLOAD" AND select data what you want from your local machine.



8. Now if you copied the link and try to run it, it will show you an error because access level is set to a private. go to "CHANGE ACCESS LEVEL" and change it too BLOB or CONTAINER.

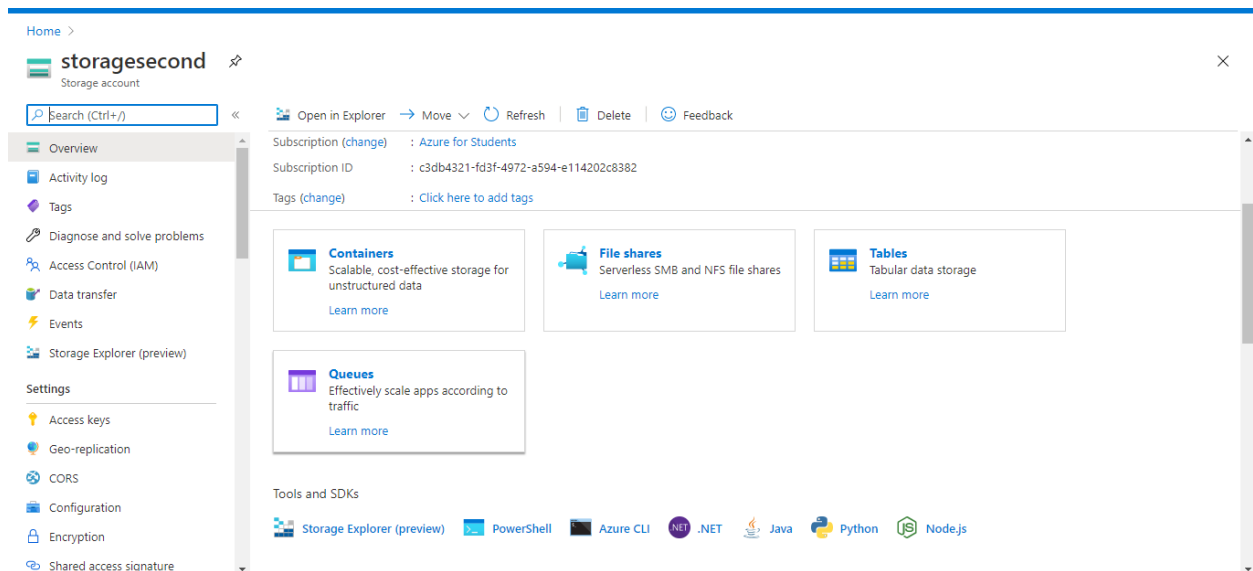


## b. Create a File Share (Verzfs01) and mount on the (VerzVM01)

=> How to create a drive at your local machine using Azure Cloud.

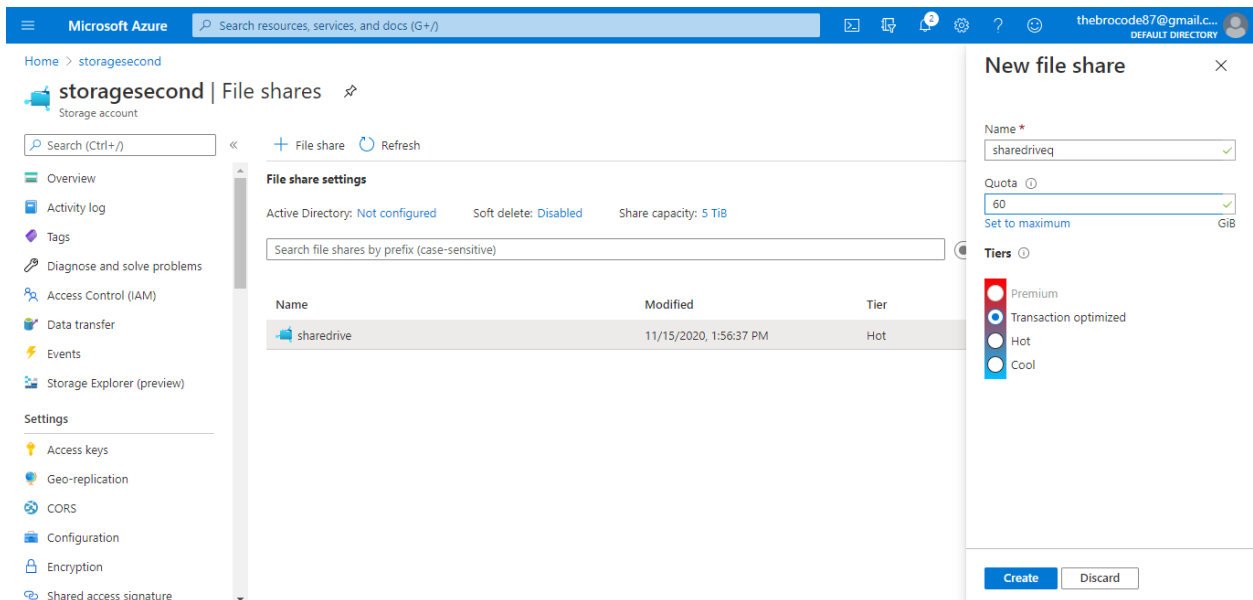
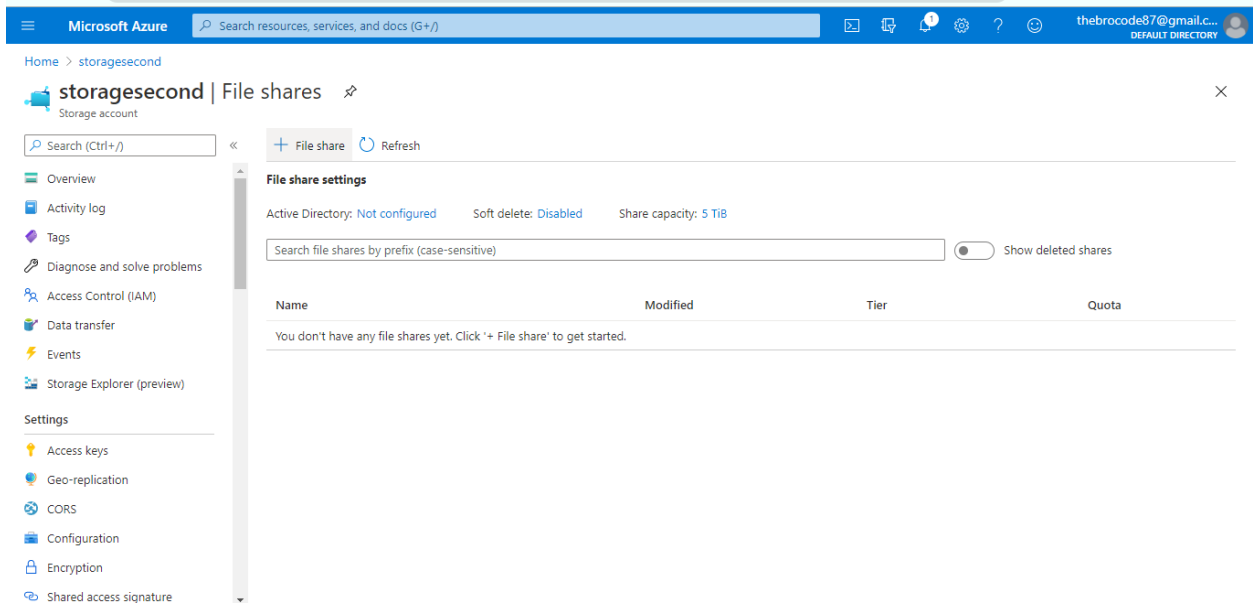
Step-1:

Create a Storage Account say "storagesecond" and go to File shares



Step-2:

Create a file in "FILE SHARES" let say sharedrive



Step-3:

Open the sharedrive and click to connect. You will get a Script for WINDOWS, LINUX AND MACOS. Here we will use windows script to to connect. and script is run on the powershell. Open Start> type powershell press enter and after the Windows PowerShell open paste the script.

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

Home > storagesec2nd >

### sharedrive

File share

Search (Ctrl+/)

Connect Upload Add directory Refresh Delete share

Overview

Access Control (IAM)

Settings

Properties

Operations

Snapshots

Backup

Search files by prefix

Name
No files found.

### Connect

sharedrive

Instructions to connect. Click here to learn more about connecting Azure files.

Windows Linux macOS

To connect to this Azure file share from Windows, choose from the following authentication methods and run the PowerShell commands from a normal (not elevated) PowerShell terminal:

Drive letter

K

```
$connectTestResult = Test-NetConnection -ComputerName storagesec2nd.file.core.windows.net -Port 445
if ($connectTestResult.TcpTestSucceeded) {
    # Save the password so the drive will persist on reboot
    cmd.exe /C "cmdkey /add:"storagesec2nd.file.core.windows.net /user:"Azure\storagesec2nd" /pass:"eWu0dBDrU9e4Qx7/MszJ0sQ0wtE8mZ7sijWpLEtViNaM0j7MLCWg68vQ9VrL5"
}
```

Copy to clipboard

This script will check to see if this storage account is accessible via TCP port 445, which is the port SMB uses. If port 445 is available, your Azure file share will be persistently mounted. Your organization or internet service provider (ISP) may block port 445, however you may use Azure Point-to-Site (P2S) VPN, Azure Site-to-Site (S2S) VPN, or ExpressRoute to tunnel SMB traffic to your Azure file share over a different port.

[Learn how to circumvent the port 445 problem \(VPN\)](#)

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

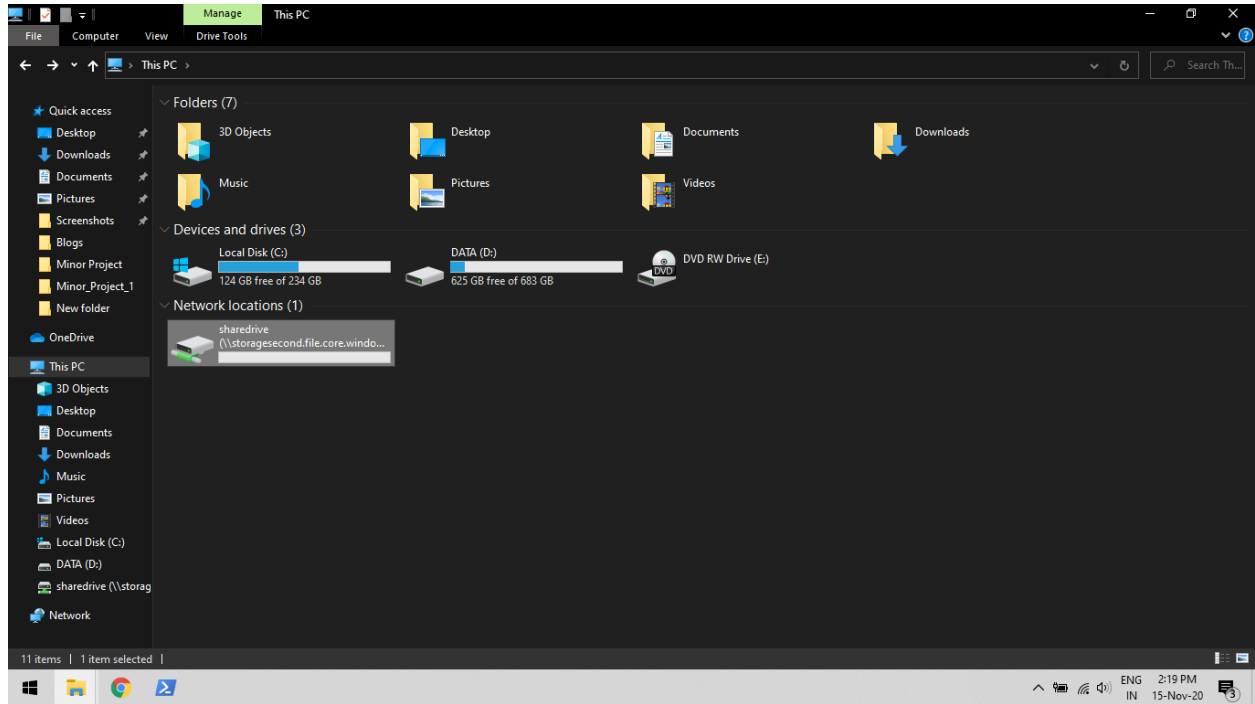
Test-NetConnection - 52.239.202.8:445
Attempting TCP connect
Waiting for response

>>> cmd.exe /C "cmdkey /add:"storagesec2nd.file.core.windows.net" /user:"Azure\storagesec2nd" /pass:"eWu0dBDrU9e4Qx7/MszJ0sQ0wtE8mZ7sijWpLEtViNaM0j7MLCWg68vQ9VrL5kuy1QdYPyNf74kYFE115hPeg=="
>>> # Mount the drive
>>> New-PSDrive -Name K -PSProvider FileSystem -Root "\\storagesec2nd.file.core.windows.net\sharedrive" -Persist
>>> } else {
>>> Write-Error -Message "Unable to reach the Azure storage account via port 445. Check to make sure your organization or ISP is not blocking port 445, or use Azure P2S VPN, Azure S2S VPN, or Express Route to tunnel SMB traffic over a different port."
>>> }

CMDKEY: Credential added successfully.
```

Step-4:

Go to your "This pc" and you will a File share storage.



## **Step-5 : Create a network security group**

**Network Security Groups** provide control over **network** traffic flowing in and out of your services running in **Azure**. **Network Security Groups** can also be applied to a Subnet in a Virtual Network thus they provide an efficient mechanism to administer access control rule updates across multiple VMs. A **Network Security Group** contains security rules that allow or deny inbound network traffic to, or outbound network traffic from, several types of **Azure** resources

[Home](#) > [Network security groups](#) >

## Create network security group

Validation passed

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

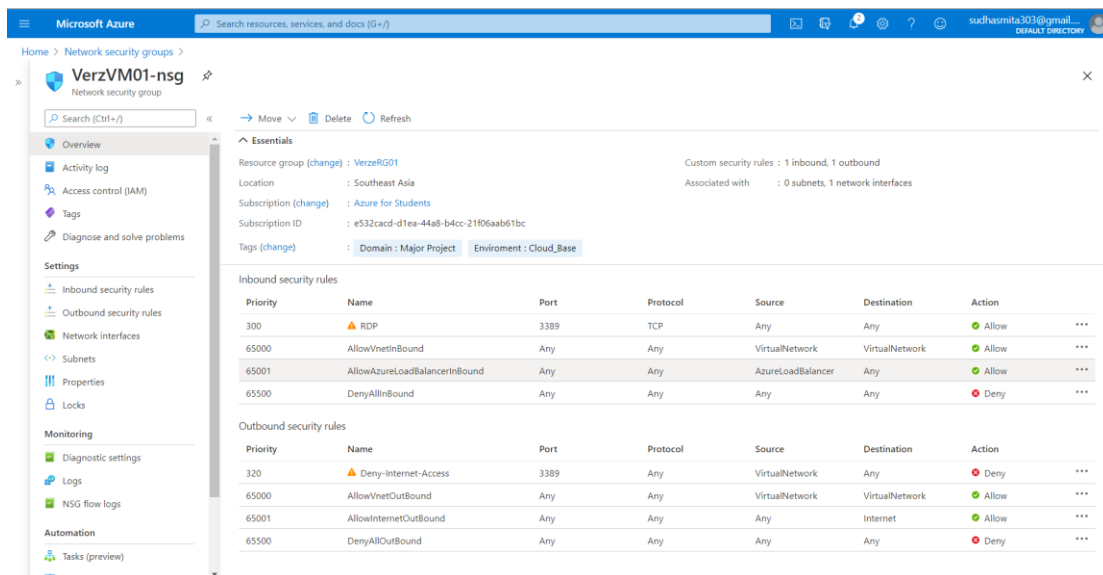
### Basics

Subscription	Azure for Students
Resource group	VerzeRG01
Region	East US
name	Verznsg01

### Tags

Domain	Major Project
Enviroment	Cloud_Base

**Step-6 & 7: Configure an inbound security port rule to allow RDP and an outbound security port rule to deny Internet access.**



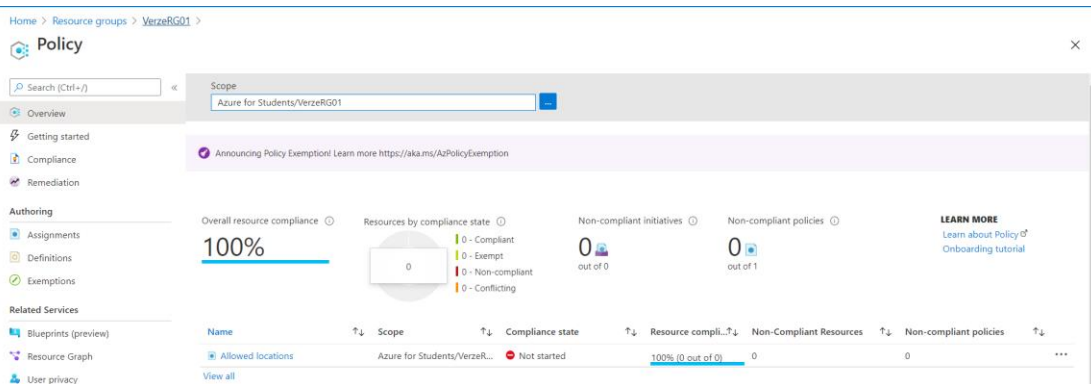
Inbound and Outbound =>

A network security group contains Rules that allow or deny inbound network traffic to, or outbound network traffic from, several types of Azure resources. For each rule, you can specify source and destination, port, and protocol. The below Screen Shot represents an inbound security port rule that allows RDP and an outbound security port rule that denies Internet access.

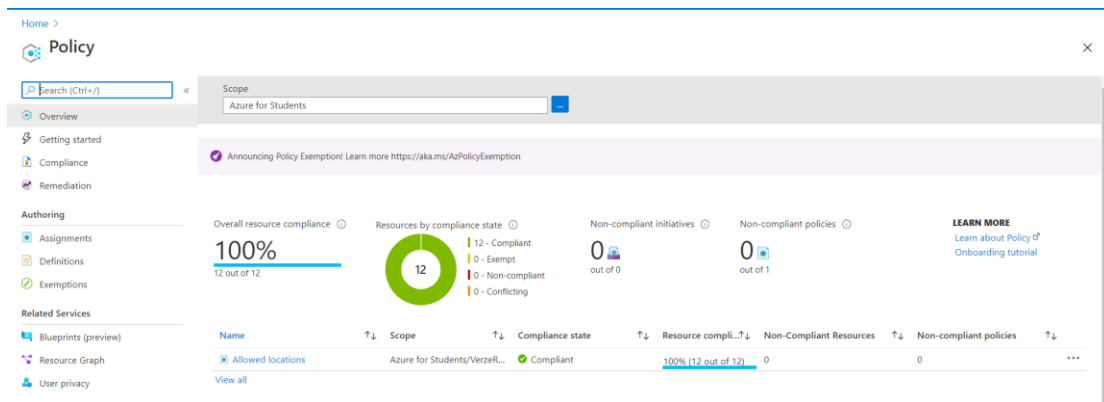
Step-8 : Create an Azure Policy to only allow certain locations (Southeast Asia), try to create a resource in any other location and check the policy evaluation. (You can use any other region)

**Azure policy** establishes conventions for resources. Policy describes resource compliance conditions and the effect to take if a condition is met. It helps us **manage and prevent IT issues** with policy definitions that enforce rules and effects for our resources. In Azure policy, the business rules, described in JSON format, are known as **Policy definitions**. Allowed only certain locations [Southeast Asia].

### 1. Policy not started =>



### 2. Policy Started =>



We can't create a resource in any other location. It restricts the available Locations for new resources.

The screenshot shows the 'Create virtual network' wizard in the 'IP Addresses' tab. It displays the IPv4 address space configuration with a warning: 'Address space "192.0.0.0/8 (192.0.0.0 - 192.255.255.255)" overlaps with address space "192.0.0.0/8 (192.0.0.0 - 192.255.255.255)" of virtual network "verznet01". Virtual networks with overlapping address space cannot be peered. If you intend to peer these virtual networks, change address space "192.0.0.0/8 (192.0.0.0 - 192.255.255.255)". Learn more >'. The 'Add subnet' section shows a table with columns for Subnet name and Subnet address range. A right-hand pane titled 'Add subnet' shows the configuration for 'subnet22' with address range '192.168.0.0/16' and a warning: 'The subnet address range "192.168.0.0/16" is not contained in this virtual network's address spaces.' The bottom of the wizard includes 'Review + create', '< Previous', 'Next: Security >', and 'Download a template for automation' buttons.

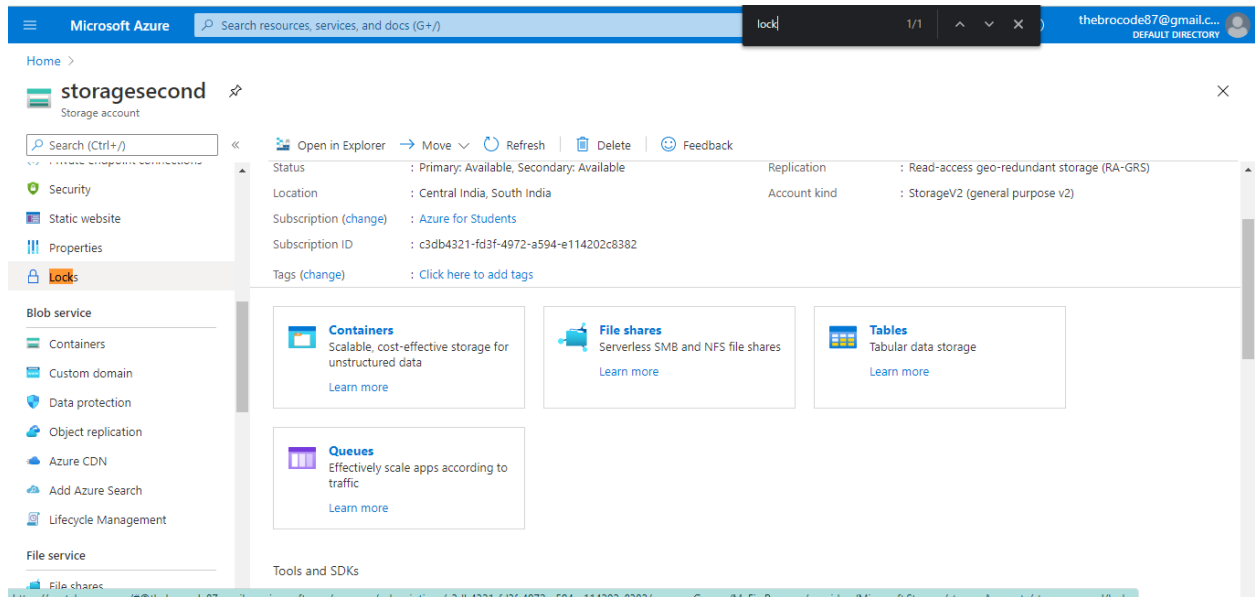
## Step-9: Apply a lock on the (VerzeRG01) and test if you are allowed to delete any resource.

Here, we are creating the lock on storage account resources. Types of Locks:

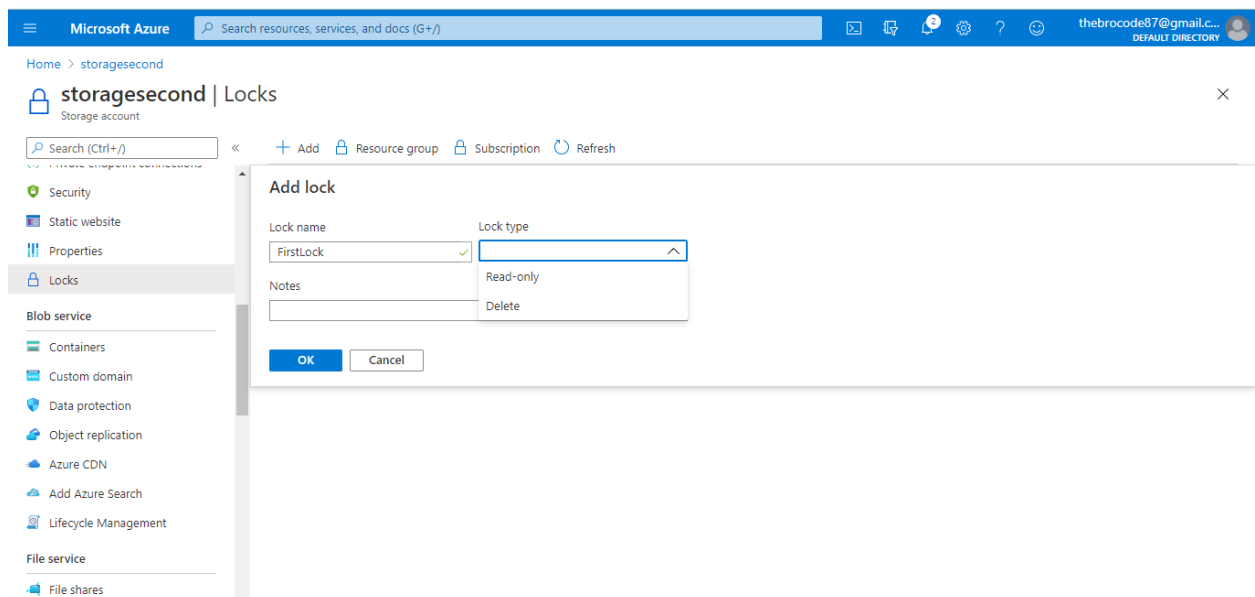
1. Read-Only => here we can only read the data can't modify or delete
2. Delete => here we can modify but can't delete

Step-1: First create a Storage Account and go to locks.





Step-2: Click on add and you will see types of lock. Select as per your requirement and give a lock name and press ok.



Step-3: You will a lock add in your "LOCKS" section

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

Home > storagesecond

## storagesecond | Locks

Storage account

Search (Ctrl+/)

+ Add Resource group Subscription Refresh

Lock name	Lock type	Scope	Notes
FirstLock	Delete	storagesecond	ksush

Edit Delete

**Left sidebar:**

- Security
- Static website
- Properties
- Locks**
- Blob service**
  - Containers
  - Custom domain
  - Data protection
  - Object replication
  - Azure CDN
  - Add Azure Search
  - Lifecycle Management
- File service**
  - File shares

Step-4:

go to overview and try to delete the storage account your will see an alert option for not being able to get delete

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

Home >

## storagesecond

Storage account

Search (Ctrl+/)

Open in Explorer Move Refresh Delete Feedback

Classic alerts in Azure Monitor is announced to retire in 2021, it is recommended that you upgrade your classic alert rules to retain alerting functionality with the new alerting platform. For more information, see [Continue alerting with ARM storage accounts](#).

**Essentials**

Resource group (change) : MyFirsResource

Status : Primary: Available, Secondary: Available

Location : Central India, South India

Subscription (change) : Azure for Students

Subscription ID : c3db4321-fd3f-4972-a594-e114202c8382

Tags (change) : Click here to add tags

Performance/Access tier : Standard/Hot

Replication : Read-access geo-redundant storage (RA-GRS)

Account kind : StorageV2 (general purpose v2)

**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

**Left sidebar:**

- Overview**
- Activity log
- Tags
- Diagnose and solve problems
- Access Control (IAM)
- Data transfer
- Events
- Storage Explorer (preview)
- Settings**
  - Access keys
  - Geo-replication
  - CORS
  - Configuration
  - Encryption
  - Shared access signature

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

Home > storagesecond >

## Delete storage account

storagesecond

⚠️ 'storagesecond' can't be deleted because this resource or its parent has a delete lock. Locks must be removed before this resource can be deleted. [Learn more about delete locks](#)

Delete

<https://aka.ms/azurestorage/deletelock>

### Step-10: Setup CPU Threshold alert for the VM (VerzVM01)

Dynamic Threshold on VM CPU percentage metrics. An alert will be created for the VM with a value that exceeds the threshold.

Dashboard > Monitor >

## Create alert rule

Rules management

Create an alert rule to identify and address issues when important conditions are found in your monitoring data. 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

- All Virtual machines (in Southeast Asia)

☒ Include all future resources

[Edit resource](#)

**Condition**

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

Condition name

No condition selected yet

[Select condition](#)

**Actions**

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

Action group name

[Create alert rule](#)

### Configure signal logic

Percentage CPU (Max) across all VMs

39.95 %

Alert logic

Threshold

Static Dynamic

Operator: Greater than Aggregation type: Maximum Threshold value: 80 %

Condition preview

Whenever the maximum percentage cpu is greater than 80 %

Evaluated based on

Aggregation granularity (Period): 15 minutes Frequency of evaluation: Every 5 Minutes

Done

## My Dashboard

Private dashboard

+ New dashboard Refresh Full screen Edit Share Download Clone Assign tags Delete Feedback

Auto refresh: Off UTC Time: Past 24 hours Add filter

NetworkWatcher\_southeast... Network Watcher

verzvm01478 Network interface

VerzVM01\_OsDisk\_1\_3bff9fc... Disk

See more...



Marketplace



App Service

Create Web Apps using .NET, Java, Node.js, Python, PHP



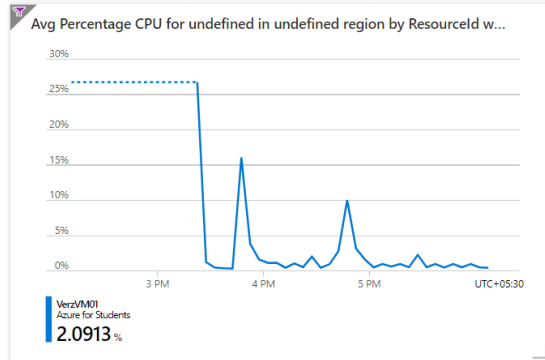
Functions

Process events with a serverless code architecture



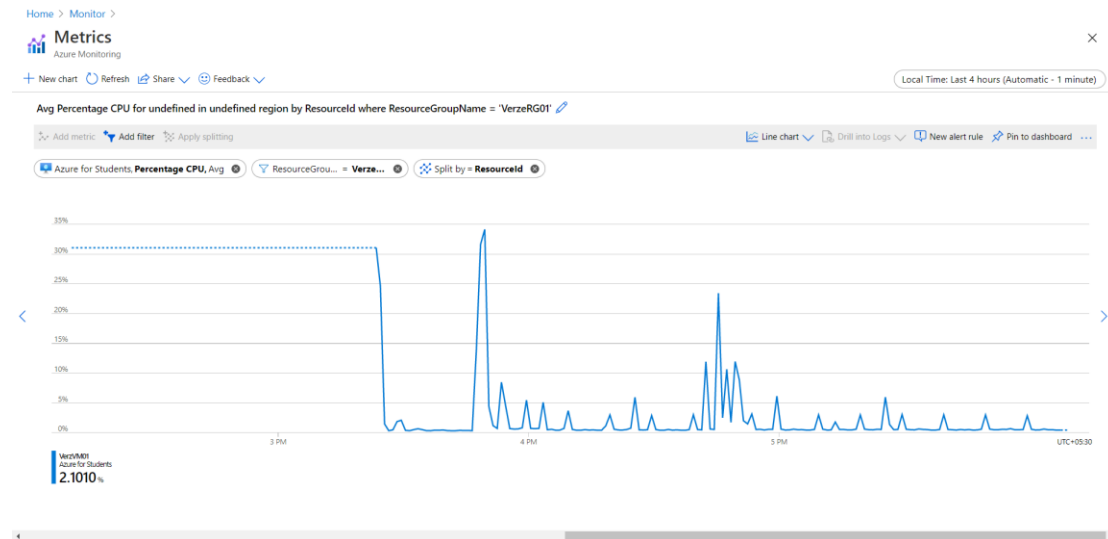
SQL Database

Managed relational SQL Database as a Service



<https://portal.azure.com/#@87b5bac5-a32b-4172-9c1a-4ea123018d62/resource/subscriptions/e532cadd-d1ea-44a8-b4cc-21f06aab61bc/resourcegroups/VerzeRG01/providers/Microsoft.C>

## Metrics Monitor =>



### Condition

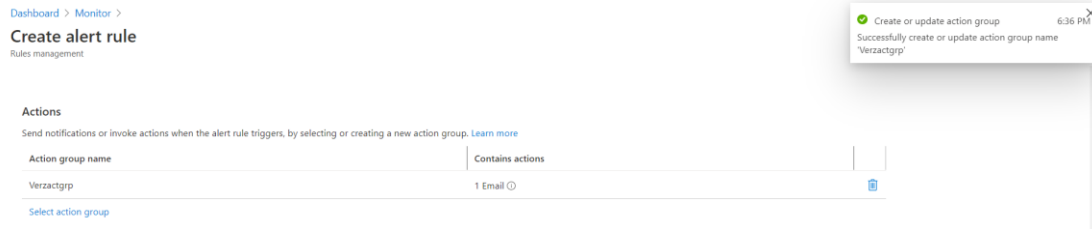
Configure when the alert rule should trigger by selecting a signal and defining its logic.

Condition name	Time series monitored	Estimated monthly cost (USD)
✓ Whenever the maximum percentage cpu is greater than 80 %	1	\$ 0.10
Select condition	1	Total \$ 0.10

**i** Metric alerts on multiple resources can include only one condition.

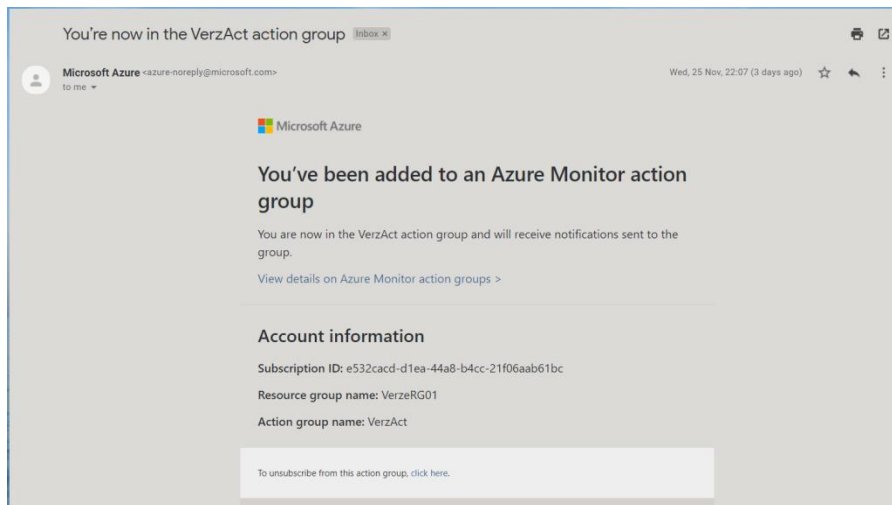
Step-11 : Create Action(Verzactgrp) Group for the above alert with your email id.

Action Group =>



## Step-12: Check if you are receiving the alert

The alert with my email id =>



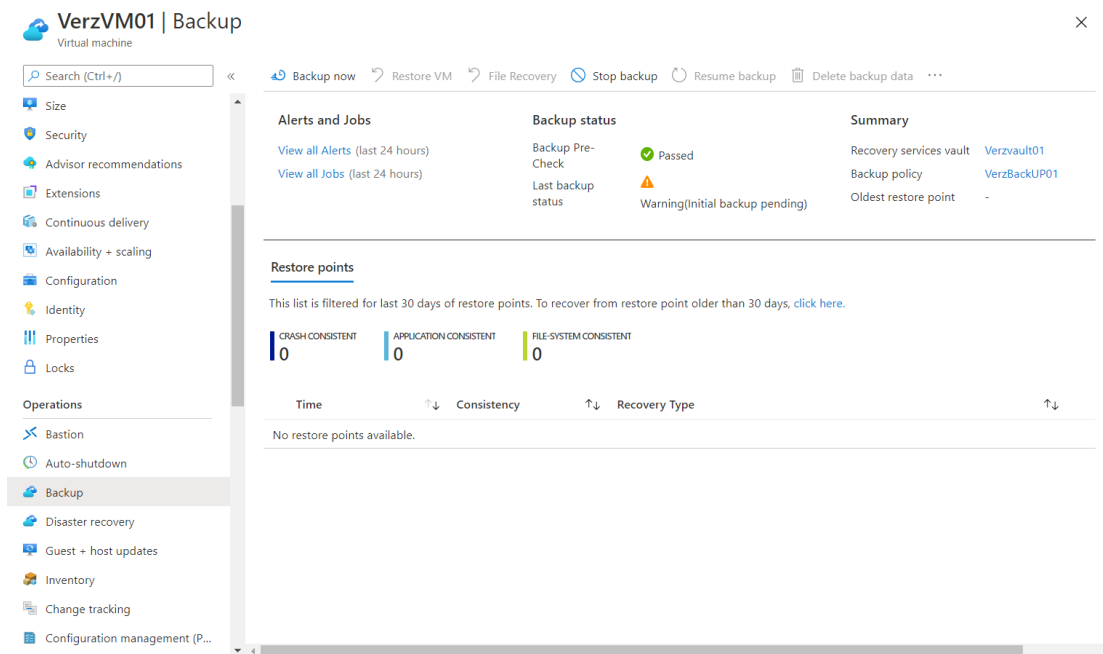
## Step-13: Create a Recovery Services vault (Vezvault01) in the Resource Group (VerzeRG01)

1. Recovery Service Vault is a storage entity in Azure that houses data. The data is typically copies of data, or configuration information for VMs, workloads, or workstations. Recovery service vaults support system center DPM, windows server, Azure Backup Server, more.



## **Step-14: Setup Backup for the Virtual Machine (VerzVM01) and ensure backup is completed successfully.**

Azure Backup Service provides simple, secure, cost-effective solutions to backup your data and recover it from the Microsoft Azure Cloud.



Successfully completed the backup process. =>

Home > Virtual machines > VerzVM001

VerzVM001 | Backup

Virtual machine

Search (Ctrl+F)

Backup now

Restore VM

File Recovery

Stop backup

Resume backup

Delete backup data

Restore to Secondary Region

Undelete

Alerts and Jobs

[View all Alerts](#) (last 24 hours)

[View all Jobs](#) (last 24 hours)

Backup status

Backup Pre-Check Passed

Last backup status Success -

Summary

Recovery services vault [Verzvault001](#)

Backup policy [Policy01](#)

Oldest restore point 11/28/2020, 5:12:33 PM (19 minute(s) ago)

Restore points (1)

This list is filtered for last 30 days of restore points. To recover from restore point older than 30 days, [click here](#).

CMSH CONSISTENT

0

APPLICATION CONSISTENT

1

FILE SYSTEM CONSISTENT

0

Time	Consistency	Recovery Type
11/28/2020, 5:12:33 PM	Application Consistent	Snapshot

Thank You !!!!  
Kushagra Bansal !