

ONLINE LIBRARY MANAGEMENT SYSTEM

GROUP PROJECT MEMBERS

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Introduction

In this project, we had deploy Online library management system on Microsoft Azure cloud virtual machine. Online Library Management System is an [Automated Library System](#) that handles the various functions of the library. It provides a complete solution to the library management software. The online Library Management System is classified into two parts Bar Code System and RFID System.

Library plays an important role in all schools and colleges, no educational institution can exist without Library Administration Software. It is an important part of every school and college and it helps the librarian to keep records of available books as well as issued books. Library Management System software helps in different ways by providing students the facility to learn, gather resources, promote group learning and improve knowledge and skills. In this project, we had used Microsoft azure services to protect our system from data lose due to technical or any machine failure & to protect our system from unknown or unauthentic user unless an until permission is given to them. To overcome this problems, we had used azure 2 service.

They are follow as -

1. Backup & Disaster Recovery (On Premises Backup)
2. Azure Firewall

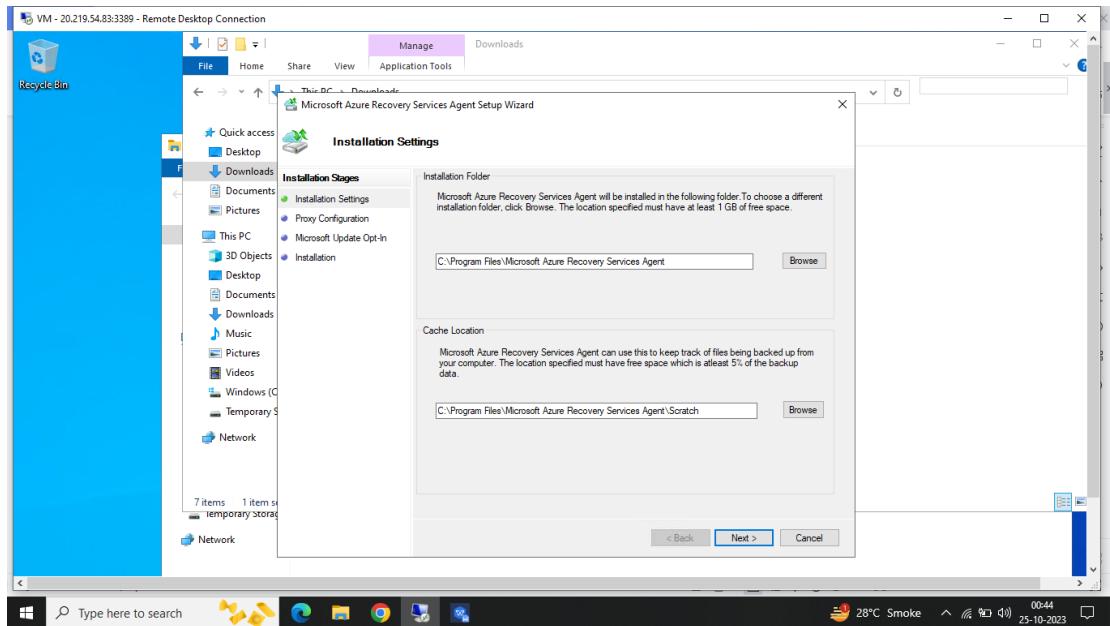
1. Backup & Disaster Recovery (On Premises Backup) :

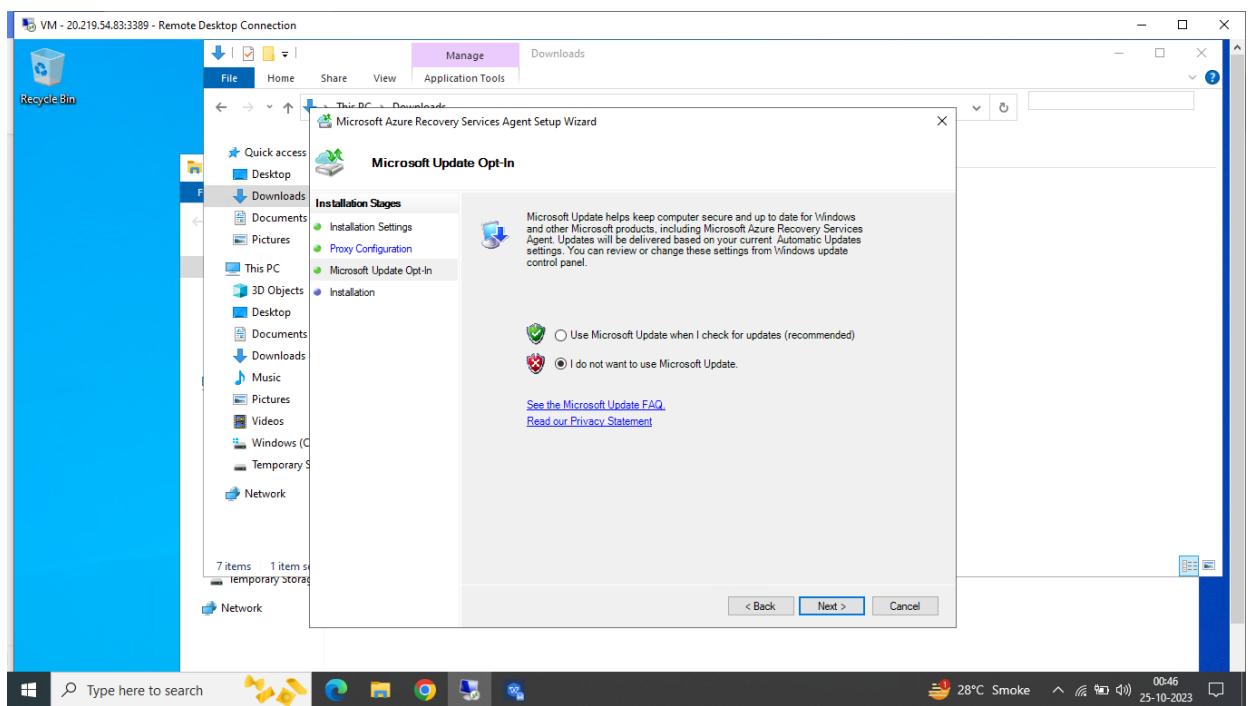
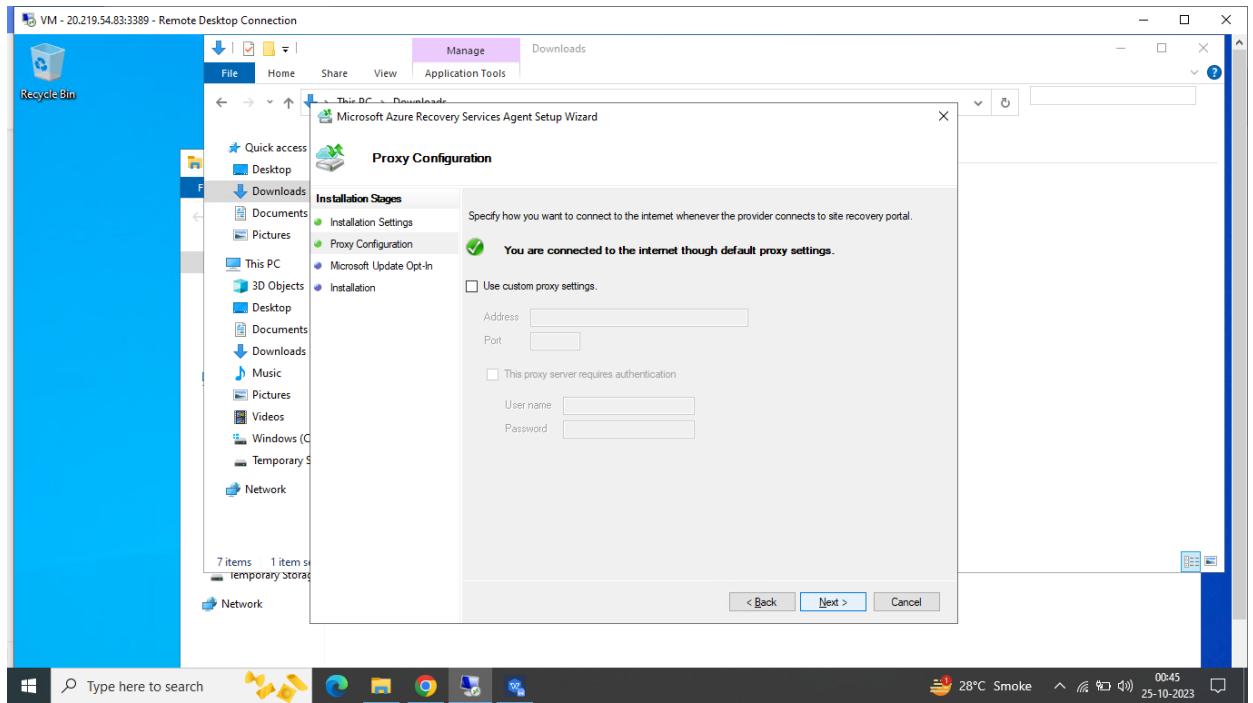
Backup and disaster recovery involves periodically creating or updating one or more copies of files, storing them in one or more remote locations, and using the copies to continue or resume business operations in the event of data loss due to file damage, data corruption, cyberattack or natural disaster.

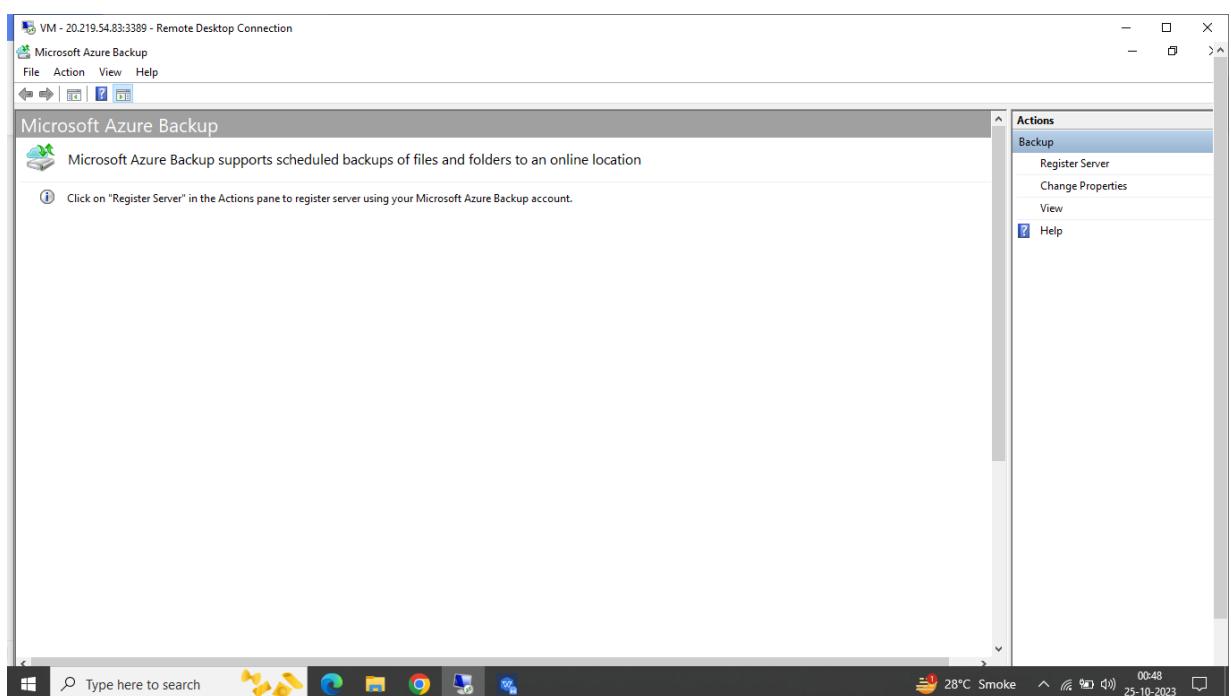
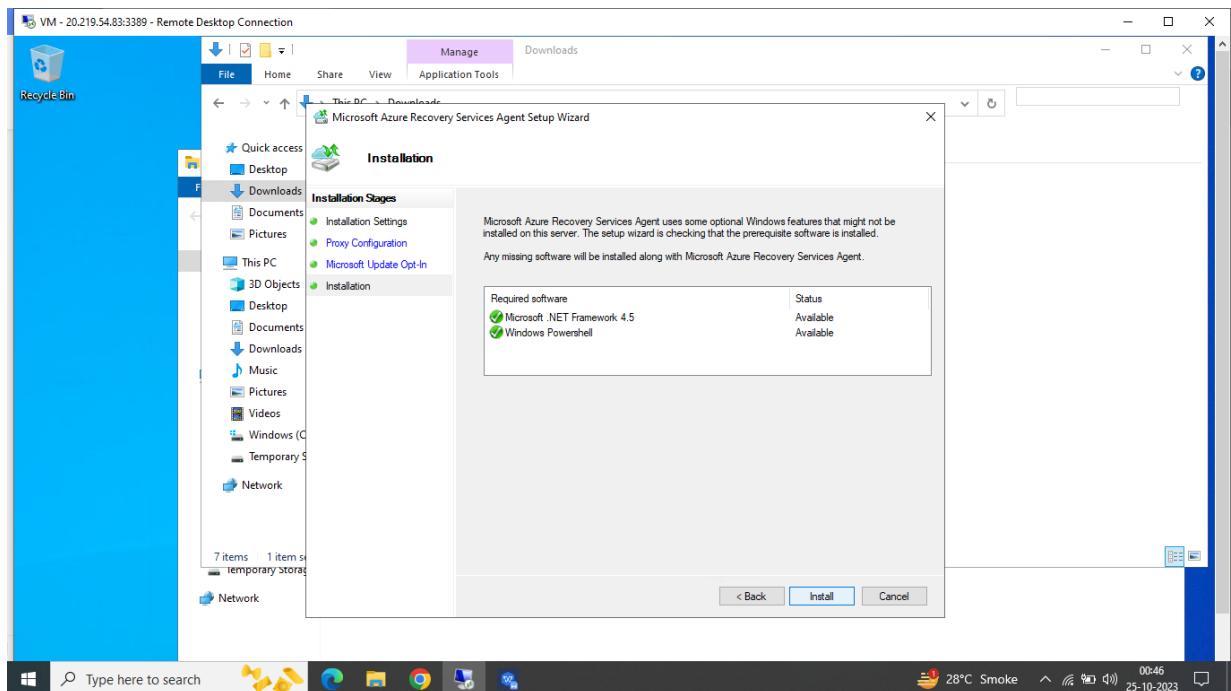
The sub processes—'backup' and 'disaster recovery'—are sometimes mistaken for each other or for the entire process. **Backup** is the process of making the file copies. **Disaster recovery** is the plan and processes for using the copies to quickly reestablish access to applications, data, and IT resources after an outage. That plan might involve switching over to a redundant set of servers and storage systems until your primary data centre is functional again.

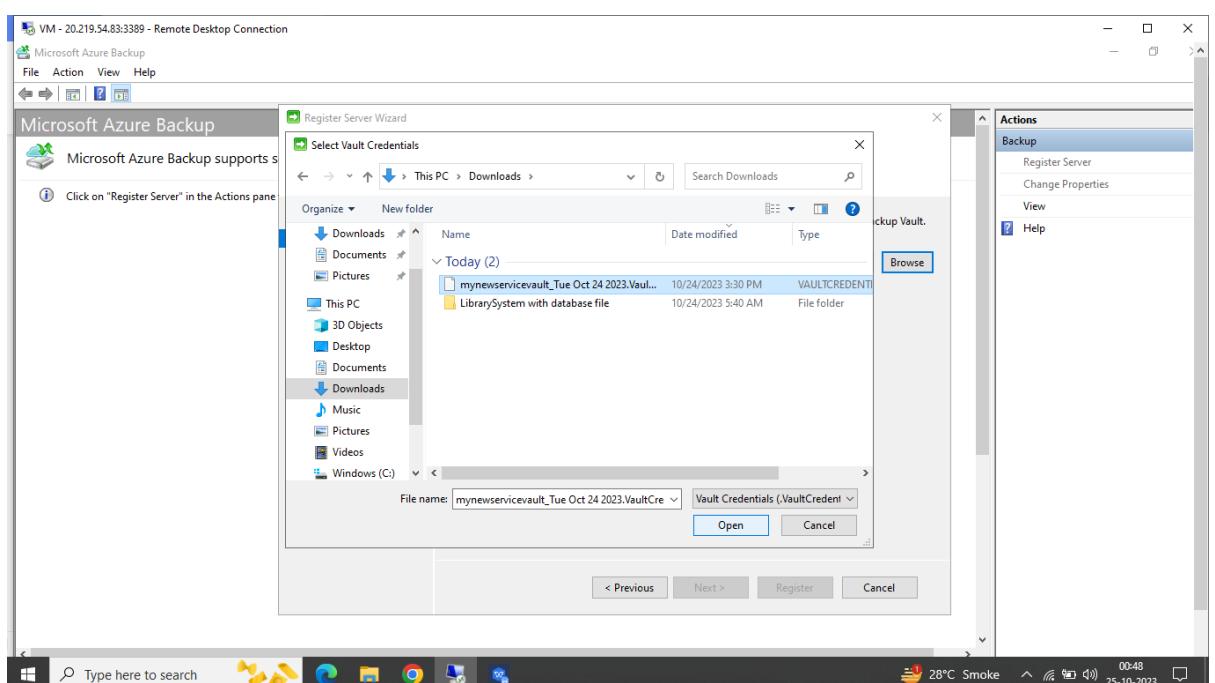
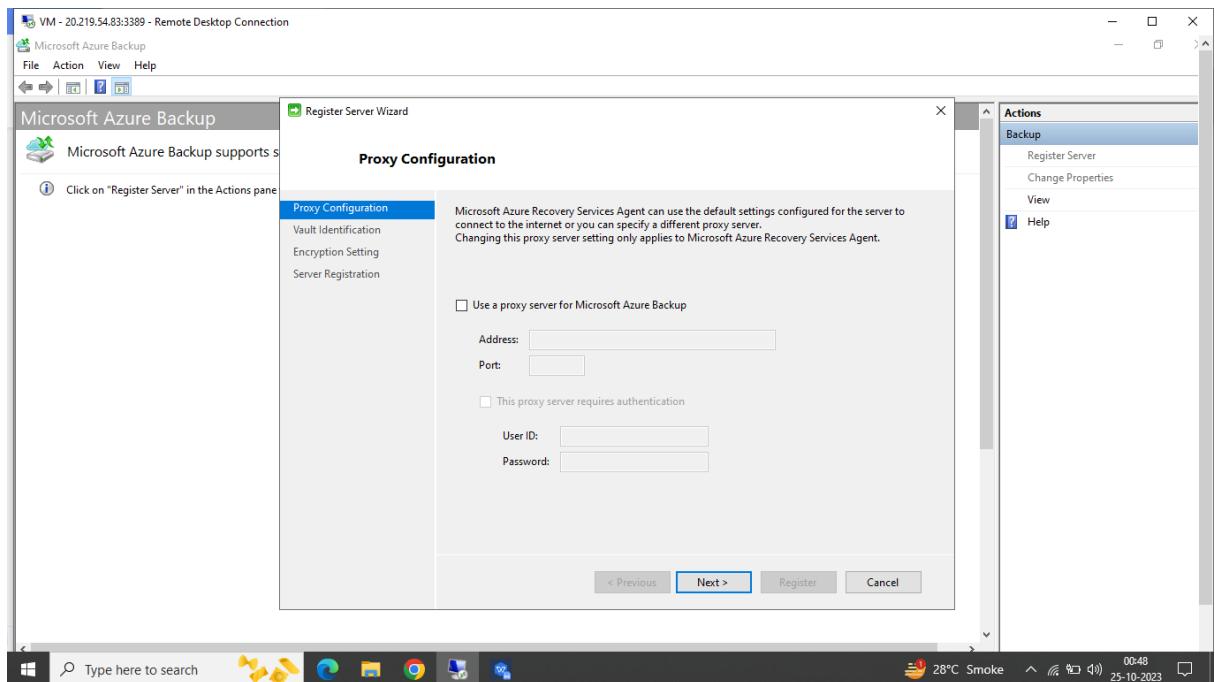
Simply having copies of data doesn't mean a company can keep the business running. Ensuring business continuity requires robust and tested backup and disaster recovery plan.

Below given pictures are step by step process of Backup & Disaster Recovery service on azure. They are follow as -









The screenshot shows the Microsoft Azure portal interface. The URL in the address bar is <https://portal.azure.com/#/resource/subscriptions/df5b088d-0201-40b6-92c9-3200fc97b0e/resourceGroups/Project...>. The title bar says "magicbuskey - Microsoft Azure". The main content area is titled "Key vaults" under "Microsoft Azure". A sub-menu "magicbuskey" is open, showing "Overview", "Activity log", "Access control (IAM)", "Tags", "Diagnose and solve problems", "Access policies", "Events", "Keys", "Secrets", and "Certificates". On the right, the "Essentials" section displays the following details:

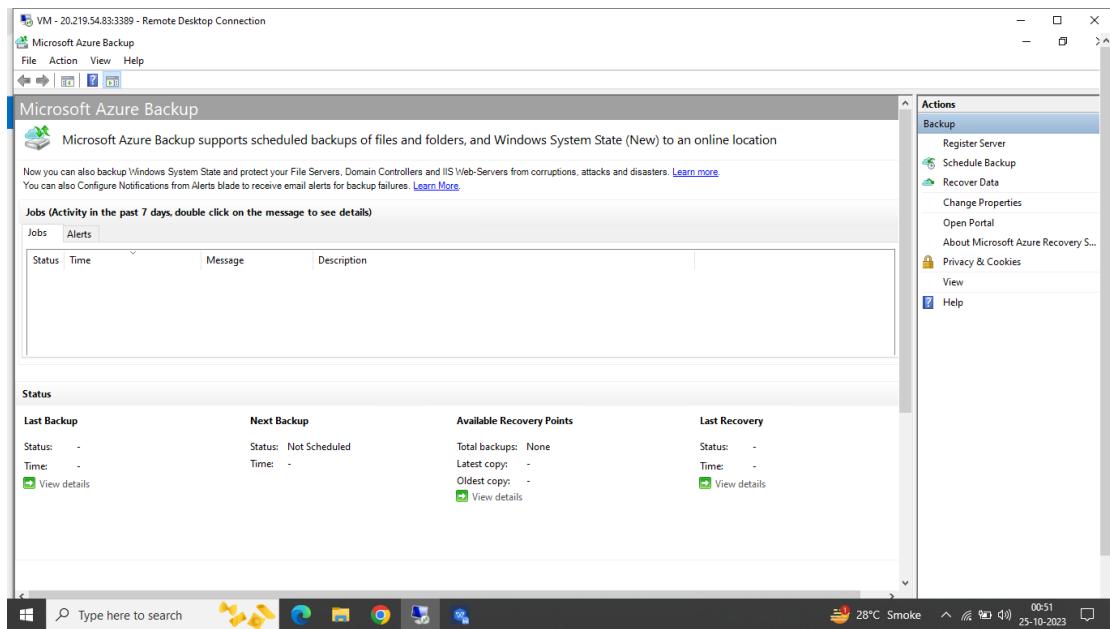
Resource group	Project
Location	Central India
Subscription	Azure for Students
Subscription ID	df5b088d-0201-40b6-92c9-3200fc97b0e
Vault URI	https://magicbuskey.vault.azure.net/
Sku (Pricing tier)	Standard
Directory ID	d867bec9-bb4d-4c7c-8d6c-66624dcf6ed8
Directory Name	Default Directory
Soft-delete	Enabled
Purge protection	Enabled

A tooltip "Copied" is shown over the Vault URI link. The status bar at the bottom indicates "28°C Smoke" and the date "25-10-2023".

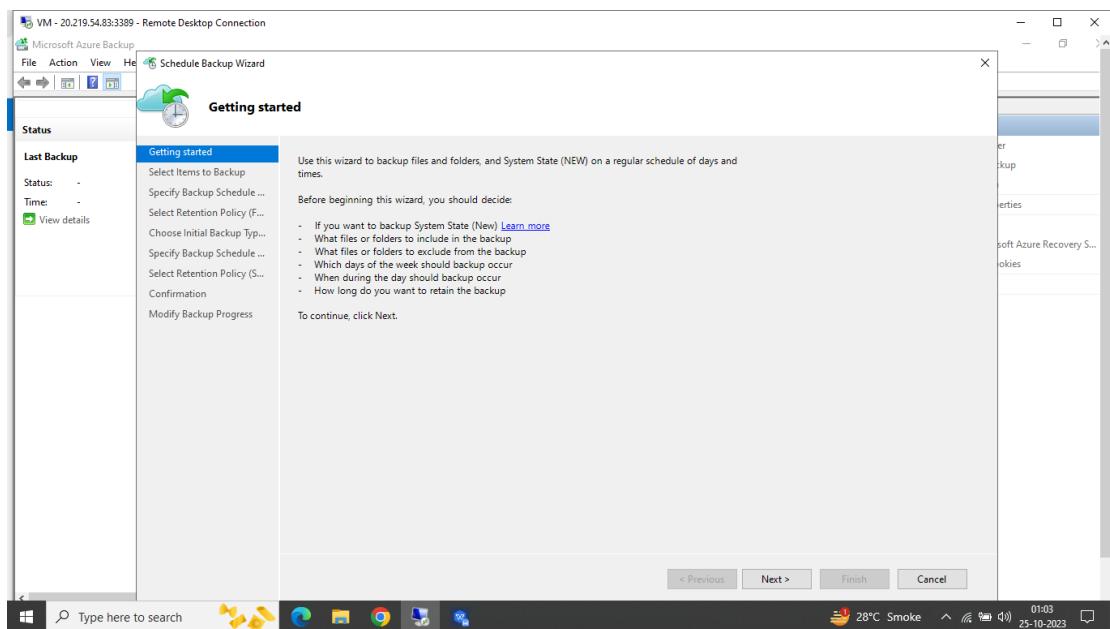
The screenshot shows the "Register Server Wizard" window titled "Encryption Setting". The left pane lists steps: "Proxy Configuration", "Vault Identification", "Encryption Setting" (which is selected), and "Server Registration". The main pane contains the following fields and instructions:

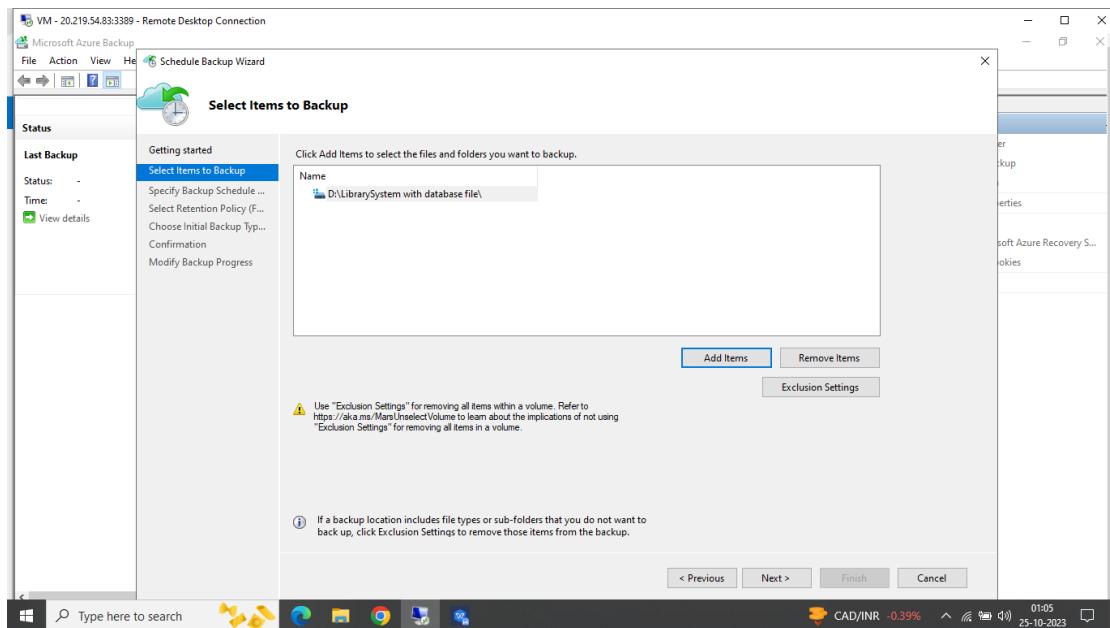
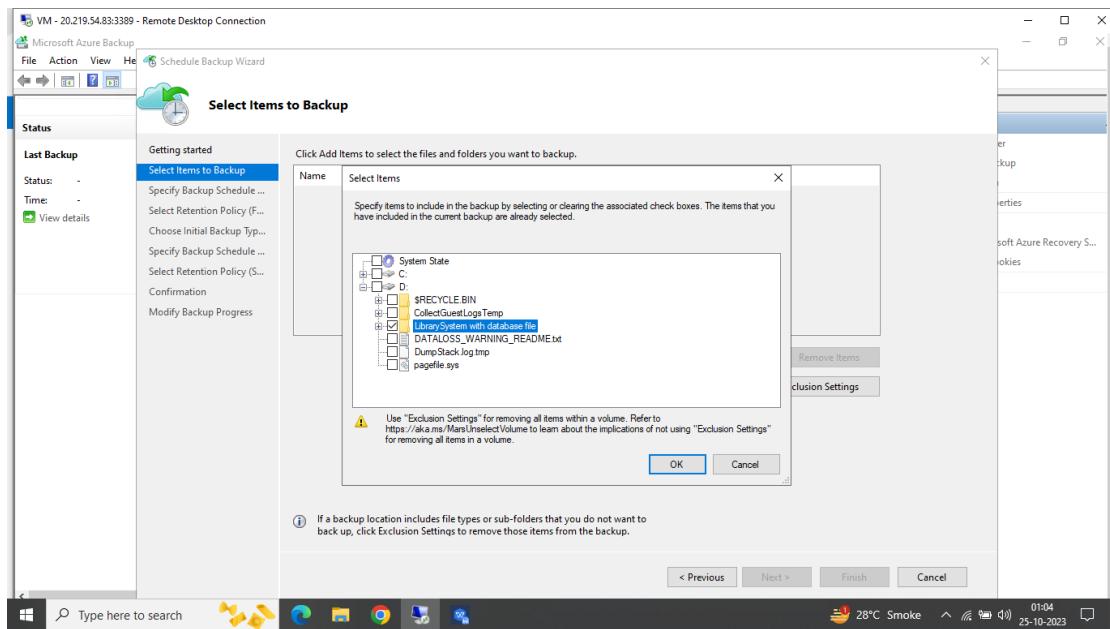
- "Enter Passphrase (minimum of 16 characters)": Two input fields containing "*****" (36 characters each) and a "Generate Passphrase" button.
- "Confirm Passphrase": A field containing "*****" (36 characters).
- "Save passphrase securely to Azure Key Vault (Preview)": A checked checkbox.
- "Enter Key Vault URL to save passphrase": An input field containing "https://magicbuskey.vault.azure.net/".
- A note: "It is recommended to save the passphrase to Azure Key Vault. Ensure that your Recovery Services Vault has a System Assigned Managed Identity and Set permission for Secret in the target Azure Key Vault." with a "Learn More" link.

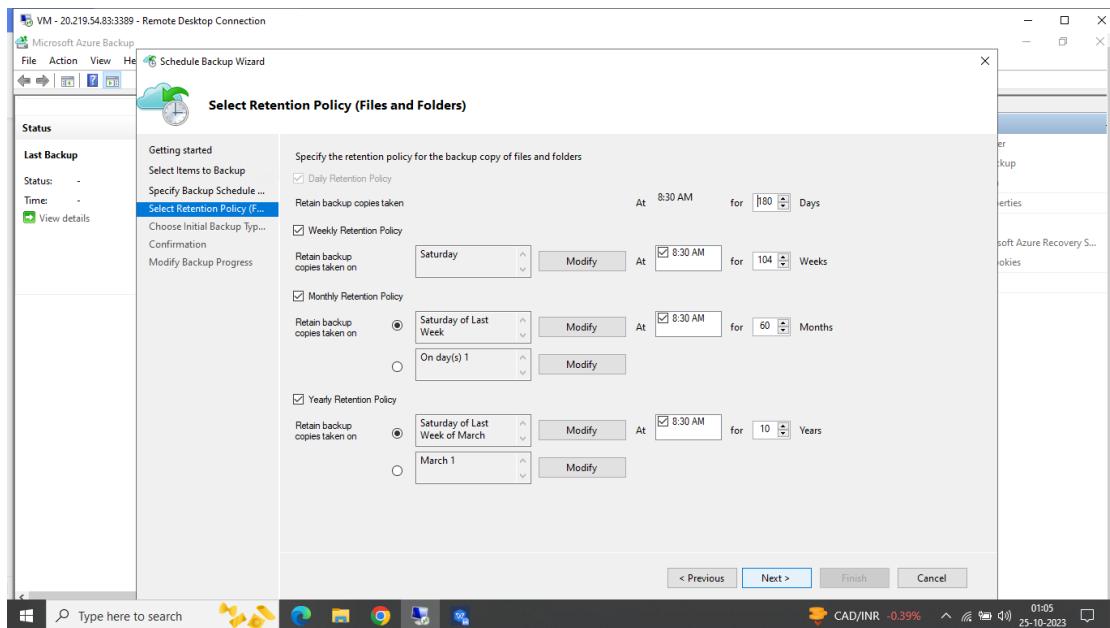
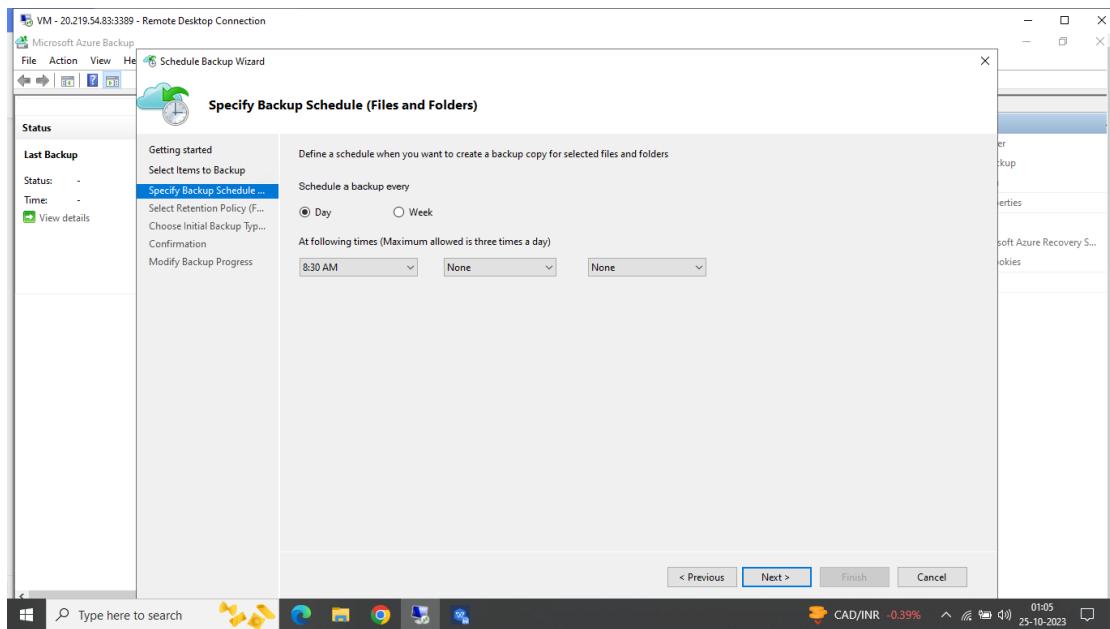
At the bottom are "Previous", "Next >", "Register", and "Cancel" buttons. The right side of the screen shows the "Actions" pane with "Backup" selected. The status bar at the bottom indicates "28°C Smoke" and the date "25-10-2023".

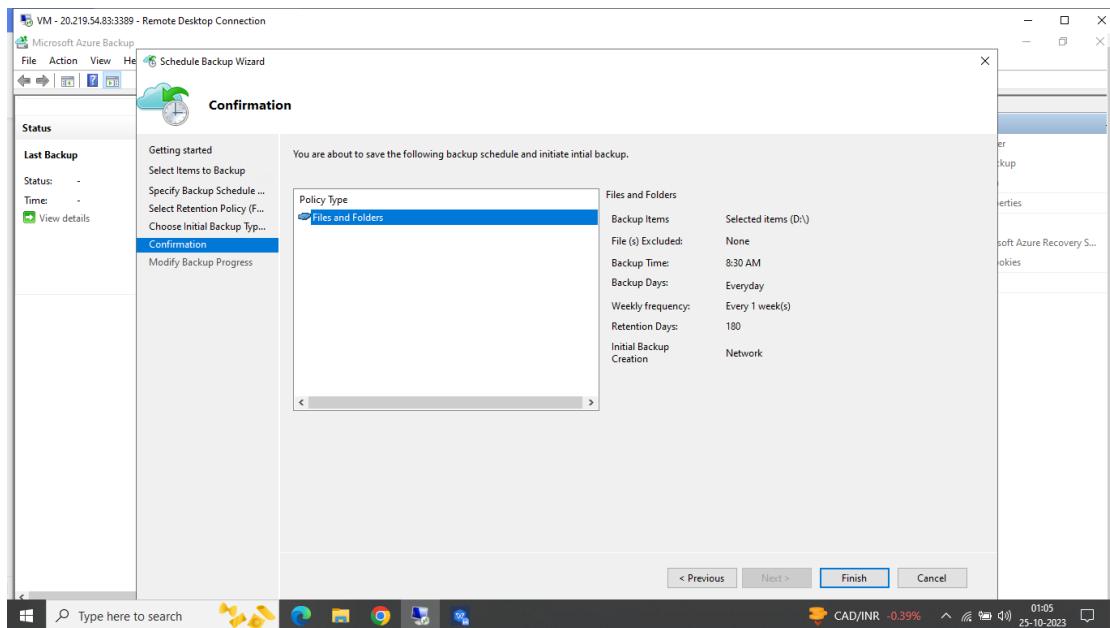
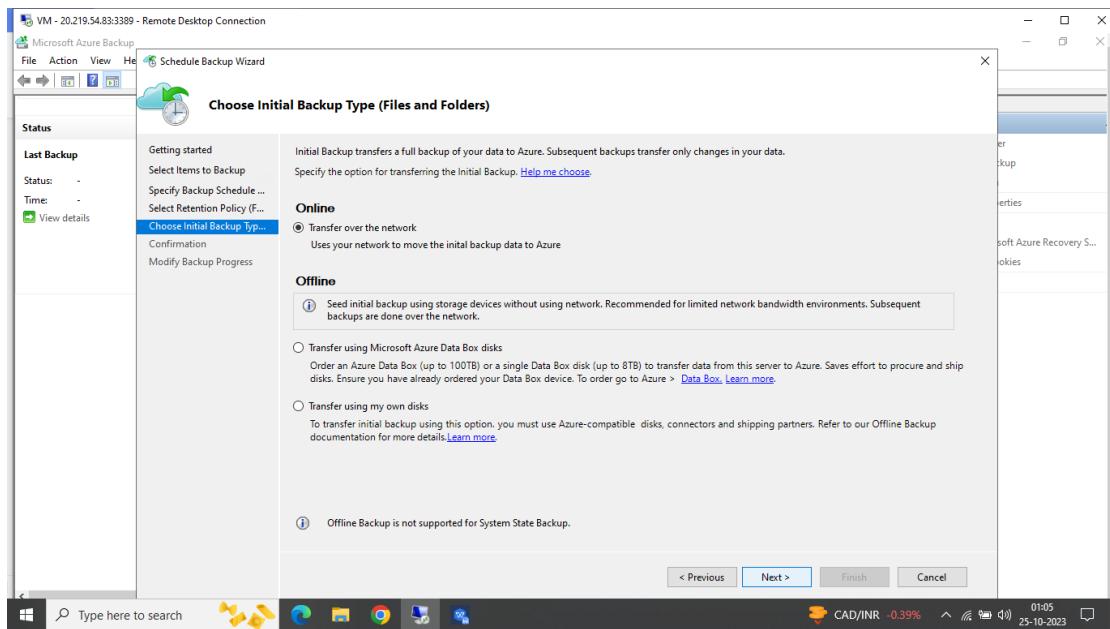


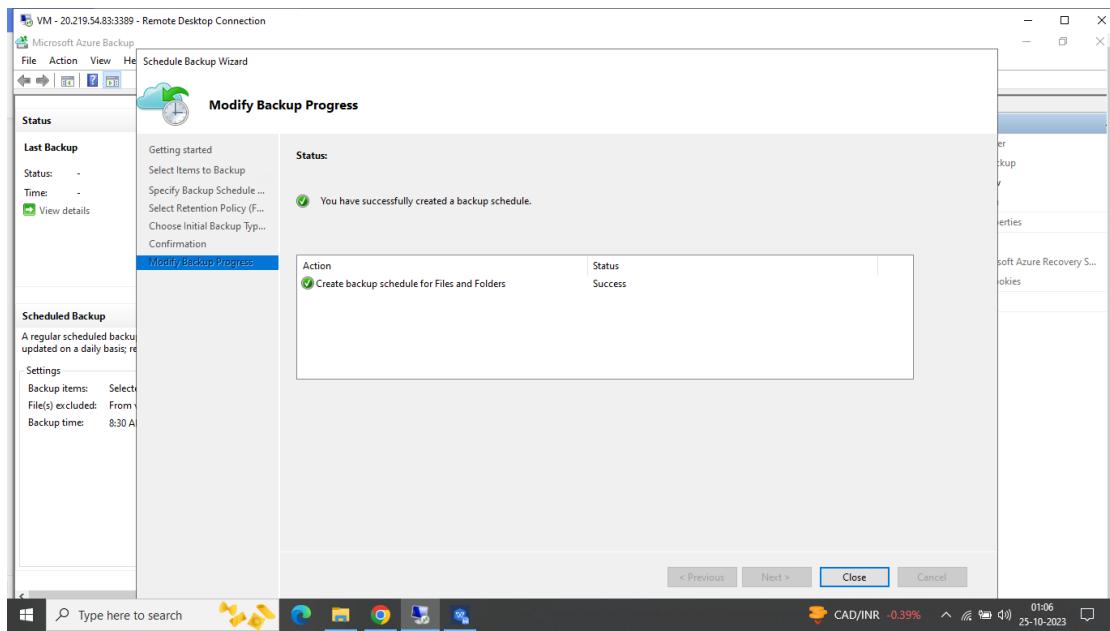
Click on Schedule backup



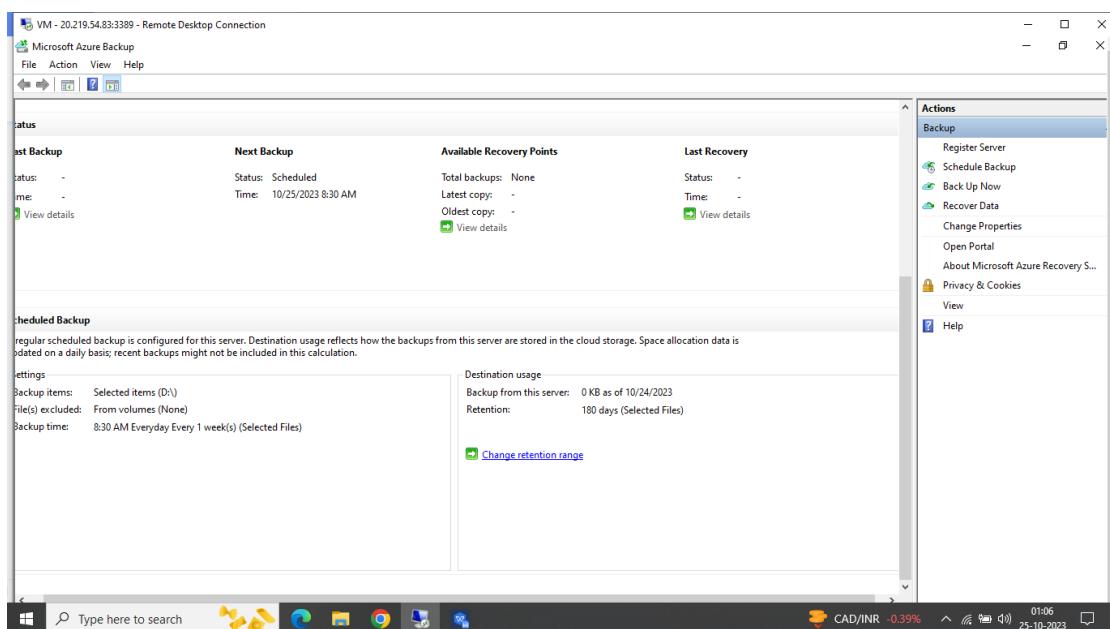


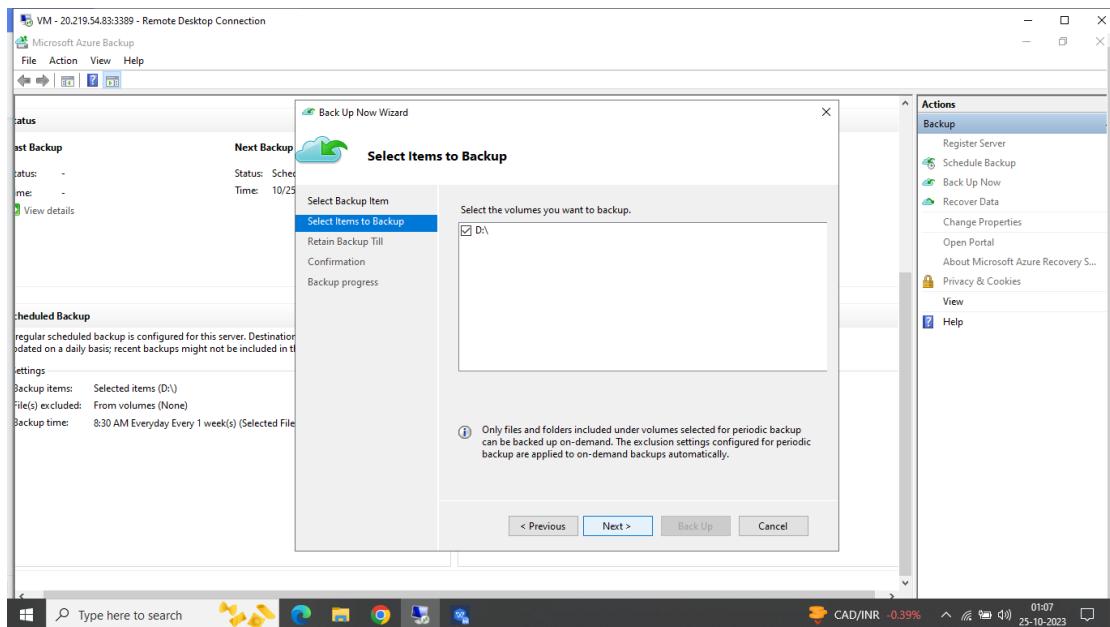
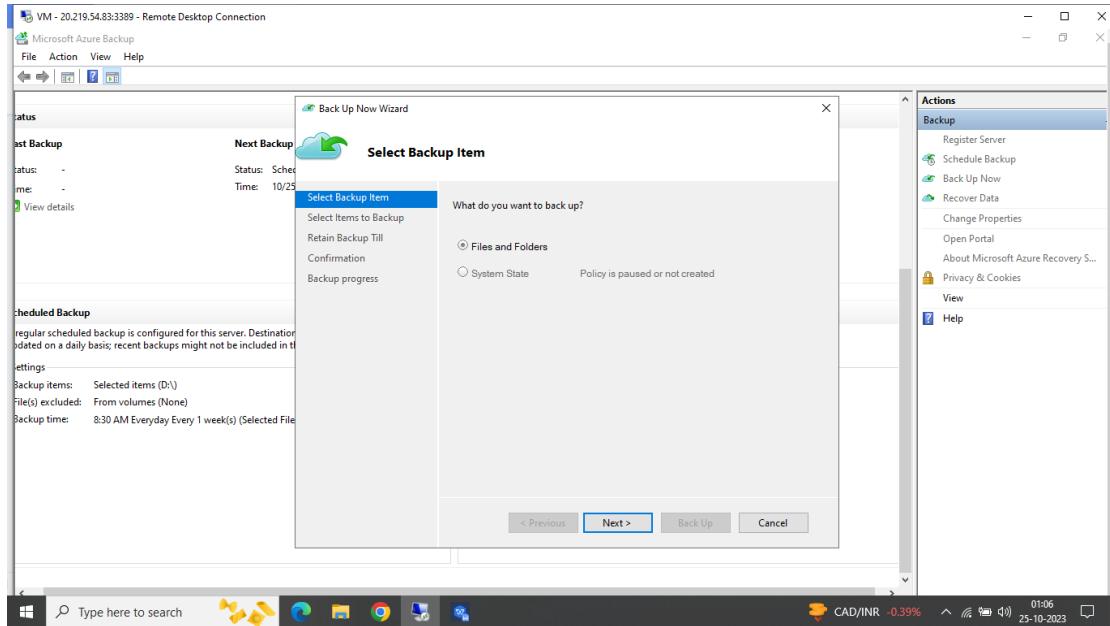


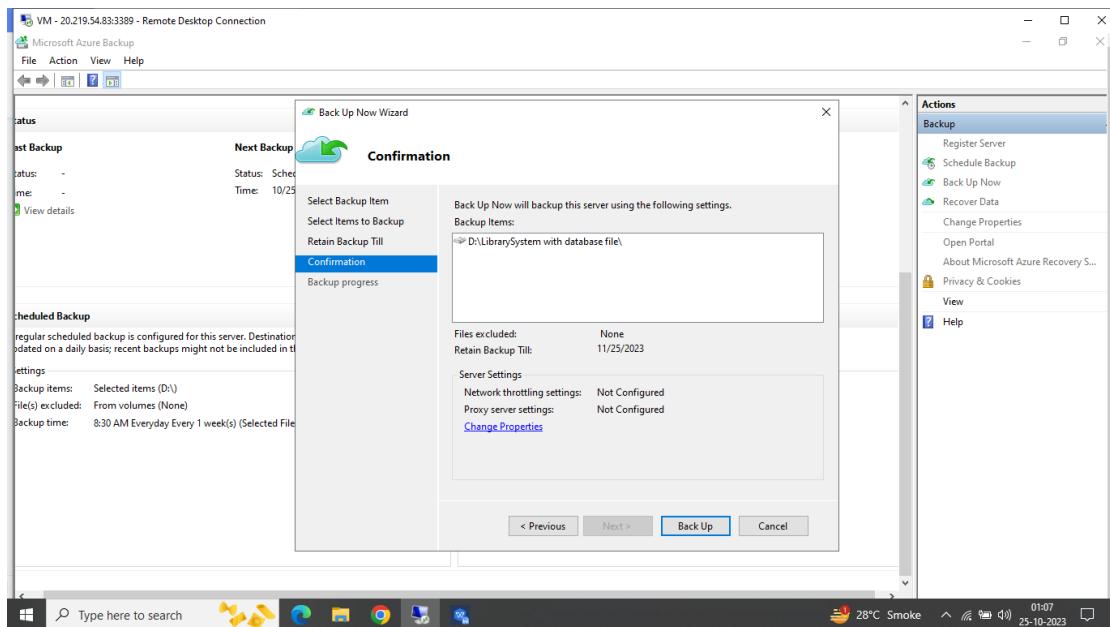
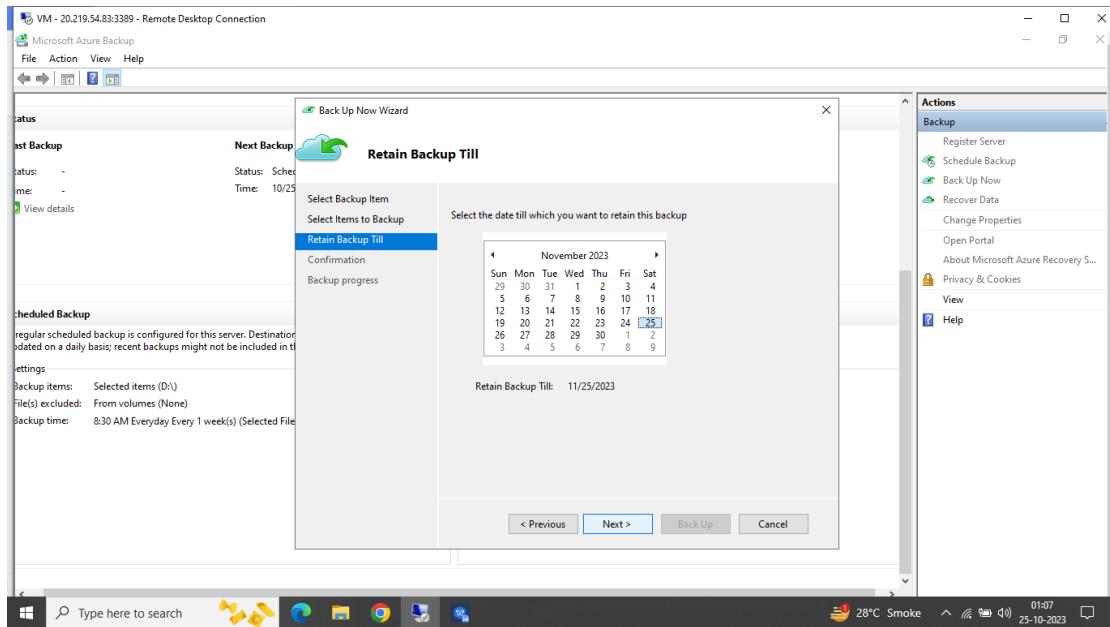


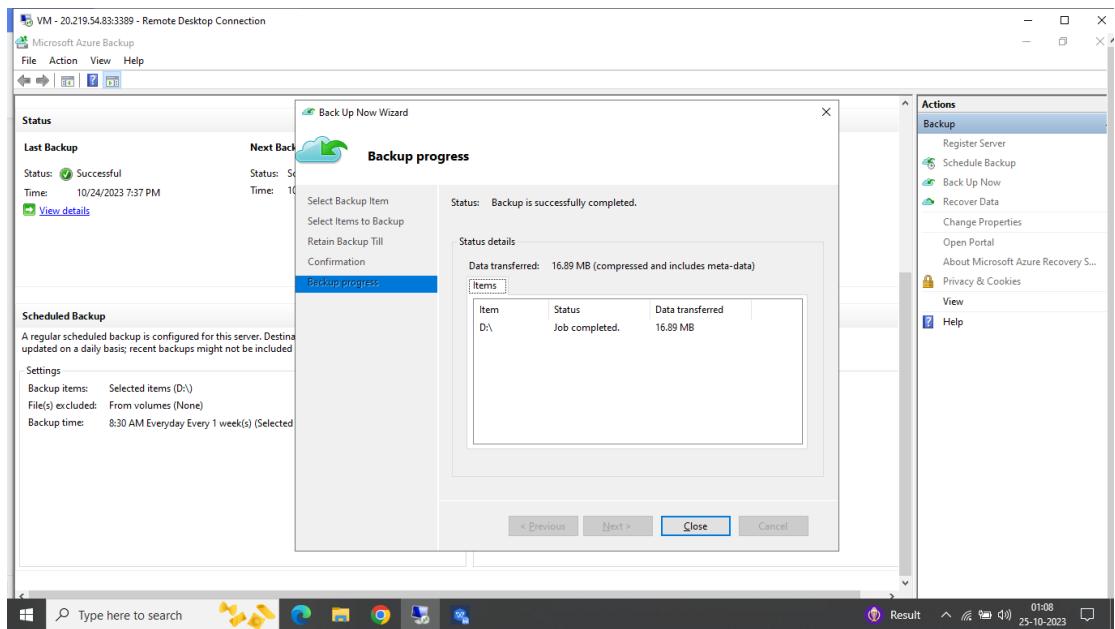


Click on backup now

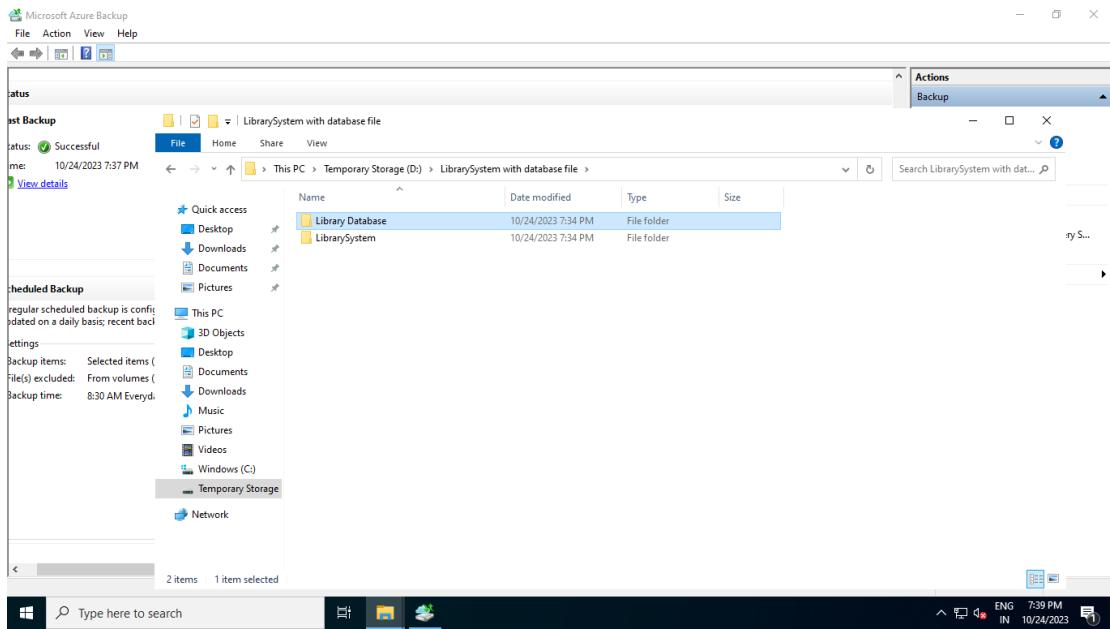








Delete this file



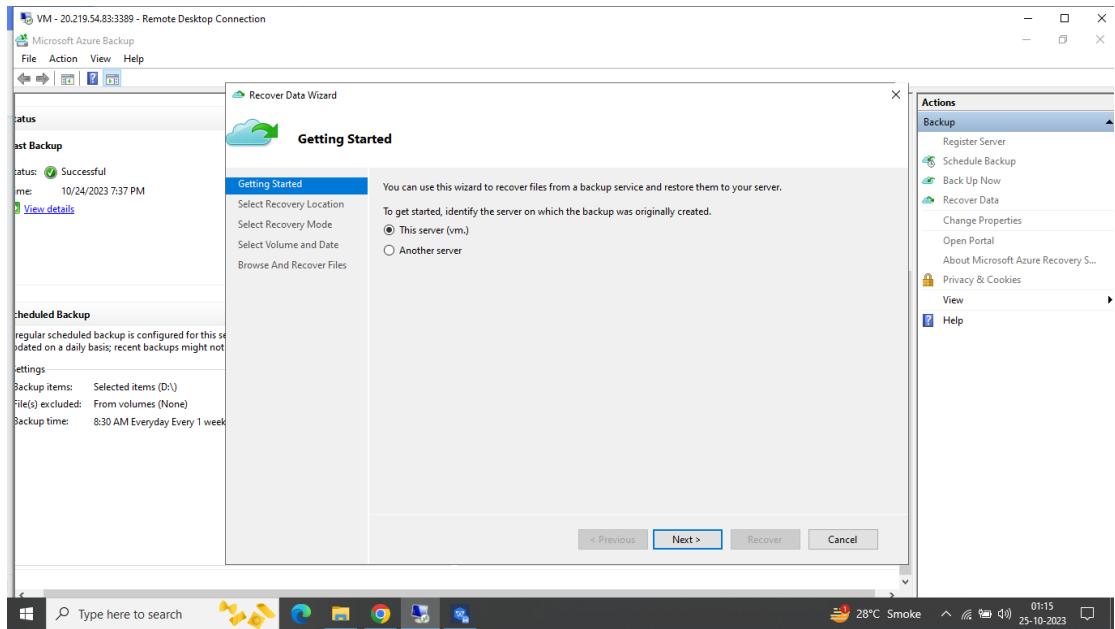
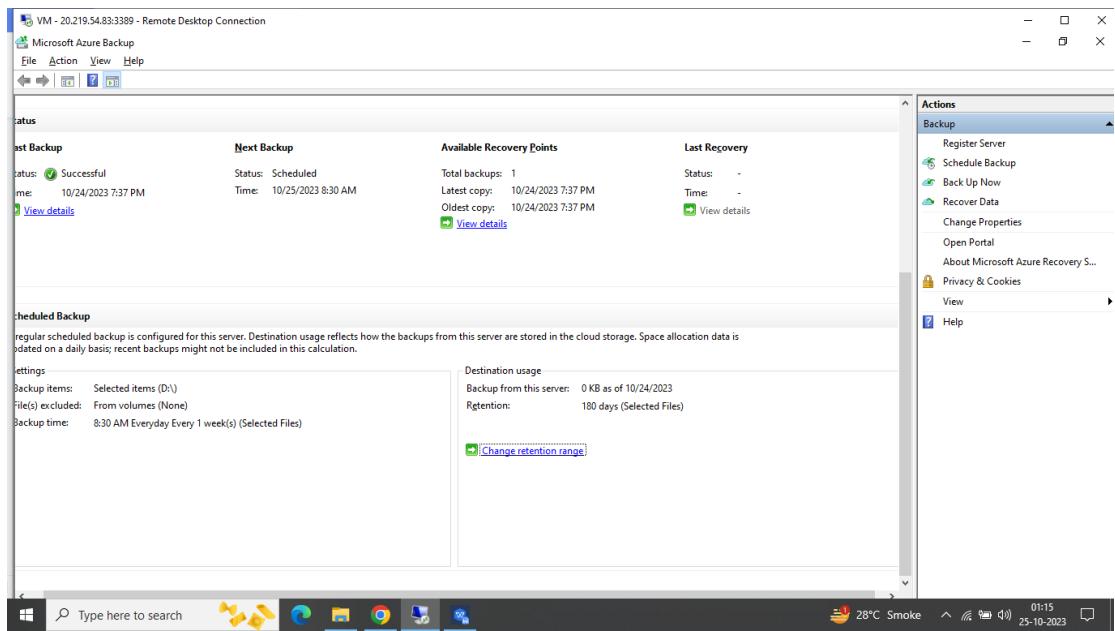
The screenshot shows the Microsoft Azure portal. The URL is 'portal.azure.com/#view/Microsoft_Azure_DataProtection/V1ProtectedItemsListBlade/vaultId/%2Fdf5b088d-0201-40b6-92c9-3200fcc97b...'. The page title is 'Backup Items (Azure Backup Agent)'. The navigation bar shows 'mynewservicevault' under 'Resource groups > Project > mynewservicevault | Backup items >'. The main content area displays a table of backup items:

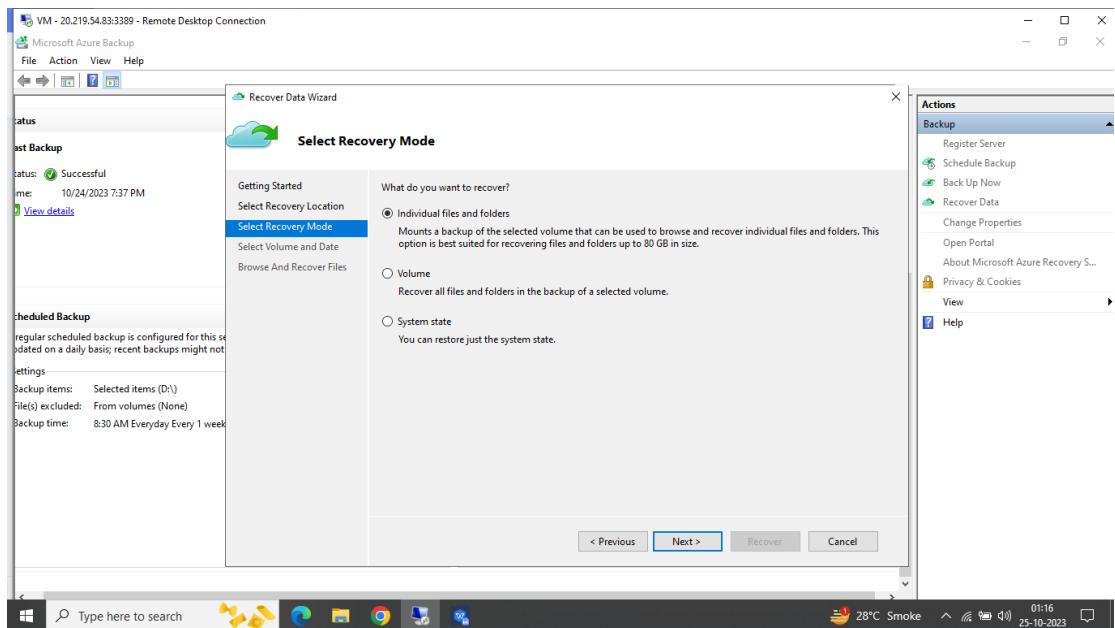
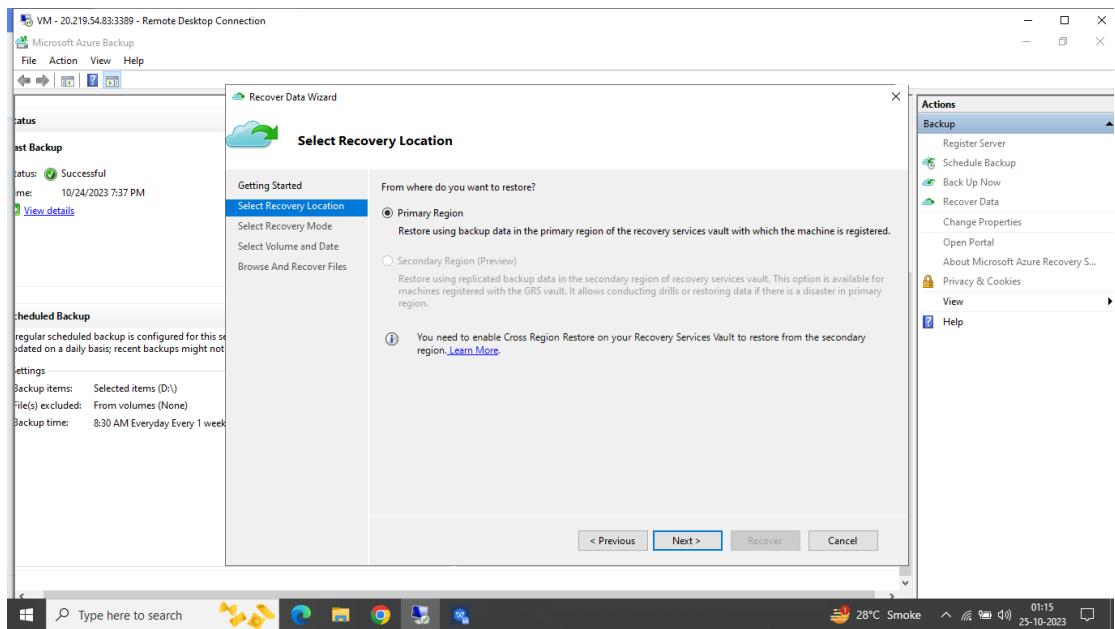
Backup item	Protected server	Last backup	Last backup time	Details
D:\	sandeep-1998.	Success	10/25/2023, 12:20:46 AM	View details
D:\	vm.	-	10/25/2023, 1:07:38 AM	View details
C:\	vm.	-	1/1/2001, 5:30:00 AM	View details

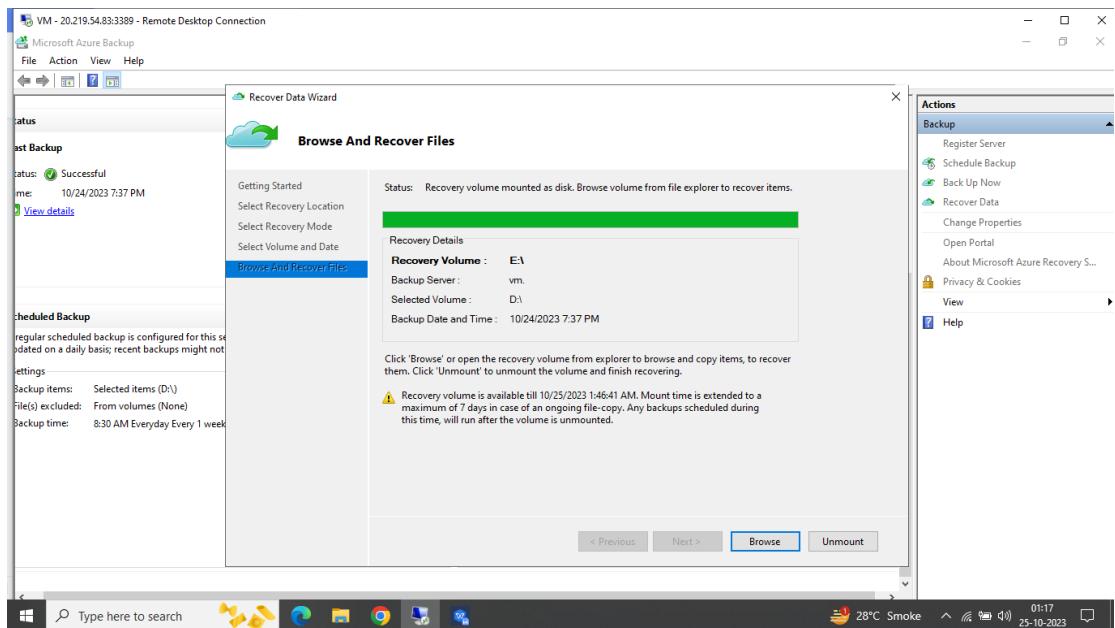
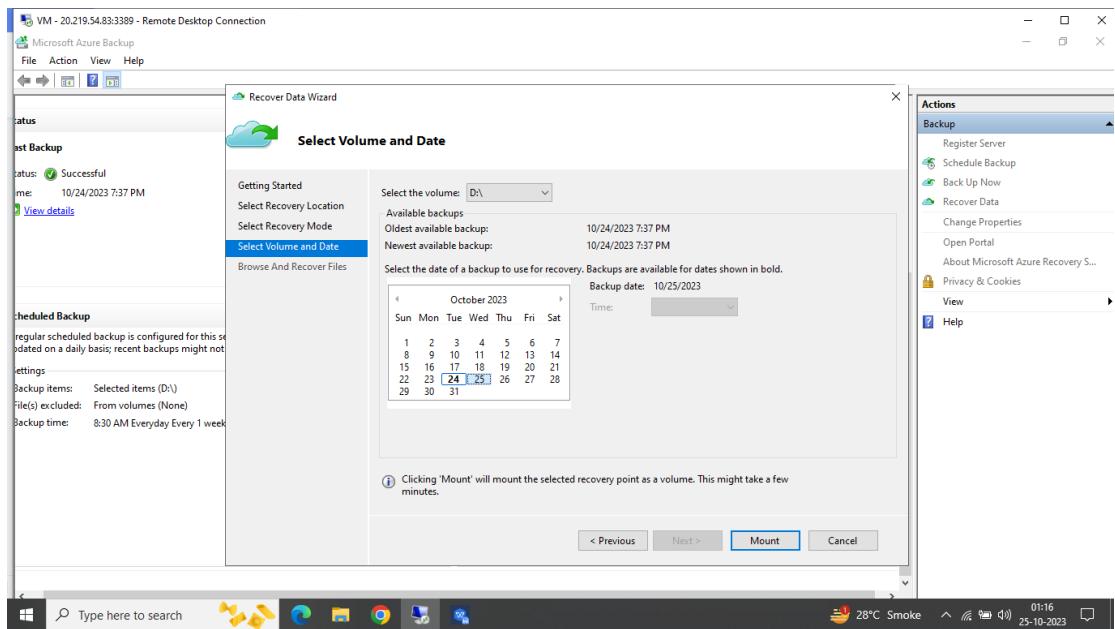
At the bottom, there are buttons for '< Previous', 'Page 1 of 1', and 'Next >'. The taskbar at the bottom includes icons for File Explorer, Task View, Edge, and File History.

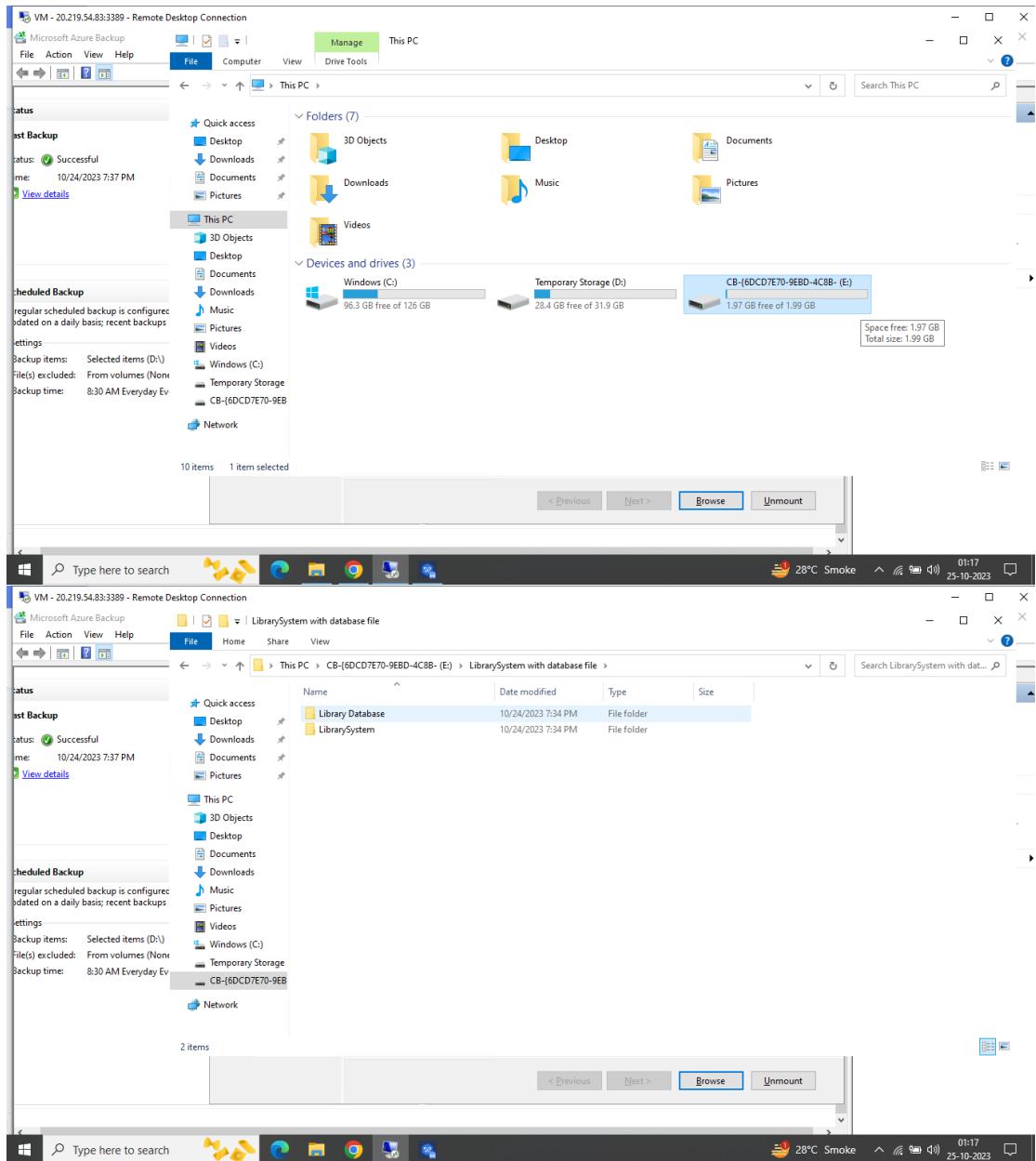


Click on Recover data

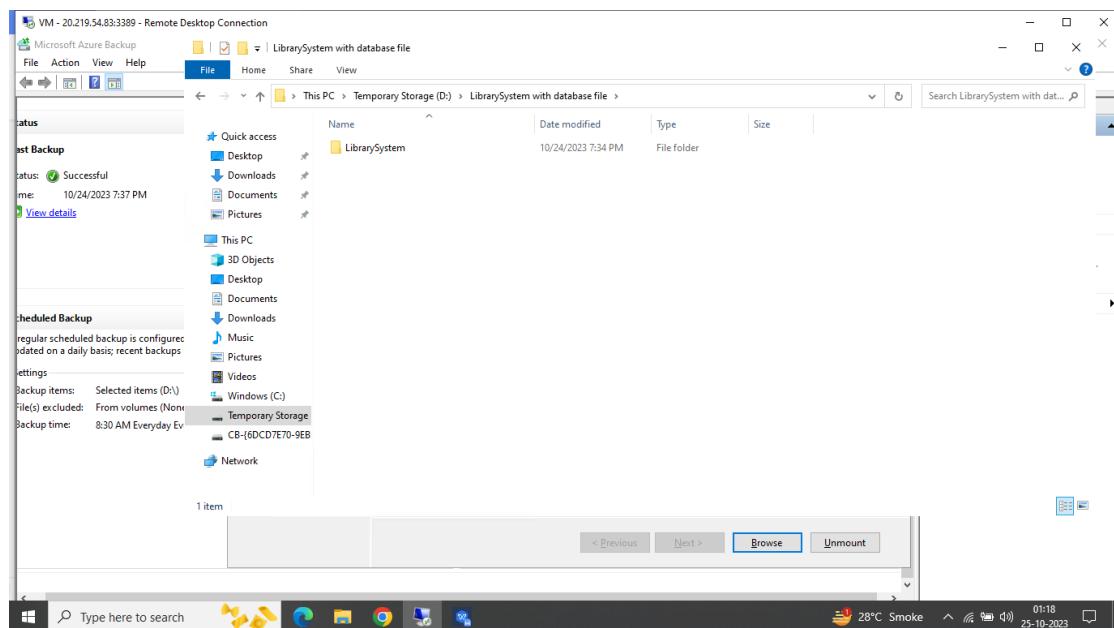




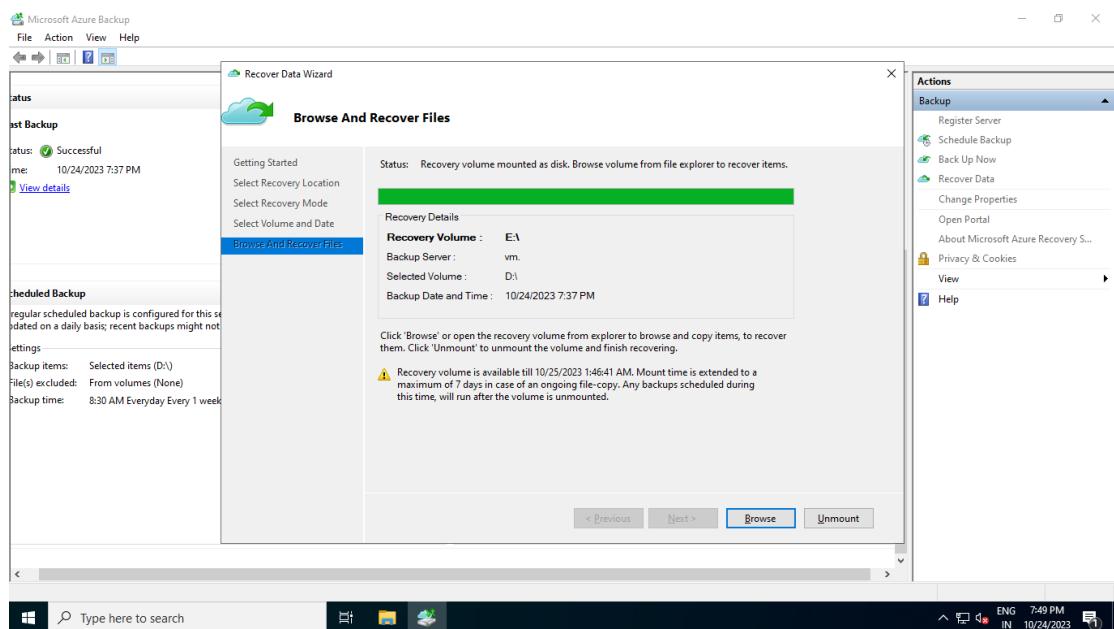




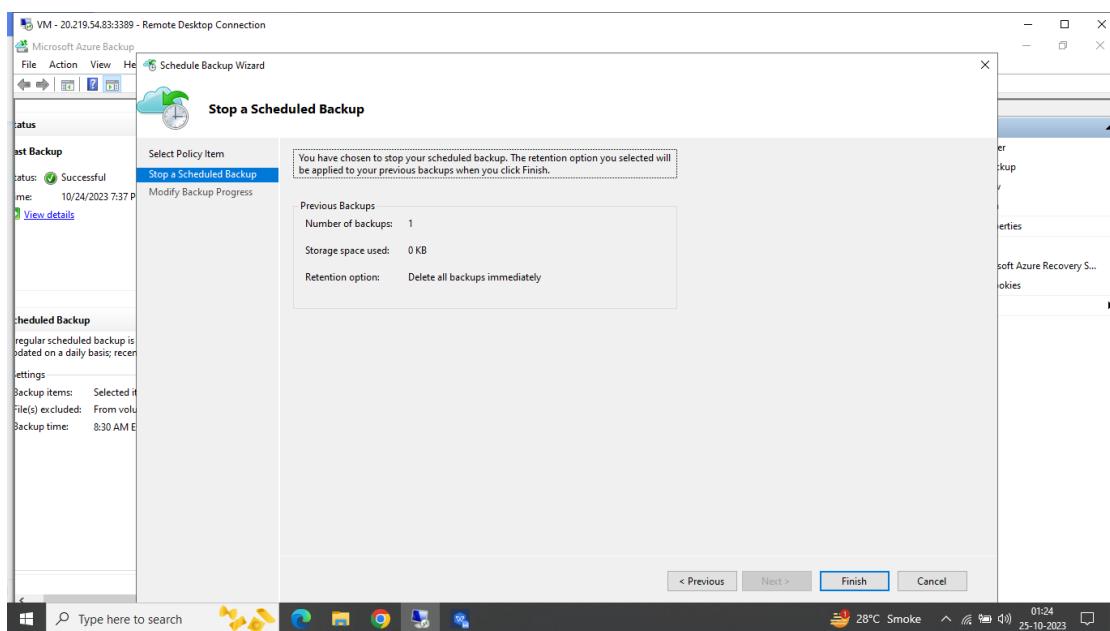
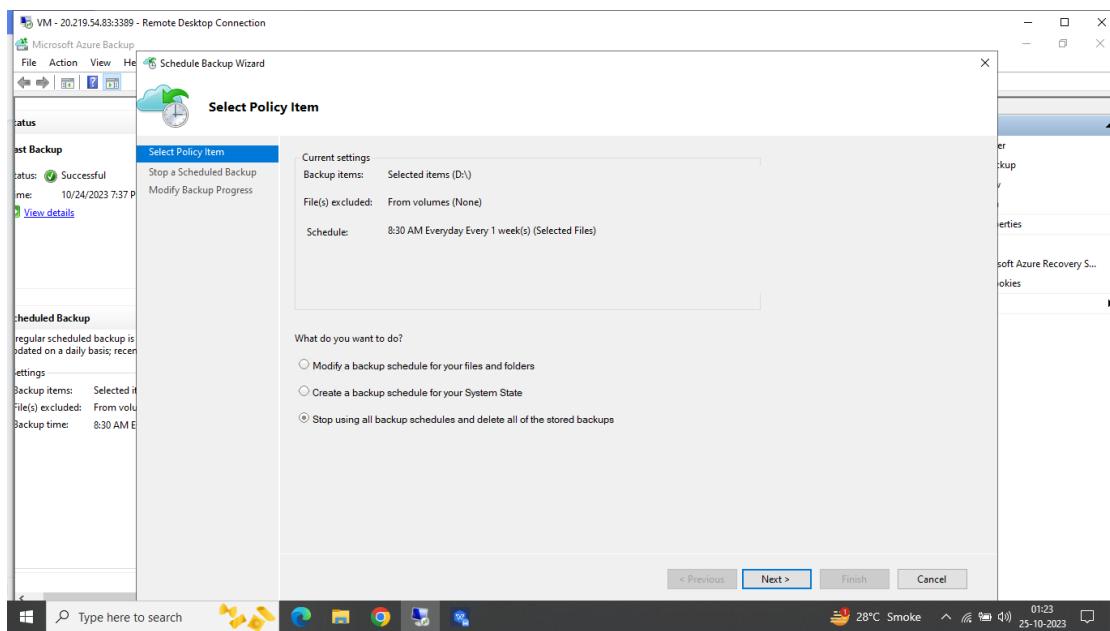
D drive - delete the file

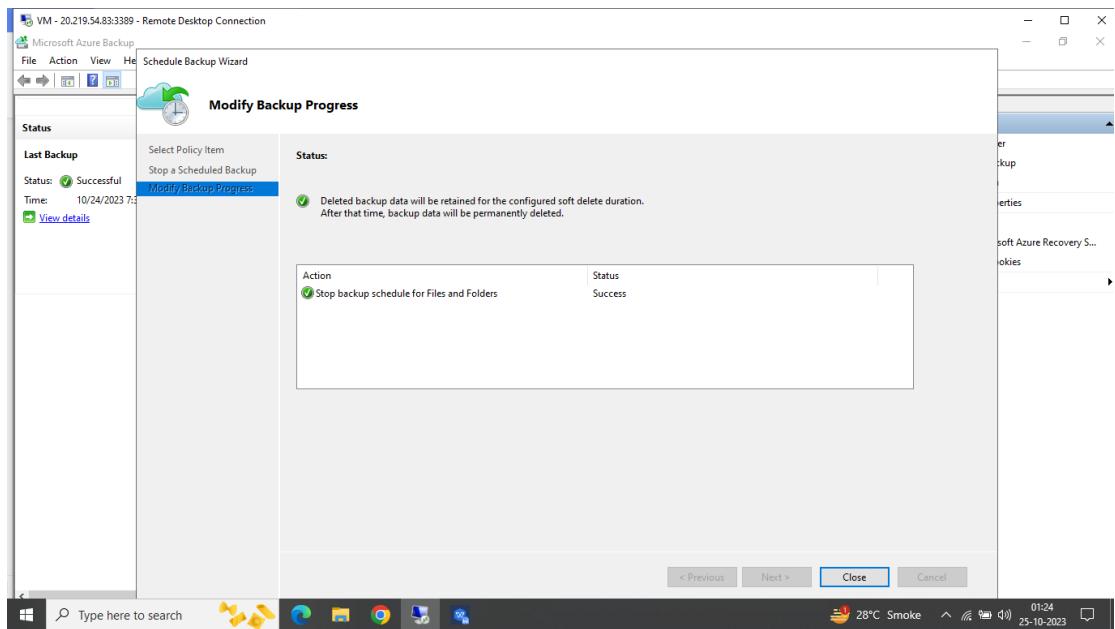
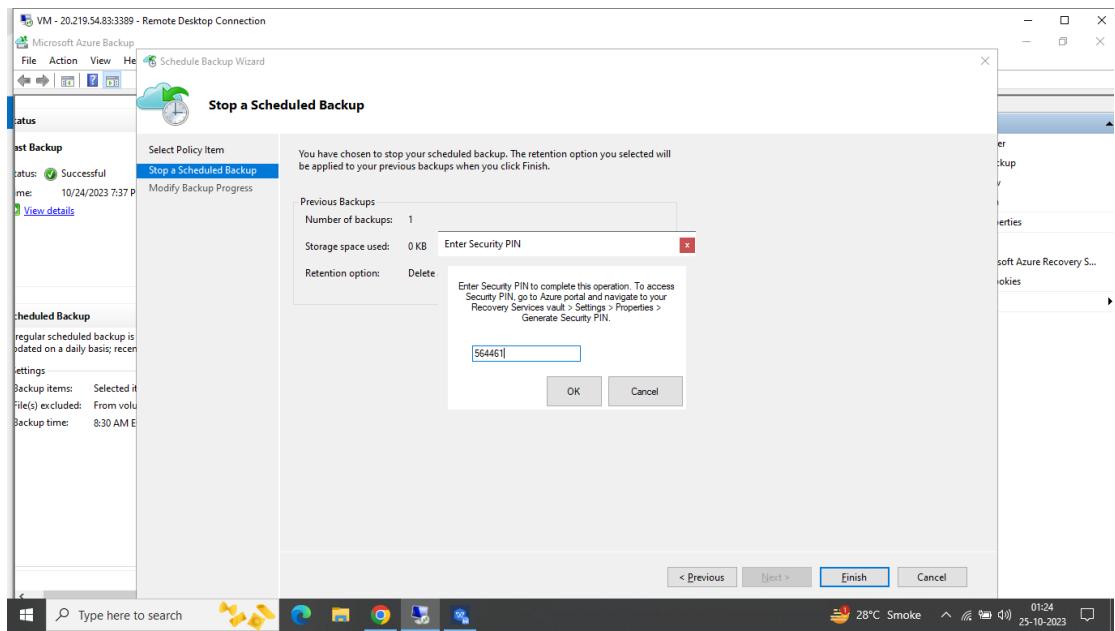


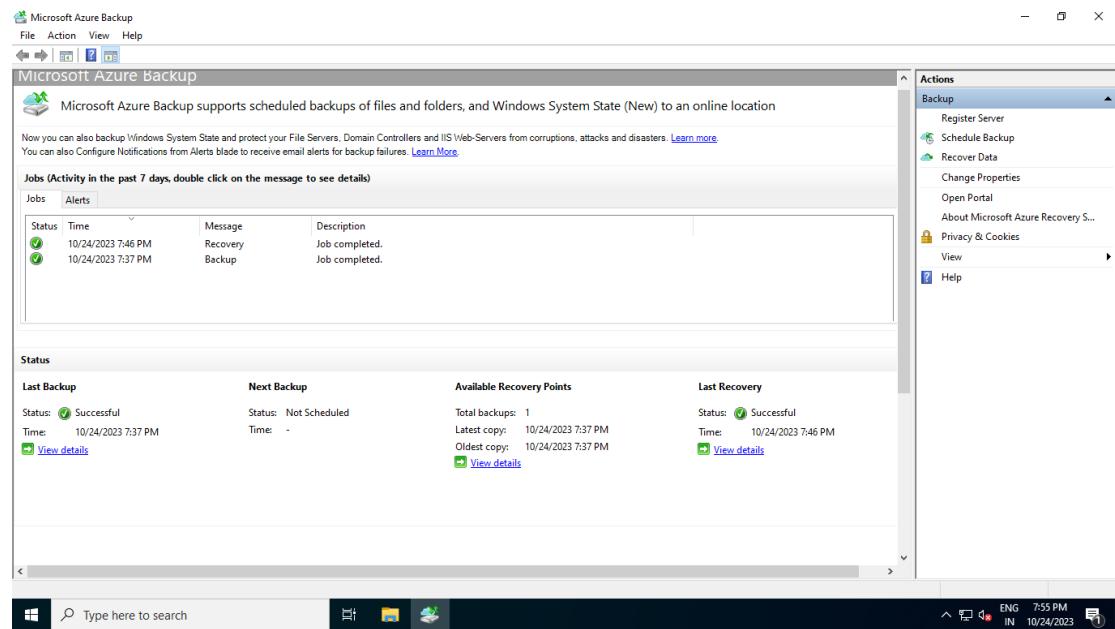
Click on unmount



Delete the schedule backup







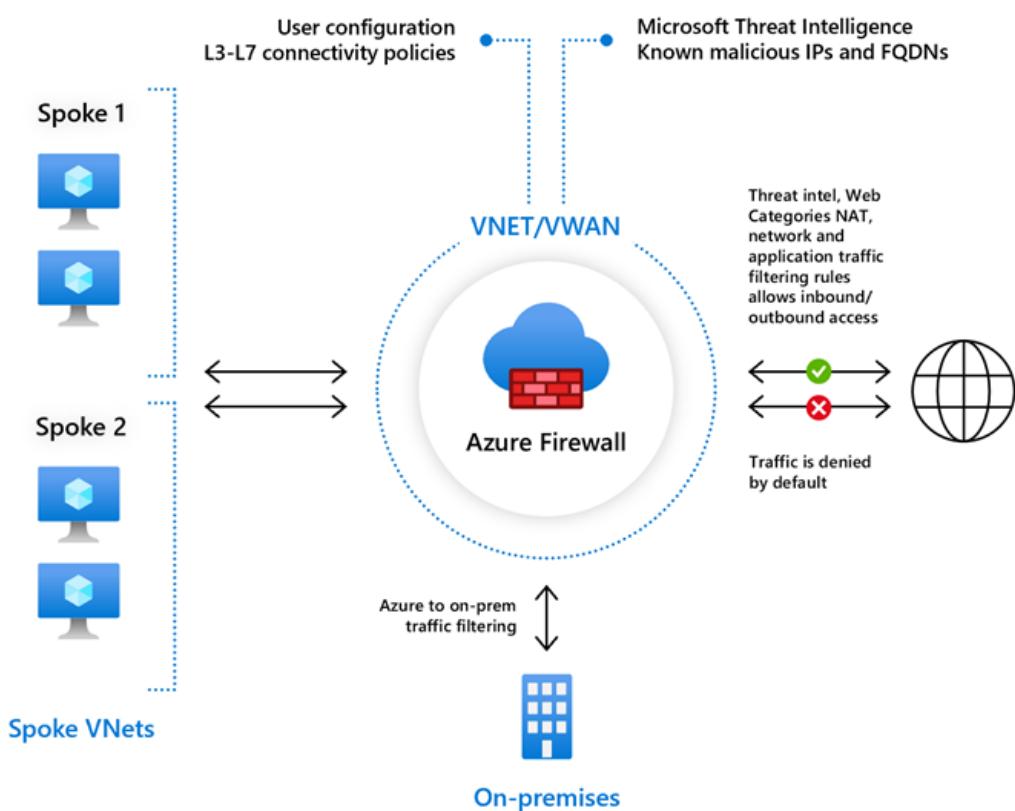
2. Azure Firewall :

Azure Firewall is a cloud-native and intelligent network firewall security service that provides the best of breed threat protection for your cloud workloads running in Azure. It's a fully stateful firewall as a service with built-in high availability and unrestricted cloud scalability. It provides both east-west and north-south traffic inspection. To learn what's east-west and north-south traffic, see East-west and north-south traffic.

Azure Firewall is offered in three SKUs: Standard, Premium, and Basic.

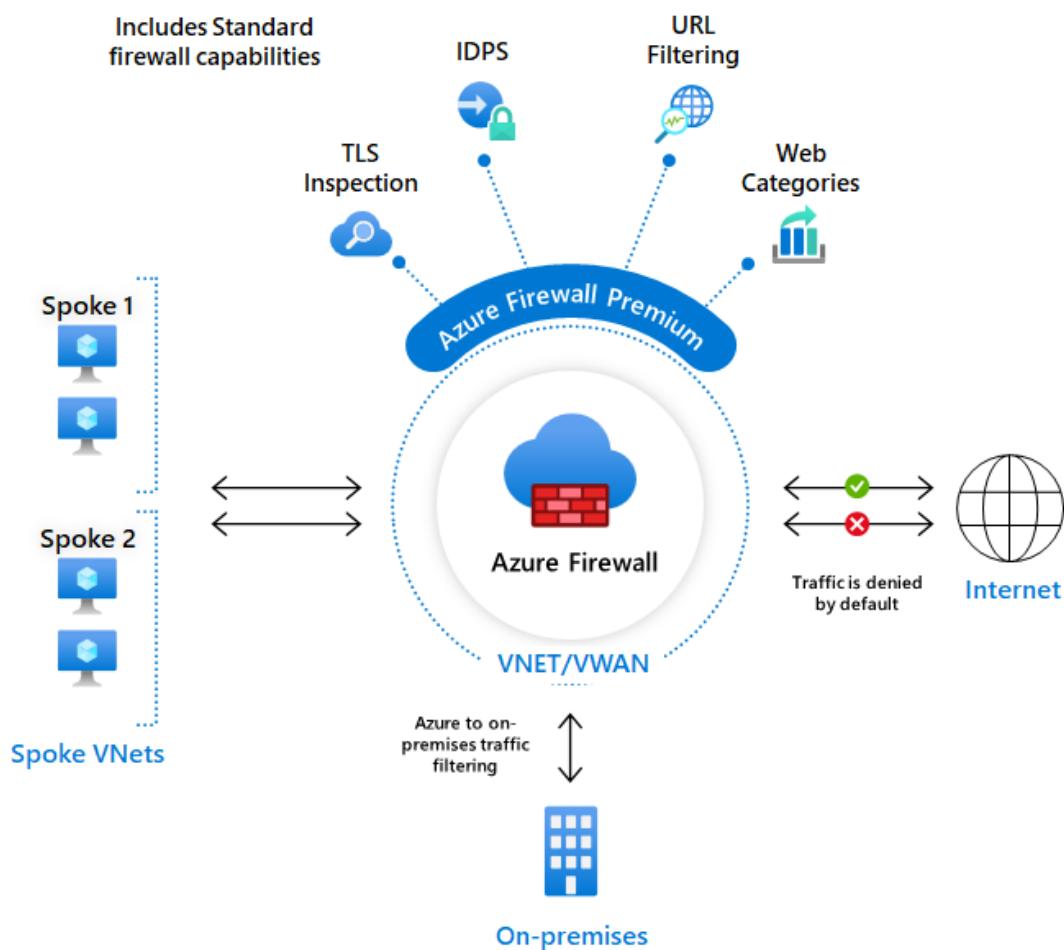
Azure Firewall Standard

Azure Firewall Standard provides L3-L7 filtering and threat intelligence feeds directly from Microsoft Cyber Security. Threat intelligence-based filtering can alert and deny traffic from/to known malicious IP addresses and domains that are updated in real time to protect against new and emerging attacks.



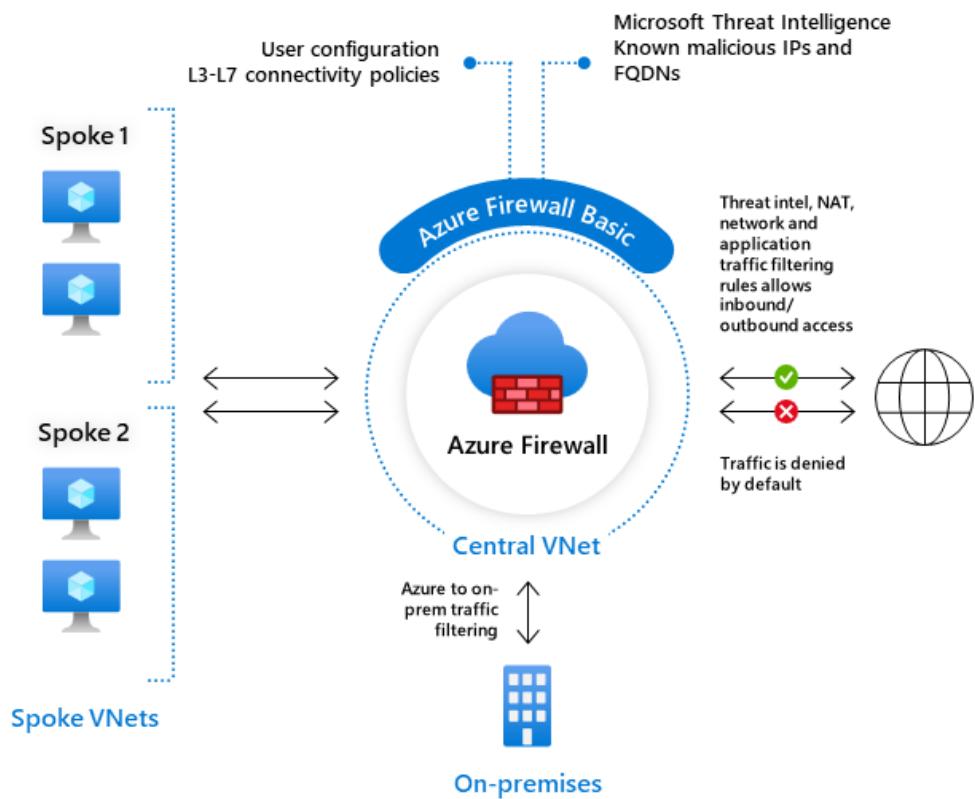
Azure Firewall Premium

Azure Firewall Premium provides advanced capabilities include signature based IDPS to allow rapid detection of attacks by looking for specific patterns. These patterns can include byte sequences in network traffic or known malicious instruction sequences used by malware. There are more than 67,000 signatures in over 50 categories that are updated in real time to protect against new and emerging exploits. The exploit categories include malware, phishing, coin mining, and Trojan attacks.



Azure Firewall Basic

Azure Firewall Basic is intended for small and medium size (SMB) customers to secure their Azure cloud environments. It provides the essential protection SMB customers need at an affordable price point.



Below given pictures are step by step implementation of azure firewall services on website. They are follow as :

Add route

VM_Route

A user defined route (UDR) is a static route that overrides Azure's default system routes, or adds a route to a subnet's route table. [Learn more](#)

Route name *

Destination type *

Destination IP addresses/CIDR ranges *

Next hop type *

Next hop address *

Ensure you have IP forwarding enabled on your virtual appliance. You can enable this by navigating to the respective network interface's IP address settings.

Add [Give feedback](#)

Create Route table

Basics Tags Review + create

Project details

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

Subscription *

Resource group * [Create new](#)

Instance details

Region *

Name *

Propagate gateway routes * Yes No

[Previous](#) [Next](#) [Review + create](#)

Microsoft Azure Portal | Microsoft | vmfirewall - Microsoft Azure | Learning | Future Ready Talent | Create and manage users - Train | +

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Microsoft Azure

Firewalls > vmfirewall

vmfirewall | Rules (classic)

Firewall

Search

Overview

Activity log

Access control (IAM)

Tags

Settings

DNS

Rules (classic)

Public IP configuration

Learned SNAT IP Prefixes (preview)

Threat intelligence

Firewall Manager

Properties

Locks

Monitoring

Metrics

Diagnostic settings

Logs

Page 1 of 1

31°C Smoke

Microsoft Azure Firewall-20231025105809 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview Deployment is in progress

Deployment name : Microsoft.AzureFirewall-20231025105809 Start time : 10/25/2023, 10:58:12 AM

Subscription : Azure for Students Correlation ID : 9e97a7ec-2585-4c2e-a8d4-b4ad930e0481

Resource group : Project

Deployment details

Resource	Type	Status	Operation details
There are no resources to display.			

Give feedback

Tell us about your experience with deployment

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Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support.

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ENG IN 11:02 25-10-2023

Microsoft Azure Firewall-20231025105809 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview Deployment is in progress

Deployment name : Microsoft.AzureFirewall-20231025105809 Start time : 10/25/2023, 10:58:12 AM

Subscription : Azure for Students Correlation ID : 9e97a7ec-2585-4c2e-a8d4-b4ad930e0481

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Deployment details

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← → 🔍 portal.azure.com/#create/Microsoft.AzureFirewall-Arm

Gmail YouTube Maps

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

Home > Firewalls > Create a firewall ...

Instance details

Name * vmfirewall

Region * Central India

Availability zone None

Premium firewalls support additional capabilities, such as SSL termination and IDPS. Additional costs may apply. [Learn more](#)

Firewall SKU Standard Basic Premium

Firewall management Use a Firewall Policy to manage this firewall Use Firewall rules (classic) to manage this firewall

Choose a virtual network Create new Use existing

Virtual network VM-vnet (Project)

Public IP address * (New) firewallpublic [Add new](#)

[Review + create](#) Previous Next: Tags Download a template for automation

32°C Smoke ENG IN 10:57 25-10-2023

Microsoft Azure Portal | Microsoft Azure | Associate subnet - Microsoft Azure | Learning | Future Ready Talent | Microsoft | +

← → 🔍 portal.azure.com/#/sanddeepmedar2017@gmail.onmicrosoft.com/resource/subscriptions/df5b088d-0201-40b6-92c9-3200fc97b0e/resourceGroups/Project/providers/Microsoft.Network/routeTables/V... ENG IN 10:57 25-10-2023

Gmail YouTube Maps

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

Home > Microsoft.RouteTable-20231025111418 | Overview > VM_Route

VM_Route | Subnets ⚡ ...

Route table

Search + Associate

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

Subnets Properties Locks Monitoring Alerts Automation CLI / PS Tasks (preview) Export template

Associate subnet

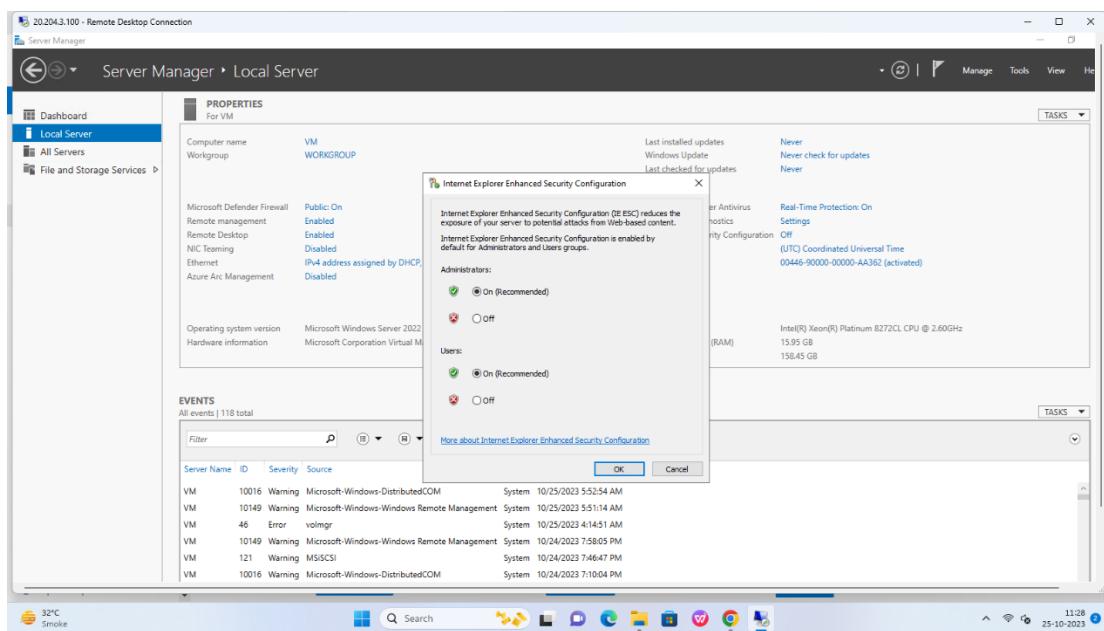
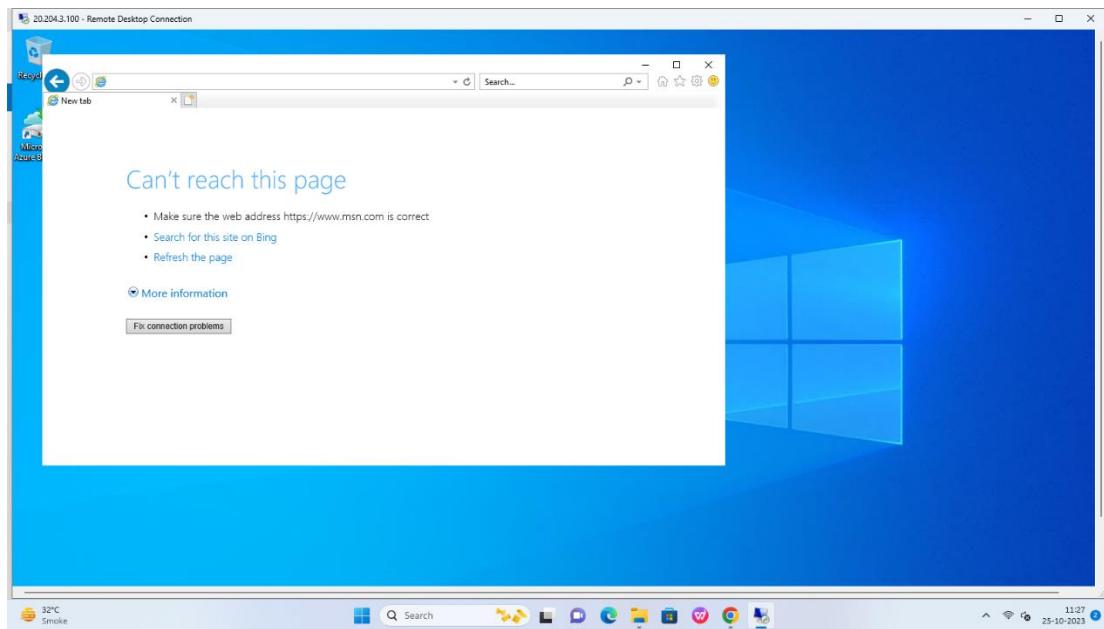
VM_Route

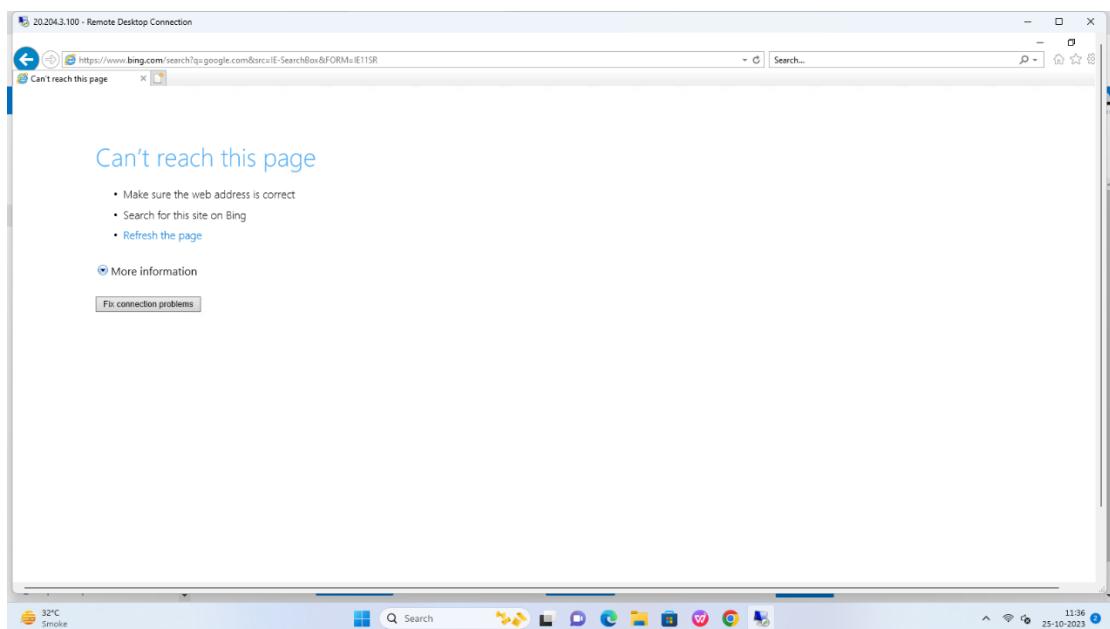
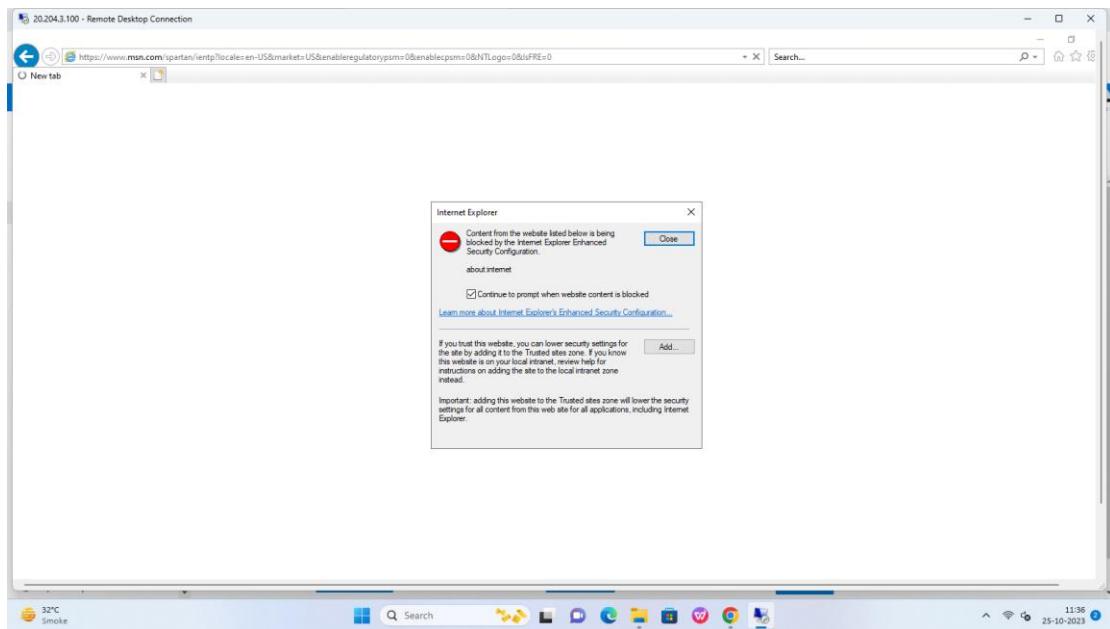
Virtual network * VM-vnet (Project)

Subnet * default

OK Give feedback

32°C Smoke ENG IN 11:19 25-10-2023





Conclusion :

In this project, we had successfully used backup & disaster recovery service And azure firewall service,