

Placement Empowerment Program

Cloud Computing and DevOps Centre

Back Up and Restore a Cloud Instance

**Take a snapshot of your cloud VM. Terminate the VM
and restore it from the snapshot**

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INTRODUCTION

Backing up and restoring cloud instances is a critical aspect of cloud computing. It ensures business continuity, prevents data loss, and minimizes downtime. In this, we will walk you through the process of taking a snapshot of a cloud VM, terminating the VM, and restoring it from the snapshot.

OVERVIEW

This provides a step-by-step approach to backing up and restoring a cloud instance.

- Taking a snapshot of a cloud VM*
- Terminating the VM*
- Restoring the VM from the snapshot*
- Verifying the restored VM*

OBJECTIVES

1. To understand the importance of backing up cloud instances
2. To learn how to take a snapshot of a cloud VM
3. To understand how to terminate a cloud VM

4. To learn how to restore a cloud VM from a snapshot
5. To verify the restored cloud VM

IMPORTANCE

Backing up and restoring cloud instances is crucial for several reasons:

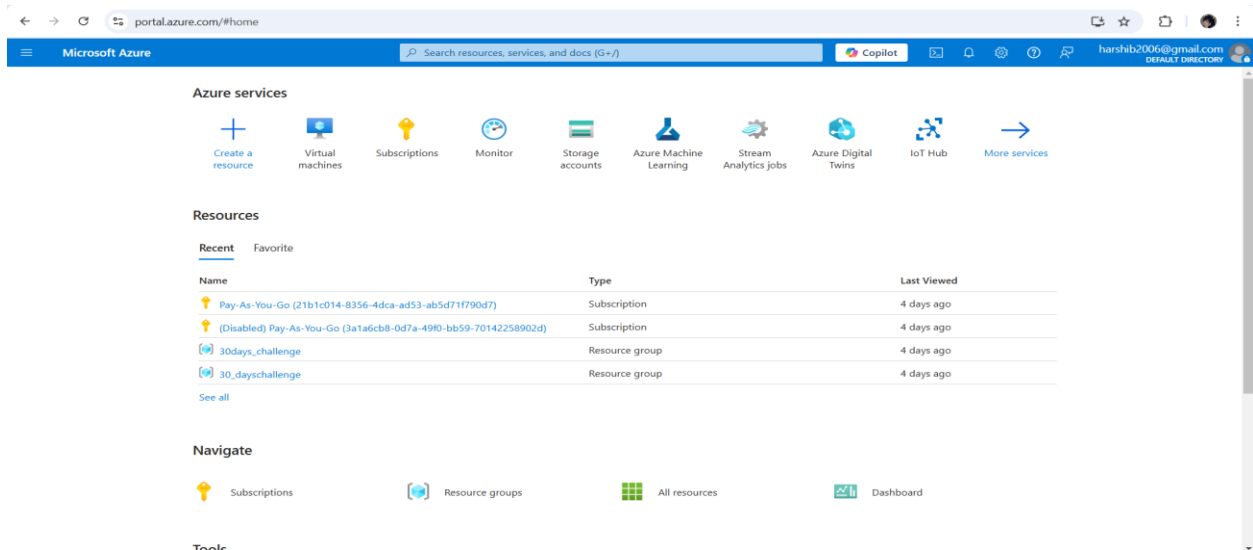
1. **Business Continuity:** Backing up cloud instances ensures that your business can continue to operate even in the event of a disaster or outage.
2. **Data Protection:** Backing up cloud instances protects your data from loss or corruption.
3. **Minimizing Downtime:** Restoring a cloud instance from a snapshot minimizes downtime and ensures that your business can quickly recover from an outage.
4. **Compliance:** Backing up cloud instances may be required for compliance with regulatory requirements, such as HIPAA or PCI-DSS.

STEP BY STEP OVERVIEW

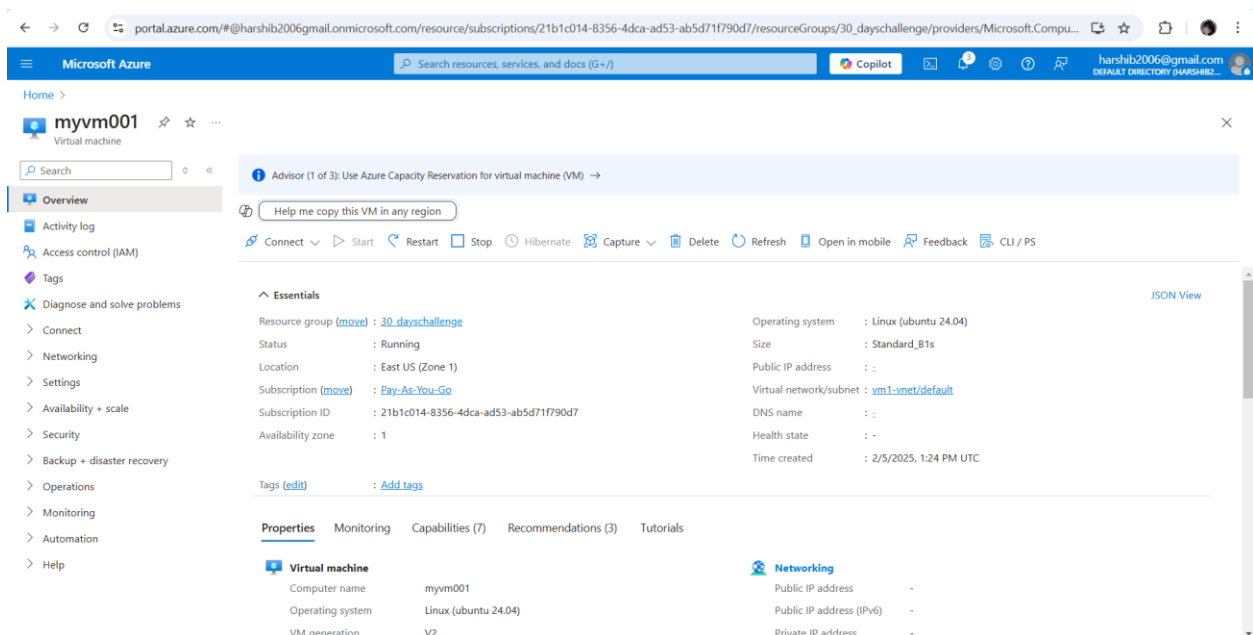
Here's a step-by-step guide to backing up and restoring a cloud instance in Azure:

Taking a Snapshot of the VM

1. Log in to the Azure portal



2. Navigate to the Virtual machines dashboard.



3. Select the VM you want to take a snapshot of.

4. Click on "Disks" and then select the OS disk.

The screenshot shows the Microsoft Azure portal interface. The breadcrumb navigation is 'Home > myvm001'. The main heading is 'myvm001 | Disks'. On the left sidebar, the 'Disks' option is selected under the 'Settings' section. The main content area displays the 'OS disk' section with a table of disk details:

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MB/s)	Encryption	Host caching
myvm001_disk1_309f3a4562b147babecf70d9e55a6a86	Premium SSD LRS	30	120	25	SSE with PMK	Read/write

Below the OS disk table, there is a 'Data disks' section with a search filter and a message 'Showing 0 of 0 attached data disks'. At the bottom, there are 'Apply' and 'Discard changes' buttons.

The screenshot shows the Microsoft Azure portal interface for a specific disk. The breadcrumb navigation is 'Home > myvm001 | Disks > myvm001_disk1_309f3a4562b147babecf70d9e55a6a86'. The main heading is 'myvm001_disk1_309f3a4562b147babecf70d9e55a6a86'. On the left sidebar, the 'Overview' option is selected. The main content area displays the 'Overview' section with a table of disk details:

Property	Value
Resource group	30_dayschallenge
Disk state	Attached
Last ownership update time	2/5/2025, 6:54:30 PM
Location	East US
Subscription	Pay-As-You-Go
Subscription ID	21b1c014-8356-4dca-ad53-ab5d71f790d7
Time created	2/5/2025, 6:54:30 PM
Tags	Add tags
Disk size	30 GiB
Storage type	Premium SSD LRS
Managed by	myvm001
Operating system	Linux
Max shares	0
Availability zone	1
Performance tier	P4 - 120 IOPS, 25 MB/s
Security type	Trusted launch

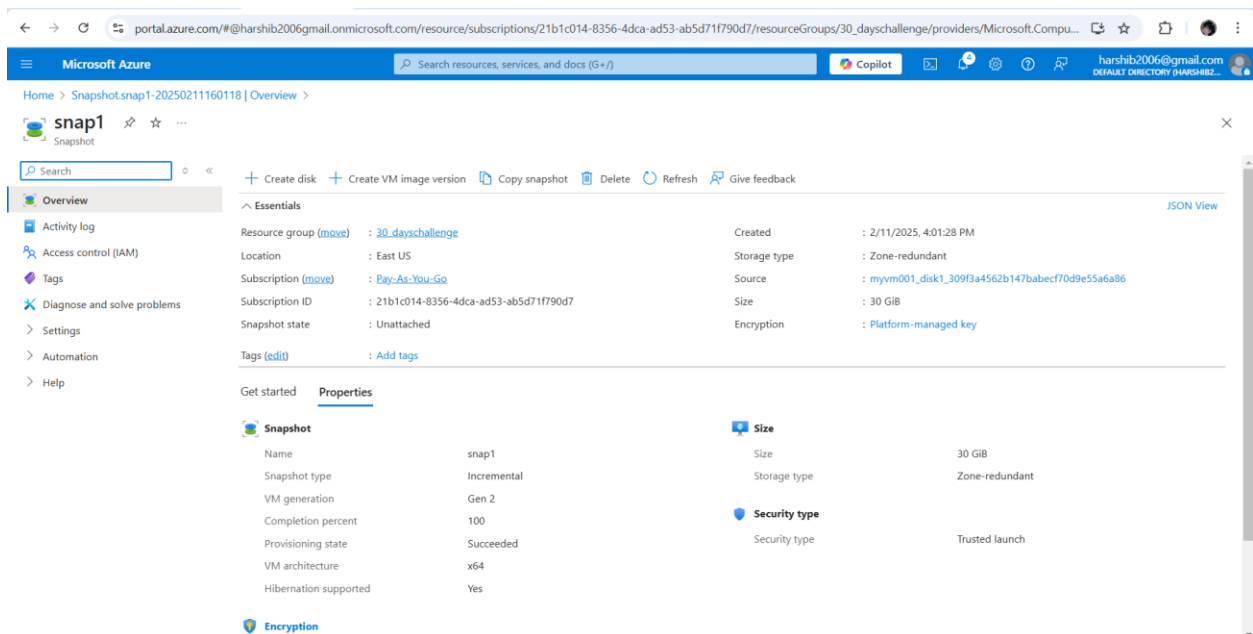
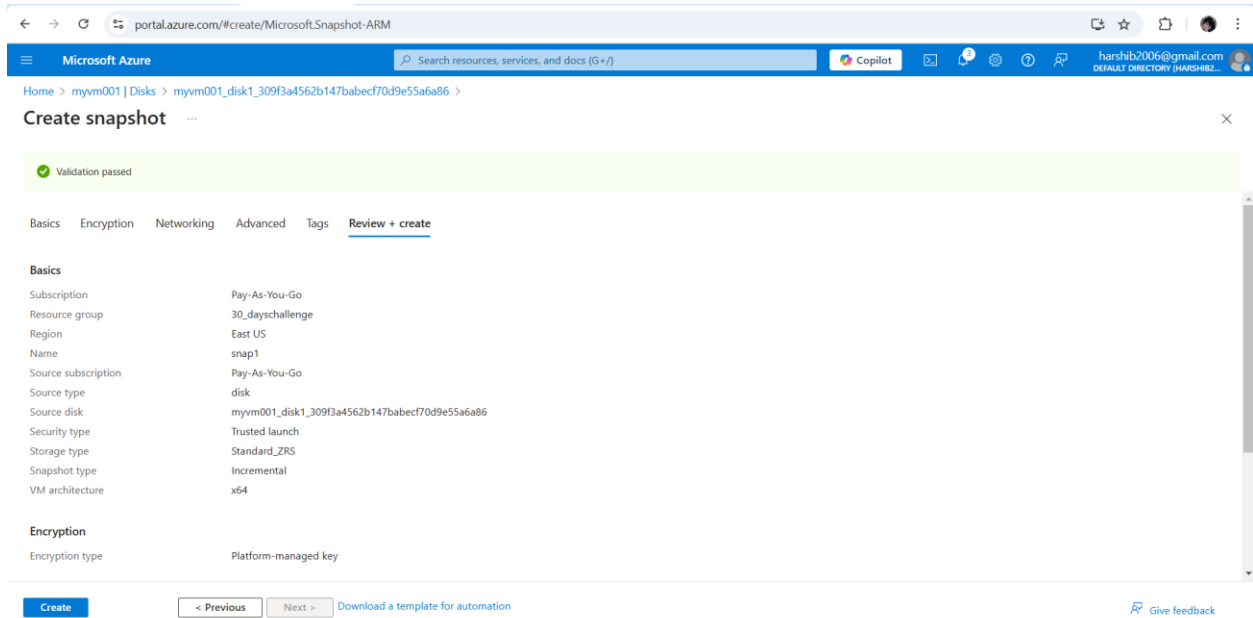
Below the overview table, there are tabs for 'Get started', 'Properties', and 'Monitoring'. The 'Properties' tab is selected, showing a table of disk properties:

Property	Value
Operating system type	Linux
Create option	From image
VM generation	V2
VM architecture	x64
Availability zone	1
Completion percent	100
Size	30 GiB
Storage type	Premium SSD LRS
IOPS	120
Throughput (MBps)	25
Disk tier	P4

5. Click on "Create snapshot" and enter a name for the snapshot.

6. Select the resource group and location for the snapshot.

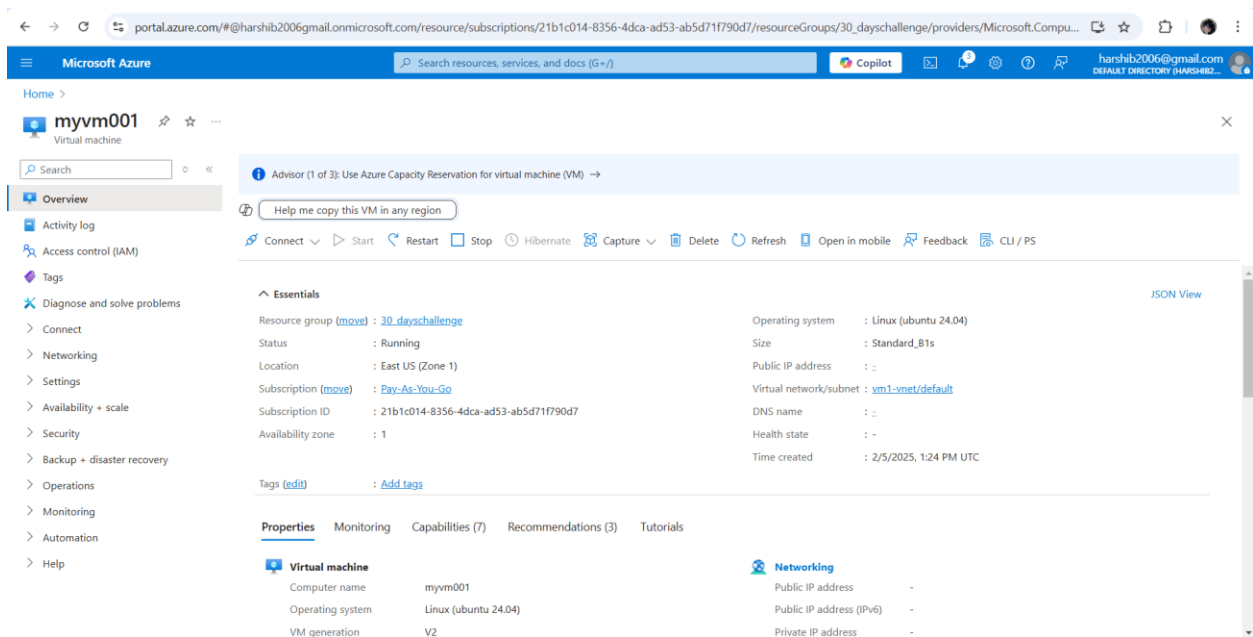
7. Click on "Create" to create the snapshot.



Terminating the VM

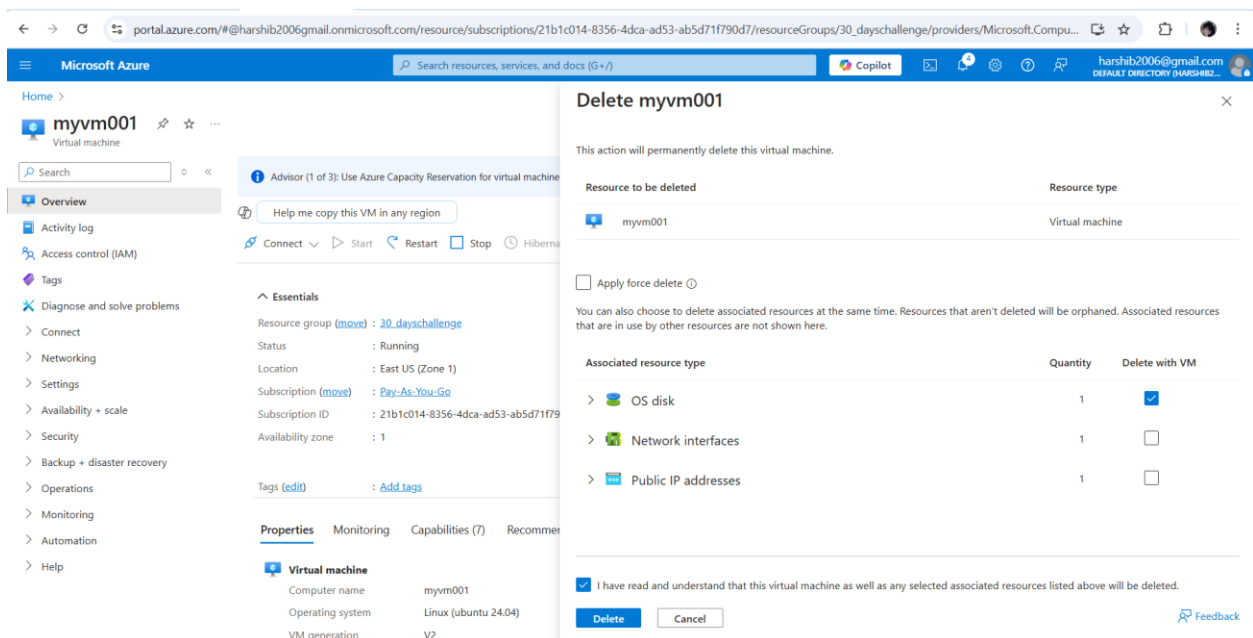
1. Navigate to the Virtual machines dashboard.

2. Select the VM you want to terminate.



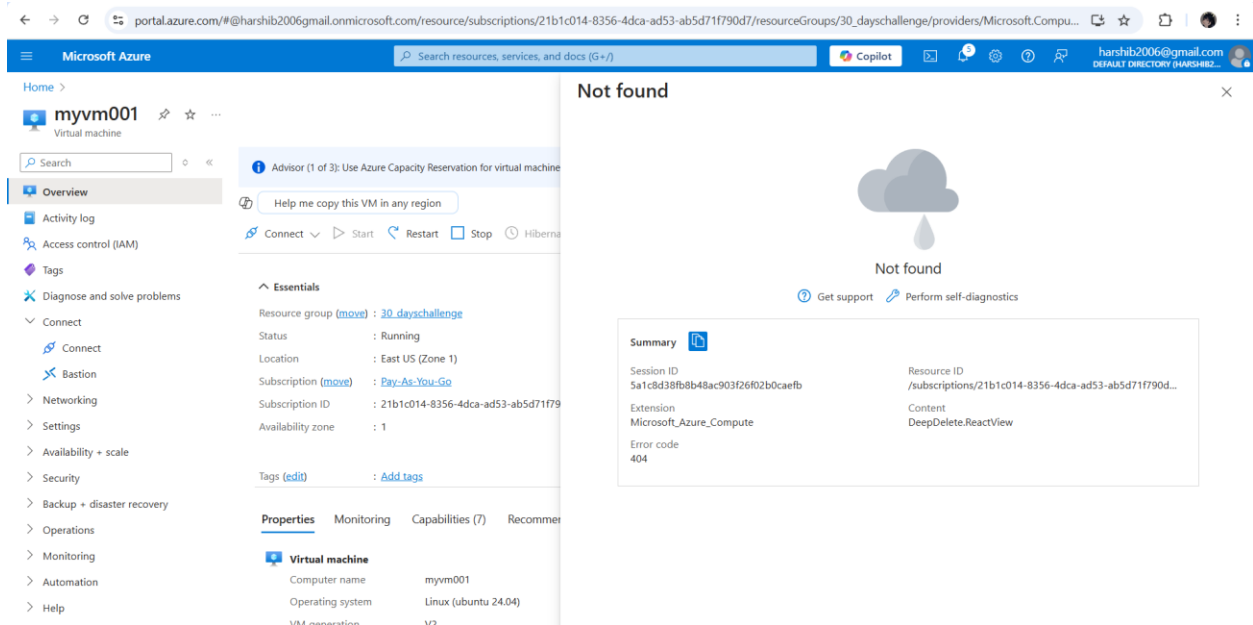
The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Azure logo, a search bar, and user information. The left sidebar contains a navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, Operations, Monitoring, Automation, and Help. The main content area displays the details for a virtual machine named 'myvm001'. The 'Essentials' section shows the resource group '30_dayschallenge', status 'Running', location 'East US (Zone 1)', subscription 'Pay-As-You-Go', and subscription ID '21b1c014-8356-4dca-ad53-ab5d71f790d7'. The 'Properties' section shows the computer name 'myvm001', operating system 'Linux (ubuntu 24.04)', and VM generation 'V2'. The 'Networking' section shows the public IP address, public IP address (IPv6), and private IP address.

3. Click on "Delete" and confirm that you want to delete the VM.



The screenshot shows the Microsoft Azure portal interface with a 'Delete myvm001' dialog box open. The dialog box contains the following information:

- Action:** This action will permanently delete this virtual machine.
- Resource to be deleted:** myvm001 (Virtual machine)
- Associated resource type:** OS disk, Network interfaces, Public IP addresses.
- Quantity:** 1 for each resource type.
- Delete with VM:** Checkboxes for each resource type (OS disk is checked, Network interfaces and Public IP addresses are unchecked).
- Confirmation:** A checkbox labeled 'I have read and understand that this virtual machine as well as any selected associated resources listed above will be deleted.'
- Buttons:** 'Delete' and 'Cancel' buttons.



Restoring the VM from the Snapshot

1. Navigate to the Disks dashboard.
2. Select the snapshot you created earlier.
3. Click on "Create VM" and enter a name for the new VM.
4. Select the resource group and location for the new VM.
5. Configure the VM settings, such as the size, network, and security group.
6. Click on "Create" to create the new VM from the snapshot.

portal.azure.com/#create/Microsoft.ManagedDisk-ARM

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

Home > Disks >

Create a managed disk

encrypt your data at rest, by default, using Storage Service Encryption. [Learn more about disks.](#)

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](#)

Disk details

Disk name *

Region *

Availability zone

Source type

Source subscription

Source snapshot *

OS type ☐ None (data disk)
☒ Linux

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

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Create a managed disk

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Basics Encryption Networking Advanced Tags [Review + create](#)

Basics

Subscription	Pay-As-You-Go
Resource group	30_dayschallenge
Region	East US
Disk name	d1
Availability zone	1
Source type	Snapshot
Source subscription	Pay-As-You-Go
Source snapshot	snap1
OS type	Linux
Security type	Trusted launch
VM generation	V2
VM architecture	x64

Size

Size	1024 GiB
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Verifying the Restored VM

1. Navigate to the Virtual machines dashboard.
2. Select the restored VM.

3. Verify that the VM is running and has the correct configuration.

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and a Copilot button. The left sidebar contains a navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, and Operations. The main content area displays the Overview page for a virtual machine named 'myvm001'. It includes a search bar, a help button, and a list of actions: Connect, Start, Restart, Stop, Hibernate, Capture, Delete, Refresh, Open in mobile, Feedback, and CLI / PS. Below this, the 'Essentials' section provides key information about the VM, including its resource group, status, location, subscription, and various identifiers. A table of properties is also shown, detailing the operating system, size, public IP address, virtual network, DNS name, health state, and time created.

Essentials	
Resource group (move)	: 30_dayschallenge
Status	: Running
Location	: East US (Zone 1)
Subscription (move)	: Pay-As-You-Go
Subscription ID	: 21b1c014-8356-4dca-ad53-ab5d71f790d7
Availability zone	: 1
Tags (edit)	: Add tags

Properties	
Operating system	: Linux (ubuntu 24.04)
Size	: Standard B1s (1 vcpu, 1 GiB memory)
Public IP address	: 20.55.41.198
Virtual network/subnet	: vm1-vnet/default
DNS name	: Not configured
Health state	: -
Time created	: 2/5/2025, 1:24 PM UTC

4. Connect to the VM using Remote Desktop or SSH to verify that the data is intact.

The screenshot shows the Microsoft Azure portal interface, specifically the Connect page for a virtual machine named 'myvm001'. The left sidebar contains a navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, Operations, Monitoring, Automation, and Help. The main content area displays the Connect page, which includes a search bar, a refresh button, and a list of actions: Refresh, Troubleshoot, More Options, and Feedback. Below this, the 'Connect' section provides information about the VM's admin username, port, and just-in-time policy. The 'Recommended' section offers two options: 'SSH using Azure CLI' and 'Native SSH'. The 'SSH using Azure CLI' option is highlighted, showing a description and a 'Select' button. The 'Native SSH' option is also shown, with a description and a 'Select' button.

Connect	
Admin username	:
Port (change)	:
Just-in-time policy	:

Recommended

Local machine

Azure portal

SSH using Azure CLI

Quickly connect in browser. Supports Microsoft Entra ID authentication. Private key not required.

Select

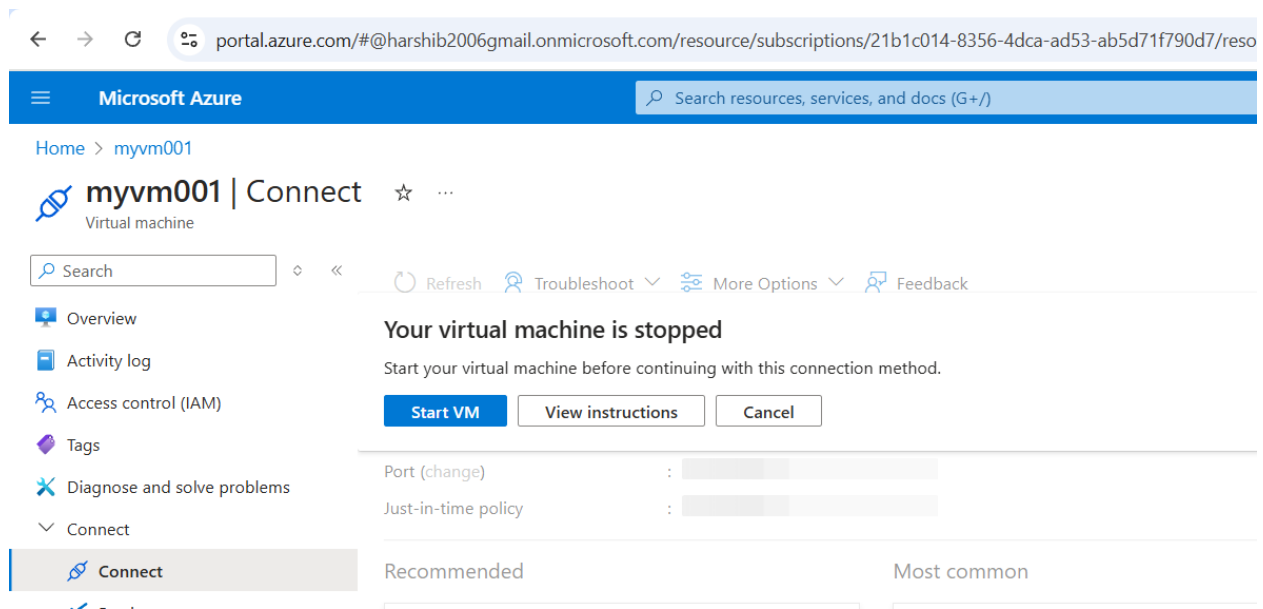
Most common

Local machine

Native SSH

No additional software needed. Private key required for connection. Best for those with existing SSH tools.

Select



That's it! You have now taken a snapshot of your Azure VM, terminated the VM, and restored it from the snapshot.

OUTCOME

After completing, you will be able to:

- 1. Take a snapshot of a cloud VM*
- 2. Terminate a cloud VM*
- 3. Restore a cloud VM from a snapshot*
- 4. Verify the restored cloud VM*

