

Module 4: Assignment 4

Tasks To Be Performed:

1. Create a Linux VM with Ubuntu OS
2. Install Apache2 software
3. Create image out of VM

Solution:

1. Create a Linux VM with Ubuntu OS

Navigate to the Azure Portal:

Go to the Azure Portal and log in with your credentials.

Create a New VM:

In the search bar, type "Virtual machines" and click on it.

Click on "Create" and select "Azure Virtual Machine."

Basics Tab:

Subscription: Select your Azure subscription.

Resource group: Select an existing resource group or create a new one.

Virtual machine name: Provide a name for your VM.

Region: Choose the region where you want the VM to be deployed.

Availability options: Choose if you need high availability.

Image: Select "Ubuntu Server" as the OS.

Size: Choose the size of the VM (e.g., Standard_B1s).

Authentication type: Choose SSH public key or password.

Username: Enter a username for the VM.

Public inbound ports: Allow SSH (port 22) for access.

Disks Tab:

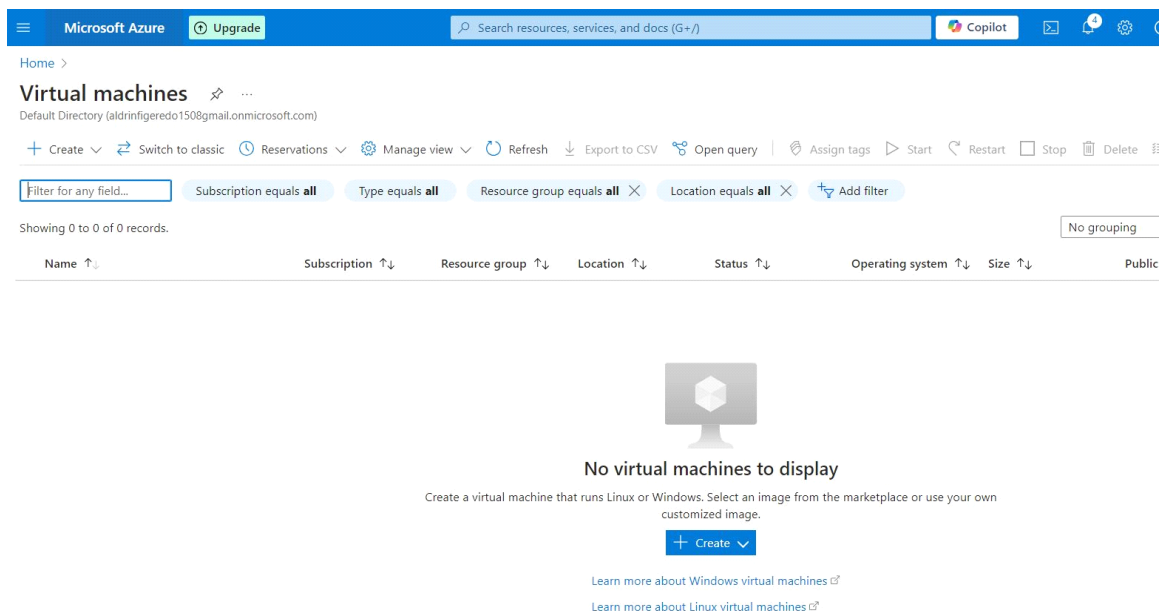
Configure the OS disk and any additional disks as per your requirement.

Networking Tab:

Configure the virtual network, subnet, and public IP as needed.

Review and Create:

Review all your settings and click "Create."



The screenshot shows the Microsoft Azure portal interface for the 'Virtual machines' section. The top navigation bar includes the Microsoft Azure logo, an 'Upgrade' button, a search bar, and a 'Copilot' button. Below the navigation bar, the page title 'Virtual machines' is displayed with a star icon and a dropdown arrow. The subtitle 'Default Directory (aldrinfigeredo1508gmail.onmicrosoft.com)' is shown. A toolbar contains various actions: '+ Create', 'Switch to classic', 'Reservations', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', 'Start', 'Restart', 'Stop', and 'Delete'. Below the toolbar, there are filter buttons: 'Filter for any field...', 'Subscription equals all', 'Type equals all', 'Resource group equals all', and 'Location equals all', along with an 'Add filter' button. The status 'Showing 0 to 0 of 0 records.' is displayed. A table header is visible with columns: Name, Subscription, Resource group, Location, Status, Operating system, Size, and Public. The main content area features a large monitor icon with a cube on the screen, the text 'No virtual machines to display', and a subtext 'Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.' Below this is a '+ Create' button. At the bottom, there are two links: 'Learn more about Windows virtual machines' and 'Learn more about Linux virtual machines'.

Create a virtual machine

- Help me create a low cost VM
- Help me create a VM optimized for high availability
- Help me choose the right VM size for my workload

- Basics
- Disks
- Networking
- Management
- Monitoring
- Advanced
- Tags
- Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

This subscription may not be eligible to deploy VMs of certain sizes in certain regions.

Project details

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

Subscription * ⓘ

Free Trial

Resource group * ⓘ

123

Create new

Instance details

Virtual machine name * ⓘ

Assignment4

Region * ⓘ

(Asia Pacific) Central India

- < Previous
- Next : Disks >
- Review + create

Create a virtual machine

- Help me create a low cost VM
- Help me create a VM optimized for high availability
- Help me choose the right VM size for my workload

Availability options ⓘ

No infrastructure redundancy required

Security type ⓘ

Trusted launch virtual machines

Configure security features

Image * ⓘ

Ubuntu Server 24.04 LTS - x64 Gen2 (free services eligible)

See all images | Configure VM generation

VM architecture ⓘ

Arm64

x64

Run with Azure Spot discount ⓘ

You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription. [Learn more](#)

Size * ⓘ

Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹6,376.87/month)

See all sizes

Enable Hibernation ⓘ

Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#)

- < Previous
- Next : Disks >
- Review + create

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Copilot

Home > Virtual machines >

Create a virtual machine

Help me create a low cost VM

Help me create a VM optimized for high availability

Help me choose the right VM size for my workload

Administrator account

Authentication type ⓘ

SSH public key

Password

Username * ⓘ

Jungkook

Password *

Confirm password *

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * ⓘ

None

Allow selected ports

Select inbound ports *

HTTP (80), SSH (22)

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

< Previous

Next : Disks >

Review + create

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

C

Home > Virtual machines >

Create a virtual machine

Validation passed

Help me create a low cost VM

Help me create a VM optimized for high availability

Help me choose the right VM size for my workload

Basics

Disks

Networking

Management

Monitoring

Advanced

Tags

Review + create

Price

1 X Standard D2s v3

by Microsoft

Terms of use | Privacy policy

Subscription credits apply ⓘ

8.7354 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.

Name

Aldrin Figaredo

Preferred e-mail address

aldrinfigaredo1508@gmail.com

Preferred phone number

< Previous

Next >

Create

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Copilot

3

Home >

CreateVm-canonical.ubuntu-24_04-lts-server-20240826192824 | Overview

Deployment

Search

DeleteCancelRedeployDownloadRefresh

Overview

Inputs

Outputs

Template

Deployment is in progress

Deployment name: CreateVm-canonical.ubuntu-24_04-lts-server-2...Start time: 8/26/2024, 7:32:09 PM
Subscription: Free TrialCorrelation ID: 335cecae-1e66-4eed-bfae-7d994451eece

Resource group: 123

Deployment details

Resource	Type	Status	Operation details
No results.			

Give feedback

Tell us about your experience with deployment

Micro: Secure Go to

Free M Start It

Work: Azure who ci and be

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Copilot

3

Home >

CreateVm-canonical.ubuntu-24_04-lts-server-20240826192824 | Overview

Deployment

Search

DeleteCancelRedeployDownloadRefresh

Overview

Inputs

Outputs

Template

Your deployment is complete

Deployment name: CreateVm-canonical.ubuntu-24_04-lts-server-2...Start time: 8/26/2024, 7:32:09 PM
Subscription: Free TrialCorrelation ID: 335cecae-1e66-4eed-bfae-7d994451eece

Resource group: 123

Deployment details

Next steps

Setup auto-shutdown Recommended

Monitor VM health, performance and network dependencies Recommended

Run a script inside the virtual machine Recommended

Go to resourceCreate another VM

Give feedback

Tell us about your experience with deployment

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Copilot

3

Home >

Virtual machines

Default Directory (aldrinfigerado1508@gmail.onmicrosoft.com)

CreateSwitch to classicReservationsManage viewRefreshExport to CSVOpen queryAssign tagsStartRestartStopDeleteServices

Filter for any field...Subscription equals allType equals allResource group equals allLocation equals allAdd filter

Showing 1 to 1 of 1 records.

No grouping

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address
Assignment	Free Trial	123	Central India	Running	Linux	Standard_D2s_v3	74.225.240.150

2. Install Apache2 Software

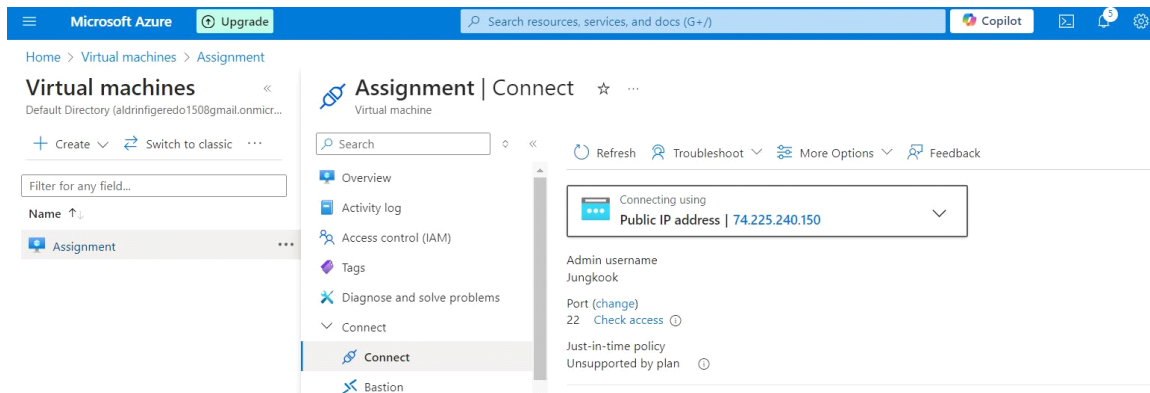
Access the VM:

Once the VM is created, go to the "Virtual machines" section in the Azure Portal.

Click on your newly created VM and copy the public IP address.

Use an SSH client (like PuTTY or your terminal) to connect to the VM:

ssh <username>@<public-ip-address>



```

Jungkook@Assignment: ~
Microsoft Windows [Version 10.0.19045.4780]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Suttu>ssh Jungkook@74.225.240.150
The authenticity of host '74.225.240.150 (74.225.240.150)' can't be established.
ECDSA key fingerprint is SHA256:a+Ntt4tX6IEE6ElfBbo+nGUbdTz+lulaboeSzrqU1PU.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '74.225.240.150' (ECDSA) to the list of known hosts.
Jungkook@74.225.240.150's password:
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1013-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Mon Aug 26 14:04:41 UTC 2024

System load:  0.21          Processes:            135
Usage of /:   5.0% of 28.02GB Users logged in:          0
Memory usage: 3%           IPv4 address for eth0: 10.0.0.4
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Jungkook@Assignment:~$

```

Install Apache2:

Once connected, run the following commands to update the package list and install Apache2:

sudo apt update

sudo apt install apache2 -y

Verify that Apache2 is running by visiting the public IP address in a web browser. You should see the default Apache2 Ubuntu page.

```

Jungkook@Assignment:~$ sudo apt-get update
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]

```

```
Jungkook@Assignment:~$ sudo apt-get install apache2 -y
Reading package lists... Done
Building dependency tree... Done
```

```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
Jungkook@Assignment:~$ cd /var/www/html/
Jungkook@Assignment:/var/www/html$ ls
index.html
Jungkook@Assignment:/var/www/html$ sudo rm index.html
Jungkook@Assignment:/var/www/html$ ls
Jungkook@Assignment:/var/www/html$ sudo nano index.html
```

```
Jungkook@Assignment: /var/www/html
```

```
GNU nano 7.2
```

```
THIS IS ASSIGNMENT 4 OF MODULE 4
```

```
Tasks To Be Performed:
```

1. Create a Linux VM with Ubuntu OS
2. Install Apache2 software
3. Create image out of a VM


```

Running kernel seems to be up-to-date.

No services need to be restarted.

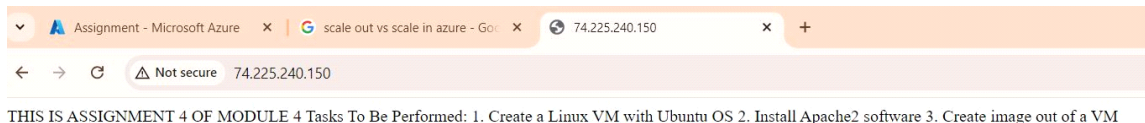
No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
Jungkook@Assignment:~$ cd /var/www/html/
Jungkook@Assignment:/var/www/html$ ls
index.html
Jungkook@Assignment:/var/www/html$ sudo rm index.html
Jungkook@Assignment:/var/www/html$ ls
Jungkook@Assignment:/var/www/html$ sudo nano index.html
Jungkook@Assignment:/var/www/html$ sudo cat index.html
THIS IS ASSIGNMENT 4 OF MODULE 4

Tasks To Be Performed:
1. Create a Linux VM with Ubuntu OS
2. Install Apache2 software
3. Create image out of a VM
Jungkook@Assignment:/var/www/html$ sudo systemctl restart apache2
Jungkook@Assignment:/var/www/html$

```



3. Create an Image Out of the VM

Deallocate the VM:

Before creating an image, the VM must be deallocated.

In the Azure Portal, navigate to your VM and click on "Stop."

Create Image:

After the VM is deallocated, go to the "Virtual machines" section.

Click on the VM and then click on "Capture" from the top menu.

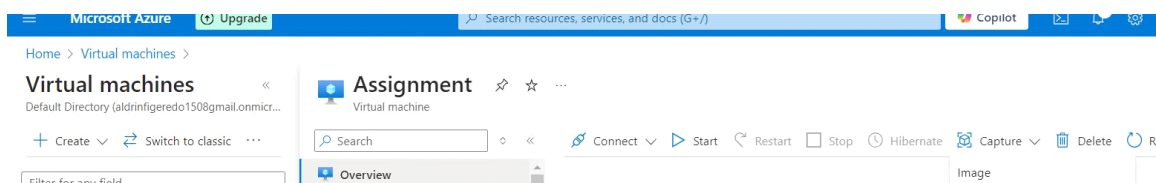
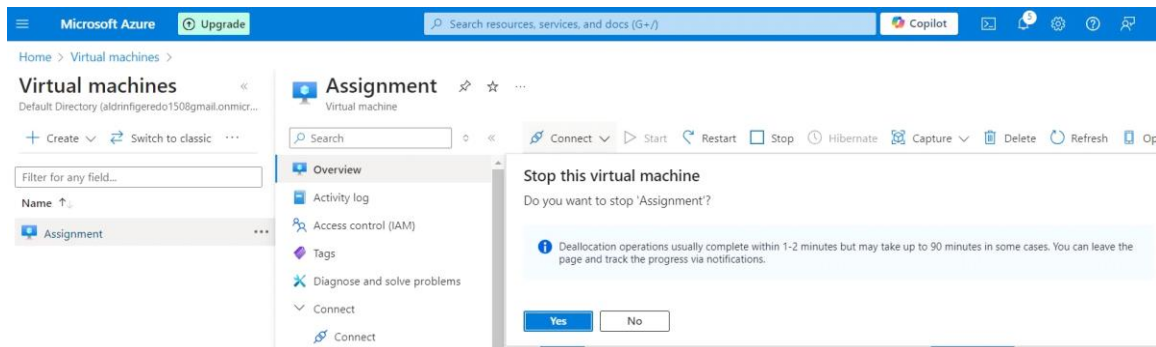
Image Name: Provide a name for the image.

Resource group: Select a resource group for the image.

Automatically delete this virtual machine after creating the image: Choose whether to delete the VM or keep it.

Click "Review + Create" to create the image.

Your image will now be available under "Images" in the Azure portal, and you can use it to create new VMs with the same configuration.



Home > Virtual machines > Assignment >

Create an image ...

Basics Tags Review + create

Create an image from this virtual machine that can be used to deploy additional virtual machines and virtual machine scale sets. With a shared image, you can easily replicate the image to Azure regions around the world and manage versions of the image. Certain information from the virtual machine will be carried forward to the image including OS type, VM generation, plan, and publishing details. [Learn more](#)

Project details

Subscription

Free Trial

Resource group *

123

Instance details

Region

(Asia Pacific) Central India

Share image to Azure compute gallery ⓘ
☒ Yes, share it to a gallery as a VM image version.
☐ No, capture only a managed image.

Managed image is not available because it is not currently supported with Trusted launch virtual machines.

Automatically delete this virtual machine after creating the image ⓘ ☐

Review + create < Previous Next : Tags >

Home > Virtual machines > Assignment >

Create an image ...

Managed image is not available because it is not currently supported with Trusted launch virtual machines.

Automatically delete this virtual machine after creating the image ⓘ ☐

Gallery details

Target Azure compute gallery * ⓘ

No valid galleries in resource group

Create new

Operating system state ⓘ

Target Azure compute gallery * ⓘ

UbuntuImageGallery

OK Cancel

Capturing a virtual machine image will make the virtual machine unusable. This action cannot be undone.

Home > Virtual machines > Assignment >

Create an image

Gallery details

Target Azure compute gallery *
(new) UbuntuImageGallery
Create new

Operating system state

Generalized: VMs created from this image require hostname, admin user, and other VM related setup to be completed on first boot

Specialized: VMs created from this image are completely configured and do not require parameters such as hostname and admin user/password

Target VM image definition *

Create a VM image definition

Create new

Version details

Version number *
Example: 0.0.1, 15.35.0

Exclude from latest

End of life date
MM/DD/YYYY

Lock deleting Replicated Locations

Shallow replication

Replication

Review & create

< Previous

Next > Tags

Create a VM image definition

VM image definition name *
UbuntuImage

OS type

Linux

Windows

VM generation

Gen 1

Gen 2

Security type
Trusted launch

VM architecture

x64

Arm64

VM architecture has been automatically switched to x64 because Arm64 virtual machines are not supported with Trusted and Confidential security type.

Higher storage performance with NVMe

Hibernation supported

Accelerated networking

Publisher *
canonical

Offer *
ubuntu-24.04-lts

Sku *
server

Ok

Cancel

Give feedback

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Home > Virtual machines > Assignment >

Create an image

Gallery details

Target Azure compute gallery *
(new) UbuntuImageGallery
Create new

Operating system state

Generalized: VMs created from this image require hostname, admin user, and other VM related setup to be completed on first boot

Specialized: VMs created from this image are completely configured and do not require parameters such as hostname and admin user/password

Target VM image definition *
(new) UbuntuImage
Create new

Version details

Version number *
1.0.0

Exclude from latest

End of life date
08/27/2024

Lock deleting Replicated Locations

Shallow replication

Replication

A VM image version can be replicated to different regions depending on what makes sense for your organization. One example is to always replicate the latest image in multiple regions while all older versions are only available in 1 region. This can help save on storage costs for VM image versions.

Default storage sku ⓘ

Zone-redundant

Default replica count * ⓘ

1

Target regions	Replica count	Storage sku
(Asia Pacific) Central India	1	Zone-redundant
(US) East US	1	Standard HDD LRS

Create an image ...

✔ Validation passed

Basics

Subscription	Free Trial
Resource group	123
Region	Central India
Share image to Azure compute gallery	Yes
Automatically delete this virtual machine after creating the image	No
Azure compute gallery	(new) UbuntuImageGallery
Operating system state	Specialized
Target VM image definition	(new) UbuntuImage
Version number	1.0.0
Source virtual machine	Assignment
Exclude from latest	No
End of life date	2024-08-26
Lock deleting Replicated Locations	Yes
Shallow replication	No

Home >



Microsoft.Compute-CaptureVM-20240826194326 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

Deployment is in progress



Deployment name : Microsoft.Compute-CaptureVM-20240826194326
Subscription : [Free Trial](#)
Resource group : 123

Start time : 8/26/2024, 7:46:50 PM
Correlation ID : 246f6b13-cdd0-46ae-8d5f-31da11f8a2cf

Deployment details

Resource	Type	Status	Operation details
UbuntuImageGallery	Azure compute gallery	Created	Operation details



Microsoft Defender for Cloud
Secure your apps and infrastructure
[Go to Microsoft Defender for Cloud](#)

Free Microsoft tutorials
[Start learning today >](#)

Work with an expert
Azure experts are service provider p
who can help manage your assets o
and be your first line of support.
[Find an Azure expert >](#)



Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Copilot



Home >



Microsoft.Compute-CaptureVM-20240826194326 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template



Your deployment is complete



Deployment name : Microsoft.Compute-CaptureVM-20240826194326
Subscription : [Free Trial](#)
Resource group : 123

Start time : 8/26/2024, 7:46:50 PM
Correlation ID : 246f6b13-cdd0-46ae-8d5f-31da11f8a2cf

> Deployment details

> Next steps

[Go to resource](#)



Cost manage
Get notified i
prevent unex
[Set up cost a](#)



Microsoft De
Secure your
[Go to Micros](#)

Home > Microsoft.Compute-CaptureVM-20240826194326 | Overview >



1.0.0 (UbuntuImageGallery/UbuntuImage/1.0.0)

VM image version

Search

+ Create VM + Create VMSS Delete Refresh Give feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Automation

Help

Essentials

Resource group ([move](#)) : 123

Status : Succeeded

Location : Central India

Subscription ([move](#)) : [Free Trial](#)

Subscription ID : b38e9b3d-e40f-4a03-9ae8-665ffd950134

Azure compute gallery : [UbuntuImageGallery](#)

VM image definition : [UbuntuImage](#)

Replication status : Completed

Replication mode : Full

Confidential OS disk encr... : -

Encryption type : Platform-managed key

End of life date : 2024-08-26

Exclude from latest : No

Lock deleting Replicated ... : Yes

Storage account type : Standard HDD LRS

Tags ([edit](#)) : [Add tags](#)

