Ex No 9 **Install and configure Jenkins on Azure Linux VM**

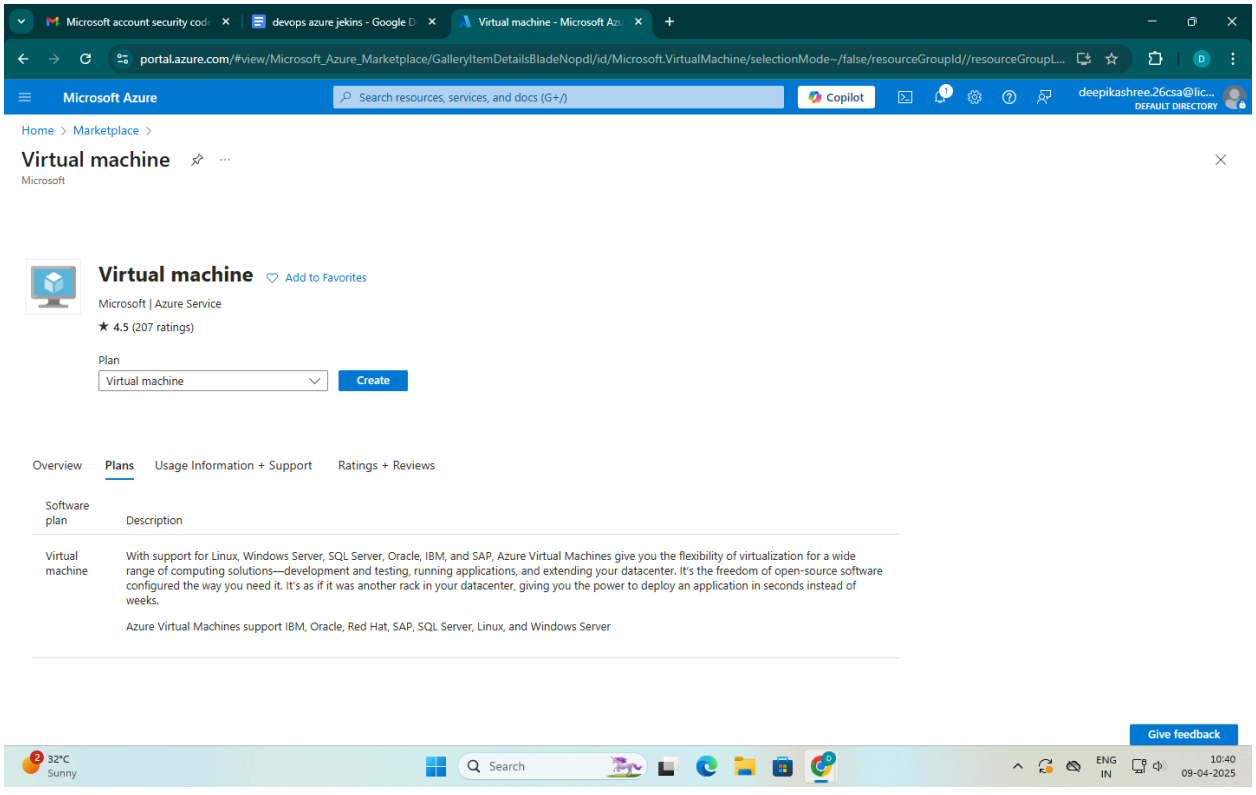
AIM:

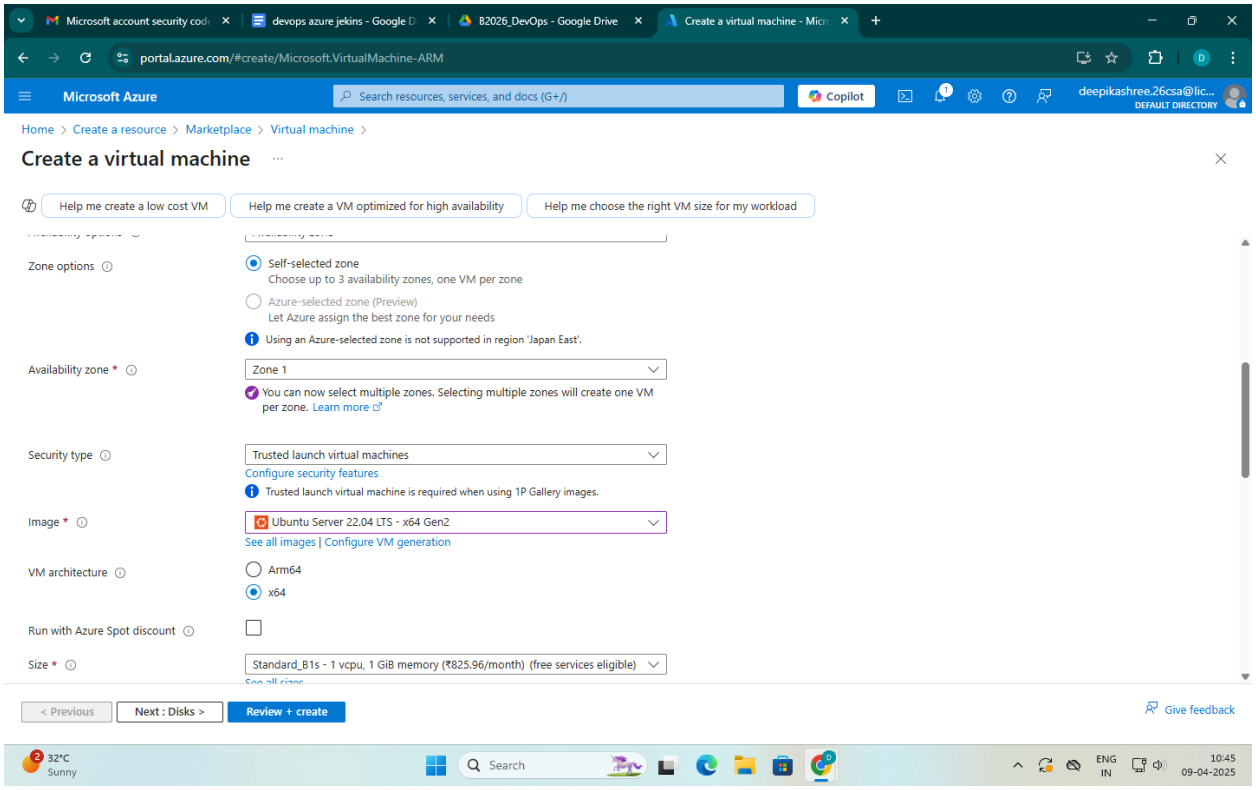
To install and configure Jenkins on Azure Linux VM.

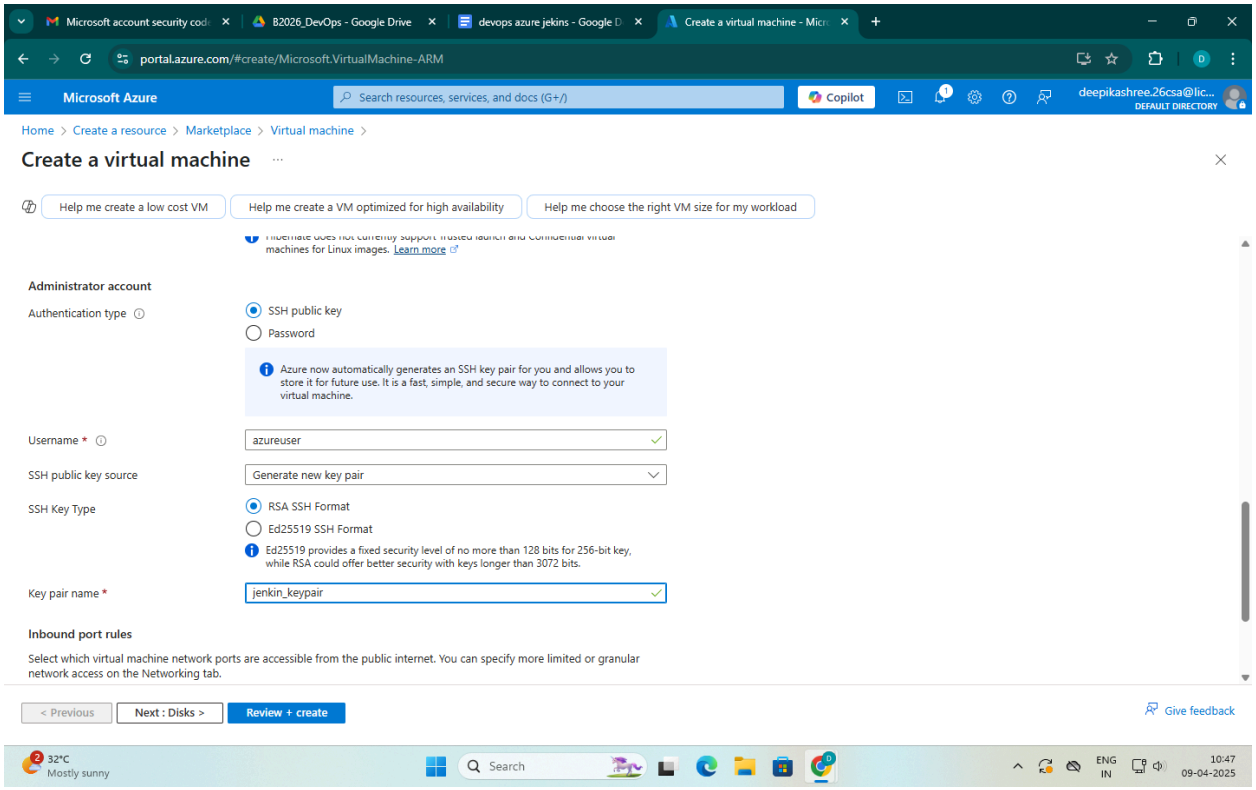
PROCEDURE:

Step 1: To launch a virtual machine (VM) instance on Microsoft Azure, follow these steps:

1. Sign in to the Azure portal: Go to https://portal.azure.com and sign in with your Azure account.
2. Create a new virtual machine:
3. In the Azure portal's left-hand menu, click on "Create a resource".
4. In the search box, type "Virtual Machine" and press Enter.
5. Select "Virtual machine" from the search results.




Microsoft account security cod
devops azure jekins - Google D
B2026_DevOps - Google Drive
Create a virtual machine - Micr
portal.azure.com/#create/Microsoft.VirtualMachine-ARM
Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepikashree.26csa@lic...
DEFAULT DIRECTORY
Home > Create a resource > Marketplace > Virtual machine >
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
Zone options
Self-selected zone
Choose up to 3 availability zones, one VM per zone
Azure-selected zone (Preview)
Let Azure assign the best zone for your needs
Using an Azure-selected zone is not supported in region 'Japan East'.
Availability zone *
Zone 1
You can now select multiple zones. Selecting multiple zones will create one VM per zone. Learn more
Security type
Trusted launch virtual machines
Configure security features
Trusted launch virtual machine is required when using 1P Gallery images.
Image *
Ubuntu Server 22.04 LTS - x64 Gen2
See all images | Configure VM generation
VM architecture
Arm64
x64
Run with Azure Spot discount
Size *
Standard_B1s - 1 vcpu, 1 GiB memory (₹825.96/month) (free services eligible)
< Previous
Next : Disks >
Review + create
Give feedback
32°C
Sunny
Search
ENG
IN
10:45
09-04-2025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Create a virtual machine - Micr
portal.azure.com/#create/Microsoft.VirtualMachine-ARM
Microsoft Azure
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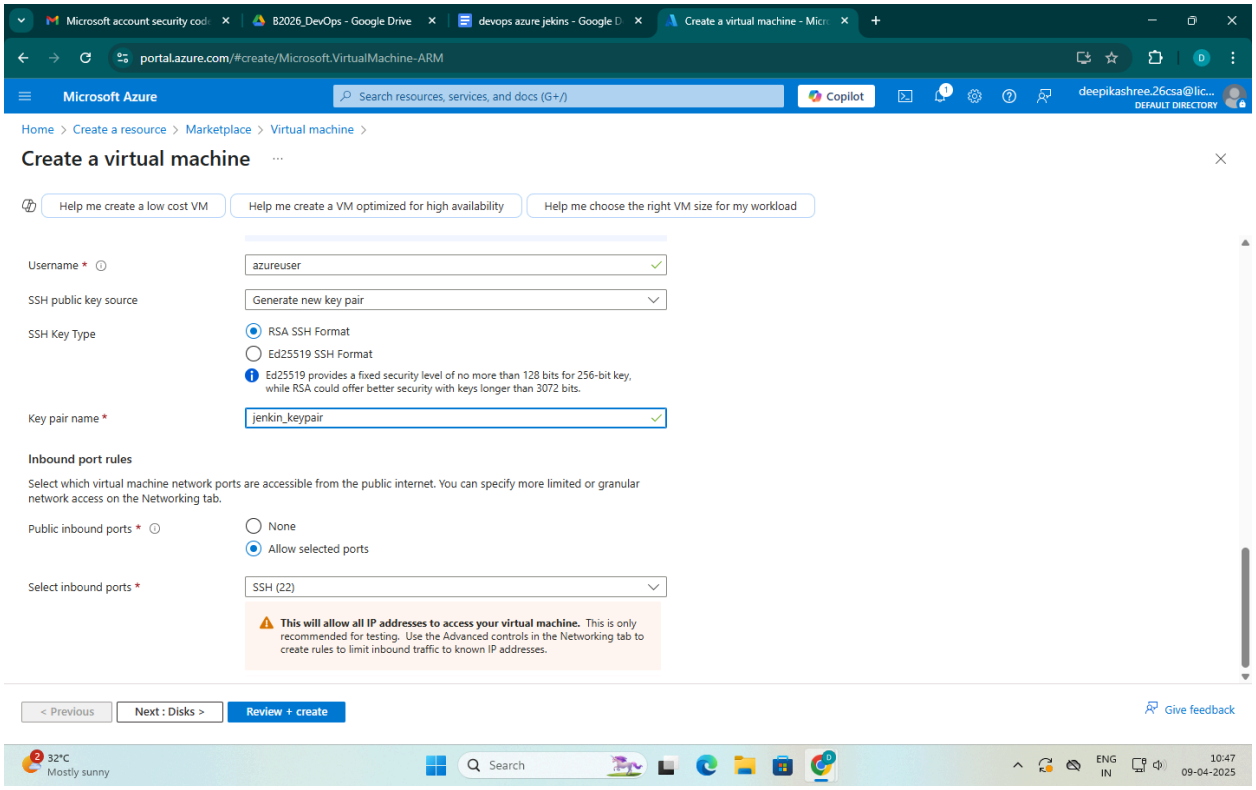
DEFAULT DIRECTORY
Home > Create a resource > Marketplace > Virtual machine >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
machines for Linux images. Learn more
Administrator account
Authentication type
SSH public key
Password
Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.
Username *
azureuser
SSH public key source
Generate new key pair
SSH Key Type
RSA SSH Format
Ed25519 SSH Format
Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.
Key pair name *
jenkin_keypair
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.
< Previous
Next : Disks >
Review + create
Give feedback
32°C
Mostly sunny
Search
ENG
IN
10:47
09-04-2025


Microsoft account security cod
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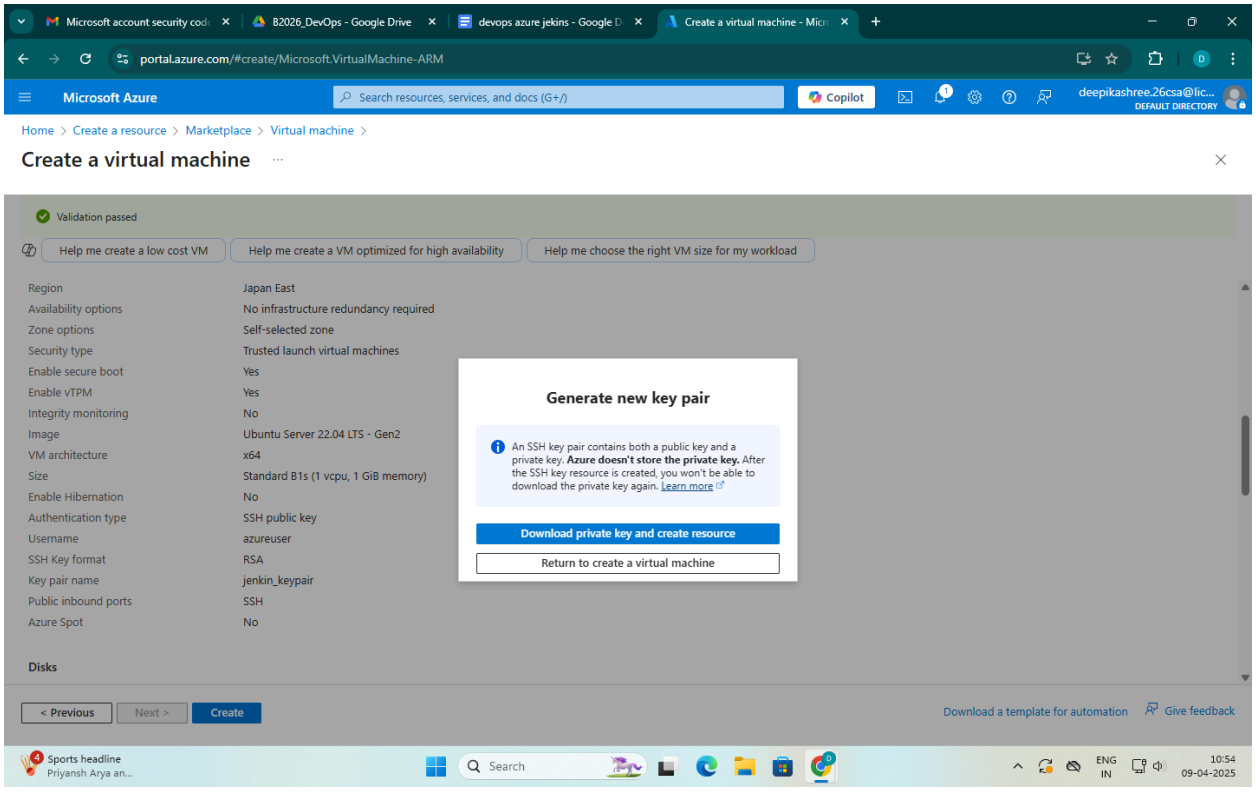
Create a virtual machine - Micr
portal.azure.com/#create/Microsoft.VirtualMachine-ARM
Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepikashree.26csa@lic...
DEFAULT DIRECTORY
Home > Create a resource > Marketplace > Virtual machine >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
Username *
azureuser
SSH public key source
Generate new key pair
SSH Key Type
RSA SSH Format
Ed25519 SSH Format
Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.
Key pair name *
jenkin_keypair
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 *
SSH (22)
This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.
< Previous
Next : Disks >
Review + create
Give feedback
32°C
Mostly sunny
Search
ENG
IN
10:47
09-04-2025


Microsoft account security cod
B2026_DevOps - Google Drive
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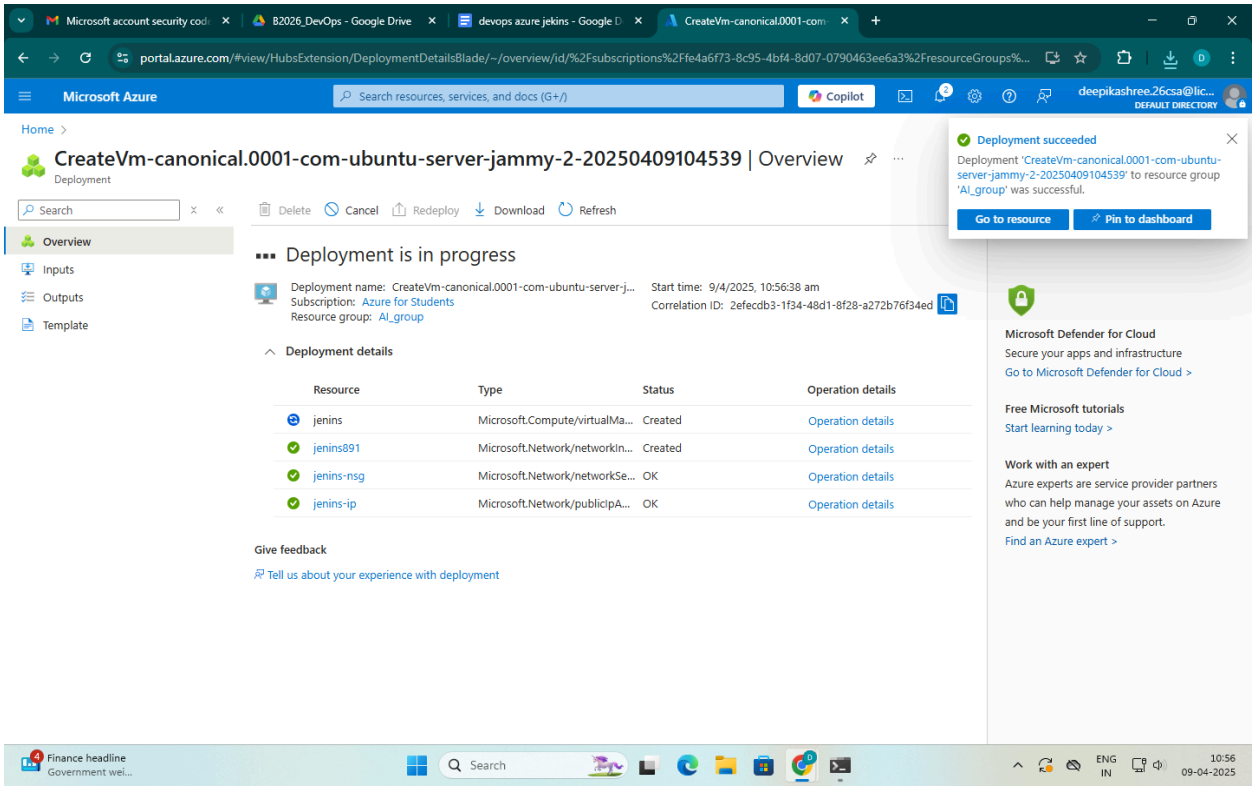
Create a virtual machine - Micr
portal.azure.com/#create/Microsoft.VirtualMachine-ARM
Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepikashree.26csa@lic...
DEFAULT DIRECTORY
Home > Create a resource > Marketplace > Virtual machine >
Create a virtual machine
Validation passed
Help 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
Region
Japan East
Availability options
No infrastructure redundancy required
Zone options
Self-selected zone
Security type
Trusted launch virtual machines
Enable secure boot
Yes
Enable vTPM
Yes
Integrity monitoring
No
Image
Ubuntu Server 22.04 LTS - Gen2
VM architecture
x64
Size
Standard B1s (1 vcpu, 1 GiB memory)
Enable Hibernation
No
Authentication type
SSH public key
Username
azureuser
SSH Key format
RSA
Key pair name
jenkin_keypair
Public inbound ports
SSH
Azure Spot
No
Disks
Generate new key pair
An SSH key pair contains both a public key and a private key. Azure doesn't store the private key. After the SSH key resource is created, you won't be able to download the private key again. Learn more
Download private key and create resource
Return to create a virtual machine
< Previous
Next >
Create
Download a template for automation
Give feedback
Sports headline
Priyansh Arya an...
Search
ENG
IN
10:54
09-04-2025


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepikashree.26csa@lic...
DEFAULT DIRECTORY
Home
CreateVm-canonical.0001-com-ubuntu-server-jammy-2-20250409104539 | Overview
Deployment
Search
Overview
Inputs
Outputs
Template
Delete
Cancel
Redeploy
Download
Refresh
Deployment is in progress
Deployment name: CreateVm-canonical.0001-com-ubuntu-server-j...
Subscription: Azure for Students
Resource group: AI_group
Start time: 9/4/2025, 10:56:38 am
Correlation ID: 2efecdb3-1f34-48d1-8f28-a272b76f34ed
Deployment details
Resource
Type
Status
Operation details
jenins
Microsoft.Compute/virtualMa...
Created
Operation details
jenins891
Microsoft.Network/networkIn...
Created
Operation details
jenins-nsg
Microsoft.Network/networkSe...
OK
Operation details
jenins-ip
Microsoft.Network/publicIpA...
OK
Operation details
Give feedback
Tell us about your experience with deployment
Deployment succeeded
Deployment 'CreateVm-canonical.0001-com-ubuntu-server-jammy-2-20250409104539' to resource group 'AI_group' was successful.
Go to resource
Pin to dashboard
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 partners who can help manage your assets on Azure and be your first line of support.
Find an Azure expert >
Finance headline
Government wei...
Search
ENG
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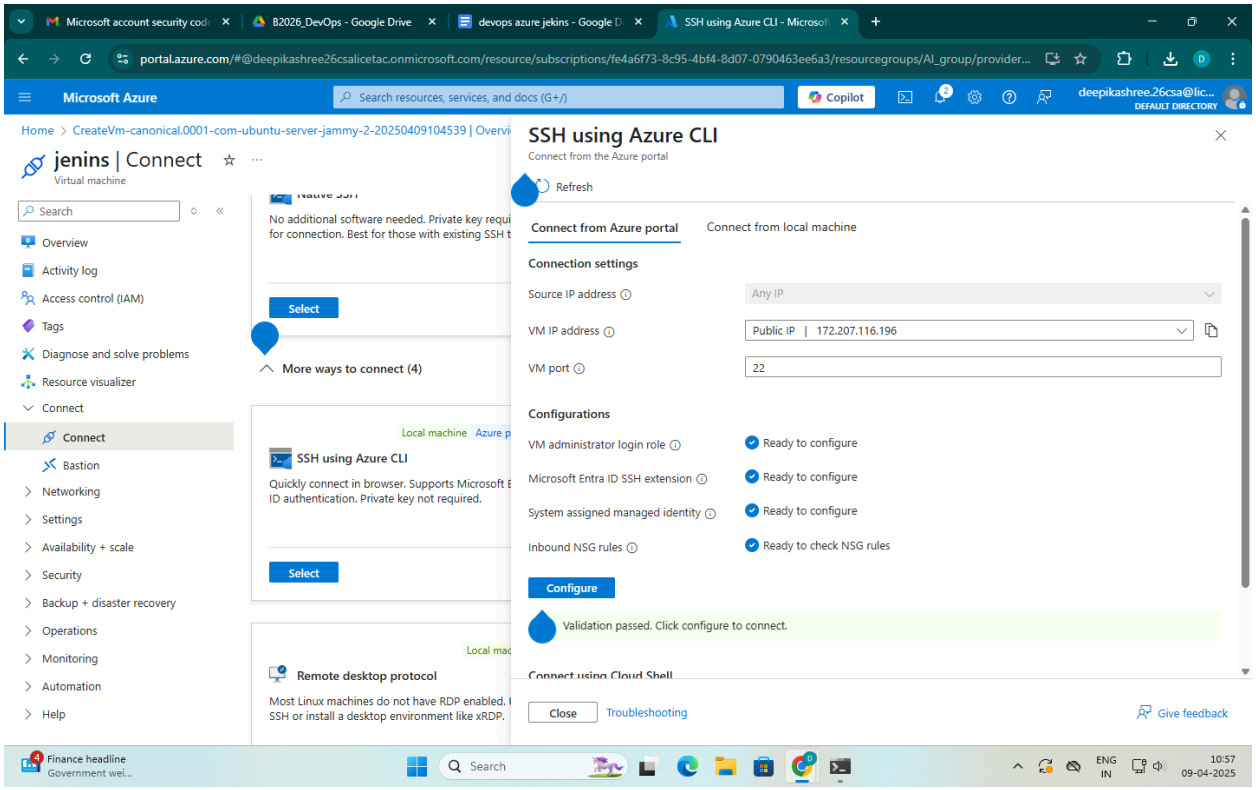
10:56
09-04-2025


Microsoft Azure
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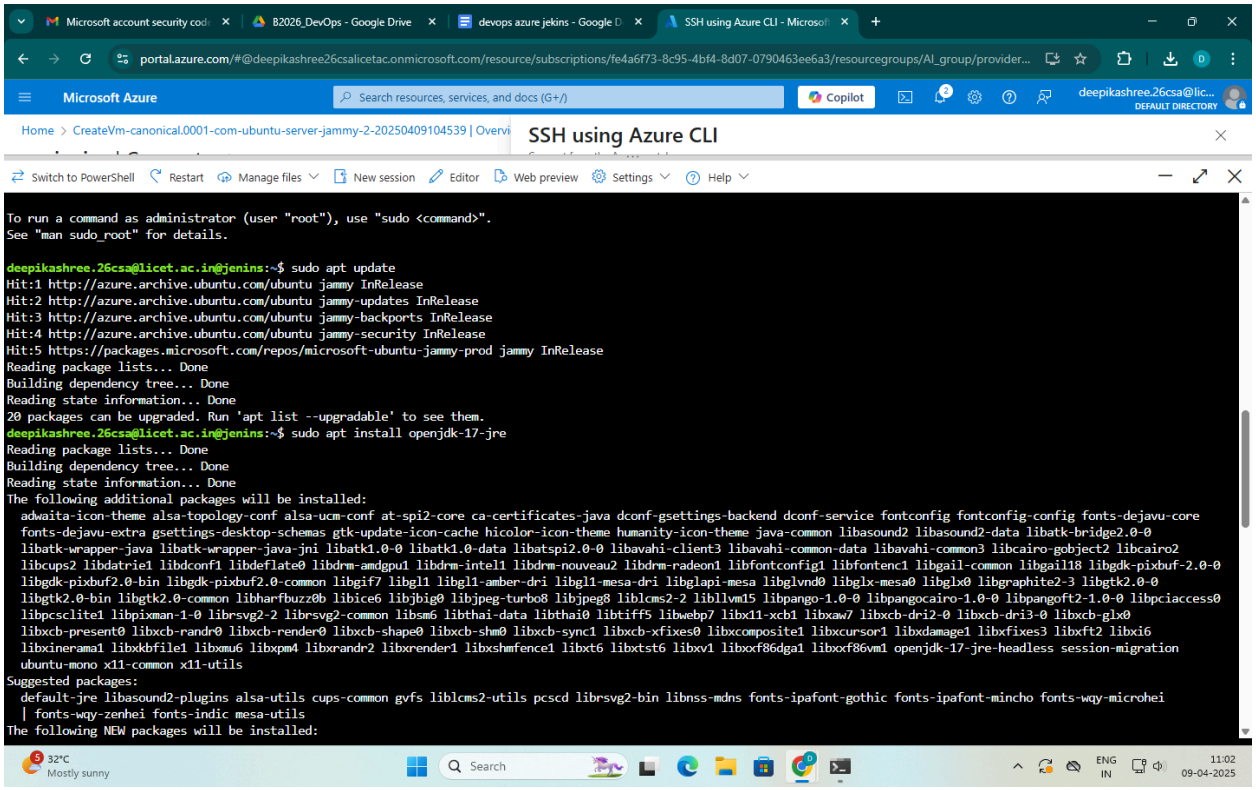
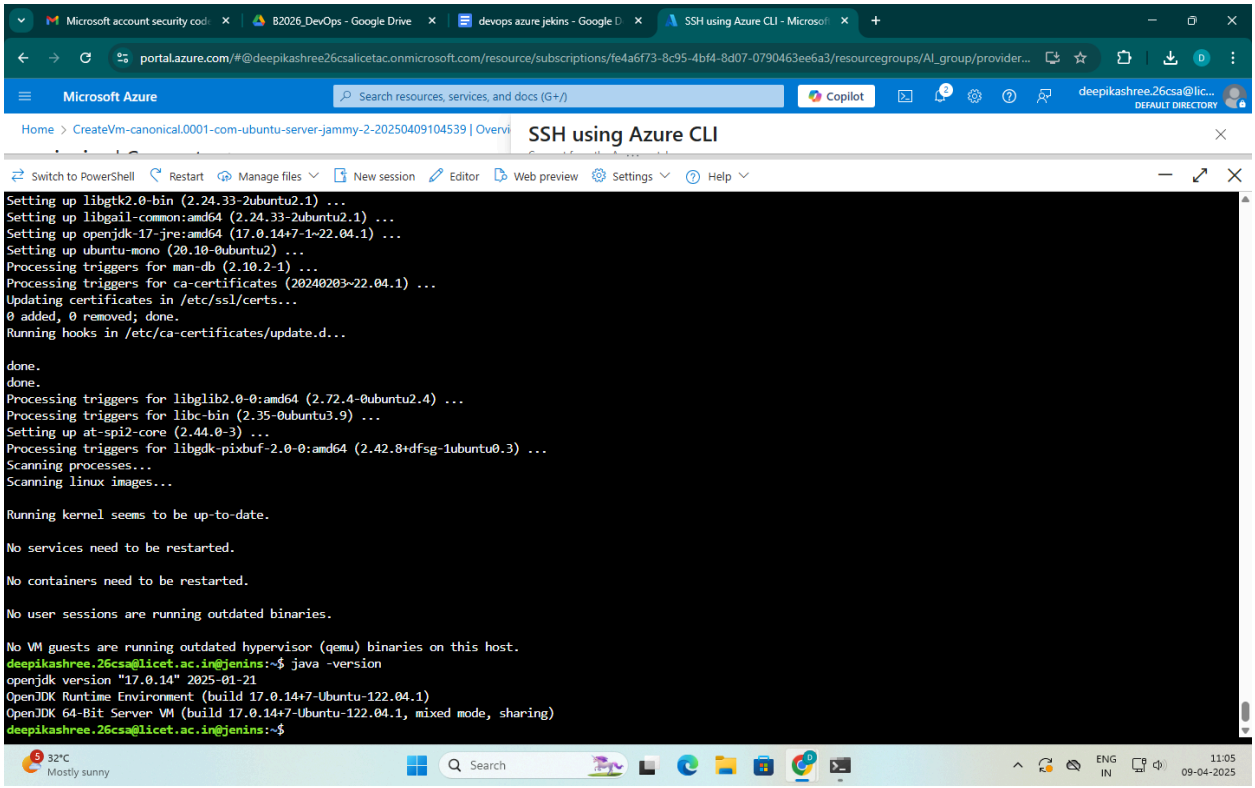
Copilot
deepikashree.26csa@lic...
DEFAULT DIRECTORY
Home
jenins | Connect
Virtual machine
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Resource visualizer
Connect
Connect
Bastion
Networking
Settings
Availability + scale
Security
Backup + disaster recovery
Operations
Monitoring
Automation
Help
No additional software needed. Private key
for connection. Best for those with existing SSH
Select
More ways to connect (4)
Local machine
SSH using Azure CLI
Quickly connect in browser. Supports Microsoft
ID authentication. Private key not required.
Select
Remote desktop protocol
Most Linux machines do not have RDP enabled.
SSH or install a desktop environment like xRDP.
SSH using Azure CLI
Connect from the Azure portal
Refresh
Connect from Azure portal
Connect from local machine
Connection settings
Source IP address
Any IP
VM IP address
Public IP | 172.207.116.196
VM port
22
Configurations
VM administrator login role
Ready to configure
Microsoft Entra ID SSH extension
Ready to configure
System assigned managed identity
Ready to configure
Inbound NSG rules
Ready to check NSG rules
Configure
Validation passed. Click configure to connect.
Close
Troubleshooting
Give feedback
Finance headline
Government wei...
Search
ENG
IN
10:57
09-04-2025

Step 2: Connect to the VM using SSH using Azure CLI and Install Jenkins.

Pre-Requisites: Java (JDK)

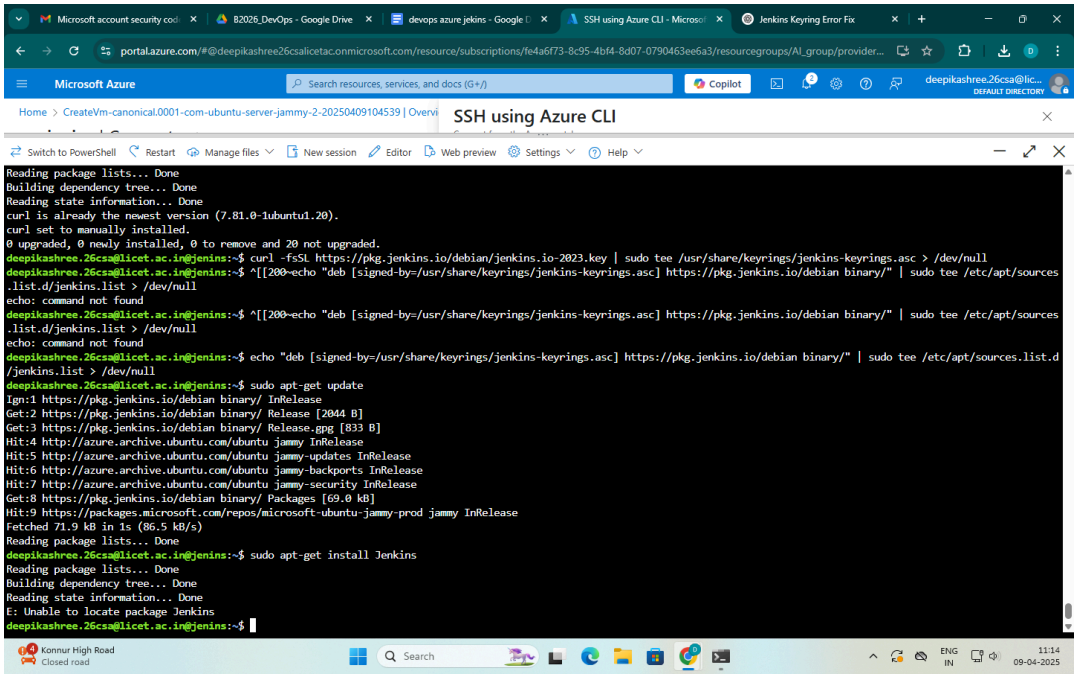
1. Run the below commands to install Java and Jenkins
2. Install Java
3. sudo apt update
4. sudo apt install openjdk-17-jre





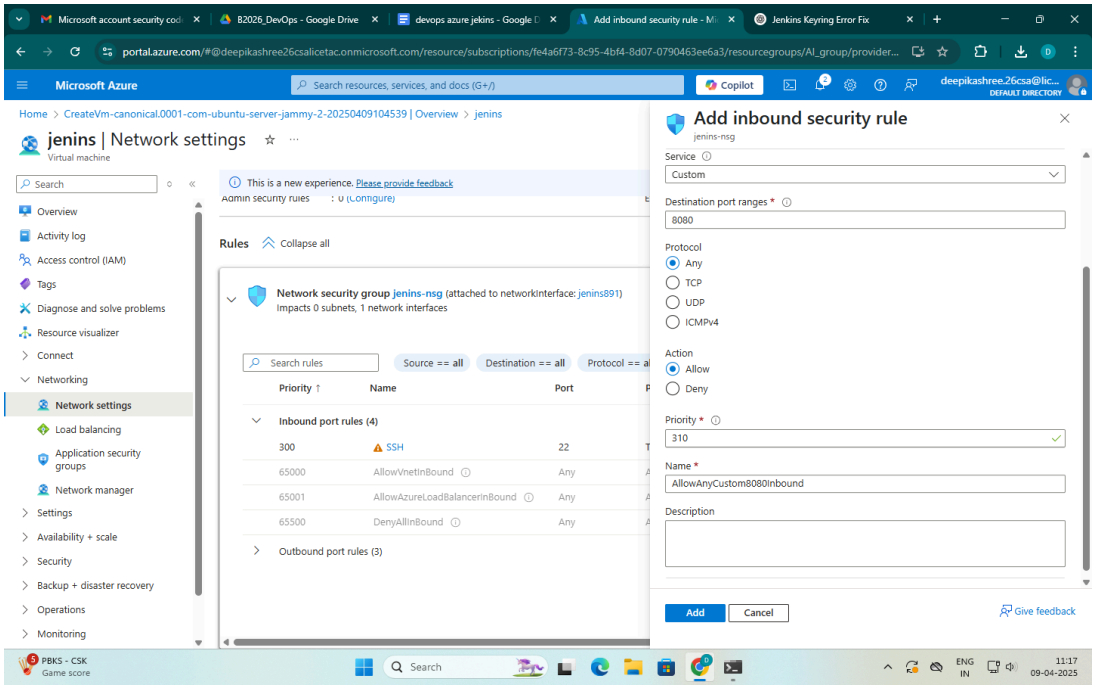
Step 3: Install Jenkins

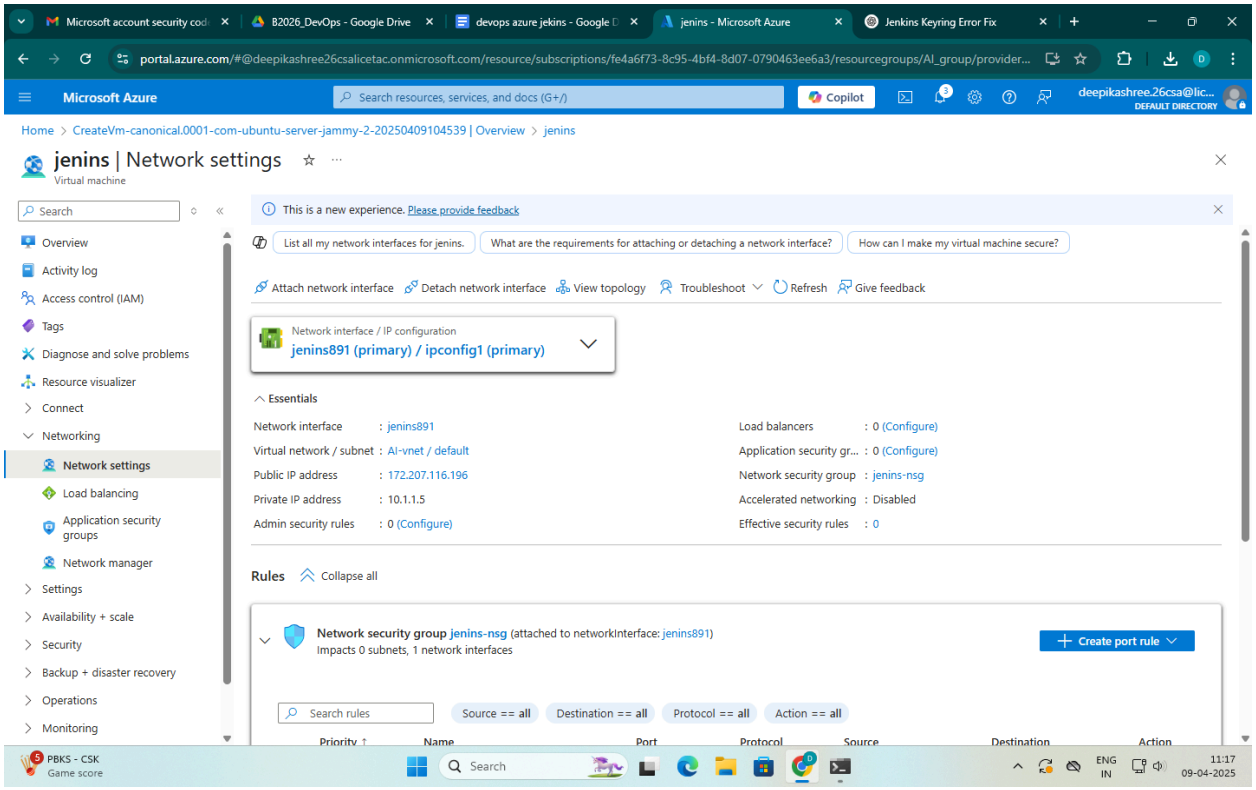
1. curl -fsSLhttps://pkg.jenkins.io/debian/jenkins.io-2023.key | sudo tee/usr/share/keyrings/jenkins-keyring.asc >/dev/null
2. echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \ https://pkg.jenkins.io/debian binary/ | sudo tee /etc/apt/sources.list.d/jenkins.list > /dev/null
3. sudo apt-get update
4. sudo apt-get install Jenkins

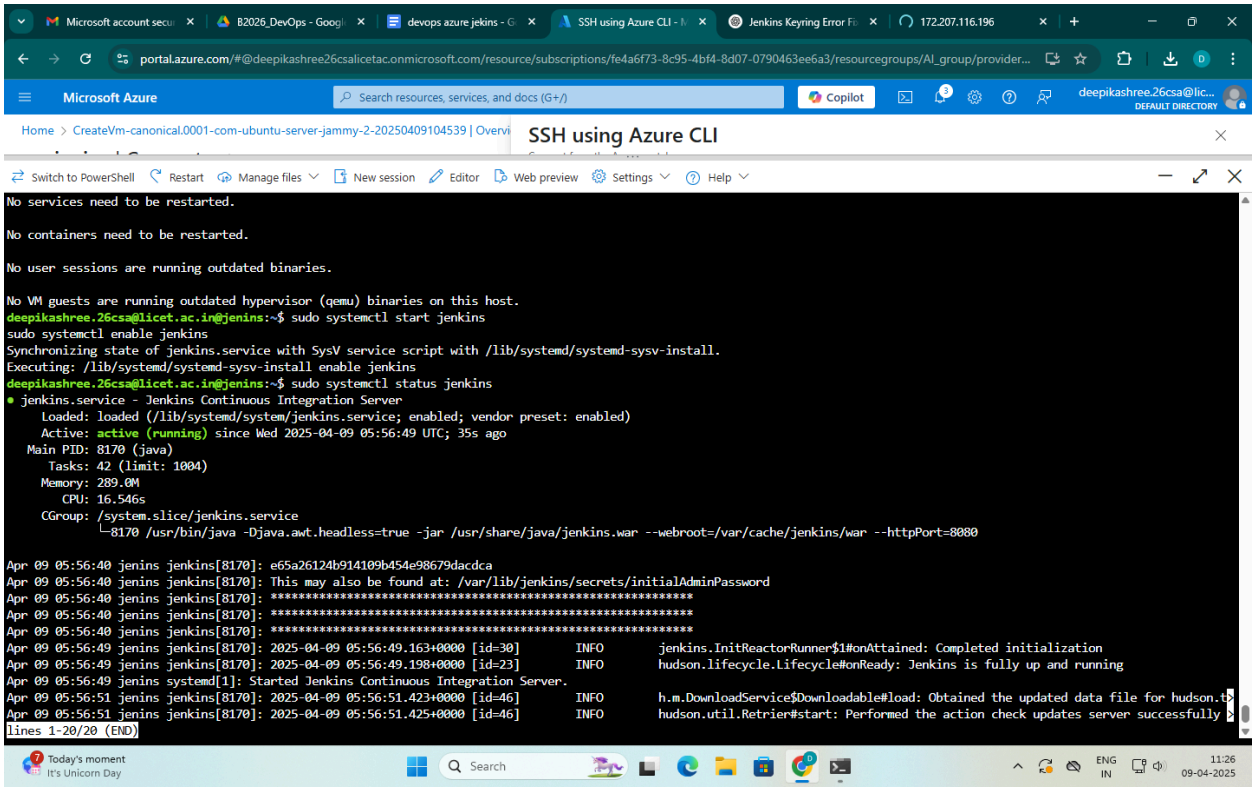


Step 4: By default, Jenkins will not be accessible to the external world due to the inbound traffic restriction by Azure. Open port 8080 in the inbound traffic rules as shown below.

- Add inbound security rule
- Add inbound traffic rules as shown in the image (you can just allow 8080 as well, in my case, I allowed All traffic).

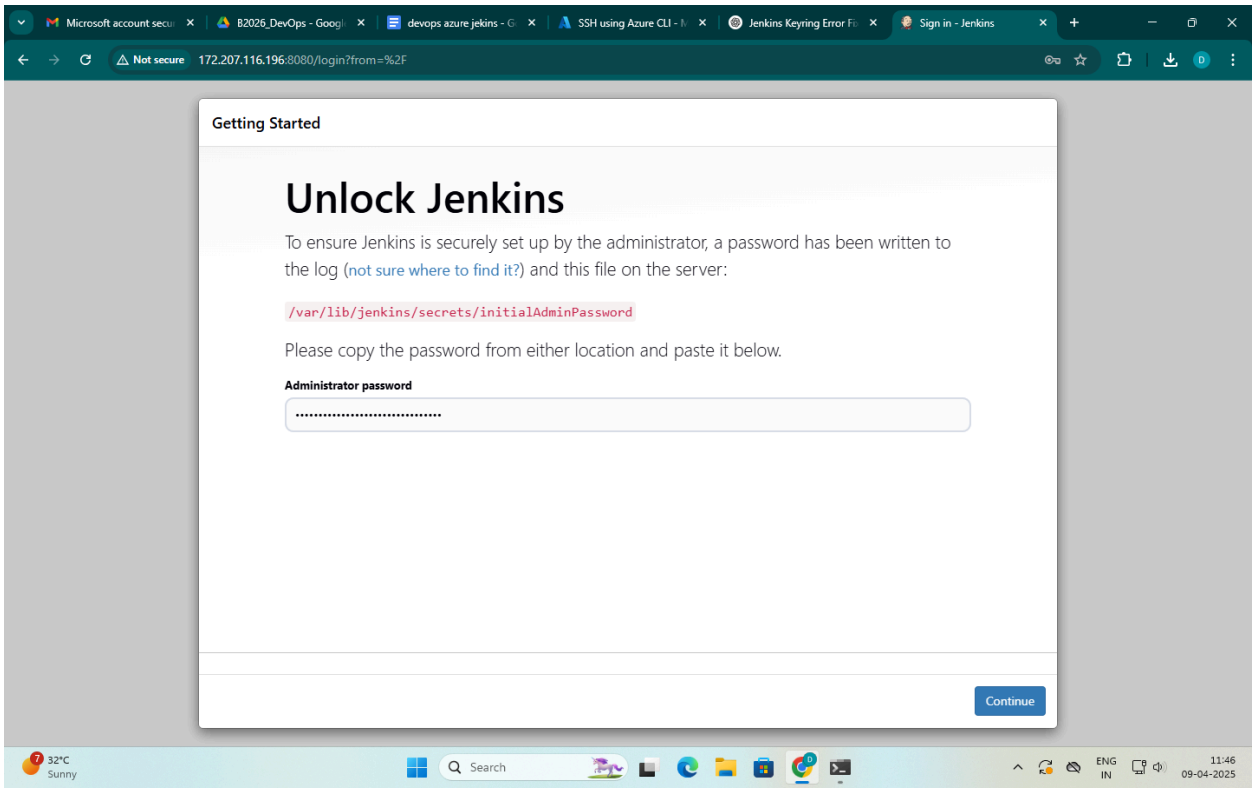


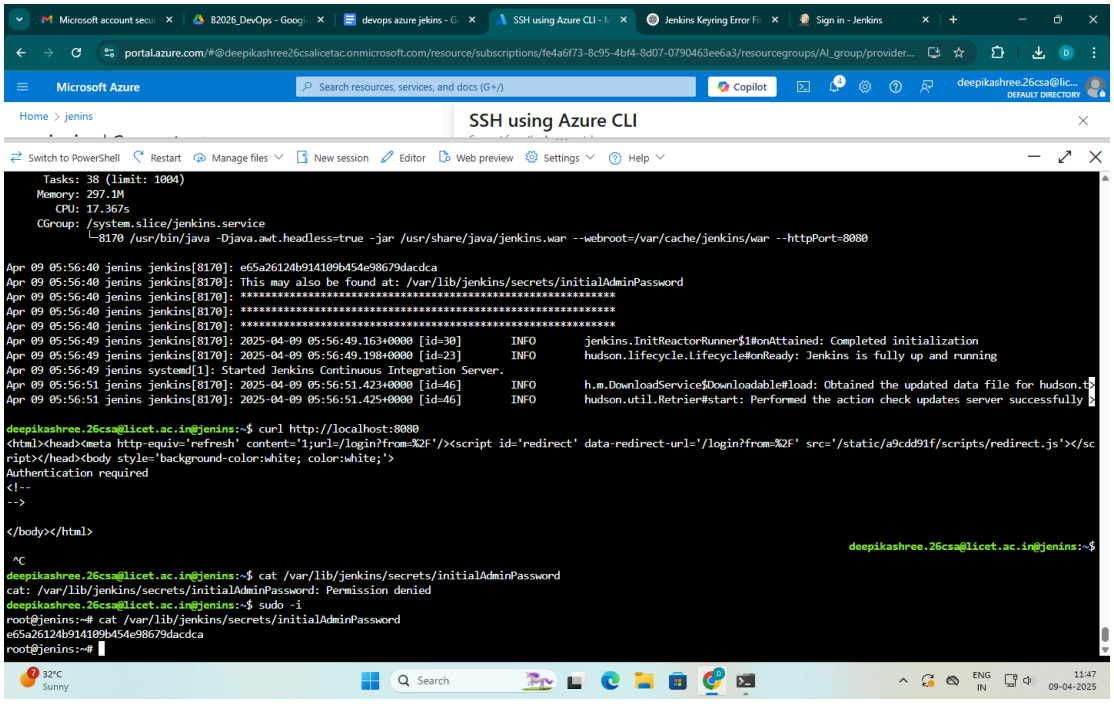

Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
Home > CreateVm-canonical.0001-com-ubuntu-server-jammy-2-20250409104539 | Overview > jenins
jenins | Network settings
Virtual machine
This is a new experience. Please provide feedback
List all my network interfaces for jenins.
What are the requirements for attaching or detaching a network interface?
How can I make my virtual machine secure?
Attach network interface
Detach network interface
View topology
Troubleshoot
Refresh
Give feedback
Network interface / IP configuration
jenins891 (primary) / ipconfig1 (primary)
Essentials
Network interface : jenins891
Virtual network / subnet : AI-vnet / default
Public IP address : 172.207.116.196
Private IP address : 10.1.1.5
Admin security rules : 0 (Configure)
Load balancers : 0 (Configure)
Application security gr... : 0 (Configure)
Network security group : jenins-nsg
Accelerated networking : Disabled
Effective security rules : 0
Rules
Collapse all
Network security group jenins-nsg (attached to networkInterface: jenins891)
Impacts 0 subnets, 1 network interfaces
Create port rule
Search rules
Source == all
Destination == all
Protocol == all
Action == all
Priority
Name
Port
Protocol
Source
Destination
Action

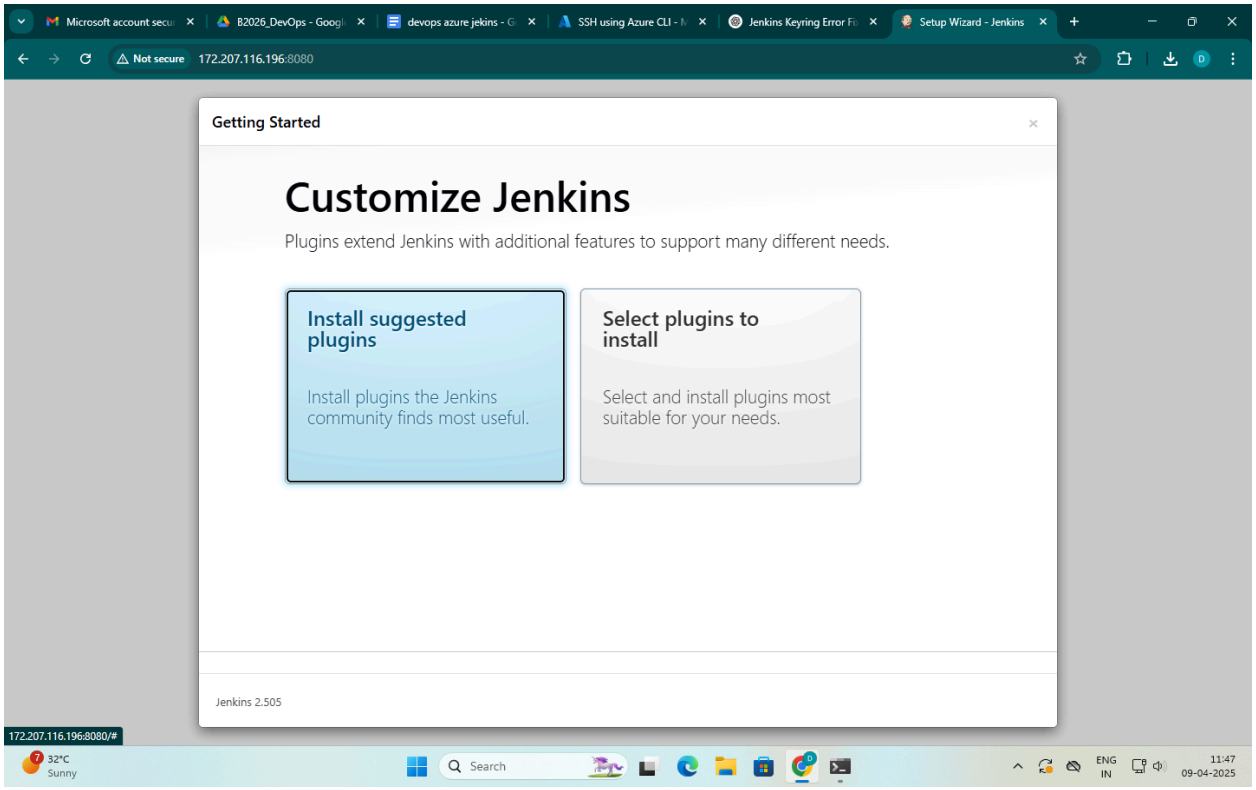

SSH using Azure CLI
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
deepikashree.26csa@licet.ac.in@jenins:~$ sudo systemctl start jenkins
sudo systemctl enable jenkins
Synchronizing state of jenkins.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable jenkins
deepikashree.26csa@licet.ac.in@jenins:~$ sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
Active: active (running) since Wed 2025-04-09 05:56:49 UTC; 35s ago
Main PID: 8170 (java)
Tasks: 42 (limit: 1004)
Memory: 289.0M
CPU: 16.546s
CGroup: /system.slice/jenkins.service
└─8170 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080
Apr 09 05:56:40 jenins jenkins[8170]: e65a26124b914109b454e98679dacdca
Apr 09 05:56:40 jenins jenkins[8170]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Apr 09 05:56:40 jenins jenkins[8170]: **
Apr 09 05:56:40 jenins jenkins[8170]: **
Apr 09 05:56:40 jenins jenkins[8170]: **
Apr 09 05:56:49 jenins jenkins[8170]: 2025-04-09 05:56:49.163+0000 [id=30] INFO jenkins.InitReactorRunner$1#onAttained: Completed initialization
Apr 09 05:56:49 jenins jenkins[8170]: 2025-04-09 05:56:49.198+0000 [id=23] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
Apr 09 05:56:49 jenins systemd[1]: Started Jenkins Continuous Integration Server.
Apr 09 05:56:51 jenins jenkins[8170]: 2025-04-09 05:56:51.423+0000 [id=46] INFO h.m.DownloadService$Downloadable#load: Obtained the updated data file for hudson.t
Apr 09 05:56:51 jenins jenkins[8170]: 2025-04-09 05:56:51.425+0000 [id=46] INFO hudson.util.Retrier#start: Performed the action check updates server successfully
lines 1-20/20 (END)

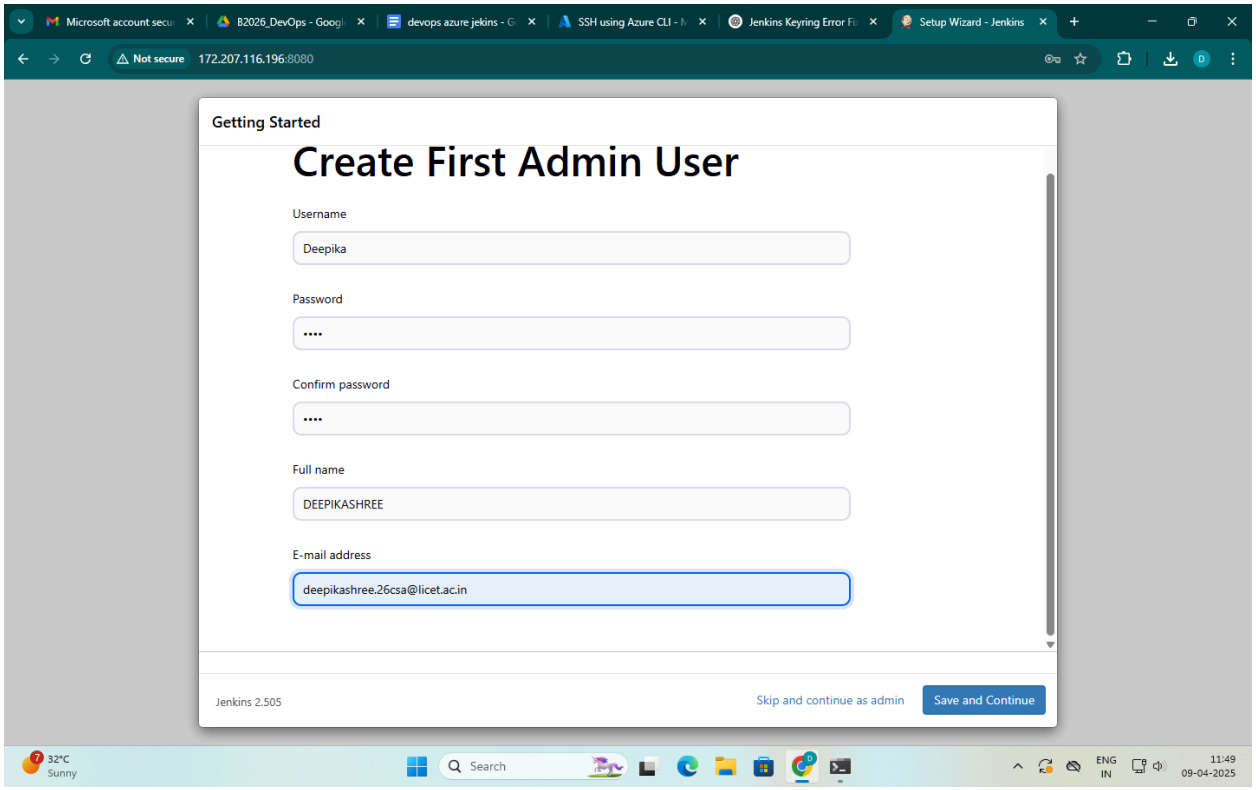
Step 5: Login to Jenkins using the below URL and configure Jenkins

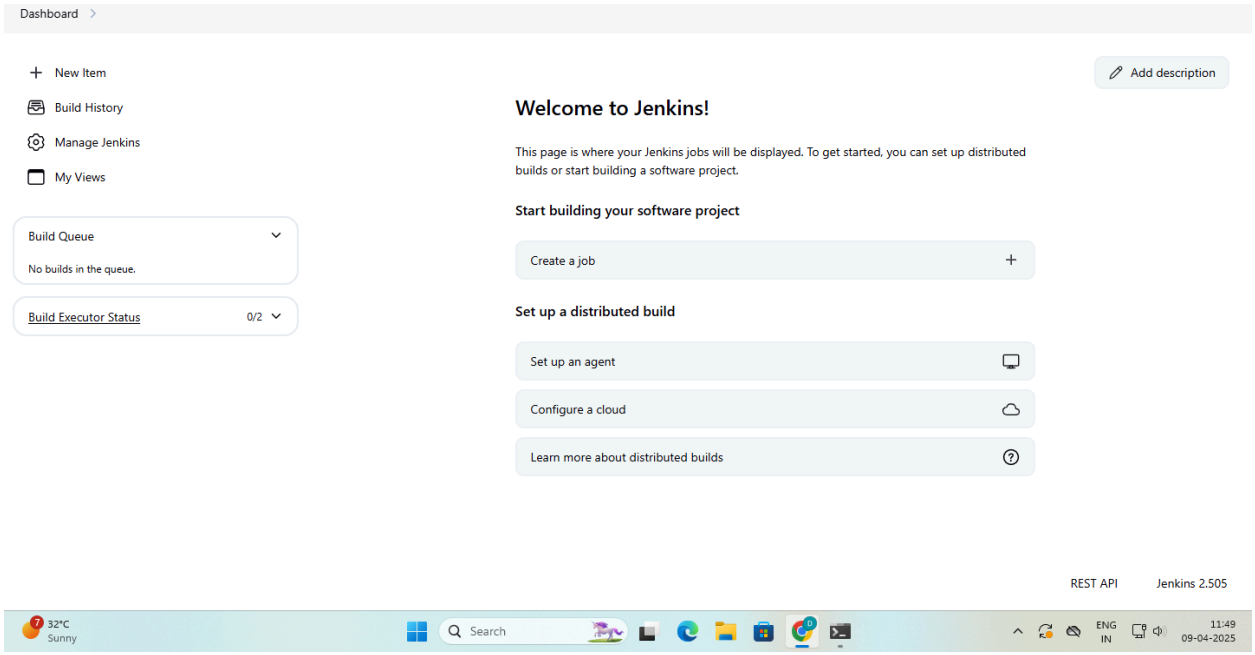
1. http:/VM-public-ip/:8080 [You can get the VM-public-ip-address from your Azure console page]






Not secure 172.207.116.196:8080
Getting Started
Customize Jenkins
Plugins extend Jenkins with additional features to support many different needs.
Install suggested plugins
Install plugins the Jenkins community finds most useful.
Select plugins to install
Select and install plugins most suitable for your needs.
Jenkins 2.505
172.207.116.196:8080/#


Not secure 172.207.116.196:8080
Getting Started
Create First Admin User
Username
Deepika
Password
Confirm password
Full name
DEEPIKASHREE
E-mail address
deepikashree.26csa@licet.ac.in
Jenkins 2.505
Skip and continue as admin
Save and Continue



Result:

Thus to install and configure Jenkins on Azure Linux VM is done.