

## Step 1: Create a Virtual Machine in Azure

### 1. Log in to the Azure Portal:

- Go to the [Azure Portal](#) and sign in with your account.

### 2. Create a New Virtual Machine:

- In the Azure Portal, click on "**Create a resource**" from the left-hand menu.

### 3. Configure the VM Basics:

- **Subscription:** Choose your subscription.
- **Resource Group:** You can either create a new resource group or select an existing one.
- **Virtual Machine Name:** Give your VM a name.
- **Region:** Select "**West US**" from the dropdown menu.
- **Availability Options:** Choose according to your needs (No infrastructure redundancy, Availability zone, etc.).
- **Image:** Select "**Ubuntu**" from the list of available images (choose the specific version you need, e.g., Ubuntu 20.04 LTS).
- **Size:** Choose the VM size based on your requirements.

### 4. Configure Administrator Account:

- Choose the **Authentication type** (SSH public key or password). If using SSH, you'll need to generate an SSH key pair if you haven't already.
- Enter the **Username** and **SSH public key** (if applicable).

### 5. Configure Networking:

- Under the **Networking** tab, ensure a new virtual network and subnet are created or select an existing one.
- Make sure to allow **Public IP** to connect to your VM.

### 6. Open SSH Port:

- In the **Networking** section, add an inbound port rule to allow **SSH (port 22)**.

### 7. Review + Create:

- Review your settings and click **"Create"** to provision the VM. This may take a few minutes.

Home >

CreateVm-canonical.ubuntu-24\_04-lts-server-20240926084259 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

Deployment is in progress

Deployment name: CreateVm-canonical.ubuntu-24\_04-lts-server-2... Start time: 9/26/2024, 8:45:40 AM  
Subscription: Free Trial Correlation ID: 4c869783-43dd-4407-b845-7e3cdc151231  
Resource group: ubuntu\_group

Deployment details

Resource	Type	Status	Operation details
ubuntu	Microsoft.Compute/virtualMachines	Created	<a href="#">Operation details</a>
ubuntu979_z1	Microsoft.Network/networkInterfa...	Created	<a href="#">Operation details</a>
ubuntu-ip	Microsoft.Network/publicIpAddre...	OK	<a href="#">Operation details</a>
ubuntu-nsg	Microsoft.Network/networkSecuri...	OK	<a href="#">Operation details</a>
ubuntu-vnet	Microsoft.Network/virtualNetworks	OK	<a href="#">Operation details</a>

ubuntu | Network settings

Virtual machine

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Networking

Network settings

Load balancing

Application security

Rules

Network security group ubuntu-nsg (attached to networkInterface: ubuntu979\_z1)

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
300	SSH	22	TCP	Any	Any	Allow

## Step 2: Connect to the Linux VM using Terminal

### 1. Get the Public IP Address:

- Once the VM is created, go to the **"Overview"** page of your VM in the Azure Portal.
- Note the **Public IP address** of the VM.

ubuntu | Connect

Virtual machine

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Refresh Troubleshoot More Options Feedback

Connecting using

Public IP address | 20.244.84.29

Admin username : azureuser

Port (change) : 22 [Check access](#)

Just-in-time policy : Unsupported by plan

### 2. Open Terminal:

- On your local machine, open a terminal (Linux, macOS, or Windows with WSL).

### 3. Connect to the VM:

- Use the following command to connect via SSH:

## Native SSH



Connect from your local machine (Windows)

A public IP address is required to connect via this connection method.

Configured

### 2 Open a local shell (on Windows)

Open Terminal (Windows 11), PowerShell (Windows 10 or less), or a shell of your choice. Or switch the local machine OS above to view more instructions.

### 3 Copy and execute SSH command

Provide a path to your SSH private key file on your local machine.

ubuntu\_key.pem

Can't find your private key? [Reset your SSH private key](#)

SSH to VM with specified private key.

```
ssh -i ubuntu_key.pem azureuser@20.244.84.29
```



Copied

### Other Information

Using a Linux subsystem like WSL or Ubuntu on Terminal?

Copy your private key path to the Linux subsystem and ensure it has the correct read-only access.

Move your private key to the Linux subsystem. Use chmod to assign read-only access, then SSH.

```
mv /mnt/c/<your-private-key> ~/.ssh/
```



```
chmod 400 ~/.ssh/<your-private-key>
```



```
ssh -i ~/.ssh/<your-private-key> azureuser@20.244.84.29
```



### 4. Accept the SSH Key:

- The first time you connect, you'll be asked to confirm the authenticity of the host. Type **"yes"** and hit **Enter**.

```
Microsoft Windows [Version 10.0.22631.4169]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Mohd Shahid\Downloads>ssh -i ubuntu_key.pem azureuser@20.244.84.29
The authenticity of host '20.244.84.29 (20.244.84.29)' can't be established.
ED25519 key fingerprint is SHA256:4fA3F09zmmhQZqMwLJteU0fMl/9dm04iFCuVxz7LxbzE.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])?
```

- If you used a password for authentication, enter it when prompted.

```
System information as of Thu Sep 26 03:20:44 UTC 2024

System load:  0.09                Processes:            112
Usage of /:   5.0% of 28.02GB     Users logged in:     0
Memory usage: 28%                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 list of available updates is more than a week old.
To check for new updates run: sudo apt update

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.

azureuser@ubuntu:~$
```

### Step 3: Install Docker

Once connected to your VM, follow these steps to install Docker:

# Update the package index

**sudo apt update**

# Install Docker

**sudo apt install -y docker.io**

# Start Docker service

**sudo systemctl start docker**

# Enable Docker to start on boot

**sudo systemctl enable docker**

#### **Step 4: Pull the hshar/webapp Repository**

Now that Docker is installed, you can pull the hshar/webapp repository:

**docker pull hshar/webapp**

#### **Step 5: Create a New File in the Docker Image**

To create a new file in the hshar/webapp image, you'll need to run a container from that image and then create the file within that container.

##### **1. Run a Container from the Image:**

**sudo docker run -it --name my\_webapp\_container hshar/webapp /bin/bash**

This command will start an interactive terminal session inside the container.

##### **2. Create a New File:** Inside the container, create a new file:

**touch new\_file.txt**

**echo "This is a new file created in the hshar/webapp container." > new\_file.txt**

##### **3. Exit the Container:** To exit the container while keeping it running:

**exit**

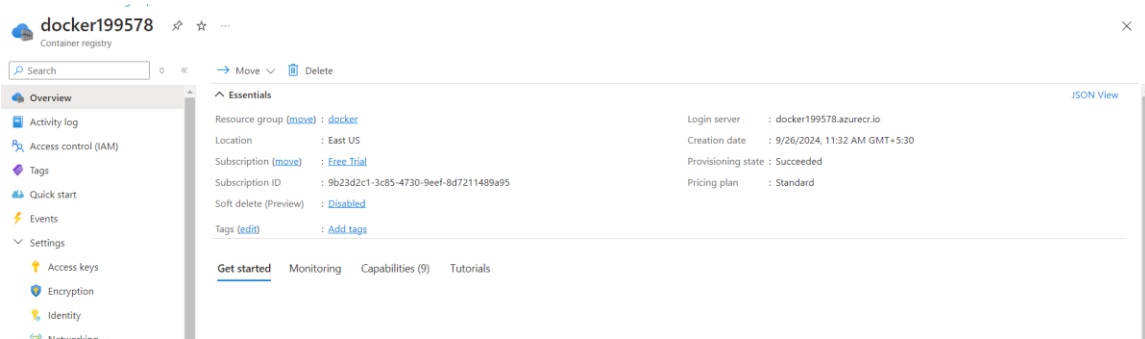
#### **Step 6: Create an Azure Container Registry and Connect It to Docker Running in VM**

##### **1. Create a New Container Registry:**

- In the Azure Portal, click on "Create a resource."
- Search for "Container Registry" and select it.
- Click "Create."

## 2. Configure the Container Registry:

- Fill out the necessary information (Subscription, Resource Group, Registry Name, Location, SKU).
- Click "Review + Create" and then "Create."



## 3. Log in to the Azure Container Registry from the VM:

- Run the following command in your VM

**az acr login --name docker199578**

```
root@Docker:/home/azureuser# az acr login --name docker199578
Unable to get AAD authorization tokens with message: Please run 'az login' to setup account.
Unable to get admin user credentials with message: Please run 'az login' to setup account.
Username: docker199578
Password:
Login Succeeded
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
```

## Step 7: Upload the Image to Azure Container Registry

### 1. Tag the Docker Image:

**sudo docker commit my\_webapp\_container**  
**docker199578.azurecr.io/my\_webapp\_image:latest**

```
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
root@Docker:/home/azureuser# docker commit my_webapp_container docker199578.azurecr.io/my_webapp_image:latest
sha256:727e36c28ad58c4af6c1d3bf7580d189e0248e5e5510fad22f3c2c48188af22d
root@Docker:/home/azureuser#
```

### 2. Push the Docker Image to the Registry:

**sudo docker push docker199578.azurecr.io/my\_webapp\_image:latest**

```
root@Docker:/home/azureuser# docker push docker199578.azurecr.io/my_webapp_image:latest
The push refers to repository [docker199578.azurecr.io/my_webapp_image]
431d03f382ae: Pushed
f90015cdd87ab: Pushed
```

## Step 8: Create an App Service to Deploy the Same Image

### 1. Create a New App Service:

- In the Azure Portal, click on "Create a resource."
- Search for "Web App" and select it.
- Click "Create."

### 2. Configure the App Service:

- **Subscription:** Choose your subscription.
- **Resource Group:** Use the same resource group as your Container Registry.
- **Name:** dockerwebapp199578.
- **Publish:** Choose "Docker Container."
- **Operating System:** Select Linux.
- **Region:** Choose the same region as your resources.
- **App Service Plan:** Create a new plan or use an existing one.

### 3. Configure Docker Settings:

- **Image Source:** Select "Azure Container Registry."
- **Registry:** Choose your created container registry.
- **Image:** Enter my\_webapp\_image.
- **Tag:** Enter latest.

Basics Database Docker Networking Monitor + secure Tags Review + create

Pull container images from Azure Container Registry, Docker Hub or a private Docker repository. App Service will deploy the containerized app with your preferred dependencies to production in seconds.

Options	Single Container
Image Source	Azure Container Registry
<b>Azure container registry options</b>	
Registry *	docker199578
Image *	my_webapp_image
Tag *	latest
Startup Command ⓘ	Example: /bin/bash; -c; echo hello; sleep 10000

#### 4. Review + Create:

- Review your settings and click "Create."

The screenshot displays the Azure portal interface for a Web App named "dockerwebapp199578". The left-hand navigation pane lists various management options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Microsoft Defender for Cloud, Events (preview), Deployment (with sub-items for Deployment slots and Deployment Center), Settings, Performance, Load Testing, and App Service plan. The main content area shows the "Overview" tab selected, displaying subscription information (Subscription ID: 9b23d2c1-3c85-4730-9eef-8d7211489a95), tags, and monitoring metrics. The "Monitoring" tab is active, showing "Key Metrics" for the last hour. Three charts are visible: "Http 5xx", "Data In", and "Data Out", each with a scale from 0 to 100. The bottom of the image shows a browser address bar with the URL "docker1995781-g9gpd8dvaugnffhm.canadacentral-01.azurewebsites.net" and a "Submit" button.