

Placement Empowerment Program Cloud Computing and DevOps Centre

Host a Static Website Locally: Set Up a Local Server
Apache and Host a Simple HTML page with your
name

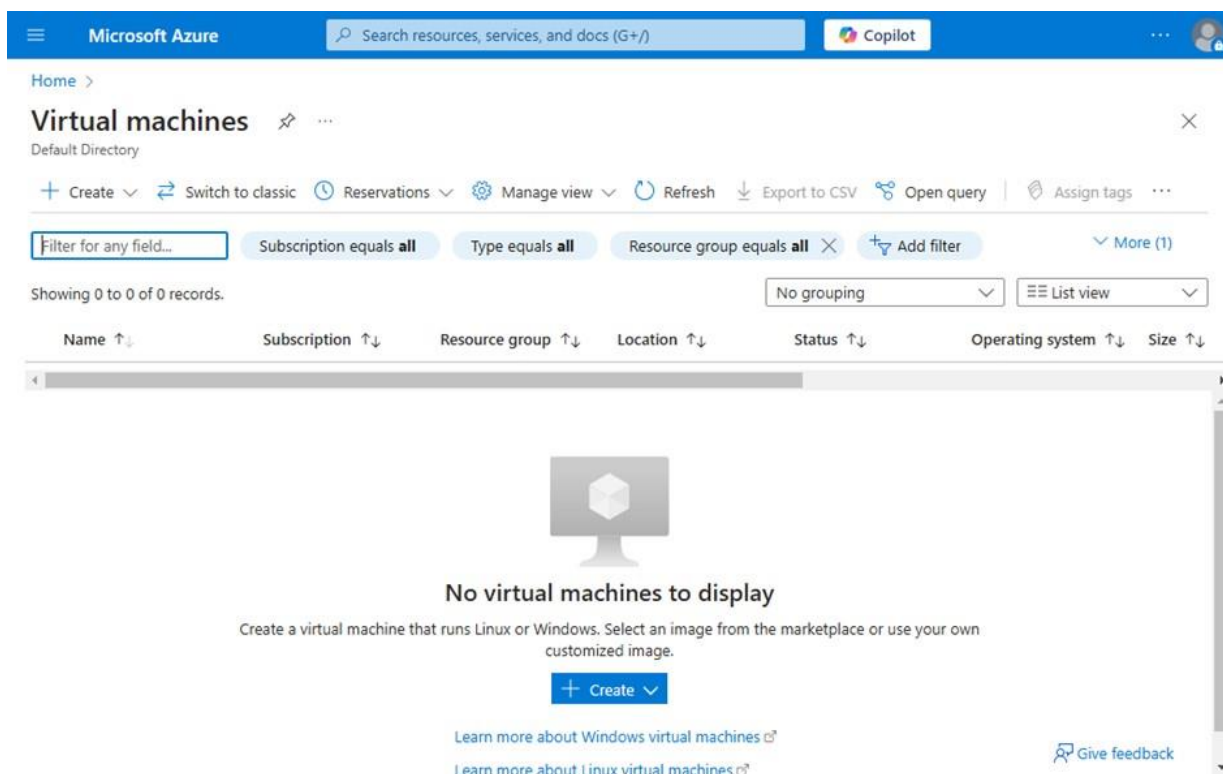
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Introduction

In this proof of concept (POC), Overview: Hosting a Static Website on Azure Using Apache

This task involves deploying a static website on an Azure Virtual Machine (VM) using Apache, a widely used web server. A static website consists of fixed HTML, CSS, and JavaScript files, which do not require backend processing or databases. The process includes setting up a cloud-based VM, installing and configuring Apache, and hosting an HTML webpage accessible via a web browser. Once deployed, the website can be accessed using the public IP address of the Azure VM. This setup demonstrates fundamental cloud computing, web hosting, networking, and security concepts, providing hands-on experience with server deployment, firewall configuration, and basic web hosting in a cloud environment. It is a foundational step for learning web development, DevOps, and cloud infrastructure.

Step 1: Set Up An Azure Vm



Search for virtual machine in the azure portal

Microsoft Azure

Search resources, services, and docs (G+)

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 create a VM optimized for performance

Virtual machine name * ⓘ vm01 ✓

Region * ⓘ (Asia Pacific) Central India ▼

Availability options ⓘ Availability zone ▼

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

i Using an Azure-selected zone is not supported in region 'Central India'.

Availability zone * ⓘ Zone 1 ▼

f You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type ⓘ Trusted launch virtual machines ▼

< Previous | Next : Disks > | **Review + create**

Create a VM with the following configuration and give review +create at the end

Step 2:

Connect to the vm via powershell using SSH or **connection via powershell using this command : ssh username@your-vm-ip**

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.5371]
(c) Microsoft Corporation. All rights reserved.

C:\Users\TEMP.DESKTOP-S0M6S0K.005>ssh keshika14@20.197.18.17
```

```
C:\WINDOWS\system32\cmd.exe - ssh keshika14@20.197.18.17
Microsoft Windows [Version 10.0.19045.5371]
(c) Microsoft Corporation. All rights reserved.

C:\Users\TEMP.DESKTOP-S0M6S0K.005>ssh keshika14@20.197.18.17
The authenticity of host '20.197.18.17 (20.197.18.17)' can't be established.
ED25519 key fingerprint is SHA256:EL58XaV2/9XOtYz5vHJDoTBKUD2TygpVnIkry544yg.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '20.197.18.17' (ED25519) to the list of known hosts.
keshika14@20.197.18.17's password:
```

```

keshika14@vm01: ~
ED25519 key fingerprint is SHA256:EL5BXaV2/9XOtYz5vHJDoTBKUD2TygpVVnlkry544yg.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '20.197.18.17' (ED25519) to the list of known hosts.
keshika14@20.197.18.17's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1020-azure x86_64)

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

System information as of Sat Feb  1 07:02:33 UTC 2025

System load:  0.0           Processes:            131
Usage of /:   5.4% 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 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.

keshika14@vm01:~$

```

Install apache webserver after
Step 3 : logging into your vm 1)Update package :

in the powershell after logging give the update package command
:sudo apt update && sudo apt upgrade -y

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.

```
keshika14@vm01:~$ sudo apt update && sudo apt upgrade -y
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://azure.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://azure.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [837 kB]
Get:14 http://azure.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [190 kB]
Get:15 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Get:16 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1002 kB]
Get:17 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [250 kB]
Get:18 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [315 kB]
Get:19 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [19.9 kB]
Get:20 http://azure.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [631 kB]
Get:21 http://azure.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [121 kB]
Get:22 http://azure.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:23 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [16.3 kB]
Get:24 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3944 B]
Get:25 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:26 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [553 B]
```

2) Install apache:

sudo apt install apache2 -y

3) Start
apache:

```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
keshika14@vm01:~$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 liblua5.4-0
  ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
  liblua5.4-0 ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 0 not upgraded.
Need to get 2084 kB of archives.
After this operation, 8094 kB of additional disk space will be used.
Get:1 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapr1t64 amd64 1.7.2-3.1ubuntu0.1 [108 kB]
Get:2 http://azure.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9116 B]
Get:5 http://azure.archive.ubuntu.com/ubuntu noble/main amd64 liblua5.4-0 amd64 5.4.6-3build2 [166 kB]
Get:6 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.58-1ubuntu8.5 [1329 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.58-1ubuntu8.5 [163 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-utils amd64 2.4.58-1ubuntu8.5 [97.1 kB]
Get:9 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2 amd64 2.4.58-1ubuntu8.5 [90.2 kB]
Get:10 http://azure.archive.ubuntu.com/ubuntu noble/main amd64 ssl-cert all 1.1.2ubuntu1 [17.8 kB]
```

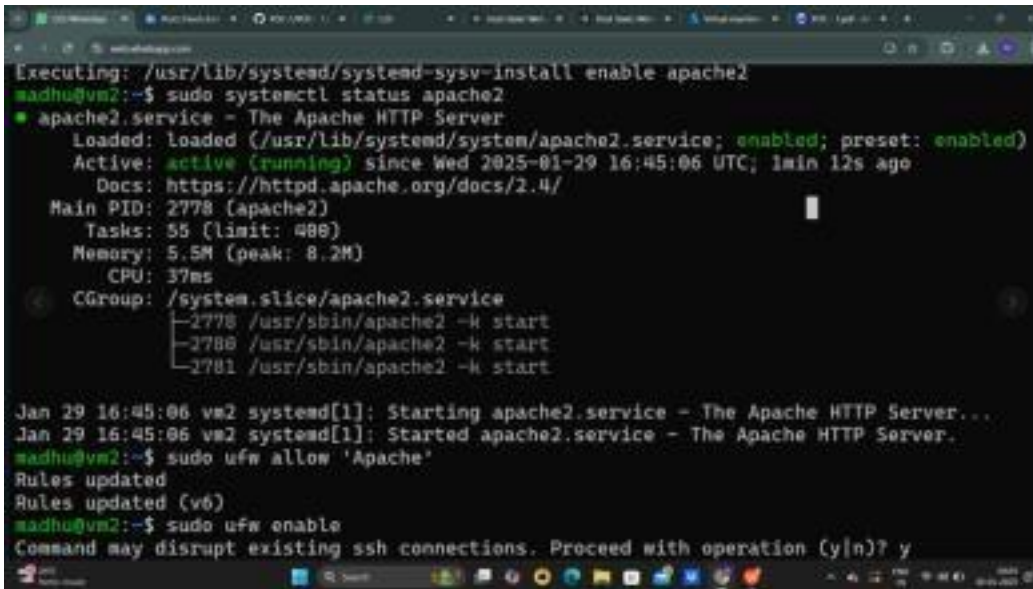
sudo systemctl start apache2

4)Enable apache to start on Boot: **sudo**

systemctl enable apache2

command is given after giving the start apache command .refer the above image for reference

5)Check apache status:



```
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
madhu@vm2:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-01-29 16:45:06 UTC; 1min 12s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 2778 (apache2)
     Tasks: 55 (limit: 488)
    Memory: 5.5M (peak: 8.2M)
       CPU: 37ms
    CGroup: /system.slice/apache2.service
            └─2778 /usr/sbin/apache2 -k start
              2780 /usr/sbin/apache2 -k start
              2781 /usr/sbin/apache2 -k start

Jan 29 16:45:06 vm2 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Jan 29 16:45:06 vm2 systemd[1]: Started apache2.service - The Apache HTTP Server.
madhu@vm2:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
madhu@vm2:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
```

sudo systemctl status apache

Step 4: configure

firewall to allow HTTP Traffic

1)Allow apache through Firewall : **sudo ufw allow 'apache'**

2) enable firewall: **sudo ufw enable**

3)check firewall:**sudo ufw status**


```

keshika14@vm01:~$ sudo systemctl start apache2
keshika14@vm01:~$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
keshika14@vm01:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-02-01 07:14:02 UTC; 5min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 14148 (apache2)
    Tasks: 55 (limit: 9459)
   Memory: 5.5M (peak: 5.9M)
      CPU: 57ms
   CGroup: /system.slice/apache2.service
           └─14148 /usr/sbin/apache2 -k start
             └─14151 /usr/sbin/apache2 -k start
               └─14152 /usr/sbin/apache2 -k start

Feb 01 07:14:02 vm01 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Feb 01 07:14:02 vm01 systemd[1]: Started apache2.service - The Apache HTTP Server.
keshika14@vm01:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
keshika14@vm01:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
keshika14@vm01:~$

```

```

keshika14@vm01:~$ sudo systemctl start apache2
keshika14@vm01:~$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
keshika14@vm01:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-02-01 07:14:02 UTC; 5min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 14148 (apache2)
    Tasks: 55 (limit: 9459)
   Memory: 5.5M (peak: 5.9M)
      CPU: 57ms
   CGroup: /system.slice/apache2.service
           └─14148 /usr/sbin/apache2 -k start
             └─14151 /usr/sbin/apache2 -k start
               └─14152 /usr/sbin/apache2 -k start

Feb 01 07:14:02 vm01 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Feb 01 07:14:02 vm01 systemd[1]: Started apache2.service - The Apache HTTP Server.
keshika14@vm01:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
keshika14@vm01:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
keshika14@vm01:~$

```

Step 5: Deploy a simple html page

1) Navigate to web root dictionary:

Cd/var/www/html

2)create new Html page: **sudo nano index.html** This command directly navigates to the html file so that you can paste or type in your html code there for your static website

[illegible]

once you have finished typing in our content give

Ctrl+X then Y press enter example content:

```
<!DOCTYPE html>
<html>
<head>
  <title>My First Web Page</title>
</head>
<body>
  <h1>Welcome to My Website!</h1>
  <p>This is a test page hosted on Apache.</p>
</body>
</html>
```

Step 6:

1) restart the apache to apply changes: **sudo systemctl restart apache2**

2)Get

your ip address: Get it from the over view page of your azure vm

you can access your website by <http://Your-vm-ip>



File

C:/Users/TEMP.DESKTOP-S0M6S0K.005/Documents/index.html



Click to go back (Alt+Left arrow), hold to see history

Welcome to My Website!

This is a test page hosted on Apache.