Azure Project: Linux VM + Nginx Web Server (Cloud Shell)

Objective

The goal of this project is to deploy a Linux Virtual Machine (Ubuntu) on Azure using Azure Cloud Shell (CLI), configure Networking Security Group (NSG) rules, and install Nginx to host a public-facing web page.

Tools & Services Used

- Azure Cloud Shell (Bash)

- Azure Resource Group

- Azure Virtual Machine (Ubuntu LTS)

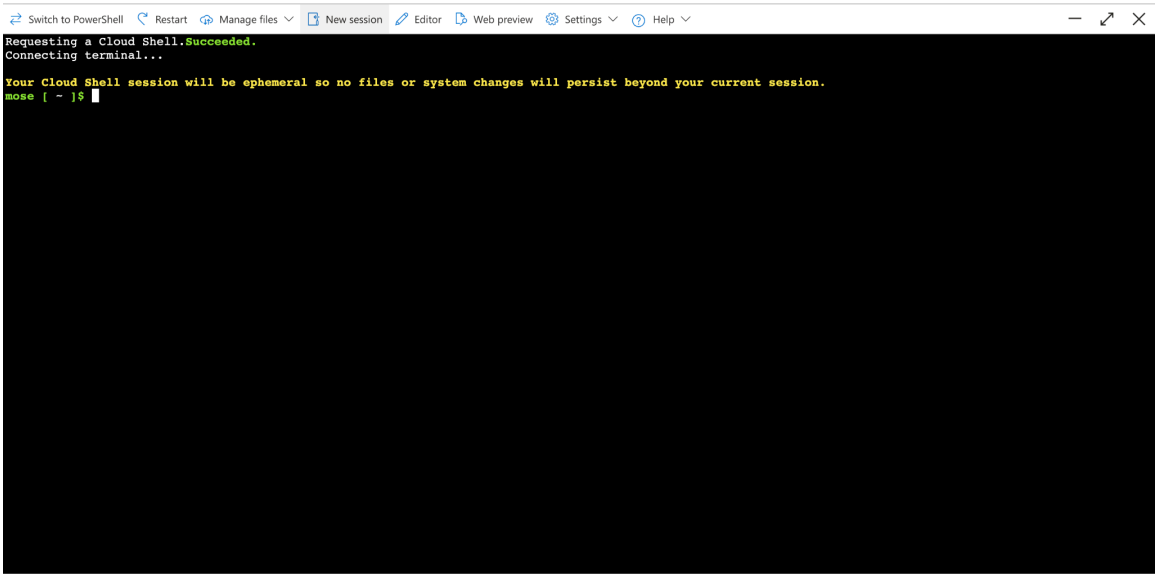
- Network Security Group (NSG)

- Nginx Web Server

Step-by-Step Implementation

Step 1: Open Azure Cloud Shell

Go to portal.azure.com → Open Cloud Shell → Select Bash.

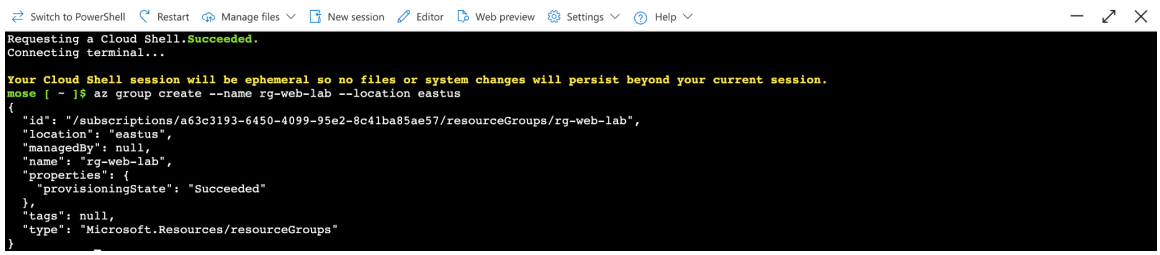


Step 2: Create a Resource Group

Command:

az group create --name rg-web-lab --location eastus

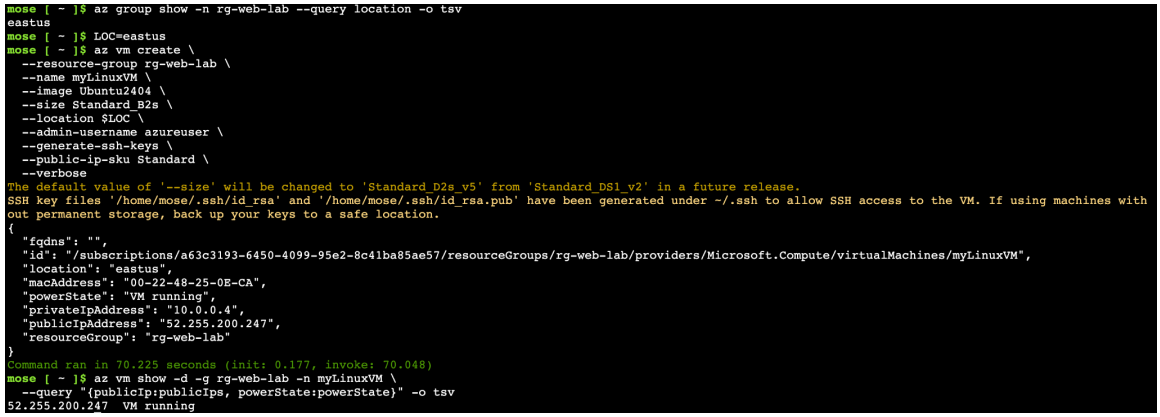
Note: I was having issues with the location and deploying the VM. So I added the following Command: az group show -n rg-web-lab --query location -o tsv; LOC=eastus. You'll see it on the next screenshot.



Step 3: Create Ubuntu VM

Command:

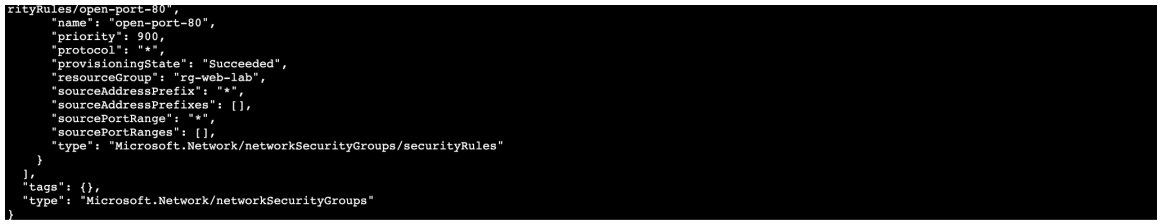
az vm create --resource-group rg-web-lab --name myLinuxVM --image Ubuntu2404 --size Standard_B2s --location $LOC --admin-username azureuser --generate-ssh-keys --public-ip-sku Standard --verbose



Step 4: Open Port 80 (HTTP)

Command:

az vm open-port --port 80 --resource-group rg-web-lab --name myLinuxVM



Step 5: Connect to VM

Command:

ssh azureuser@52.255.200.247

```
The authenticity of host '52.255.200.247 (52.255.200.247)' can't be established.
ED25519 key fingerprint is SHA256:uuijTR3jotu2nkm41VDpCVqi7lV6SgdCSKw/05dcwnA.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '52.255.200.247' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.11.0-1018-azure x86_64)

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

 System information as of Mon Sep 29 10:14:13 UTC 2025

  System load:  0.0               Processes:             122
  Usage of /:   5.6% of 28.02GB   Users logged in:       0
  Memory usage: 6%                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@myLinuxVM:~$
```

Step 6: Install Nginx

Commands:

sudo apt update && sudo apt -y install nginx

sudo systemctl enable --now nginx

```
Suggested packages:
  fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  nginx nginx-common
0 upgraded, 2 newly installed, 0 to remove and 12 not upgraded.
Need to get 564 kB of archives.
After this operation, 1596 kB of additional disk space will be used.
Get:1 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2ubuntu7.5 [43.4 kB]
Get:2 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubuntu7.5 [520 kB]
Fetched 564 kB in 0s (16.4 MB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 67913 files and directories currently installed.)
Preparing to unpack .../nginx-common_1.24.0-2ubuntu7.5_all.deb ...
Unpacking nginx-common (1.24.0-2ubuntu7.5) ...
Selecting previously unselected package nginx.
Preparing to unpack .../nginx_1.24.0-2ubuntu7.5_amd64.deb ...
Unpacking nginx (1.24.0-2ubuntu7.5) ...
Setting up nginx-common (1.24.0-2ubuntu7.5) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
Setting up nginx (1.24.0-2ubuntu7.5) ...
 * Upgrading binary nginx                                                                                    [ OK ]
Processing triggers for man-db (2.12.0-4build2) ...

Processing triggers for ufw (0.36.2-6) ...
Scanning processes...
Scanning linux images...

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.
azureuser@myLinuxVM:~$ sudo systemctl enable --now nginx
Synchronizing state of nginx.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable nginx
```

Step 7: Customize Homepage

Command:

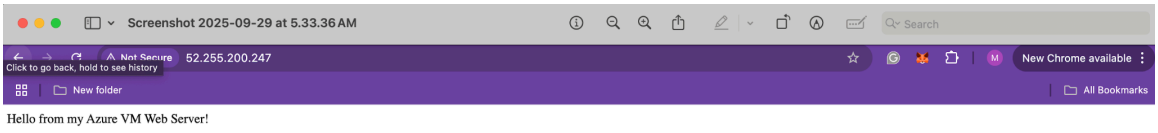
echo "Hello from my Azure VM Web Server!" | sudo tee /var/www/html/index.html

```
azureuser@myLinuxVM:~$ echo "Hello from my Azure VM Web Server!" | sudo tee /var/www/html/index.html
Hello from my Azure VM Web Server!
```

Step 8: Test in Browser

Open:

http://52.255.200.247



Hello from my Azure VM Web Server!

Results

- Successfully deployed and accessed a Linux VM in Azure.
- Installed and configured Nginx web server.
- Verified webpage is accessible publicly via the VM’s Public IP address.