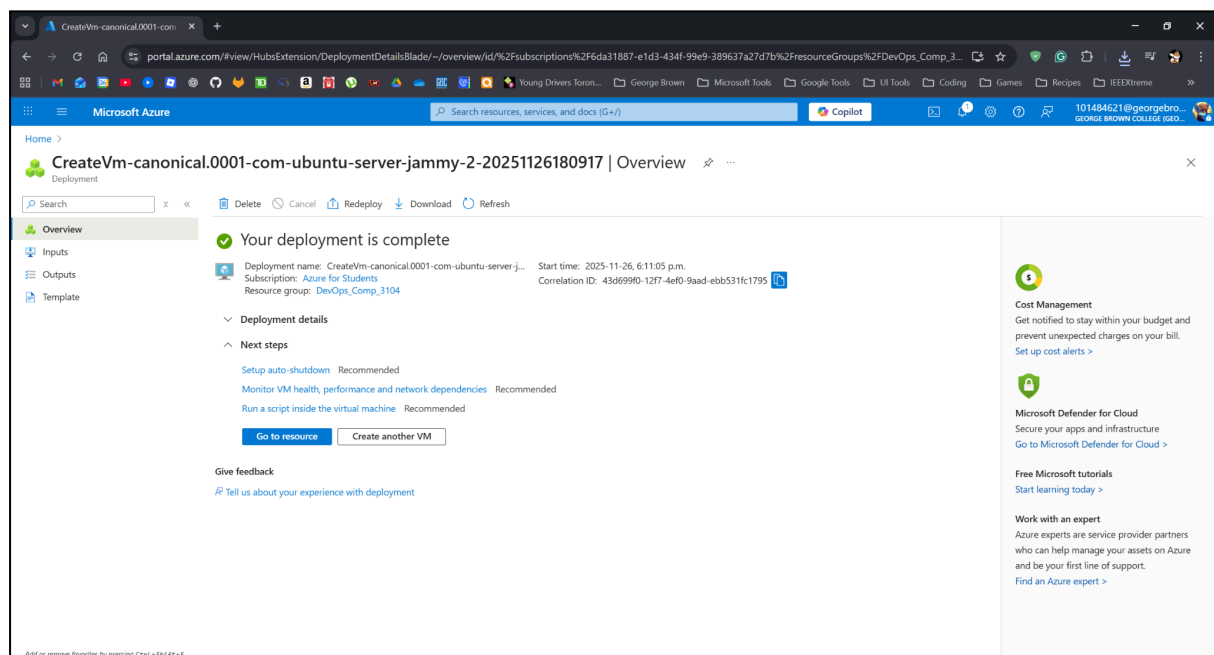Jayden Lewis

Pritesh Patel

COMP 3104 - 15783

101484621

26/11/2025

Lab 11 - Ansible Playbook & Azure Ubuntu VM

Contents

Successful Deployment of VM

Connecting To VM Via SSH

```
jaydenlewis@101484621-lab-11: ~                                    —    □    ×

jayde@DESKTOP-90BKNAF MINGW64 /d/Safe_Drive/comp_3104-developer_operations/azure_keys (dep-inclusions)
$ ssh -i 101484621-lab-11_key.pem jaydenlewis@20.3.254.210
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1041-azure x86_64)

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

 System information as of Wed Nov 26 23:20:57 UTC 2025

  System load:  0.01              Processes:             122
  Usage of /:   6.3% of 28.89GB   Users logged in:       1
  Memory usage: 4%                IPv4 address for eth0: 172.23.0.4
  Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

19 updates can be applied immediately.
15 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

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

New release '24.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


Last login: Wed Nov 26 23:17:38 2025 from 107.179.163.98
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

jaydenlewis@101484621-lab-11:~$
```

Updating System

Installing Ansible

```
jaydenlewis@101484621-lab-11:~$ sudo apt install ansible
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ansible-core python3-jmespath python3-kerberos python3-nacl python3-ntlm-auth python3-paramiko
  python3-requests-kerberos python3-requests-ntlm python3-resolvelib python3-winrm python3-xmltodict sshpass
Suggested packages:
  python-nacl-doc python3-gssapi python3-invoke
The following NEW packages will be installed:
  ansible ansible-core python3-jmespath python3-kerberos python3-nacl python3-ntlm-auth python3-paramiko
  python3-requests-kerberos python3-requests-ntlm python3-resolvelib python3-winrm python3-xmltodict sshpass
0 upgraded, 13 newly installed, 0 to remove and 19 not upgraded.
Need to get 19.2 MB of archives.
After this operation, 213 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-resolvelib all 0.8.1-1 [23.6 kB]
Get:2 http://azure.archive.ubuntu.com/ubuntu jammy/main amd64 python3-jmespath all 0.10.0-1 [21.7 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-kerberos amd64 1.1.14-3.1build5 [23.0 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu jammy/main amd64 python3-nacl amd64 1.5.0-2 [63.1 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-ntlm-auth all 1.4.0-1 [20.4 kB]
Get:6 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-paramiko all 2.9.3-0ubuntu1.3 [134 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-requests-kerberos all 0.12.0-2 [11.9 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-requests-ntlm all 1.1.0-1.1 [6160 B]
Get:9 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-xmltodict all 0.12.0-2 [12.6 kB]
Get:10 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-winrm all 0.3.0-2 [21.7 kB]
Get:11 http://azure.archive.ubuntu.com/ubuntu jammy/universe amd64 sshpass amd64 1.09-1 [11.7 kB]
Get:12 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main amd64 ansible-core all 2.17.14-1ppa~jammy [1017 kB]
Get:13 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main amd64 ansible all 10.7.0-1ppa~jammy [17.9 MB]
Fetched 19.2 MB in 35s (554 kB/s)
Selecting previously unselected package python3-resolvelib.
(Reading database ... 62825 files and directories currently installed.)
Preparing to unpack .../00-python3-resolvelib_0.8.1-1_all.deb ...
Unpacking python3-resolvelib (0.8.1-1) ...
Selecting previously unselected package ansible-core.
Preparing to unpack .../01-ansible-core_2.17.14-1ppa~jammy_all.deb ...
Unpacking ansible-core (2.17.14-1ppa~jammy) ...
Selecting previously unselected package ansible.
Preparing to unpack .../02-ansible_10.7.0-1ppa~jammy_all.deb ...
Unpacking ansible (10.7.0-1ppa~jammy) ...
Selecting previously unselected package python3-jmespath.
Preparing to unpack .../03-python3-jmespath_0.10.0-1_all.deb ...
Unpacking python3-jmespath (0.10.0-1) ...
Selecting previously unselected package python3-kerberos.
Preparing to unpack .../04-python3-kerberos_1.1.14-3.1build5_amd64.deb ...
Unpacking python3-kerberos (1.1.14-3.1build5) ...
Selecting previously unselected package python3-nacl.
Preparing to unpack .../05-python3-nacl_1.5.0-2_amd64.deb ...
Unpacking python3-nacl (1.5.0-2) ...
Selecting previously unselected package python3-ntlm-auth.
Preparing to unpack .../06-python3-ntlm-auth_1.4.0-1_all.deb ...
Unpacking python3-ntlm-auth (1.4.0-1) ...
Selecting previously unselected package python3-paramiko.
Preparing to unpack .../07-python3-paramiko_2.9.3-0ubuntu1.3_all.deb ...
Unpacking python3-paramiko (2.9.3-0ubuntu1.3) ...
Selecting previously unselected package python3-requests-kerberos.
Preparing to unpack .../08-python3-requests-kerberos_0.12.0-2_all.deb ...
Unpacking python3-requests-kerberos (0.12.0-2) ...
Selecting previously unselected package python3-requests-ntlm.
Preparing to unpack .../09-python3-requests-ntlm_1.1.0-1.1_all.deb ...
Unpacking python3-requests-ntlm (1.1.0-1.1) ...
Selecting previously unselected package python3-xmltodict.
Preparing to unpack .../10-python3-xmltodict_0.12.0-2_all.deb ...
Unpacking python3-xmltodict (0.12.0-2) ...
Selecting previously unselected package python3-winrm.
Preparing to unpack .../11-python3-winrm_0.3.0-2_all.deb ...
Unpacking python3-winrm (0.3.0-2) ...
Selecting previously unselected package sshpass.
Preparing to unpack .../12-sshpass_1.09-1_amd64.deb ...
Unpacking sshpass (1.09-1) ...
Setting up python3-ntlm-auth (1.4.0-1) ...
Setting up python3-resolvelib (0.8.1-1) ...
Setting up python3-kerberos (1.1.14-3.1build5) ...
Setting up ansible-core (2.17.14-1ppa~jammy) ...
Setting up sshpass (1.09-1) ...
Setting up python3-xmltodict (0.12.0-2) ...
Setting up python3-jmespath (0.10.0-1) ...
Setting up python3-requests-kerberos (0.12.0-2) ...
Setting up ansible (10.7.0-1ppa~jammy) ...
Setting up python3-nacl (1.5.0-2) ...
Setting up python3-requests-ntlm (1.1.0-1.1) ...
Setting up python3-winrm (0.3.0-2) ...
Setting up python3-paramiko (2.9.3-0ubuntu1.3) ...
Processing triggers for man-db (2.10.2-1) ...
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.
jaydenlewis@101484621-lab-11:~$
```

Verifying Ansible Version

```
jaydenlewis@101484621-lab-11: ~
jaydenlewis@101484621-lab-11:~$ sudo ansible --version
ansible [core 2.17.14]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/root/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /root/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.12 (main, Aug 15 2025, 14:32:43) [GCC 11.4.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
jaydenlewis@101484621-lab-11:~$
```

Cloning Repository & Running .yaml File

```
jaydenlewis@101484621-lab-11: ~/devops_ansible_playbooks/tiger
jaydenlewis@101484621-lab-11:~$ git clone https://github.com/pritamworld/devops_ansible_playbooks.git
Cloning into 'devops_ansible_playbooks'...
remote: Enumerating objects: 113, done.
remote: Counting objects: 100% (89/89), done.
remote: Compressing objects: 100% (72/72), done.
remote: Total 113 (delta 35), reused 14 (delta 2), pack-reused 24 (from 1)
Receiving objects: 100% (113/113), 31.04 KiB | 7.76 MiB/s, done.
Resolving deltas: 100% (39/39), done.
jaydenlewis@101484621-lab-11:~$ cd devops_ansible_playbooks
jaydenlewis@101484621-lab-11:~/devops_ansible_playbooks$ cd tiger
jaydenlewis@101484621-lab-11:~/devops_ansible_playbooks/tiger$ sudo ansible-playbook barebones_ansible.yml
[WARNING]: provided hosts list is empty, only localhost is available. Note that the implicit localhost does not
match 'all'

PLAY [Install Java, Docker, Jenkins (reference install)] *******************************************

TASK [Gathering Facts] ****************************************************************************
ok: [localhost]

TASK [Install base packages] *********************************************************************
changed: [localhost]

TASK [Ensure keyrings directory exists] *********************************************************
ok: [localhost]

TASK [Download Jenkins GPG key] ******************************************************************
changed: [localhost]

TASK [Configure Jenkins APT repository] ********************************************************
changed: [localhost]

TASK [Update APT cache after adding Jenkins repo] *********************************************
changed: [localhost]

TASK [Install Jenkins] ***************************************************************************
changed: [localhost]

PLAY RECAP ****************************************************************************************
localhost                  : ok=7    changed=5    unreachable=0    failed=0    skipped=0    rescued=0    ignored=
0

jaydenlewis@101484621-lab-11:~/devops_ansible_playbooks/tiger$
```

Running PlayBook1.yml Sample

Running part1.yaml Sample

```
jaydenlewis@101484621-lab-11: ~/devops_ansible_playbooks/assignment2                    —    □    ✕
jaydenlewis@101484621-lab-11:~/devops_ansible_playbooks/lion$ cd ../assignment2
jaydenlewis@101484621-lab-11:~/devops_ansible_playbooks/assignment2$ sudo ansible-playbook part1.yaml
[WARNING]: provided hosts list is empty, only localhost is available. Note that the implicit localhost does not
match 'all'

PLAY [Install Java 21, Jenkins, Docker, Git, Node.js and Python on Azure VM] ********************************

TASK [Gathering Facts] *******************************************************************************
ok: [localhost]

TASK [Update APT cache] ******************************************************************************
ok: [localhost]

TASK [Install OpenJDK 21 (Java 21)] ******************************************************************
changed: [localhost]

TASK [Install Docker prerequisites] ******************************************************************
ok: [localhost]

TASK [Add Docker GPG key] ****************************************************************************
changed: [localhost]

TASK [Add Docker APT repository] *********************************************************************
changed: [localhost]

TASK [Update APT cache after adding Docker repo] ****************************************************
changed: [localhost]

TASK [Install Docker Engine] *************************************************************************
changed: [localhost]

TASK [Ensure Docker is enabled and started] ********************************************************
ok: [localhost]

TASK [Install Git] ***********************************************************************************
ok: [localhost]

TASK [Install Node.js and npm (Ubuntu repo version)] **********************************************
changed: [localhost]

TASK [Install Python 3 and pip] ********************************************************************
changed: [localhost]

PLAY RECAP *******************************************************************************************
localhost                  : ok=12    changed=7    unreachable=0    failed=0    skipped=0    rescued=0    ignored=
0

jaydenlewis@101484621-lab-11:~/devops_ansible_playbooks/assignment2$
```