

Ansible Installation

1. Install Ansible on your control node using the system package manager.

```
$ sudo apt update
```

```
$ sudo apt install software-properties-common
```

```
$ sudo add-apt-repository --yes --update ppa:ansible/ansible
```

```
$ sudo apt install ansible
```

Error/Warning: If user not in the sudoers list, run the following commands

- su
- sudo usermod -aG sudo "username"
- su "username"

```
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC: ~
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC: $ sudo apt update
[sudo] password for student:
Get:1 https://dl.google.com/linux/chrome/deb stable InRelease [1,825 B]
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:3 http://ln.archive.ubuntu.com/ubuntu jammy InRelease
Get:4 https://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,078 B]
Hit:5 http://oem.archive.canonical.com jammy InRelease
Hit:6 https://ppa.launchpadcontent.net/ubuntu-toolchain-r/test/ubuntu jammy InRelease
Get:7 http://ln.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:8 https://ppa.launchpadcontent.net/wreshark-dev/stable/ubuntu jammy InRelease
Hit:9 http://hp.archive.canonical.com jammy InRelease
Get:10 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [445 kB]
Hit:11 https://repos.data-science-hp.com/stackman/ubuntu/focal InRelease
Get:12 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1,346 kB]
Hit:13 http://ln.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:14 http://ln.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1,562 kB]
Get:15 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [237 kB]
Get:16 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [852 kB]
Get:17 http://security.ubuntu.com/ubuntu jammy-security/universe i386 Packages [600 kB]
Get:18 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [163 kB]
Get:19 http://ln.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [611 kB]
Get:20 http://ln.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [298 kB]
Get:21 http://ln.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1,754 kB]
Get:22 http://ln.archive.ubuntu.com/ubuntu jammy-updates/restricted i386 Packages [38.1 kB]
Get:23 http://ln.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [295 kB]
Get:24 http://ln.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1,075 kB]
Get:25 http://ln.archive.ubuntu.com/ubuntu jammy-updates/universe i386 Packages [699 kB]
Get:26 http://ln.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [245 kB]
Get:27 http://ln.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [42.7 kB]
Get:28 http://ln.archive.ubuntu.com/ubuntu jammy-updates/multiverse i386 Packages [4,472 B]
Get:29 http://ln.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.4 kB]
Fetched 10.5 MB in 4s (2,299 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
492 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

```
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC: ~
492 packages can be upgraded. Run 'apt list --upgradable' to see them.
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC: $ sudo apt install software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  dmraid gtr1.2-tlnezoneapi python3-icu python3-pan rdate
  libtimezonemapapi libtimezonemap python3-icu python3-pan rdate
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  python3-software-properties software-properties-common software-properties-gtk
The following packages will be upgraded:
  python3-software-properties software-properties-common software-properties-gtk
3 upgraded, 0 newly installed, 0 to remove and 489 not upgraded.
Need to get 114 kB of archives.
After this operation, 8,192 B of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ln.archive.ubuntu.com/ubuntu jammy-updates/main amd64 software-properties-common all 0.99.22.9 [14.1 kB]
Get:2 http://ln.archive.ubuntu.com/ubuntu jammy-updates/main amd64 software-properties-gtk all 0.99.22.9 [71.3 kB]
Get:3 http://ln.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-software-properties all 0.99.22.9 [28.8 kB]
Fetched 114 kB in 1s (141 kB/s)
(Reading database ... 208195 files and directories currently installed.)
Preparing to unpack .../software-properties-common_0.99.22.9_all.deb ...
Unpacking software-properties-common (0.99.22.9) over (0.99.22.5) ...
Preparing to unpack .../software-properties-gtk_0.99.22.9_all.deb ...
Unpacking software-properties-gtk (0.99.22.9) over (0.99.22.5) ...
Preparing to unpack .../python3-software-properties_0.99.22.9_all.deb ...
Unpacking python3-software-properties (0.99.22.9) over (0.99.22.5) ...
Setting up python3-software-properties (0.99.22.9) ...
Setting up software-properties-common (0.99.22.9) ...
Setting up software-properties-gtk (0.99.22.9) ...
Processing triggers for dbus (1.12.20-2ubuntu4.1) ...
Processing triggers for shared-mime-info (2.1.2) ...
Processing triggers for mailcap (3.70+mmuubuntu1) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for libgl1:amd64 (2.72.4-0ubuntu1) ...
Processing triggers for man-db (2.10.2-1) ...
```

```

student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC:~$ sudo add-apt-repository --yes --update ppa:ansible/ansible
Repository: 'deb https://ppa.launchpadcontent.net/ansible/ansible/ubuntu/ jammy main'
Description:
Ansible is a radically simple IT automation platform that makes your applications and systems easier to deploy. Avoid writing scripts
or custom code to deploy and update your applications- automate in a language that approaches plain English, using SSH, with no agents
to install on remote systems.

http://ansible.com/

If you face any issues while installing Ansible PPA, file an issue here:
https://github.com/ansible-community/ppa/issues
More info: https://launchpad.net/~ansible/+archive/ubuntu/ansible
Adding repository.
Adding deb entry to /etc/apt/sources.list.d/ansible-ubuntu-ansible-jammy.list
Adding disabled deb-src entry to /etc/apt/sources.list.d/ansible-ubuntu-ansible-jammy.list
Adding key to /etc/apt/trusted.gpg.d/ansible-ubuntu-ansible.gpg with fingerprint 6125E2A8C77F2818FB7BD15B93C4A3FD7BB9C367
Hit:1 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:3 http://oem.archive.canonical.com jammy InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Hit:5 http://hp.archive.canonical.com jammy InRelease
Hit:6 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Get:7 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy InRelease [18.0 kB]
Hit:8 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:9 https://ppa.launchpadcontent.net/ubuntu-toolchain-r/test/ubuntu jammy InRelease
Hit:10 https://repos.data-science.hp.com/stackman/ubuntu/focal InRelease
Hit:11 https://ppa.launchpadcontent.net/wireshark-dev/stable/ubuntu jammy InRelease
Get:12 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main i386 Packages [1,128 B]
Get:13 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main amd64 Packages [1,128 B]
Get:14 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main Translation-en [752 B]
Fetched 21.1 kB in 1s (15.2 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  dmraid glr1.2-tinezonemap-1.0 glr1.2-xkl-1.0 keyutils kpartx kpartx-boot libdebiana-installer4 libdmraid1.0.0.rc16 libtinezonemap-dat
a libtinezonemapapi python3-icu python3-pam rdate
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ansible-core python-babel-localedata python3-babel python3-jinja2 python3-jmespath python3-kerberos python3-ntlm-auth python3-requests-kerberos python3-requests-ntlm python3-resolvlib python3-wlnrm
python3-xmltodict sshpass
Suggested packages:
  python-jinja2-doc
The following NEW packages will be installed:
  ansible ansible-core python-babel-localedata python3-babel python3-jinja2 python3-jmespath python3-kerberos python3-ntlm-auth python3-requests-kerberos python3-requests-ntlm python3-resolvlib
python3-wlnrm python3-xmltodict sshpass
0 upgraded, 14 newly installed, 0 to remove and 489 not upgraded.
Need to get 22.9 MB of archives.
After this operation, 221 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 python-babel-localedata all 2.8.0+dfsg.1-7 [4,982 kB]
Get:2 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main amd64 ansible-core all 2.16.5-1ppa-jammy [1,032 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 python3-babel all 2.8.0+dfsg.1-7 [85.1 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-jinja2 all 3.0.3-1ubuntu0.1 [108 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-resolvlib all 0.8.1-1 [23.6 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 python3-jmespath all 0.10.0-1 [21.7 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-kerberos amd64 1.1.14-3.1build5 [23.0 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-ntlm-auth all 1.4.0-1 [20.4 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-requests-kerberos all 0.12.0-2 [11.9 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-requests-ntlm all 1.1.0-1.1 [6,160 B]
Get:11 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-xmltodict all 0.12.0-2 [12.6 kB]
Get:12 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main amd64 ansible all 9.4.0-1ppa-jammy [16.5 MB]
Get:13 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-wlnrm all 0.3.0-2 [21.7 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 sshpass amd64 1.09-1 [11.7 kB]
Fetched 22.9 MB in 36s (644 kB/s)

Selecting previously unselected package python-babel-localedata.
(Reading database ... 208195 files and directories currently installed.)
Preparing to unpack .../00-python-babel-localedata_2.8.0+dfsg.1-7_all.deb ...
Unpacking python-babel-localedata (2.8.0+dfsg.1-7) ...
Selecting previously unselected package python3-babel.
Preparing to unpack .../01-python3-babel_2.8.0+dfsg.1-7_all.deb ...
Unpacking python3-babel (2.8.0+dfsg.1-7) ...
Selecting previously unselected package python3-jinja2.
Preparing to unpack .../02-python3-jinja2_3.0.3-1ubuntu0.1_all.deb ...
Unpacking python3-jinja2 (3.0.3-1ubuntu0.1) ...

```

2. Ensure Ansible is installed successfully

ansible - - version

Error: UTF-8 encoding expected for ansible, run the following commands

- `sudo nano /etc/default/locale`
- Update the encoding to UTF-8
`LANG="en_US.UTF-8"`
`LC_CTYPE="en_US.UTF-8"`
- (Or)
- Run the below command in terminal
`sudo update-locale LANG=en_US.UTF-8 LC_CTYPE=en_US.UTF-8`
- Restart

3. Creating SSH Key - Creates a public/private SSH key pair for secure password less access.

```
ssh-keygen -t rsa -C "devops default"
```

```
ls -la .ssh
```

```
cat .ssh/id_rsa.pub
```

```
cat .ssh/id_rsa
```

```
a12-60@a1260-ThinkStation-P330:~$ ssh-keygen -t rsa -C "devops default"
Generating public/private rsa key pair.
Enter file in which to save the key (/home/a12-60/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/a12-60/.ssh/id_rsa
Your public key has been saved in /home/a12-60/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:YAEh/GmvokUMQ5XM2q4eSbBgOLbfVRgurnY3nXQ+7T8 devops default
The key's randomart image is:
+---[RSA 3072]---+
| o=+.o..      |
| o . = ..o     |
| Boo. ooo .    |
| =B..=....     |
| .o+. o .S. .  |
| ..o.o o o + . |
| oo+ + o o o . |
| o+ o . . o E  |
| oo .          |
| .....        |
+----[SHA256]-----+
```

```
a12-60@a1260-ThinkStation-P330:~$ ls -la .ssh
total 28
drwx----- 2 a12-60 a12-60 4096 Apr 10 14:26 .
drwxr-x--- 22 a12-60 a12-60 4096 Apr 10 14:02 ..
-rw----- 1 a12-60 a12-60 568 Apr 10 14:26 authorized_keys
-rw----- 1 a12-60 a12-60 2655 Apr 10 14:14 id_rsa
-rw-r--r-- 1 a12-60 a12-60 568 Apr 10 14:14 id_rsa.pub
-rw----- 1 a12-60 a12-60 978 Apr 10 14:26 known_hosts
-rw-r--r-- 1 a12-60 a12-60 142 Apr 10 14:26 known_hosts.old
```

```
a12-60@a1260-ThinkStation-P330:~$ cat .ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGDHOM0J8AHYKgr0pa4JfR9D54ZVyeWd0FTYILt1iRZJBGtWCvIX7nQF7L7mDva2LVmw67TL3jUvEJdp9MbB56ksM3LxlcP9v2ZbEjo1PUZGQjPRVQ
MNKwGZ9gqcPNJqEweUYStZgezWqAoPcC4ZqZKEWYnyj2RXJCDqbkthGOPYZRK0EV5BcUFZ0TXA+A1Jqs3dYCHIVdo0xR4PhyoouJJrS/y4FuabkzXrK50GgmebPhcgZazoYrZjqZ2TscW0sMJGQYI
7KVvPIIreU+uohv69TqDRdcfn3jZBtapK1ExpN2DG1TNHdwt87cX1LZ9tQAPEBEFNXzHE3TCeeUuoQSk7tT//d5tAgBaChBtg/s1dbZfFe19jV3aVcWESk9Ugkdb/Mx2ShntwB434kmYLV+PE3ek
kobOxfgGN95wroGp7Nk2ORXB/zpLWA6oIP+5RuvGPK4mLeunABodK4oSPRttFUTTEren/MF/AAyFHFJ9vNqo9rdzB4KcZdhTxiW4E= devops default
```

```
a12-60@a1260-ThinkStation-P330:~$ cat .ssh/id_rsa
-----BEGIN OPENSSH PRIVATE KEY-----
b3B1bNzaC1rZktkdjEAAAAACmFlczIiNi1jdHIAAAAGVmyeXB0AAAAAGAAAABB/2JqQoG
XILaK5GdJG/wsJAAAAEAAAAEAAAGXAAAAB3NzaC1yc2EAAAADAQABAAQGDHOM0J8AHY
Kgr0pa4JfR9D54ZVyeWd0FTYILt1iRZJBGtWCvIX7nQF7L7mDva2LVmw67TL3jUvEJdp9M
bB56ksM3LxlcP9v2ZbEjo1PUZGQjPRVQMNKwGZ9gqcPNJqEweUYStZgezWqAoPcC4ZqZKE
WYnyj2RXJCDqbkthGOPYZRK0EV5BcUFZ0TXA+A1Jqs3dYCHIVdo0xR4PhyoouJJrS/y4Fu
uabkzXrK50GgmebPhcgZazoYrZjqZ2TscW0sMJGQYI7KVvPIIreU+uohv69TqDRdcfn3jZ
BtapK1ExpN2DG1TNHdwt87cX1LZ9tQAPEBEFNXzHE3TCeeUuoQSk7tT//d5tAgBaChBtG/
s1dbZfFe19jV3aVcWESk9Ugkdb/Mx2ShntwB434kmYLV+PE3ekkobOxfgGN95wroGp7N
k2ORXB/zpLWA6oIP+5RuvGPK4mLeunABodK4oSPRttFUTTEren/MF/AAyFHFJ9vNqo9rdz
B4KcZdhTxiW4EAAAOvds5TDBwQ5Nn3obG295/LjmvBEwZvXv286LC17NsU6uPA2EX1HA
eulPFUzEcJhlgNAZ5S3w0kQkjasB9/YH2TFv4Bced1w+dXg/TeJtXkbs1BLPj/SrD8oe4
AIJCLDRa4g4XLOk+ySOGNxlowsrhlEvmUL5N1LU6KU+D9zXtCnYVTQe1cbf3o45moI8ECI
BTESRUoc+YSSUQfgcbkizILTh90yw2VFMeKtZC2Z7o1pcJDJNSivC6spH9Jl1FGDvYt16G
V+VTCj5Nk+qvp54vbg28Dh0gKae3ZkucY+SVMTCo/UBLTNFQ01qn8pRjC1j33XEXJXX2Rd
POE7VRH1V0WRScfXw0/yfnjLWBZIEcmAgm5b10P21cHvPhuShLtpx0YJfXp2MRkxx5o7
/4Imw+B7omELu81rCRHoswQsBLG0d6LGENS03ZwmuoT5u4TW55Zkq3nLZB3jy/v6I39EC4
prAC10a0lm6sA6UwclH45n0Y3joLCut3vKmnERYC8d4JQBt/LTp20cONZ04q4KlueGGR3A
s9d6Baydqnlb17XG0q/ad/ryxZATHw4I/KHLZvLM4/NRXHJX3/7JE8QEchZQ5qdZv08sf
gJwgbfG4nv9H5QN0LYheQ8ux5BA823V9xynSPckpt00zJ8a1jz0z4jXdgnoCUAU1j06HyJ
ek1PplLV1860bVlwrNetJ/73C200GRHO6nMgoufaPX+Tuq7ZUA+FFkHmbXR8kyrwsVPrNo
BmpQ8FQ1ZhyLzSH50tzUYmBNW6vR5NBxf1Q8wsrDC562vYH7bruvMS75tpcdk/6G8P3U
I9FLKfCd0c9tkZjJWJBrJLyf3dbczquSHtI9q+3gkEs/KoQU0B5pgfITnY5cXqXznPvCH5
s78JE0ILW5g5jTHEHTEchSvEkjH6EH25V2kZUm3JVBDS0x9Gqgkmi6XP4s/Gpu7NA00k
Z1THEFUD9sgQDQSNCom5BaAVOpnS1pD+vK1pmFTLEaFcg7qQ1hgBUDDo8+uwHaN0kuzgk
hK2Rw08guuq5K0ajncE3LpJDCRVrEkVNDWncToGkRccyBKO/L01L4vNXJY9d4XwPrLu
Y535UFzmc/POHE7099pJLRmx1LEFXKc+gsrkQ0WAX0JvUN7LscCybdYulPXCYf+BU9X
Jw4rahFCOY/h0tV3uWLMi0KHUmEunZt8Jv+/OXHzt/XLwSX0+Ltpypd5rOkRGZt7Zvk2
C9/x/JTZYrX6P80IqTPkh4gme1N2P9yk+nPTCVI98FPccgm5AqMmgfM1K0G1LQ5C7+gch9
ZroEXfVnzobbsde1+UmdyToBxpKgc6kBJvPqeQHKtZ1xunexwQvUxwkv8NKN/U+27mU
lXaoTjmgN67Vg//10GfN0KkM2zy4vI9NE9LRSBDDUuH+gYbdRj8c0Jv0ADZMSRZNDLFLF
rFm1roqHfdkLeLooc+pcQ0Qr0bZ8bTbo1JMY0z9mW06wF0aUf0xyKde/Y8DZr+Jda1dFXp
Ew04RB1cyur35LBbbsCS2n+nrJH2HF5jo1JhUZsESu3LaR2N0S01kpHZuTueuejBRc6e32
CemNkyWLU+6EB3tOMEnbqcb6zBLXORJVeeg1Qh2HDW0uSCH1XWqW32mEYRSU66Troy2PC
LSB5f8gomoEccymqW96dufnQ5NdZPdAM5Gbk4DKw23dDMNsh6VYNks0AudVGTz15etQbcm
0sMHBxeqj1rLIC0jv/MDYv0R0ppYySa3JH61z2C0kr9MWBKprgdmBz5BoLj2p7Suzme42
5vhe3ER7HX7Xef/pxOGm3+W709uo1L7J35EV/Fk3xTTQcQcWRFYsFrevckfJWgu+9n1Wz
-----END OPENSSH PRIVATE KEY-----
```

4. Copying SSH Key to server - Enables password less SSH login by copying the key to managed nodes.

```
ssh-copy-id -i ~/.ssh/id_rsa.pub "ipaddress"
```

```
a12-60@a1260-ThinkStation-P330:~$ ssh-copy-id -i ~/.ssh/id_rsa.pub "192.168.1.160"
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/a12-60/.ssh/id_rsa.pub"
The authenticity of host '192.168.1.160 (192.168.1.160)' can't be established.
ED25519 key fingerprint is SHA256:Ncg57RfcaxEduvcaHevD6iAxlhkc9YBtkV85dTaegCI.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? ^C/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter
out any that are already installed
/usr/bin/ssh-copy-id: 183: cannot create /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_tmp_id: Directory nonexistent
/usr/bin/ssh-copy-id: 189: cannot create /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_output: Directory nonexistent
grep: /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_output: No such file or directory
/usr/bin/ssh-copy-id: 202: cannot open /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_output: No such file
cat: /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_tmp_id: No such file or directory

/usr/bin/ssh-copy-id: WARNING: All keys were skipped because they already exist on the remote system.
(if you think this is a mistake, you may want to use -f option)
```

```
a12-60@a1260-ThinkStation-P330:~$ ls -la .ssh
total 28
drwx----- 2 a12-60 a12-60 4096 Apr 10 14:26 .
drwxr-x--- 22 a12-60 a12-60 4096 Apr 10 14:02 ..
-rw----- 1 a12-60 a12-60 568 Apr 10 14:26 authorized_keys
-rw----- 1 a12-60 a12-60 2655 Apr 10 14:14 id_rsa
-rw-r--r-- 1 a12-60 a12-60 568 Apr 10 14:14 id_rsa.pub
-rw----- 1 a12-60 a12-60 978 Apr 10 14:26 known_hosts
-rw-r--r-- 1 a12-60 a12-60 142 Apr 10 14:26 known_hosts.old
```

```
a12-60@a1260-ThinkStation-P330:~$ cat .ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgQDHOM0J8AHYKgroPa4JfR9D54ZVyeWd0FTYILti1RZJBGTWCIX7nQF7L7mDVa2LVmw67Tl3jUvEJdp9MbBs6ksM3LxlcP9v2zbEjoLPuzGQjPRVQ
MNKwGZ9gqcPNJqEweUVStZgezWqAopcC4ZqzKEWYnyjj2RXJCDqbkthGOpYZRK0EV5BcUF20TXA+AIJqs3dYCHIVdo0xR4PhyooUJJrS/y4FuabkzXrK50GGmebPhcgZazoYrZjqZ2TScW0sMJGQYI
7KVwPIIreU+u0hv69TqDRDcfj3jZ2BtapK1ExpNZ2DG1TNHdwt87cX1iZ9tQAPEBEFNXZHE3TCeeUuoQ5k7tI//d5tAgBaChBtG/s1dbZfFe19jV3aVcwe5k9Ugkdb/Mx25hntwB434kmVLv+PE3ek
kob0xfkGN95wroGp7Nk20RXb/zpLWA6oIP+5RuvGPK4mLeunABodK4oSPRttfUTTEren/Mf/AayfHFJ9vNqo9rdzB4KcZdhTxIw4E= devops default
```

5. Testing the new Key - Verifies successful login to remote servers without a password.

```
ssh -i ~/.ssh/"keyname" "ipaddress"
```

Error: port 22, Connection Refused, run the following commands

```
sudo apt install openssh-server
sudo systemctl restart sshd
```

```
a12-60@a1260-ThinkStation-P330:~$ ssh-copy-id -i ~/.ssh/id_rsa.pub "192.168.1.160"
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/a12-60/.ssh/id_rsa.pub"
The authenticity of host '192.168.1.160 (192.168.1.160)' can't be established.
ED25519 key fingerprint is SHA256:Ncg57RfcaxEduvcaHevD6iAxlhkc9YBtkV85dTaegCI.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? ^C/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter
out any that are already installed
/usr/bin/ssh-copy-id: 183: cannot create /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_tmp_id: Directory nonexistent
/usr/bin/ssh-copy-id: 189: cannot create /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_output: Directory nonexistent
grep: /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_output: No such file or directory
/usr/bin/ssh-copy-id: 202: cannot open /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_output: No such file
cat: /home/a12-60/.ssh/ssh-copy-id.BXoz6WMA3p/popids_tmp_id: No such file or directory

/usr/bin/ssh-copy-id: WARNING: All keys were skipped because they already exist on the remote system.
(if you think this is a mistake, you may want to use -f option)
```

6. Connecting to Server - ssh "Ip address"

```
a12-60@a1260-ThinkStation-P330:~$ ssh 192.168.1.160
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 6.5.0-26-generic x86_64)

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

 * Introducing Expanded Security Maintenance for Applications.
   Receive updates to over 25,000 software packages with your
   Ubuntu Pro subscription. Free for personal use.

https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

111 updates can be applied immediately.
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

The list of available updates is more than a week old.
To check for new updates run: sudo apt update
```

7. Create Inventory File - Lists all managed servers in a structured format for Ansible to use.

```
sudo nano inventory
```

```
[servers]
192.168.1.219
192.168.1.218
```

8. Ansible Command to connect with repository provided in the inventory

```
ansible all --key-file ~/.ssh/id_rsa -i inventory -m ping
```

Error: If permission Denied, run – “chmod 600 ~/.ssh

Inventory Testing - ansible all -i inventory -m ping

```
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC:~/Ansible$ ansible all --key-file ~/.ssh/ansible -i inventory -m ping
192.168.1.219 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
192.168.1.218 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
```

9. Creating playbook named playbook.yml

```
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC:~/Ansible$ sudo nano playbook.yml
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC:~/Ansible$ ansible-playbook -i inventory
```

playbook.yml

```
---
# This playbook prints a simple debug message
- name: Echo
  hosts: servers
  connection: local
  tasks:
    - name: Print debug message
      debug:
        msg: Hello, world!
```

Executing playbook - ansible-playbook -i inventory playbook.yml

```
student@student-HP-Z2-Tower-G9-Workstation-Desktop-PC:~/Ansible$ ansible-playbook -i inventory playbook.yml
PLAY [Echo] *****
TASK [Gathering Facts] *****
ok: [192.168.1.218]
ok: [192.168.1.219]
TASK [Print debug message] *****
ok: [192.168.1.219] => {
  "msg": "Hello, world!"
}
ok: [192.168.1.218] => {
  "msg": "Hello, world!"
}
PLAY RECAP *****
192.168.1.218      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
192.168.1.219      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```