

**Step 1 Setup the docker containers and check in the control node if Ansible is installed.**

```
exit
nidhi@Nidhi:/mnt/c/Users/nidhi/BCDV_4033/ansible/lab$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
efc3bdc236da   node2     "/usr/sbin/sshd -D"      3 hours ago   Up 3 hours    22/tcp         node2
7154d7f692b5   ansible   "/bin/bash"             3 hours ago   Up 3 hours                    ansible
f9c65f67de38   node1     "/usr/sbin/sshd -D"      3 hours ago   Up 3 hours    22/tcp         node1
nidhi@Nidhi:/mnt/c/Users/nidhi/BCDV_4033/ansible/lab$ docker exec -it ansible bash
root@7154d7f692b5:/# ansible --version
ansible [core 2.16.3]
  config file = None
  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 = 3.12.3 (main, Apr 10 2024, 05:33:47) [GCC 13.2.0] (/usr/bin/python3)
  jinja version = 3.1.2
  libyaml = True
root@7154d7f692b5:/#
```

**Step 2 Setup the docker containers and ssh into the remote nodes from the control node.**

```
root@7154d7f692b5:/# ssh root@node1
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 19:32:53 2024 from 172.18.0.2
root@f9c65f67de38:~#
```

```
nidhi@Nidhi:/mnt/c/Users/nidhi/BCDV_4033/BCDV-4033/ansible/lab$ docker exec -it ansible bash
root@7154d7f692b5:/# ssh root@node2
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 19:45:53 2024 from 172.18.0.3
root@efc3bdc236da:~#
```

### Step 3 Try to create a directory using the ad-hoc command. Present screenshots of the successful ansible run and directory in the nodes

```
root@7154d7f692b5:/# ansible all -i inventory.txt -m ping
host1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
host2 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
root@7154d7f692b5:/#
```

```
/dev/sde      1007G   22G  935G   3% /etc/hosts
tmpfs         1.9G     0  1.9G   0% /proc/acpi
tmpfs         1.9G     0  1.9G   0% /sys/firmware

root@7154d7f692b5:/# ansible host2 -i inventory.txt -m apt -a "name=curl state=present" -b
host2 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "cache_update_time": 1718299376,
  "cache_updated": false,
  "changed": true,
  "stderr": "debconf: delaying package configuration, since apt-utils is not installed\n",
  "stderr_lines": [
    "debconf: delaying package configuration, since apt-utils is not installed"
  ],
  "stdout": "Reading package lists...\nBuilding dependency tree...\nReading state information...\n\nThe following additional packages will be installed:\n libasn1-8-heimdal libbrotli1 libcurl4 libgssapi3-heimdal libhcrypto4-heimdal libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libkrb5-26-heimdal libldap-2.4-2 libldap-common libnghttp2-14 libroken18-heimdal librtmp1 libssl2-2 libssh-4 libwind0-heimdal\n\nSuggested packages:\n libasn1-modules-gssapi-mit | libasn1-modules-gssapi-heimdal libasn1-modules-ldap libasn1-modules-otp libasn1-modules-sql\n\nThe following NEW packages will be installed:\n curl libasn1-8-heimdal libbrotli1 libcurl4 libgssapi3-heimdal libhcrypto4-heimdal libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libkrb5-26-heimdal libldap-2.4-2 libldap-common libnghttp2-14 libroken18-heimdal librtmp1 libssl2-2 libssh-4 libwind0-heimdal\n\n0 upgraded, 20 newly installed, 0 to remove and 0 not upgraded.\nNeed to get 2068 kB of archives.\nAfter this operation, 6921 kB of additional disk space will be used.\nGet:1 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libbrotli1 amd64 1.0.7-6ubuntu0.1 [267 kB]\nGet:2 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libroken18-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [42.5 kB]\nGet:3 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libasn1-8-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [181 kB]\nGet:4 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libheimbase1-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [30.4 kB]\nGet:5 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libhcrypto4-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [88.1 kB]\nGet:6 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libwind0-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [47.7 kB]\nGet:7 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libhx509-5-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [207 kB]\nGet:8 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libkrb5-26-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [207 kB]\nGet:9 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libheimntlm0-heimdal amd64 7.7.0+dfsg-1ubuntu1.4 [15.1 kB]\nGet:10 http://archive.ubuntu.com/ubuntu focal-upda
```

```
nidhi@nidhi:/mnt/c/Users/nidhi/BCDV_4033/BCDV-4033/ansible/lab$ docker exec -it ansible bash
root@7154d7f692b5:/# ansible all -i /inventory.txt -m file -a "path=~/.test state=directory"
host1 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "gid": 0,
  "group": "root",
  "mode": "0755",
  "owner": "root",
  "path": "/root/.test",
  "size": 4096,
  "state": "directory",
  "uid": 0
}
host2 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "gid": 0,
  "group": "root",
  "mode": "0755",
  "owner": "root",
  "path": "/root/.test",
  "size": 4096,
  "state": "directory",
  "uid": 0
}
```

## Step 4 Create the file playbook yml and create file in both nodes. Show using screenshot that you have successfully created the file using playbook

```

root@f9c65f67de38:~# exit
logout
Connection to node1 closed.
root@7154d7f692b5:~# ansible-playbook create-file.yml -i inventory.txt

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [host1]
ok: [host2]

TASK [create a file] *****
changed: [host2]
changed: [host1]

PLAY RECAP *****
host1      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
host2      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

```

root@7154d7f692b5:~# ssh root@node1
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 18:05:28 2024 from 172.18.0.2
root@f9c65f67de38:~# ls /tmp/file-playbook1
/tmp/file-playbook1
root@f9c65f67de38:~#

```

```

root@7154d7f692b5:~# ssh root@node2
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 18:05:28 2024 from 172.18.0.2
root@efc3bdc236da:~# ls /tmp/file-playbook1
/tmp/file-playbook1
root@efc3bdc236da:~#

```

## Step 5 Create a new playbook to delete the file you created previously. Submit screenshots for the playbook run and screenshots that the file has been deleted from both nodes

```
nidhi@Nidhi:/mnt/c/Users/nidhi/BCDV_4033/BCDV-4033/ansible/lab$ docker exec -it ansible bash
root@7154d7f692b5:/# ls
bin boot create-file.yml dev etc home inventory.txt lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@7154d7f692b5:/# nano delete-file.yml
bash: nano: command not found
root@7154d7f692b5:/# vi delete-file.yml
root@7154d7f692b5:/# ls
bin boot create-file.yml delete-file.yml dev etc home inventory.txt lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@7154d7f692b5:/# ansible-playbook delete-file.yml -i inventory.txt

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [host2]
ok: [host1]

TASK [delete the file] *****
changed: [host1]
changed: [host2]

PLAY RECAP *****
host1      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
host2      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
nidhi@Nidhi:/mnt/c/Users/nidhi/BCDV_4033/BCDV-4033/ansible/lab$ docker exec -it ansible bash
root@7154d7f692b5:/# ssh root@node1
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 18:10:21 2024 from 172.18.0.2
root@f9c65f67de38:~# ls /tmp/file-playbook1
ls: cannot access '/tmp/file-playbook1': No such file or directory
root@f9c65f67de38:~#
```

```
root@7154d7f692b5:/# ssh root@node2
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 18:11:04 2024 from 172.18.0.3
root@efc3bdc236da:~# ls /tmp/file-playbook1
ls: cannot access '/tmp/file-playbook1': No such file or directory
root@efc3bdc236da:~#
root@efc3bdc236da:~#
```



## Step 6 Create a new playbook for test group and demonstrate using the playbook output that you have updated only the test node

```
nidhi@Nidhi:/mnt/c/Users/nidhi/BCDV_4033/BCDV-4033/ansible/lab$ docker exec -it ansible bash
root@7154d7f692b5:/# ls
bin  create-file-test.yml  delete-file.yml  etc  inventory.txt  lib64  mnt  proc  run  srv  tmp  var
boot  create-file.yml       dev             home  lib           media  opt  root  sbin  sys  usr

root@7154d7f692b5:/# ansible-playbook create-file-test.yml

PLAY [test] *****

TASK [Gathering Facts] *****
ok: [host2]

TASK [create a file] *****
changed: [host2]

PLAY RECAP *****
host2                : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

root@7154d7f692b5:/# ssh root@node2
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

```
root@7154d7f692b5:/# ssh root@node2
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 18:42:01 2024 from 172.18.0.2
root@efc3bdc236da:~# cd /tmp
root@efc3bdc236da:/tmp#
root@efc3bdc236da:/tmp# ls
file-playbook1
root@efc3bdc236da:/tmp# ls file-playbook1
file-playbook1
root@efc3bdc236da:/tmp# ls file-playbook1
file-playbook1
root@efc3bdc236da:/tmp#
```

**Step 7 Install Nodejs using nodejs yaml. There is a issue with yaml file you need to fix it. Once installed you will get the node and npm version screenshots. Also, the successful playbook run screenshot.**

```
nidhi@Nidhi:/mnt/c/Users/nidhi/BCDV_4033/BCDV-4033/ansible/lab$ docker exec -it ansible bash
root@7154d7f692b5:/# ansible-playbook nodejs.yaml

PLAY [all] *****
TASK [Gathering Facts] *****ok: [host1]
ok: [host2]

TASK [Update apt cache] *****
ok: [host1]
ok: [host2]

TASK [Install Node.js dependencies] *****
ok: [host1] => (item=curl)
ok: [host2] => (item=curl)
ok: [host1] => (item=software-properties-common)
ok: [host2] => (item=software-properties-common)

TASK [Add NodeSource repository] *****
ok: [host2]
changed: [host1]

TASK [Install Node.js] *****
ok: [host2]
changed: [host1]

TASK [Install build-essential] *****
ok: [host2]
changed: [host1]

PLAY RECAP *****
host1      : ok=6   changed=3   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0
host2      : ok=6   changed=0   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0

root@7154d7f692b5:/#
```

```
root@7154d7f692b5:/# ssh root@node1
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 18:53:39 2024 from 172.18.0.2
root@efc65f67de38:~# node -v
v14.21.3
root@efc65f67de38:~# npm -v
6.14.18
root@efc65f67de38:~# exit
logout
Connection to node1 closed.
```

```
root@7154d7f692b5:/# ssh root@node2
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 18:53:39 2024 from 172.18.0.2
root@efc3bdc236da:~# node -v
v14.21.3
root@efc3bdc236da:~#
root@efc3bdc236da:~# npm -v
6.14.18
root@efc3bdc236da:~#
```



## Step 8 Use the example node.yaml and clone the Lab 1 repo to both the nodes. Build the node modules

```
TASK [Add NodeSource repository] *****
ok: [host2]
ok: [host1]

TASK [Install Node.js] *****
ok: [host1]
ok: [host2]

TASK [Install build-essential] *****
ok: [host1]
ok: [host2]

TASK [Install Git] *****
ok: [host1]
ok: [host2]

TASK [Clone Lab 1 repo to Node 1] *****
ok: [host1]
ok: [host2]

TASK [Install Node.js dependencies in Lab 1 repo on Node 1] *****
ok: [host1]
ok: [host2]

PLAY RECAP *****
host1      : ok=9    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
host2      : ok=9    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
root@7154d7f692b5:~# ssh root@node2
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 19:32:32 2024 from 172.18.0.2
root@efc3bdc236da:~# cd /home/ubuntu/LAB1
root@efc3bdc236da:/home/ubuntu/LAB1# ls
README.md  simple-npm-project
root@efc3bdc236da:/home/ubuntu/LAB1#
```

```
root@7154d7f692b5:~# ssh root@node1
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.133.1-microsoft-standard-WSL2 x86_64)

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

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Thu Jun 13 19:32:32 2024 from 172.18.0.2
root@f9c65f67de38:~# cd /home/ubuntu/LAB1
root@f9c65f67de38:/home/ubuntu/LAB1# ls
README.md  simple-npm-project
root@f9c65f67de38:/home/ubuntu/LAB1#
```