

SETTING UP

```
noelmathen@MATHEN: ~/ans: X + v
noelmathen@MATHEN:~$ sudo apt update && sudo apt upgrade -y
[sudo] password for noelmathen:
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [896 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [165 kB]
Get:8 http://archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1144 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [242 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [161 kB]
Get:19 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [13.5 kB]
Get:20 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1086 kB]
Get:21 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [7068 B]
Get:22 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [276 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [377 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [26.0 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [1224 kB]
Get:26 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [858 kB]
Get:27 http://archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [256 kB]
Get:28 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
```

```
noelmathen@MATHEN: ~/ans: X + v
noelmathen@MATHEN:~$ sudo apt install -y software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
software-properties-common is already the newest version (0.99.49.2).
software-properties-common set to manually installed.
The following package was automatically installed and is no longer required:
  libllvm17t64
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
noelmathen@MATHEN:~$ sudo add-apt-repository --yes --update ppa:ansible/ansible
Repository: 'Types: deb
URIs: https://ppa.launchpadcontent.net/ansible/ansible/ubuntu/
Suites: noble
Components: 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.
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://security.ubuntu.com/ubuntu noble-security InRelease
```

```
noelmathen@MATHEN: ~/an: X + ~  
noelmathen@MATHEN:~$ sudo apt install -y ansible python3-pip  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following package was automatically installed and is no longer required:  
  libllvm17t64  
Use 'sudo apt autoremove' to remove it.  
The following additional packages will be installed:  
  ansible-core build-essential bzip2 cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu dpkg-dev fakeroot g++  
  g++-13 g++-13-x86-64-linux-gnu g++-x86-64-linux-gnu gcc gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu  
  gcc-x86-64-linux-gnu javascript-common libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl  
  libaom3 libasan8 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libde265-0 libdpkg-perl  
  libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-13-dev libgd3 libgomp1 libheif-plugin-aomdec  
  libheif-plugin-aomenc libheif-plugin-libde265 libheif1 libhwasan0 libisl23 libitm1 libjs-jquery libjs-sphinxdoc  
  libjs-underscore liblsan0 libmpc3 libpython3-dev libpython3.12-dev libquadmath0 libstdc++-13-dev libtsan2 libubsan1  
  libxpm4 linux-libc-dev lto-disabled-list make manpages-dev python3-dev python3-jmespath python3-kerberos  
  python3-nacl python3-ntlm-auth python3-packaging python3-paramiko python3-requests-ntlm python3-resolvelib  
  python3-wheel python3-winnn python3-xmltodict python3.12-dev rpcsvc-proto sshpass zlib1g-dev  
Suggested packages:  
  bzip2-doc cpp-doc gcc-13-locales cpp-13-doc debian-keyring g++-multilib g++-13-multilib gcc-13-doc gcc-multilib  
  autoconf automake libtool flex bison gdb gcc-doc gcc-13-multilib gdb-x86-64-linux-gnu apache2 | lighttpd | httpd  
  glibc-doc bzip libgd-tools libheif-plugin-x265 libheif-plugin-ffmpegdec libheif-plugin-jpegdec libheif-plugin-jpegenc  
  libheif-plugin-j2kdec libheif-plugin-j2kenc libheif-plugin-rav1e libheif-plugin-svtenc libstdc++-13-doc make-doc  
  python-nacl-doc python3-gssapi python3-invoke  
The following NEW packages will be installed:  
  ansible ansible-core build-essential bzip2 cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu dpkg-dev fakeroot  
  g++ g++-13 g++-13-x86-64-linux-gnu g++-x86-64-linux-gnu gcc gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu  
  gcc-x86-64-linux-gnu javascript-common libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl  
  libaom3 libasan8 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libde265-0 libdpkg-perl  
  libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-13-dev libgd3 libgomp1 libheif-plugin-aomdec  
noelmathen@MATHEN:~$ ansible --version  
ansible [core 2.18.6]  
  config file = /etc/ansible/ansible.cfg  
  configured module search path = ['/home/noelmathen/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']  
  ansible python module location = /usr/lib/python3/dist-packages/ansible  
  ansible collection location = /home/noelmathen/.ansible/collections:/usr/share/ansible/collections  
  executable location = /usr/bin/ansible  
  python version = 3.12.3 (main, Jun 18 2025, 17:59:45) [GCC 13.3.0] (/usr/bin/python3)  
  jinja version = 3.1.2  
  libyaml = True  
noelmathen@MATHEN:~$ mkdir ~/ansible-lab && cd ~/ansible-lab
```

PROBLEM STATEMENT 1

```
noelmathen@MATHEN:~/ansible-lab$ cat > inventory.ini <<EOF  
[webservers]  
# For a real remote host, replace 127.0.0.1 with its IP or hostname  
127.0.0.1 ansible_connection=local  
EOF
```

```

noelmathen@MATHEN:~/ansible-lab$ cat > site.yml <<'EOF'
- name: Deploy Project Website
  hosts: webservers
  become: yes

  vars:
    app_repo: https://github.com/your-user/your-website.git
    app_dest: /var/www/html

  tasks:
    - name: Install Nginx
      apt:
        name: nginx
        state: present
        update_cache: yes
      tags: install

    - name: Ensure application directory exists
      file:
        path: "{{ app_dest }}"
        state: directory
      tags: deploy

    - name: Clone website repository
      git:
        repo: "{{ app_repo }}"
        dest: "{{ app_dest }}"
        version: main
      tags: deploy

EOF    tags: configuredenable nginx

```

```

noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i inventory.ini site.yml --ask-become-pass
BECOME password:

PLAY [Deploy Project Website] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but
future installation of another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible-core/2.18/reference\_appendices/interpreter\_discovery.html for more information.
ok: [127.0.0.1]

TASK [Install Nginx] *****
changed: [127.0.0.1]

TASK [Ensure application directory exists] *****
ok: [127.0.0.1]

TASK [Clone website repository] *****
Username for 'https://github.com': |

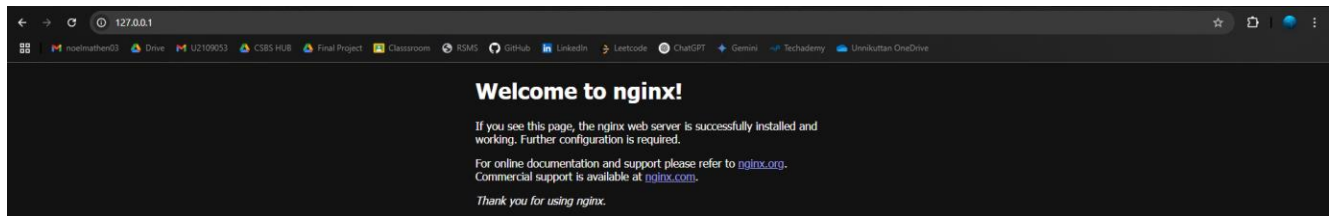
```

```

noelmathen@MATHEN:~/ansible-lab$ systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Mon 2025-06-23 09:33:17 UTC; 2min 1s ago
     Docs: man:nginx(8)
  Process: 9020 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 9022 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 9023 (nginx)
    Tasks: 13 (limit: 4288)
  Memory: 8.9M (peak: 10.8M swap: 36.0K swap peak: 36.0K)
    CPU: 79ms
   CGroup: /system.slice/nginx.service
           └─9023 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             └─9024 "nginx: worker process"
               └─9025 "nginx: worker process"
                 └─9026 "nginx: worker process"
                   └─9028 "nginx: worker process"
                     └─9029 "nginx: worker process"
                       └─9030 "nginx: worker process"
                        └─9031 "nginx: worker process"
                          └─9032 "nginx: worker process"
                           └─9033 "nginx: worker process"
                            └─9034 "nginx: worker process"
                             └─9035 "nginx: worker process"
                              └─9036 "nginx: worker process"

Jun 23 09:33:17 MATHEN systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Jun 23 09:33:17 MATHEN systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
noelmathen@MATHEN:~/ansible-lab$

```



PROBLEM STATEMENT 2

```

noelmathen@MATHEN:~/ansible-lab$ cat > dynamic.py <<'EOF'
#!/usr/bin/env python3
import json

inventory = {
    "webservers": {
        "hosts": ["127.0.0.1"],
        "vars": {"ansible_connection": "local"}
    },
    "_meta": {"hostvars": {}}
}
print(json.dumps(inventory))
EOF
noelmathen@MATHEN:~/ansible-lab$ dos2unix dynamic.py
dos2unix: converting file dynamic.py to Unix format...
noelmathen@MATHEN:~/ansible-lab$ chmod +x dynamic.py

```

```

noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py site.yml --tags web -K
BECOME password:

PLAY [Tasks for webservers only] *****

TASK [Gathering Facts] *****
|

```

```

noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py site.yml --tags db -K
BECOME password:

PLAY [Tasks for webserver only] *****

PLAY [Tasks for dbserver only] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but
future installation of another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible-core/2.18/reference\_appendices/interpreter\_discovery.html for more information.
ok: [127.0.0.1]

TASK [Install MySQL on dbserver] *****
changed: [127.0.0.1]

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

noelmathen@MATHEN:~/ansible-lab$

```

```

noelmathen@MATHEN:~/ansible-lab$ ansible-vault create creds.yml
New Vault password:
Confirm New Vault password:
noelmathen@MATHEN:~/ansible-lab$ ansible-vault create creds.yml
New Vault password:
Confirm New Vault password:
ERROR! creds.yml exists, please use 'edit' instead
noelmathen@MATHEN:~/ansible-lab$ ansible-vault rekey creds.yml
Vault password:
New Vault password:
Confirm New Vault password:
Rekey successful
noelmathen@MATHEN:~/ansible-lab$

```

```

noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py site.yml --tags web --ask-vault-pass -K
BECOME password:
Vault password:

PLAY [Tasks for webserver only] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but
future installation of another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible-core/2.18/reference\_appendices/interpreter\_discovery.html for more information.
ok: [127.0.0.1]

TASK [Install Nginx on webserver] *****
ok: [127.0.0.1]

PLAY [Tasks for dbserver only] *****

PLAY [Use vaulted credentials] *****

TASK [Gathering Facts] *****
ok: [127.0.0.1]

PLAY RECAP *****
127.0.0.1 : ok=3 changed=0 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

noelmathen@MATHEN:~/ansible-lab$

```

```
ansible.cfg
1  # ansible.cfg
2  [defaults]
3  inventory = ./dynamic.py
4  host_key_checking = False
```

```
! site.yml
1  #site.yml
2  - name: Tasks for webservers only
3    hosts: webservers
4    connection: local
5    become: yes
6    tags: web
7    tasks:
8      - name: Install Nginx on webservers
9        apt:
10          name: nginx
11          state: present
12
13  - name: Tasks for dbservers only
14    hosts: dbservers
15    connection: local
16    become: yes
17    tags: db
18    tasks:
19      - name: Install MySQL on dbservers
20        apt:
21          name: mysql-server
22          state: present
23
24  - name: Use vaulted credentials
25    hosts: webservers
26    connection: local
27    become: yes
28    vars_files:
29      - creds.yml
30
31    tasks:
32      - name: Show the DB password (for demo)
33        debug:
34          var: db_password
```

```

dynamic.py > ...
1  #dynamic.py
2
3  #!/usr/bin/env python3
4  import json
5
6  inventory = {
7      "webservers": {
8          "hosts": ["127.0.0.1"],
9          "vars": {"ansible_connection": "local"}
10     },
11     "dbservers": {
12         "hosts": ["127.0.0.1"],
13         "vars": {"ansible_connection": "local"}
14     },
15     "_meta": {"hostvars": {}}
16 }
17
18 print(json.dumps(inventory))

```

```

! creds.yml
1  #creds.yml
2  $ANSIBLE_VAULT;1.1;AES256
3  65396462323466663733623834386263386436333965383734383339373232663635623931346635
4  3234313062346537343961316466316263373133653361370a353239303730633163353931653634
5  36353863623236376435653535636532356235316637383165333632653236383234623064386534
6  3666346236653736370a613031306162326666313731643738633634373464316363666337666535
7  6238
8

```

```

inventory.ini
1  [webservers]
2  # For a real remote host, replace 127.0.0.1 with its IP or hostname
3  127.0.0.1 ansible_connection=local

```

PROBLEM STATEMENT 3


```

noelmathen@MATHEN:~$ cd ansible-lab/
noelmathen@MATHEN:~/ansible-lab$ ansible-galaxy init webserver_role
- Role webserver_role was created successfully
noelmathen@MATHEN:~/ansible-lab$ ansible-galaxy init dbserver_role
- Role dbserver_role was created successfully
noelmathen@MATHEN:~/ansible-lab$ cat > ps3.yml <<'EOF'
---
- name: Configure Web Servers
  hosts: webserver
  connection: local
  become: yes
  tags: web
  roles:
    - webserver_role

- name: Configure DB Servers
  hosts: dbserver
  connection: local
  become: yes
  tags: db
  roles:
    - dbserver_role
EOF

```

```

noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py ps3.yml --tags web -K
BECOME password:

PLAY [Configure Web Servers] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but
future installation of another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible-core/2.18/reference\_appendices/interpreter\_discovery.html for more information.
ok: [127.0.0.1]

TASK [webserver_role : Install Nginx] *****
ok: [127.0.0.1]

TASK [webserver_role : Start and enable Nginx] *****
ok: [127.0.0.1]

PLAY [Configure DB Servers] *****

PLAY RECAP *****
127.0.0.1      : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

noelmathen@MATHEN:~/ansible-lab$

```



```
noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py ps3.yml --tags db -K
BECOME password:

PLAY [Configure Web Servers] *****

PLAY [Configure DB Servers] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but future
installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-
core/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [127.0.0.1]

TASK [dbserver_role : Install MySQL Server] *****
ok: [127.0.0.1]

TASK [dbserver_role : Start and enable MySQL] *****
ok: [127.0.0.1]

PLAY RECAP *****
127.0.0.1          : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

noelmathen@MATHEN:~/ansible-lab$ |
```

```
noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py ps3.yml -K
BECOME password:

PLAY [Configure Web Servers] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but future
installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-
core/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [127.0.0.1]

TASK [webserver_role : Install Nginx] *****
ok: [127.0.0.1]

TASK [webserver_role : Start and enable Nginx] *****
ok: [127.0.0.1]

PLAY [Configure DB Servers] *****

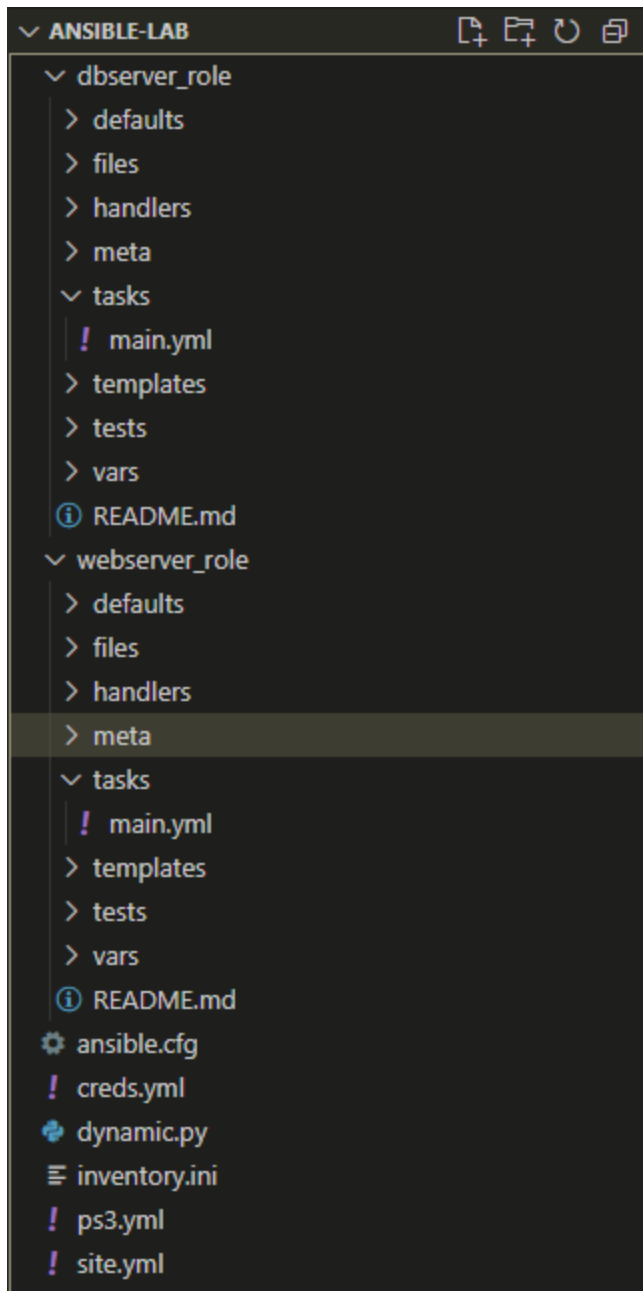
TASK [Gathering Facts] *****
ok: [127.0.0.1]

TASK [dbserver_role : Install MySQL Server] *****
ok: [127.0.0.1]

TASK [dbserver_role : Start and enable MySQL] *****
ok: [127.0.0.1]

PLAY RECAP *****
127.0.0.1          : ok=6    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

noelmathen@MATHEN:~/ansible-lab$ |
```



```
webserver_role > tasks > ! main.yml
1  ---
2  - name: Install Nginx
3    apt:
4      name: nginx
5      state: present
6      update_cache: yes
7
8  - name: Start and enable Nginx
9    service:
10     name: nginx
11     state: started
12     enabled: yes
13
```

```
dbserver_role > tasks > ! main.yml
1  ---
2  - name: Install MySQL Server
3    apt:
4      name: mysql-server
5      state: present
6      update_cache: yes
7
8  - name: Start and enable MySQL
9    service:
10     name: mysql
11     state: started
12     enabled: yes
13
```

```
! ps3.yml
1  ---
2  - name: Configure Web Servers
3    hosts: webservers
4    connection: local
5    become: yes
6    tags: web
7    roles:
8      - webserver_role
9
10 - name: Configure DB Servers
11   hosts: dbservers
12   connection: local
13   become: yes
14   tags: db
15   roles:
16     - dbserver_role
17
```

PROBLEM STATEMENT 4

```
noelmathen@MATHEN: ~/ans  X  +  v
noelmathen@MATHEN:~$ cd ~/ansible-lab
noelmathen@MATHEN:~/ansible-lab$ ansible-galaxy collection install community.docker
Starting galaxy collection install process
Nothing to do. All requested collections are already installed. If you want to reinstall them, consider using '--force'.
noelmathen@MATHEN:~/ansible-lab$ ansible-galaxy collection list | grep community.docker
community.docker                                4.6.1
noelmathen@MATHEN:~/ansible-lab$ cat > docker.yml <<'EOF'
```

```

1 ! docker.yml
2 ---
3 - name: Install and Configure Docker Engine
4   hosts: webservers
5   connection: local
6   become: yes
7
8   tasks:
9     - name: Install prerequisites
10      apt:
11        name:
12          - apt-transport-https
13          - ca-certificates
14          - curl
15          - gnupg-agent
16          - software-properties-common
17        state: present
18        update_cache: yes
19
20     - name: Add Docker GPG key
21      apt_key:
22        url: https://download.docker.com/linux/ubuntu/gpg
23        state: present
24
25     - name: Add Docker apt repository
26      apt_repository:
27        repo: deb [arch=amd64] https://download.docker.com/linux/ubuntu {{ ansible_lsb.codename }} stable
28        state: present
29
30     - name: Install Docker Engine
31      apt:
32        name:
33          - docker-ce
34          - docker-ce-cli
35          - containerd.io
36        state: present
37        update_cache: yes
38
39     - name: Ensure Docker service is running
40      service:
41        name: docker
42        state: started
43        enabled: yes
44
45     - name: Install Python Docker SDK
46      pip:
47        name: docker
48        executable: pip3
49
50 - name: Pull and Run Containers
51   hosts: webservers
52   connection: local
53   become: yes
54   vars:
55     nginx_container_name: my-nginx
56     nginx_image: nginx:latest
57     demo_container_name: web-demo
58     demo_image: noelmathen/web-demo:2.0
59   tasks:
60     - name: Pull Nginx image
61      community.docker.docker_image:
62        name: "{{ nginx_image }}"
63
64     - name: Run Nginx container
65      community.docker.docker_container:
66        name: "{{ nginx_container_name }}"
67        image: "{{ nginx_image }}"
68        state: started
69        restart_policy: always
70        ports:
71          - "8080:80"
72
73     - name: Pull your demo image
74      community.docker.docker_image:
75        name: "{{ demo_image }}"
76
77     - name: Run demo container
78      community.docker.docker_container:
79        name: "{{ demo_container_name }}"
80        image: "{{ demo_image }}"
81        state: started
82        restart_policy: always
83        ports:
84          - "8081:80"

```

```
noelmathen@MATHEN:~/ansible-lab$ ./dynamic.py --list
{"webservers": {"hosts": ["127.0.0.1"], "vars": {"ansible_connection": "local"}}, "dbservers": {"hosts": ["127.0.0.1"], "vars": {"ansible_connection": "local"}, "_meta": {"hostvars": {}}}}
noelmathen@MATHEN:~/ansible-lab$ ansible-inventory --list
{
  "_meta": {
    "hostvars": {
      "127.0.0.1": {
        "ansible_connection": "local"
      }
    }
  },
  "all": {
    "children": [
      "ungrouped",
      "webservers",
      "dbservers"
    ]
  },
  "dbservers": {
    "hosts": [
      "127.0.0.1"
    ]
  },
  "webservers": {
    "hosts": [
      "127.0.0.1"
    ]
  }
}
```

```
noelmathen@MATHEN:~/ansible-lab$ ansible-playbook docker.yml -K
BECOME password:

PLAY [Install and Configure Docker Engine] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but
future installation of another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible-core/2.18/reference\_appendices/interpreter\_discovery.html for more information.
ok: [127.0.0.1]

TASK [Install prerequisites] *****
ok: [127.0.0.1]

TASK [Add Docker GPG key] *****
ok: [127.0.0.1]

TASK [Add Docker apt repository] *****
ok: [127.0.0.1]

TASK [Install Docker Engine] *****
ok: [127.0.0.1]

TASK [Ensure Docker service is running] *****
ok: [127.0.0.1]

TASK [Install Python Docker SDK] *****
ok: [127.0.0.1]

TASK [Ensure your user can access the Docker socket] *****
ok: [127.0.0.1]

PLAY [Pull and Run Containers] *****

TASK [Gathering Facts] *****
ok: [127.0.0.1]

TASK [Pull Nginx image] *****
ok: [127.0.0.1]

TASK [Run Nginx container] *****
ok: [127.0.0.1]

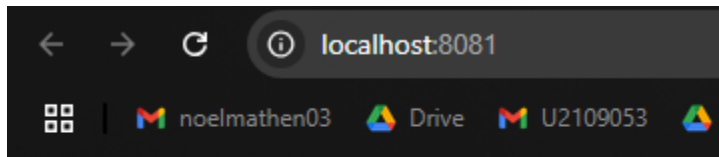
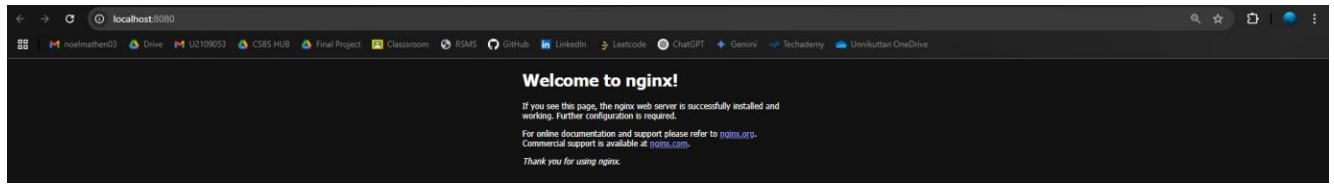
TASK [Pull your demo image] *****
ok: [127.0.0.1]

TASK [Run demo container] *****
ok: [127.0.0.1]

PLAY RECAP *****
127.0.0.1 : ok=13  changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

noelmathen@MATHEN:~/ansible-lab$ |
```

```
noelmathen@MATHEN:~/ansible-lab$ docker ps --format "table {{.Names}}\t{{.Image}}\t{{.Ports}}"
NAMES      IMAGE                PORTS
web-demo   noelmathen/web-demo:2.0  0.0.0.0:8081->80/tcp
my-nginx   nginx:latest          0.0.0.0:8080->80/tcp
noelmathen@MATHEN:~/ansible-lab$ |
```



Hello from v2.0

PROBLEM STATEMENT 5

```
library > my_ping.py > ...
1  #!/usr/bin/env python3
2  from ansible.module_utils.basic import AnsibleModule
3
4  def main():
5      module = AnsibleModule(argument_spec={})
6      rc, out, err = module.run_command(['ping', '-c', '1', '8.8.8.8'])
7      if rc == 0:
8          module.exit_json(changed=False, msg=out.strip())
9      else:
10         module.fail_json(msg=err.strip())
11
12 if __name__ == '__main__':
13     main()
14
```

filter_plugins > custom_filters.py > ...

```
1  def reverse_string(value):  
2      return value[::-1]  
3  
4  class FilterModule(object):  
5      def filters(self):  
6          return {  
7              'reverse': reverse_string  
8          }  
9
```



```
! ps5.yml
1  ---
2  - name: Shell-based ping
3    hosts: webservers
4    connection: local
5    become: yes
6    tags: shell_ping
7
8    tasks:
9      - name: Ping via shell
10        shell: ping -c1 8.8.8.8
11        register: ping_shell
12        ignore_errors: yes
13
14      - name: Show shell ping output
15        debug:
16          var: ping_shell.stdout_lines
17
18  - name: Custom Python ping
19    hosts: webservers
20    connection: local
21    become: yes
22    tags: custom_ping
23
24    tasks:
25      - name: Ping via my_ping module
26        my_ping:
27          register: ping_custom
28          ignore_errors: yes
29
30      - name: Show custom ping result
31        debug:
32          var: ping_custom
33
34  - name: Filter plugin demonstration
35    hosts: webservers
36    connection: local
37    become: no
38    tags: filter_test
39
40    tasks:
41      - name: Reverse a string with our filter
42        debug:
43          msg: "{{ 'Ansible' | reverse }}"
44
```

```
noelmathen@MATHEN: ~/an X + v
noelmathen@MATHEN:~$ cd ~/ansible-lab
noelmathen@MATHEN:~/ansible-lab$ ls
ansible.cfg  cred.yml  discover_role  docker.yml  dynamic.py  inventory.ini  ps3.yml  site.yml  webserver_role
noelmathen@MATHEN:~/ansible-lab$ mkdir -p library
noelmathen@MATHEN:~/ansible-lab$ cat > library/my_ping.py << 'EOF'
#!/usr/bin/env python3
from ansible.module_utils.basic import AnsibleModule

def main():
    module = AnsibleModule(argument_spec={})
    rc, out, err = module.run_command(['ping', '-c', '1', '8.8.8.8'])
    if rc == 0:
        module.exit_json(changed=False, msg=out.strip())
    else:
        module.fail_json(msg=err.strip())

if __name__ == '__main__':
    main()
EOF
noelmathen@MATHEN:~/ansible-lab$ chmod +x library/my_ping.py
noelmathen@MATHEN:~/ansible-lab$ mkdir -p filter_plugins
noelmathen@MATHEN:~/ansible-lab$ cat > filter_plugins/custom_filters.py << 'EOF'
def reverse_string(value):
    return value[::-1]

class FilterModule(object):
    def filters(self):
        return {
            'reverse': reverse_string
        }
EOF
noelmathen@MATHEN:~/ansible-lab$ cat > ps5.yml << 'EOF'
---
- name: Shell-based ping
  hosts: webservers
  connection: local
  become: yes
  tags: shell_ping

  tasks:
    - name: Ping via shell
      shell: ping -c 8.8.8.8
      register: ping_shell
      ignore_errors: yes

    - name: Show shell ping output
      debug:
        var: ping_shell.stdout_lines

- name: Custom Python ping
  hosts: webservers
```

```
noelmathen@MATHEN: ~/an X + v
hosts: webservers
connection: local
become: yes
tags: custom_ping

tasks:
  - name: Ping via my_ping module
    my_ping:
      register: ping_custom
      ignore_errors: yes
EOF
msg: "{['Ansible'] | reverse}"lter
noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py ps5.yml --tags shell_ping -K -vvv
ansible-playbook [core 2.18.6]
  config file = /home/noelmathen/ansible-lab/ansible.cfg
  configured module search path = [/home/noelmathen/.ansible/plugins/modules, /usr/share/ansible/plugins/modules]
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/noelmathen/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible-playbook
  python version = 3.12.3 (main, Jun 18 2025, 17:59:45) [GCC 13.3.0] (/usr/bin/python3)
  Jinja version = 3.1.2
  libyaml = True
Using /home/noelmathen/ansible-lab/ansible.cfg as config file
BECOME password:
host_list declined parsing /home/noelmathen/ansible-lab/dynamic.py as it did not pass its verify_file() method
Parsed /home/noelmathen/ansible-lab/dynamic.py inventory source with script plugin
Shipping callback 'default', as we already have a stdout callback.
Shipping callback 'minimal', as we already have a stdout callback.
Shipping callback 'oneline', as we already have a stdout callback.

PLAYBOOK: ps5.yml *****
3 plays in ps5.yml

PLAY [Shell-based ping] *****

TASK [Gathering Facts] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:2
<127.0.0.1> ESTABLISH LOCAL CONNECTION FOR USER: noelmathen
<127.0.0.1> EXEC /bin/sh -c 'echo -noelmathen && sleep 0'
<127.0.0.1> EXEC /bin/sh -c '(C umask 77 && mkdir -p "" echo /home/noelmathen/.ansible/tmp "" echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675200.2631552-25127-162534367212808 "" && echo ansible-tmp-1750675200.2631552-25127-162534367212808="" echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675200.2631552-25127-162534367212808 "" ) && sleep 0'
<127.0.0.1> Attempting python interpreter discovery
<127.0.0.1> EXEC /bin/sh -c 'echo PLATFORM; uname; echo FOUND; command -v ''python3.12''>"; command -v ''python3.11''>"; command -v ''python3.10''>"; command -v ''python3.9''>"; command -v ''python3.8''>"; command -v ''python3.7''>"; command -v ''python3.6''>"; command -v ''python3.5''>"; command -v ''python3.4''>"; command -v ''python3.3''>"; command -v ''python3.2''>"; command -v ''python3.1''>"; command -v ''python3''>"; echo ENDFOUND && sleep 0'
<127.0.0.1> Python interpreter discovery fallback (unsupported Linux distribution: ubuntu)
Using module file /usr/lib/python3/dist-packages/ansible/modules/setup.py
<127.0.0.1> PUT /home/noelmathen/.ansible/tmp/ansible-local-25122b6us9dbf/tmp1pfq25a3 TO /home/noelmathen/.ansible/tmp/ansible-tmp-1750675200.2631552-25127-162534367212808/AnsiballZ_setup.py
<127.0.0.1> EXEC /bin/sh -c 'chmod u+rwx /home/noelmathen/.ansible/tmp/ansible-tmp-1750675200.2631552-25127-162534367212808/ /home/noelmathen/.ansible/tmp/ansible-tmp-1750675200.2631552-25127-162534367212808/AnsiballZ_setup.py && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=xhorzdp1tyyxazobxyqkbgplpahfdydf] password:" ~u root /bin/sh -c ''''echo BECOME-SUCCESS-xhorzdp1tyyxazobxyqkbgplpahfdydf ; /usr/bin/python3.1
```

```

noelmathen@MATHEN: ~/ans
<127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=xhorzdp1tyyxazobxyqkbgplpahfddyf] password:" -u root /bin/sh -c \''''echo BECOME-SUCCESS-xhorzdp1tyyxazobxyqkbgplpahfddyf ; /usr/bin/python3.12 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.2631552-25127-162534367212888/AnsiballZ_setup.py \'''' && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'rm -f -r /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.2631552-25127-162534367212888/ > /dev/null 2>&1 && sleep 0'
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible-core/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [127.0.0.1]

TASK [Ping via shell] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:9
<127.0.0.1> ESTABLISH LOCAL CONNECTION FOR USER: noelmathen
<127.0.0.1> EXEC /bin/sh -c 'echo ~noelmathen && sleep 0'
<127.0.0.1> EXEC /bin/sh -c '( umask 77 && mkdir -p "" echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.9891346-25234-227902864901313 "" && echo ansible-tmp-1750675201.9891346-25234-227902864901313/ "" ) && sleep 0'
Using module file /usr/lib/python3/dist-packages/ansible/modules/command.py
<127.0.0.1> PUT /home/noelmathen/.ansible/tmp/ansible-local-25122b6us9dbf/tmpkvb051e8 TO /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.9891346-25234-227902864901313/AnsiballZ_command.py
<127.0.0.1> EXEC /bin/sh -c 'chmod u+rwx /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.9891346-25234-227902864901313/ /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.9891346-25234-227902864901313/AnsiballZ_command.py && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=irqhfygchrzazicfyhyfjjuxrdyagd] password:" -u root /bin/sh -c \''''echo BECOME-SUCCESS-irqhfygchrzazicfyhyfjjuxrdyagd ; /usr/bin/python3.12 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.9891346-25234-227902864901313/AnsiballZ_command.py \'''' && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'rm -f -r /home/noelmathen/.ansible/tmp/ansible-tmp-1750675201.9891346-25234-227902864901313/ > /dev/null 2>&1 && sleep 0'
changed: [127.0.0.1] => {
  "changed": true,
  "cmd": "ping -c 8 8.8.8.8",
  "delta": "0:00:00.033977",
  "end": "2025-06-23 10:40:02.207100",
  "invocation": {
    "module_args": {
      "_raw_params": "ping -c 8 8.8.8.8",
      "_uses_shell": true,
      "argv": null,
      "chdir": null,
      "creates": null,
      "executable": null,
      "expand_argument_vars": true,
      "removes": null,
      "stdin": null,
      "stdin_add_newline": true,
      "strip_empty_ends": true
    }
  },
  "msg": "",
  "rc": 0,
  "start": "2025-06-23 10:40:02.253123",
  "stderr": "",
  "stderr_lines": [],
  "stdout": "PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.\n64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=19.4 ms\n--- 8.8.8.8 ping statistics ---\n1 packets transmitted, 1 received, 0% packet loss, time 0 ms\nrtt min/avg/max/mdev = 19.363/19.363/19.363/0.000 ms",
  "stdout_lines": [
    "PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.",
    "64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=19.4 ms",
    "--- 8.8.8.8 ping statistics ---",
    "1 packets transmitted, 1 received, 0% packet loss, time 0ms",
    "rtt min/avg/max/mdev = 19.363/19.363/19.363/0.000 ms"
  ]
}

```

```

noelmathen@MATHEN: ~/ans
"64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=19.4 ms",
"--- 8.8.8.8 ping statistics ---",
"1 packets transmitted, 1 received, 0% packet loss, time 0ms",
"rtt min/avg/max/mdev = 19.363/19.363/19.363/0.000 ms"
}

TASK [Show shell ping output] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:14
ok: [127.0.0.1] => {
  "ping_shell.stdout_lines": [
    "PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.",
    "64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=19.4 ms",
    "--- 8.8.8.8 ping statistics ---",
    "1 packets transmitted, 1 received, 0% packet loss, time 0ms",
    "rtt min/avg/max/mdev = 19.363/19.363/19.363/0.000 ms"
  ]
}

PLAY [Custom Python ping] *****

PLAY [Filter plugin demonstration] *****

PLAY RECAP *****
127.0.0.1      : ok=3   changed=1   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0

noelmathen@MATHEN: ~/ansible-lab$ ansible-playbook -i dynamic.py ps5.yml --tags custom_ping -K -vvvv
ansible-playbook [core 2.18.0]
  config file = /home/noelmathen/ansible-lab/ansible.cfg
  configured module search path = ['/home/noelmathen/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/noelmathen/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible-playbook
  python version = 3.12.5 (main, Jun 18 2025, 17:59:45) [GCC 13.3.0] (/usr/bin/python3)
  jinja2 version = 3.1.2
  libyaml = True
Using /home/noelmathen/ansible-lab/ansible.cfg as config file
BECOME password:
Host list declined parsing /home/noelmathen/ansible-lab/dynamic.py as it did not pass its verify_file() method
Parsed /home/noelmathen/ansible-lab/dynamic.py inventory source with script plugin
Skipping callback 'default', as we already have a stdout callback.
Skipping callback 'minimal', as we already have a stdout callback.
Skipping callback 'oneline', as we already have a stdout callback.

PLAYBOOK: ps5.yml *****
3 plays in ps5.yml

PLAY [Shell-based ping] *****

```

```
noelmathen@MATHEN: ~/an
PLAY [Shell-based ping] *****
PLAY [Custom Python ping] *****
TASK [Gathering Facts] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:18
<127.0.0.1> ESTABLISH LOCAL CONNECTION FOR USER: noelmathen
<127.0.0.1> EXEC /bin/sh -c 'echo -noelmathen && sleep 0'
<127.0.0.1> EXEC /bin/sh -c '( umask 77 && mkdir -p "" && echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401 "" && echo ansible-tmp-1750675211.7954683-25273-204857405495401 "" ) && sleep 0'
<127.0.0.1> Attempting python interpreter discovery
<127.0.0.1> EXEC /bin/sh -c 'echo PLATFORM; uname; echo FOUND; command -v '"'"'python3.11'"'"'; command -v '"'"'python3.12'"'"'; command -v '"'"'python3.11'"'"'; command -v '"'"'python3.10'"'"'; command -v '"'"'python3.9'"'"'; command -v '"'"'python3.8'"'"'; command -v '"'"'usr/bin/python3'"'"'; command -v '"'"'python3'"'"'; echo ENDFOUND && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=fqeiutfdjnqghzidenodqybfmkadhu] password:" ~u root /bin/sh -c '"'"'echo BECOME-SUCCESS-fqeiutfdjnqghzidenodqybfmkadhu ; /usr/bin/python3.12 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401/AnsiballZ_setup.py --python3 --python3.12 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401/AnsiballZ_setup.py'"'"' && sleep 0'
Using module file /usr/lib/python3/dist-packages/ansible/modules/setup.py
<127.0.0.1> PUT /home/noelmathen/.ansible/tmp/ansible-local-252670fjn5l65/tmpu8zkflid TO /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401/AnsiballZ_setup.py
<127.0.0.1> EXEC /bin/sh -c 'chmod uwxv /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401/ /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401/AnsiballZ_setup.py && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=fqeiutfdjnqghzidenodqybfmkadhu] password:" ~u root /bin/sh -c '"'"'echo BECOME-SUCCESS-fqeiutfdjnqghzidenodqybfmkadhu ; /usr/bin/python3.12 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401/AnsiballZ_setup.py'"'"' && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'rm -f -v /home/noelmathen/.ansible/tmp/ansible-tmp-1750675211.7954683-25273-204857405495401/ > /dev/null 2>&1 && sleep 0'
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [127.0.0.1]
TASK [Ping via my_ping module] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:25
<127.0.0.1> ESTABLISH LOCAL CONNECTION FOR USER: noelmathen
<127.0.0.1> EXEC /bin/sh -c 'echo -noelmathen && sleep 0'
<127.0.0.1> EXEC /bin/sh -c '( umask 77 && mkdir -p "" && echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675213.3174088-25380-280843035636909 "" && echo ansible-tmp-1750675213.3174088-25380-280843035636909 "" ) && sleep 0'
Using module file /home/noelmathen/ansible-lab/library/my_ping.py
<127.0.0.1> PUT /home/noelmathen/.ansible/tmp/ansible-local-252670fjn5l65/tmp37jr7h4 TO /home/noelmathen/.ansible/tmp/ansible-tmp-1750675213.3174088-25380-280843035636909/AnsiballZ_my_ping.py
<127.0.0.1> EXEC /bin/sh -c 'chmod uwxv /home/noelmathen/.ansible/tmp/ansible-tmp-1750675213.3174088-25380-280843035636909/ /home/noelmathen/.ansible/tmp/ansible-tmp-1750675213.3174088-25380-280843035636909/AnsiballZ_my_ping.py && sleep 0'
<127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=plonycgamuhucossmedkzrtvrfjklaw] password:" ~u root /bin/sh -c '"'"'echo BECOME-SUCCESS-plonycgamuhucossmedkzrtvrfjklaw ; /usr/bin/env python3'"'"' /home/noelmathen/.ansible/tmp/ansible-tmp-1750675213.3174088-25380-280843035636909/AnsiballZ_my_ping.py'"'"' && sleep 0'
fatal: [127.0.0.1]: FAILED! => {
  "changed": false,
  "module_stderr": "/bin/sh: 1: /usr/bin/env python3: not found\n",
  "module_stdout": "",
  "msg": "The module failed to execute correctly, you probably need to set the interpreter.\nSee stdout/stderr for the exact error",
  "rc": 127
}
...ignoring
TASK [Show custom ping result] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:30
```

```
noelmathen@MATHEN: ~/an
task path: /home/noelmathen/ansible-lab/ps5.yml:30
ok: [127.0.0.1] => {
  "ping_custom": {
    "changed": false,
    "failed": true,
    "module_stderr": "/bin/sh: 1: /usr/bin/env python3: not found\n",
    "module_stdout": "",
    "msg": "The module failed to execute correctly, you probably need to set the interpreter.\nSee stdout/stderr for the exact error",
    "rc": 127
  }
}

PLAY [Filter plugin demonstration] *****
PLAY RECAP *****
127.0.0.1 : ok=3 changed=0 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py ps5.yml --tags filter_test -K
BECOME password:

PLAY [Shell-based ping] *****
PLAY [Custom Python ping] *****
PLAY [Filter plugin demonstration] *****
TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [127.0.0.1]
TASK [Reverse a string with our filter] *****
ok: [127.0.0.1] => {
  "msg": "elbisiA"
}

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

noelmathen@MATHEN:~/ansible-lab$ ansible-playbook -i dynamic.py ps5.yml -K -vvv
ansible-playbook [core 2.10.6]
  config file = /home/noelmathen/ansible-lab/ansible.cfg
  configured module search path = ['/home/noelmathen/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/noelmathen/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible-playbook
  python version = 3.12.3 (main, Jun 10 2025, 17:59:45) [GCC 13.3.0] (/usr/bin/python3)
  jinja2 version = 3.1.2
  libyaml = True
Using /home/noelmathen/ansible-lab/ansible.cfg as config file
```

```

nme@noelmathen:MATHEN - ssh X + +
Using /home/noelmathen/ansible-lab/ansible.cfg as config file
BECOME password:
Note: This declined parsing /home/noelmathen/ansible-lab/dynamic.py as it did not pass its verify_file() method
Parsed /home/noelmathen/ansible-lab/dynamic.py inventory source with script plugin
Skipping callback 'default', as we already have a stdout callback.
Skipping callback 'minimal', as we already have a stdout callback.
Skipping callback 'no_line', as we already have a stdout callback.

PLAYBOOK: ps5.yml *****
       plays in ps5.yml

PLAY [Shell-based ping] *****

TASK [Gathering Facts] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:2
#127.0.0.1> ESTABLISH LOCAL CONNECTION FOR USER: noelmathen
#127.0.0.1> EXEC /bin/sh -c 'echo ansible-lab 66 sleep 8'
#127.0.0.1> EXEC /bin/sh -c '( umask 77 66 &&idir -p "" echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675235.882314-25527-34079666083711 "" 66 echo ansible-tmp-1750675235.882314-25527-34079666083711"" ) echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675235.882314-25527-34079666083711 " " ) 66 sleep 8'
#127.0.0.1> Attempting python interpreter discovery
#127.0.0.1> EXEC /bin/sh -c 'echo PLATFORM; uname; echo FOUND; command ~ ''''python3.13''''; command ~ ''''python3.12''''; command ~ ''''python3.11''''; command ~ ''''python3.10''''; command ~ ''''python3.9''''; command ~ ''''python3.8''''; command ~ ''''usr/bin/python3''''; command ~ ''''python3''''; echo ENDFOUND 66 sleep 8'
#127.0.0.1> Python interpreter discovery fallback (Unsupported Linux distribution: ubuntu)
Using module file /usr/lib/python3/dist-packages/ansible/modules/setup.py
#127.0.0.1> PUT /home/noelmathen/.ansible/tmp/ansible-local-26522xv5j8g9/tmp/b17arByT /home/noelmathen/.ansible/tmp/ansible-tmp-1750675235.882314-25527-34079666083711/AnsiballZ_setup.py
#127.0.0.1> EXEC /bin/sh -c 'chmod uwxw /home/noelmathen/.ansible/tmp/ansible-tmp-1750675235.882314-25527-34079666083711 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675235.882314-25527-34079666083711/AnsiballZ_setup.py 66 sleep 8'
#127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=hpccqcnovtzi6fviwepkpwskxfefh]" password:" -u root /bin/sh -c ""'''echo BECOME-SUCCESS=hpccqcnovtzi6fviwepkpwskxfefh ; /usr/bin/python3.13 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675235.882314-25527-34079666083711/AnsiballZ_setup.py ""''' 66 sleep 8'
/bin/sh -c 'tw -d -p /home/noelmathen/.ansible/tmp/ansible-tmp-1750675235.882314-25527-34079666083711/ > /dev/null 2>&1 66 sleep 8'
[WARNING]: Platform linux on host 127.0.0.1 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [127.0.0.1]

TASK [Ping via shell] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:9
#127.0.0.1> ESTABLISH LOCAL CONNECTION FOR USER: noelmathen
#127.0.0.1> EXEC /bin/sh -c 'echo ansible-lab 66 sleep 8'
#127.0.0.1> EXEC /bin/sh -c '( umask 77 66 &&idir -p "" echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675236.6067452-25634-202807822668729 "" 66 echo ansible-tmp-1750675236.6067452-25634-202807822668729"" ) echo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675236.6067452-25634-202807822668729 " " ) 66 sleep 8'
Using module file /usr/lib/python3/dist-packages/ansible/modules/command.py
#127.0.0.1> PUT /home/noelmathen/.ansible/tmp/ansible-local-25522xv5j8g9/tmp/y2dKffTo /home/noelmathen/.ansible/tmp/ansible-tmp-1750675236.6067452-25634-202807822668729/AnsiballZ_command.py
#127.0.0.1> EXEC /bin/sh -c 'chmod uwxw /home/noelmathen/.ansible/tmp/ansible-tmp-1750675236.6067452-25634-202807822668729 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675236.6067452-25634-202807822668729/AAnsiballZ_command.py 66 sleep 8'
#127.0.0.1> EXEC /bin/sh -c 'sudo -H -S -p "[sudo via ansible, key=pip1uwtdwdajseghbylwsecrcvx]" password:" -u root /bin/sh -c ""'''echo BECOME-SUCCESS=pip1uwtdwdajseghbylwsecrcvx ; /usr/bin/python3.13 /home/noelmathen/.ansible/tmp/ansible-tmp-1750675236.6067452-25634-202807822668729/AnsiballZ_command.py ""''' 66 sleep 8'
/bin/sh -c 'tw -d -p /home/noelmathen/.ansible/tmp/ansible-tmp-1750675236.6067452-25634-202807822668729/ > /dev/null 2>&1 66 sleep 8'
changed: [127.0.0.1] => {
    "changed": true,

```

```

noelmathen@MATHEN: ~/je
"changed": true,
"cmd": "ping -c1 8.8.8.8",
"delta": "0:00:00.024768",
"end": "2025-06-23 10:40:36.859313",
"invocation": {
  "module_args": {
    "_raw_params": "ping -c1 8.8.8.8",
    "_uses_shell": true,
    "argv": null,
    "chdir": null,
    "creates": null,
    "executable": null,
    "expand_argument_vars": true,
    "removes": null,
    "stdin": null,
    "stdin_add_newline": true,
    "strip_empty_ends": true
  }
},
"msg": "",
"rc": 0,
"start": "2025-06-23 10:40:36.834545",
"stderr": "",
"stderr_lines": [],
"stdout": "PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.\n64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=18.9 ms\n--- 8.8.8.8 ping statistics ---\n1 packets transmitted, 1 received, 0% packet loss, time 0\ns\nrtt min/avg/max/mdev = 18.921/18.921/18.921/0.000 ms",
"stdout_lines": [
  "PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.",
  "64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=18.9 ms",
  "",
  "--- 8.8.8.8 ping statistics ---",
  "1 packets transmitted, 1 received, 0% packet loss, time 0ms",
  "rtt min/avg/max/mdev = 18.921/18.921/18.921/0.000 ms"
]
}
}

TASK [Show shell ping output] *****
task path: /home/noelmathen/ansible-lab/ps5.yml:14
ok: [127.0.0.1] => {
  "ping_shell.stdout_lines": [
    "PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.",
    "64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=18.9 ms",
    "",
    "--- 8.8.8.8 ping statistics ---",
    "1 packets transmitted, 1 received, 0% packet loss, time 0ms",
    "rtt min/avg/max/mdev = 18.921/18.921/18.921/0.000 ms"
  ]
}

PLAY [Custom Python ping] *****

```


AFTER ASSIGNMENT:

