

1. Create a new Ubuntu machine

```
root@Bryan: /home/bryan
1 update can be applied immediately.
To see these additional updates run: apt list --upgradable

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

This message is shown once a day. To disable it please create the
/home/bryan/.hushlogin file.
bryan@Bryan:~$ sudo su
[sudo] password for bryan:
root@Bryan:/home/bryan# aptitude update

Command 'aptitude' not found, but can be installed with:

apt install aptitude

root@Bryan:/home/bryan# aptitude update

Command 'aptitude' not found, but can be installed with:

apt install aptitude

root@Bryan:/home/bryan# ssh-keygen -t rsa -f /etc/ssh/ssh_host_rsa_key
Generating public/private rsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /etc/ssh/ssh_host_rsa_key
Your public key has been saved in /etc/ssh/ssh_host_rsa_key.pub
```

2. Generate both private and public key

```
root@Bryan: /home/bryan
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /etc/ssh/ssh_host_rsa_key
Your public key has been saved in /etc/ssh/ssh_host_rsa_key.pub
The key fingerprint is:
SHA256:yVTIfBj2r97qB06VvLjYTVvVoppF0icIXTuFqaz/EDds root@Bryan
The key's randomart image is:
+---[RSA 3072]-----+
|      oo+.      |
|      .o.       |
|      . ...     |
|      ..+ . .   |
|      .+S . .   |
|      .+++E* =   |
|      =.+ B X .  |
|      ..+B X o   |
|      ...ooOo=.. |
+---[SHA256]-----+
root@Bryan:/home/bryan# ssh-keygen -t dsa -f /etc/ssh/ssh_host_dsa_key
Generating public/private dsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /etc/ssh/ssh_host_dsa_key
Your public key has been saved in /etc/ssh/ssh_host_dsa_key.pub
The key fingerprint is:
SHA256:AlveeDgcIB2vtgmOexu3nJRHOMB4fJx6uD88Mw1DwuY root@Bryan
The key's randomart image is:
+---[DSA 1024]-----+
| ..o.           |
| + o.+          |
+---[SHA256]-----+
```

3. Check the ssh status and restart to save the changes

```
root@Bryan:/home/bryan# service ssh restart
* Restarting OpenBSD Secure Shell server sshd
root@Bryan:/home/bryan# service ssh status
* sshd is running
root@Bryan:/home/bryan#
```

4. The next thing to do is check the connection

```
bryan@Bryan: ~  
C:\Users\USUARIO>ssh bryan@127.0.0.1  
The authenticity of host '127.0.0.1 (127.0.0.1)' can't be established.  
ECDSA key fingerprint is SHA256:BM+EZrPSc4bMW6PddFseAZNYFeVEXC+5QIqCSoyyGWY.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added '127.0.0.1' (ECDSA) to the list of known hosts.  
bryan@127.0.0.1's password:  
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.10.16.3-microsoft-standard-WSL2 x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/advantage  
  
System information as of Wed Apr 13 09:31:49 -04 2022  
  
System load:  0.0          Processes:            13  
Usage of /:   0.5% of 250.98GB Users logged in:      0  
Memory usage: 1%          IPv4 address for eth0: 192.168.186.126  
Swap usage:   0%  
  
1 update can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.
```

5. Then install ansible

```
root@Bryan: /home/bryan  
root@Bryan:/home/bryan# aptitude install ansible  
The following NEW packages will be installed:  
  ansible ieee-data{a} python3-argcomplete{a} python3-crypto{a} python3-dnspython{a} python3-jmespath{a}  
  python3-kerberos{a} python3-libcloud{a} python3-lockfile{a} python3-netaddr{a} python3-ntlm-auth{a}  
  python3-requests-kerberos{a} python3-requests-ntlm{a} python3-selinux{a} python3-winrm{a} python3-xmltodict{a}  
0 packages upgraded, 16 newly installed, 0 to remove and 25 not upgraded.  
Need to get 9644 kB of archives. After unpacking 90.2 MB will be used.  
Do you want to continue? [Y/n/?] Y  
Get: 1 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-crypto amd64 2.6.1-13ubuntu2 [237 kB]  
Get: 2 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-dnspython all 1.16.0-1build1 [89.1 kB]  
Get: 3 http://archive.ubuntu.com/ubuntu focal/main amd64 ieee-data all 20180805.1 [1589 kB]  
Get: 4 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-netaddr all 0.7.19-3ubuntu1 [236 kB]  
Get: 5 http://archive.ubuntu.com/ubuntu focal/universe amd64 ansible all 2.9.6+dfsg-1 [5794 kB]  
Get: 6 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-argcomplete all 1.8.1-1.3ubuntu1 [27.2 kB]  
Get: 7 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-jmespath all 0.9.4-2ubuntu1 [21.5 kB]  
Get: 8 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-kerberos amd64 1.1.14-3.1build1 [22.6 kB]  
Get: 9 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-lockfile all 1:0.12.2-2ubuntu2 [14.6 kB]  
Get: 10 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-libcloud all 2.8.0-1 [1403 kB]  
Get: 11 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-ntlm-auth all 1.1.0-1 [19.6 kB]  
Get: 12 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-requests-kerberos all 0.12.0-2 [11.9 kB]  
Get: 13 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-requests-ntlm all 1.1.0-1 [6004 B]  
Get: 14 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-selinux amd64 3.0-1build2 [139 kB]  
Get: 15 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-xmltodict all 0.12.0-1 [12.6 kB]  
Get: 16 http://archive.ubuntu.com/ubuntu focal/universe amd64 python3-winrm all 0.3.0-2 [21.7 kB]  
Fetched 9644 kB in 7s (1386 kB/s)  
Selecting previously unselected package python3-crypto.  
(Reading database ... 33045 files and directories currently installed.)  
Preparing to unpack .../00-python3-crypto_2.6.1-13ubuntu2_amd64.deb ...  
Unpacking python3-crypto (2.6.1-13ubuntu2) ...  
Selecting previously unselected package python3-dnspython.
```

6. Then install tree

```

root@Bryan:/etc/ansible# aptitude install tree
The following NEW packages will be installed:
  tree
0 packages upgraded, 1 newly installed, 0 to remove and 25 not upgraded.
Need to get 43.0 kB of archives. After unpacking 115 kB will be used.
Get: 1 http://archive.ubuntu.com/ubuntu focal/universe amd64 tree amd64 1.8.0-1 [43.0 kB]
Fetched 43.0 kB in 2s (20.4 kB/s)
Selecting previously unselected package tree.
(Reading database ... 42488 files and directories currently installed.)
Preparing to unpack .../tree_1.8.0-1_amd64.deb ...
Unpacking tree (1.8.0-1) ...
Setting up tree (1.8.0-1) ...
Processing triggers for man-db (2.9.1-1) ...

root@Bryan:/etc/ansible# tree ./
./
├── ansible.cfg
└── hosts

0 directories, 2 files
root@Bryan:/etc/ansible#

```

7. Now lets create an ansible playbook

```

root@Bryan:~/ansible-practice# mkdir project
root@Bryan:~/ansible-practice# cd project/
root@Bryan:~/ansible-practice/project# touch host site.yml
root@Bryan:~/ansible-practice/project# mkdir -p roles
root@Bryan:~/ansible-practice/project# cd roles/
root@Bryan:~/ansible-practice/project/roles# ansible-galaxy init common
- Role common was created successfully
root@Bryan:~/ansible-practice/project/roles# ansible-galaxy init web
- Role web was created successfully
root@Bryan:~/ansible-practice/project/roles# ansible-galaxy init db
- Role db was created successfully
root@Bryan:~/ansible-practice/project/roles#

```

8. Check the roles

```

root@Bryan: ~/ansible-practice/project/roles
- Role db was created successfully
root@Bryan:~/ansible-practice/project/roles# tree .
.
├── common
│   ├── README.md
│   ├── defaults
│   │   └── main.yml
│   ├── files
│   ├── handlers
│   │   └── main.yml
│   ├── meta
│   │   └── main.yml
│   ├── tasks
│   │   └── main.yml
│   ├── templates
│   ├── tests
│   │   ├── inventory
│   │   └── test.yml
│   └── vars
│       └── main.yml
└── db
    ├── README.md
    ├── defaults
    │   └── main.yml
    ├── files
    ├── handlers
    │   └── main.yml
    ├── meta
    │   └── main.yml
    └── tasks

```

9. Check the files

```

root@Bryan:~/ansible-practice/project# root@Bryan:~/ansible-practice/project# cat host
[lemp]
server01 ansible_host=127.0.0.1
root@Bryan:~/ansible-practice/project# cat site.yml
---
- hosts: lemp
  remote_user: bryan
  become: yes

  roles:
    - common
    - web
    - db
root@Bryan:~/ansible-practice/project#

```

10. And create the roles file

```

root@Bryan: ~/ansible-practice/project/common/tasks
root@Bryan:~/ansible-practice/project/common/tasks# cat main.yml
- name: Change repository Ubuntu 18.04 Step 4 - Setup 'web' Roles
  copy:
    src: sources.list
    dest: /etc/apt/
    backup: yes

- name: Update repository and Upgrade packages
  apt:
    upgrade: dist
    update_cache: yes

- name: Setup timezone to Asia/Jakarta
  timezone:
    name: Asia/Jakarta
    state: latest
root@Bryan:~/ansible-practice/project/common/tasks#

```

11. Then create our first playbook

```

root@Bryan: ~/ansible-practice/project/web/tasks
root@Bryan:~/ansible-practice/project/web/tasks# cat main.yml
- name: Install Nginx
  apt:
    name: nginx
    state: latest

- name: Instal PHP-FPM
  apt:
    name: ['php', 'php-fpm', 'php-common', 'php-cli', 'php-curl']
    state: latest

- name: Configure php.ini
  blockinfile:
    dest: /etc/php/{{ php_version }}/fpm/php.ini
    block: |
      date.time = Asia/Jakarta
      cgi.fix_pathinfo = 0
    backup: yes
    notify: restart php-fpm

- name: Create Nginx virtual host
  template:
    src: vhost.j2
    dest: /etc/nginx/sites-enabled/vhost-{{ domain_name }}
    notify: restart nginx

- name: Create web-root directory
  file:
    path: /var/www/{{ domain_name }}

```

12. And run with: ansible-playbook -i host site.yml

```

PLAY [lemp] *****

TASK [Gathering Facts] *****
ok: [server01]

TASK [common : Change repository Ubuntu 18.04] *****
changed: [server01]

TASK [common : Update repository and Upgrade packages] *****
ok: [server01]

TASK [common : Setup timezone to Asia/Jakarta] *****
changed: [server01]

TASK [web : Install Nginx] *****
changed: [server01]

TASK [web : Instal PHP-FPM] *****
changed: [server01] => (item=[u'php', u'php-fpm', u'php-common', u'php-cli', u'php-curl'])

TASK [web : Configure php.ini] *****
changed: [server01]

TASK [web : Create Nginx virtual host] *****
changed: [server01]

TASK [web : Create web-root directory] *****
changed: [server01]

```

13.