

TESTING ANSIBLE ROLES USING MOLECULE

Estu Fardani | Geekcamp.id | 20170715

ESTU FARDANI

- Ops at Peentar.id
- Release Manager at BlankOn Linux
- Master at Binar Academy



BlankOn



@tuanpembual | estu@blankon.id

<https://github.com/tuanpembual/molecule-ansible>

MOLECULE

Molecule framework to aid in the development and testing of Ansible roles. Base on Ansible-Galaxy.

Support multiple:

- instances,
- operating systems and distributions,
- virtualization providers,
- test frameworks,
- testing scenarios.

MOLECULE

Memastikan hasil role ansible konsisten, ditulis dengan baik, mudah dipahami dan dipelihara.

Install stable v1.2 via pip:

```
$ sudo pip install molecule
```

Deps:

```
* your flavour provider | docker or vagrant
```

INITIATION MOLECULE

```
$ molecule init --role nginx \  
--verifier serverspec \  
--driver docker
```

```
$ cd nginx; bundle install
```

SETUP OS ENV

molecule.yml

docker:

containers:

- name: nginx
image: ubuntu
image_version: latest

ADD TASK

tasks/main.yml

tasks file for nginx

- name: install apt-transport-https
 apt: name=apt-transport-https update_cache=yes
 become: yes
- name: install packages
 apt: name={{ item }} update_cache=yes force=yes
 with_items:
 - nginx
 - curl
 - net-tools become: yes
 notify:
 - restart nginx

SETUP HANDLER TO RESTART NGINX

```
handlers/main.yml
```

```
---
```

```
# handlers file for nginx
```

```
- name: restart nginx
```

```
  service: name=nginx state=restarted
```

```
  become: yes
```


TEST FRAMEWORKS

Default: tox, writing in python

But, I like ruby style. So I using [ServerSpec.org](https://serverspec.org).

Resource:

- Check package installed
- Check service running
- Check port listening

SETUP TESTING SCENARIO

spec/default_spec.rb

```
require 'spec_helper'

describe service('nginx') do
  it { should be_running }
end

describe port(80) do
  it { should be_listening }
end
```

RUN MOLECULE

```
$ molecule --help
```

```
$ molecule test
```

It will do:

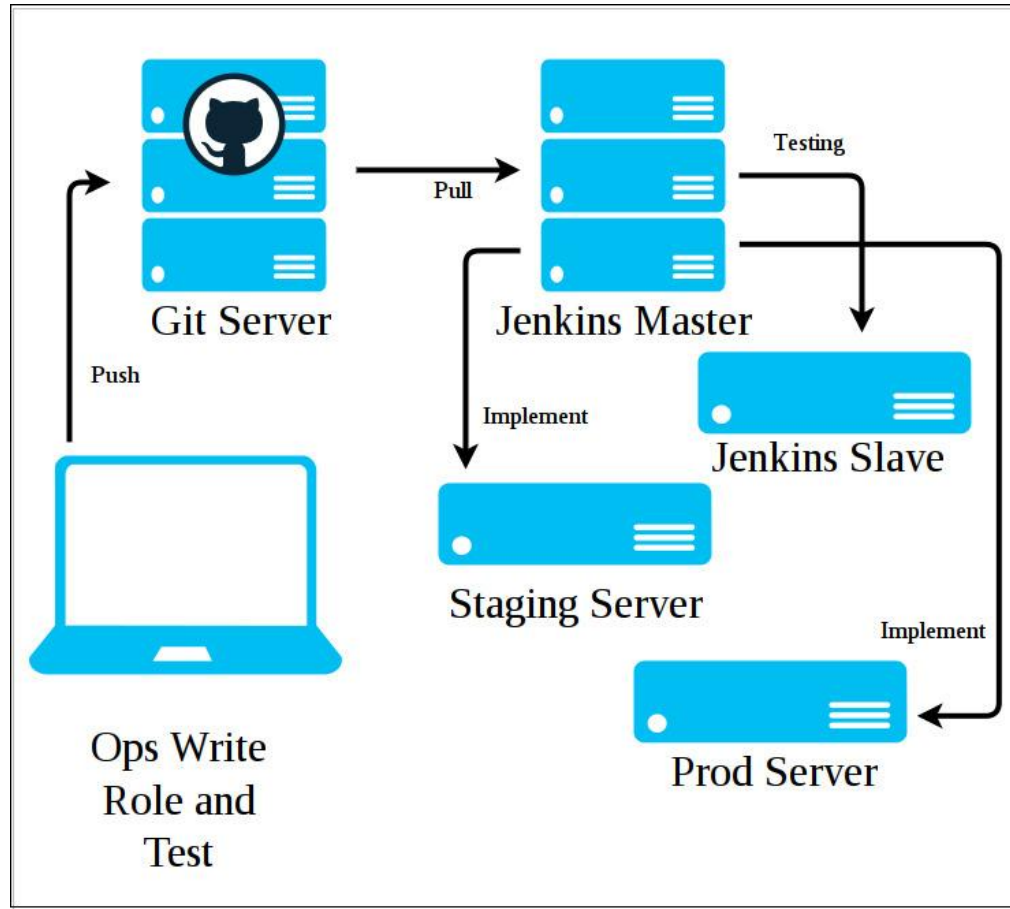
- Create instance
- Apply role
- Run test
- Destroy instance

SPLIT ENVIRONMENT

- Env Development | for run molecule test on local
- Staging | for run staging env
- Prod | for run prod env

But you can always add more env

PICTURE



ADDITIONAL FOLDER

```
~/v/t/GeekCamp >>> tree nginx
nginx
├── defaults
│   └── main.yml
├── Gemfile
├── Gemfile.lock
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── molecule.yml
├── playbook.yml
├── README.md
├── spec
│   ├── default_spec.rb
│   └── spec_helper.rb
├── tasks
│   └── main.yml
└── vars
    └── main.yml

6 directories, 12 files
~/v/t/GeekCamp >>> █
```

```
~/v/t/GeekCamp >>> tree nginx
nginx
├── defaults
│   └── main.yml
├── environment
│   ├── production
│   │   ├── group_vars
│   │   │   └── server.yml
│   │   └── inventory
│   └── staging
│       ├── group_vars
│       │   └── server.yml
│       └── inventory
├── files
│   └── hello.conf
├── Gemfile
├── Gemfile.lock
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── molecule.yml
├── playbook.yml
├── README.md
├── spec
│   ├── default_spec.rb
│   └── spec_helper.rb
├── tasks
│   └── main.yml
├── templates
│   └── isi.txt.j2
└── vars
    └── main.yml

13 directories, 18 files
```

IMPLEMENT

After roles pass all test, it is ready to apply directly to our server.

Run from jenkins:

- Install ansible in jenkins slave
- Testing ssh
- Run ansible from outer nginx role folder as jenkins shell script

```
$ ansible-playbook nginx/playbook.yml -i nginx/environment/staging --user ubuntu
```

File Edit Shell Terminal Ctrl-Alt-Q

```
libbz2-1.0-2-ubuntu1 libbz2-1.0 libbz2-1.0-2 libbz2-1.0-2-ubuntu1  
libbz2-1.0-2 libbz2-1.0-2-ubuntu1 libbz2-1.0-2 libbz2-1.0-2-ubuntu1  
libbz2-1.0-2 libbz2-1.0-2-ubuntu1 libbz2-1.0-2 libbz2-1.0-2-ubuntu1  
libbz2-1.0-2 libbz2-1.0-2-ubuntu1 libbz2-1.0-2 libbz2-1.0-2-ubuntu1  
libbz2-1.0-2 libbz2-1.0-2-ubuntu1 libbz2-1.0-2 libbz2-1.0-2-ubuntu1  
# upgraded, 21 newly installed, 0 to remove and 78 not upgraded.  
changed: [nginx]  
  
[root@nginx ~]# install packages) *****  
The following additional packages will be installed:  
fontconfig-config fonts-dejavu-core gnupg-database libfontconfig1  
libfreetype6 libgd3 libgexif1 libicu55 libjpeg8 libjpeg-turbo8 libjpeg9  
libpng12-0 libtiff5 libvpx3 libxft-2 libxft-data libxft2 libxft-dev  
libxft3 libxft4 libxft5 libxft6 libxft7 libxft8 libxft9  
Suggested packages:  
libgd-tools gnupg-gui fontconfig fonts-dejavu-core gnupg-database libfontconfig1  
The following NOC packages will be installed:  
curl fontconfig-config fonts-dejavu-core gnupg-database libfontconfig1  
libfreetype6 libgd3 libgexif1 libicu55 libjpeg8 libjpeg-turbo8 libjpeg9  
libpng12-0 libtiff5 libvpx3 libxft-2 libxft-data libxft2 libxft-dev  
libxft3 libxft4 libxft5 libxft6 libxft7 libxft8 libxft9  
curl net-tools nginx nginx-common nginx-core ssl-base ssl-cert  
# upgraded, 26 newly installed, 0 to remove and 78 not upgraded.  
changed: [nginx] += (base=[0'nginx', 0'curl', 0'net-tools'])  
  
[root@nginx ~]# nginx) *****
```


QUESTION

1...

DOCUMENTATIONS

1. <http://github.com/metacloud/molecule>
2. <http://molecule.readthedocs.io/>

TERIMAKASIH