

**Министерство науки и высшего образования Российской Федерации**  
федеральное государственное автономное образовательное учреждение высшего образования  
**«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»**

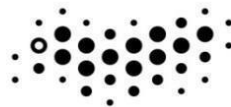
**Отчет**  
по лабораторной работе №2  
по дисциплине **«Инфраструктура как код»**

**Автор:**

Зыонг Тхи Хуэ Линь

**Факультет: ИТИП**

**Группа: М34091**



**УНИВЕРСИТЕТ ИТМО**

Санкт-Петербург

2024

## Цель работы

Научиться пользоваться Ansible Galaxy и писать роли

## Рекомендуемая документация

- [Инфраструктура как код #3: Ansible-роли и Galaxy](#)
- [Документация по Ansible Galaxy](#)

## Ход работы

1. Инициировать структуру роли “**Docker**” через Ansible-Galaxy
2. Вынести из предыдущего плейбука задачи установки Docker в отдельную роль
3. Параметризовать роль через переменные
4. Создать в gitlab группу для репозитория с ролями, запустить роль “**Docker**” в репозиторий
5. Создать файл requirements.yml для установки роли Docker из репозитория
6. Запустить приложение на нодах группы [app] используя ansible-playbook с ролью “**Docker**”

Inventory file:

AnsibleGalaxy init docker

```
vagrant@srv2: ~/iac/roles/do X + v
vagrant@srv2:~/iac$ mkdir roles
vagrant@srv2:~/iac$ cd roles/
vagrant@srv2:~/iac/roles$ ansible-galaxy init docker
- Role docker was created successfully
vagrant@srv2:~/iac/roles$ cd docker/
vagrant@srv2:~/iac/roles/docker$ ll
total 48
drwxrwxr-x 10 vagrant vagrant 4096 Oct 24 17:09 ./
drwxrwxr-x  3 vagrant vagrant 4096 Oct 24 17:09 ../
-rw-rw-r--  1 vagrant vagrant  539 Oct 24 17:09 .travis.yml
-rw-rw-r--  1 vagrant vagrant 1328 Oct 24 17:09 README.md
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 defaults/
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 files/
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 handlers/
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 meta/
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 tasks/
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 templates/
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 tests/
drwxrwxr-x  2 vagrant vagrant 4096 Oct 24 17:09 vars/
vagrant@srv2:~/iac/roles/docker$ |
```

Edit tasks and default variables

```
vagrant@srv2:~/iac/roles/docker/tasks$ sudo nano main.yml
vagrant@srv2:~/iac/roles/docker/tasks$ cat main.yml
```

```
---
- name: Update and install dependencies
  apt:
    name: "{{ docker_dependencies }}"
    update_cache: yes

- name: Add key repository
  apt_key:
    url: "{{ docker_key_url }}"
    state: present

- name: Add Docker repository
  apt_repository:
    repo: "{{ docker_repo }}"
    state: present
    filename: docker

- name: Install Docker CE
  apt:
    name: "{{ docker_package }}"
    state: present

- name: Ensure Docker is running
  ansible.builtin.service:
    name: docker
    state: started

- name: Add user to Docker group
  ansible.builtin.user:
    name: "{{ docker_user }}"
    groups: docker
    append: true
```

```
vagrant@srv2:~/iac/roles/docker/defaults$ cat main.yml
```

```
---
docker_dependencies:
  - apt-transport-https
  - ca-certificates
  - curl
  - software-properties-common

docker_key_url: https://download.docker.com/linux/ubuntu/gpg
docker_repo: "deb [arch=amd64] https://download.docker.com/linux/ubuntu focal stable"
docker_package: docker-ce
```

## Git push

```
vagrant@srv2:~/iac/roles/docker$ git config user.email "euhhnil@yandex.ru"
vagrant@srv2:~/iac/roles/docker$ git config user.name "euhhnil"
```

```
vagrant@srv2:~/iac/roles/docker$ git add .
vagrant@srv2:~/iac/roles/docker$ git commit -m "Initial commit"
[master (root-commit) 2046573] Initial commit
 9 files changed, 176 insertions(+)
 create mode 100644 .travis.yml
 create mode 100644 README.md
 create mode 100644 defaults/main.yml
 create mode 100644 handlers/main.yml
 create mode 100644 meta/main.yml
 create mode 100644 tasks/main.yml
 create mode 100644 tests/inventory
 create mode 100644 tests/test.yml
 create mode 100644 vars/main.yml
```

```
vagrant@srv2:~/iac/roles/docker$ git push -uf origin main
Username for 'https://gitlab.com': euhhnil
Password for 'https://euhhnil@gitlab.com':
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 2 threads
Compressing objects: 100% (9/9), done.
Writing objects: 100% (17/17), 2.97 KiB | 2.97 MiB/s, done.
Total 17 (delta 0), reused 0 (delta 0)
To https://gitlab.com/devops-itmo2/docker-role.git
 + 306985b...2046573 main -> main (forced update)
Branch 'main' set up to track remote branch 'main' from 'origin'.
```

On gitlab:

D

docker-role

main

docker-role /


+

History


Find file

Edit

Code

 Initial commit  
Dương Linh authored 9 minutes ago

2046573c



Name	Last commit	Last update
defaults	Initial commit	9 minutes ago
handlers	Initial commit	9 minutes ago
meta	Initial commit	9 minutes ago
tasks	Initial commit	9 minutes ago
tests	Initial commit	9 minutes ago
vars	Initial commit	9 minutes ago
.travis.yml	Initial commit	9 minutes ago
README.md	Initial commit	9 minutes ago

Created requirements.yaml

```
vagrant@srv2:~/iac$ cat requirements.yaml
roles:
  - src: https://gitlab.com/devops-itmo2/docker-role.git
    version: main
    name: docker
```

Run requirements.yaml

```
vagrant@srv2:~/iac$ ansible-galaxy role install -f -r requirements.yaml
- extracting docker to /home/vagrant/.ansible/roles/docker
- docker (main) was installed successfully
```

Затем запустим сам плейбук: Docker-role.yaml

```
vagrant@srv2:~/iac/lab2$ cat docker-role.yaml
- name: "Install docker to docker hosts"
  hosts: docker
  become: true

  roles:
    - role: '/home/vagrant/.ansible/roles/docker'
```

```
vagrant@srv2:~/iac/lab2$ ansible-playbook -i hosts docker-role.yaml
PLAY [Install docker to docker hosts] *****
TASK [Gathering Facts] *****
ok: [srv1]
TASK [/home/vagrant/.ansible/roles/docker : Update and install dependencies] *****
ok: [srv1]
TASK [/home/vagrant/.ansible/roles/docker : Add key repository] *****
ok: [srv1]
TASK [/home/vagrant/.ansible/roles/docker : Add Docker repository] *****
ok: [srv1]
TASK [/home/vagrant/.ansible/roles/docker : Install Docker CE] *****
ok: [srv1]
TASK [/home/vagrant/.ansible/roles/docker : Ensure Docker is running] *****
ok: [srv1]
TASK [/home/vagrant/.ansible/roles/docker : Add user to Docker group] *****
ok: [srv1]
PLAY RECAP *****
srv1 : ok=7  changed=0  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0
```