Ansible

Notes

Sorry for the crappy pdf but conversion from markdown to pdf sucks

1. Setting up the lab
    - setting up hosts

```
192.168.1.43 loadbalancer
192.168.1.32 db01
192.168.1.133 web01
192.168.1.230 web02
192.168.1.209 ansible-control
```

- testing ansible

```
└─ ansible localhost -m command -a
[WARNING]: No inventory was parsed, only implicit localhost is available
localhost | CHANGED | rc=0 >>
DESKTOP-5G4BDT7
```

- testing webstack connectivity

```
ansible webstack -i hosts -m command -a hostname --user=vagrant

web01 | CHANGED | rc=0 >> web01
web02 | CHANGED | rc=0 >> web02
loadbalancer | CHANGED | rc=0 >> loadbalancer
db01 | CHANGED | rc=0 >> db01
```

Note: I'm using wsl as ansible-control with my own user name, so I have to add extra flags

2. Ad-hoc-ing commands

- Testing some commands

ansible webstack -i hosts -m shell -a uptime --user=vagrant

loadbalancer | CHANGED | rc=0 >>
10:56:02 up 1:38, 1 user, load average: 0.00, 0.00, 0.00
web02 | CHANGED | rc=0 >>
10:56:02 up 1:33, 1 user, load average: 0.00, 0.00, 0.00
db01 | CHANGED | rc=0 >>
10:56:02 up 1:37, 1 user, load average: 0.00, 0.00, 0.00
web01 | CHANGED | rc=0 >>
10:56:02 up 1:36, 1 user, load average: 0.00, 0.00, 0.00

- Mem free
```bash
web02 | CHANGED | rc=0 >>
              total        used        free      shared  buff/cache   available
Mem:             466         163          21           0         281         281
Swap:              0           0           0
loadbalancer | CHANGED | rc=0 >>
              total        used        free      shared  buff/cache   available
Mem:             466         163          16           0         286         285
Swap:              0           0           0
web01 | CHANGED | rc=0 >>
              total        used        free      shared  buff/cache   available
Mem:             466         164          36           0         265         280
Swap:              0           0           0
db01 | CHANGED | rc=0 >>
              total        used        free      shared  buff/cache   available
Mem:             466         164          26           0         275         284
Swap:              0           0           0
```

- Installing using APIs
- Using service modules

```
ansible database -u vagrant -i hosts -m service -a "name=mysql
state=started"

db01 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "name": "mysql",
    "state": "started",

ansible database -u vagrant --become -i hosts -m service -a "name=mysql state=restarted"
db01 | CHANGED => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": true,
    "name": "mysql",
    "state": "started",
    "status": {
```

- restarting the webstack

```
ansible webstack -u vagrant -i hosts --become -a "reboot--reboot"
web02 | FAILED | rc=-1 >>
Failed to connect to the host via ssh: kex_exchange_identification: Connection closed by remote
Connection closed by 192.168.1.230 port 22
web01 | FAILED | rc=-1 >>
Failed to connect to the host via ssh: kex_exchange_identification: Connection closed by remote
Connection closed by 192.168.1.133 port 22
db01 | FAILED | rc=-1 >>
Failed to connect to the host via ssh: System is going down. Unprivileged users are not permitte

Connection closed by 192.168.1.32 port 22
loadbalancer | FAILED | rc=-1 >>
Failed to connect to the host via ssh: ssh: connect to host loadbalancer port 22: Connection tim
```

3. Playbooks

- Running playbook1

```
ansible-playbook -i hosts Homework/Homework-17/ansible-lab3/playbook1.yml -u vagrant

PLAY [webservers] ***************************************************************************

TASK [Gathering Facts] **********************************************************************
ok: [web02]
ok: [web01]

TASK [ensure apache is at the latest version] ***********************************************
ok: [web02]
ok: [web01]

TASK [write the apache2 ports.conf config file] *********************************************
changed: [web02]
changed: [web01]

TASK [write a basic index.html file] ********************************************************
changed: [web02]
changed: [web01]

TASK [ensure apache is running] *************************************************************
ok: [web02]
ok: [web01]

RUNNING HANDLER [restart apache] ************************************************************
changed: [web01]
changed: [web02]

PLAY RECAP **********************************************************************************
web01                      : ok=6    changed=3    unreachable=0    failed=0    skipped=0    resc
web02                      : ok=6    changed=3    unreachable=0    failed=0    skipped=0    resc
```

- Testing server connectivity

```
curl web01:8000

<html>

<h1>Hello Scalefocus Academy! You have reached the web01 server.</h1>

</html>%


curl web01:8000
<html>

<h1>Hello Scalefocus Academy! You have reached the web02 server.</h1>

</html>%
```

4. Playbooks

- Modifications to the provided yaml file

```
- hosts: webservers
  become: yes
  vars:
    http_port: 8000
    https_port: 4443
    html_welcome_msg: "Hello Scalefocus Academy!"
    #Added code
  tasks:
    - import_tasks: roles/apache2/tasks/apache2_install.yml
  handlers:
    - import_tasks: roles/apache2/handlers/main.yml
  roles:
    - common
    - apache2

# The second play targets the hosts with the tag "proxy".
- hosts: proxy
  become: yes
  roles:
    - common
    - nginx
```

- Final result

```
PLAY RECAP *********************************************************************
loadbalancer               : ok=6    changed=5    unreachable=0    failed=0    skipped=0    resc
web01                      : ok=10   changed=0    unreachable=0    failed=0    skipped=0    resc
web02                      : ok=10   changed=0    unreachable=0    failed=0    skipped=0    resc
```

5. Roles and Ansible galaxy

- creating role structure

```
ansible-galaxy init roles/mysql

- Role webserver was created successfully


---

├── defaults
│   └── main.yml
├── files
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── README.md
├── tasks
│   └── main.yml
├── templates
├── tests
│   ├── inventory
│   └── test.yml
└── vars
    └── main.yml
```

- Checking ansible vault
  nvim vars/vault.yml
- Encrypting the vault

```
ansible-vault encrypt vars/vault.yml
  New Vault password:
  Confirm New Vault password:
  Encryption successful
```

- Adding new a new play to playbook1.yaml

```
 hosts: webservers
  become: yes
  vars_files:
    - vars/main.yml
  roles:
    - common
    - apache2

- hosts: proxy
  become: yes
  roles:
    - common
    - nginx

- hosts: database
  become: yes
  vars_files:
    - vars/main.yml
    - vars/vault.yml
  vars_prompt:
    - name: mysql_database
      prompt: Please enter the database name
      private: no
  roles:
    - common
    - mysql
```

- Running the update playbook

```
ansible-playbook -i /home/vagrant/hosts -K playbook1.yml --ask-vault-password

PLAY RECAP *********************************************************************************
db01                       : ok=12   changed=3    unreachable=0    failed=0    skipped=0    resc
loadbalancer               : ok=6    changed=0    unreachable=0    failed=0    skipped=0    resc
web01                      : ok=7    changed=0    unreachable=0    failed=0    skipped=0    resc
web02                      : ok=7    changed=0    unreachable=0    failed=0    skipped=0    resc
```

- Checking the database

mysql -h 192.168.1.32 -u simple_user -p

mysql> show databases;

+--------------------+
| Database |

```
+--------------------+
| HW17 |
| information_schema |
| performance_schema |
+--------------------+
3 rows in set (0.01 sec)
```