COMP.SE140 – DEVOPS

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1. Build Docker image with SSH server
- Run Docker container

```
● dungho@DungHos-MBP 6.1 Ansible % docker run -d -p 2022:22 --name ansible1 ansible
  4df3d59d3c76b4ed8c7cafd053826a9b141e358d97279fcccb27175dc7c34a86
○ dungho@DungHos-MBP 6.1 Ansible %
```

- Check IP address of the host (docker container)

```
● dungho@DungHos-MBP 6.1 Ansible % docker exec ansible1 ifconfig
  eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
          inet 172.17.0.2  netmask 255.255.0.0  broadcast 172.17.255.255
          ether 02:42:ac:11:00:02  txqueuelen 0  (Ethernet)
          RX packets 12  bytes 1016 (1.0 KB)
          RX errors 0  dropped 0  overruns 0  frame 0
          TX packets 0  bytes 0 (0.0 B)
          TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

  lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
          inet 127.0.0.1  netmask 255.0.0.0
          loop  txqueuelen 1000  (Local Loopback)
          RX packets 0  bytes 0 (0.0 B)
          RX errors 0  dropped 0  overruns 0  frame 0
          TX packets 0  bytes 0 (0.0 B)
          TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

- Do ssh-login to the host

```
○ dungho@DungHos-MBP 6.1 Ansible % ssh ssldung@127.0.0.1 -p 2022
  The authenticity of host '[127.0.0.1]:2022 ([127.0.0.1]:2022)' can't be established.
  ED25519 key fingerprint is SHA256:yKYg7ODfZ6swr0niXkKiYI55OyiZB6RzuNO4pT9D2tI.
  This key is not known by any other names
  Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
  Warning: Permanently added '[127.0.0.1]:2022' (ED25519) to the list of known hosts.
  ssldung@127.0.0.1's password:
  Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.10.124-linuxkit x86_64)

   * Documentation:  https://help.ubuntu.com
   * Management:     https://landscape.canonical.com
   * Support:        https://ubuntu.com/advantage

  This system has been minimized by removing packages and content that are
  not required on a system that users do not log into.

  To restore this content, you can run the 'unminimize' command.
  Last login: Wed Oct 26 22:41:13 2022 from 172.17.0.1
  To run a command as administrator (user "root"), use "sudo <command>".
  See "man sudo_root" for details.
```

- Test python

```
ssldung@f344ec9d645c:~$ python3
Python 3.10.6 (main, Aug 10 2022, 11:40:04) [GCC 11.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

2. Test playbooks
- Start first container

```
dungho@DungHos-MBP 6.1 Ansible % docker run -d -p 2022:22 --name ansible1 ansible
4df3d59d3c76b4ed8c7cafd053826a9b141e358d97279fcccb27175dc7c34a86
dungho@DungHos-MBP 6.1 Ansible %
```

- Since Docker expose to localhost so we add 127.0.0.1 and mapping port (2022) from docker run command to the hosts file.

```
6.1 Ansible > inv > ≡ hosts
  1    ansible1 ansible_host=127.0.0.1 ansible_user=ssldung ansible_port=2022 ansible_ssh_private_key_file=./.ssh/id_rsa
  2    |
```

- First output (O1)

```
dungho@DungHos-MBP 6.1 Ansible % ansible-playbook DevOps_6.1_ansible.yml

PLAY [all] ***********************************************************************************

TASK [Gathering Facts] **********************************************************************
ok: [ansible1]

TASK [Ensure that the image has the latest version of git version management system] *********
changed: [ansible1]

TASK [Check Git version] ********************************************************************
changed: [ansible1]

TASK [Print Git version to console] ********************************************************
ok: [ansible1] => {
    "msg": "git version 2.34.1"
}

TASK [Check hosts's uptime info] ***********************************************************
changed: [ansible1]

TASK [Print hosts's uptime info to console] ***********************************************
ok: [ansible1] => {
    "msg": " 22:51:47 up 17 min,  0 users,  load average: 0.23, 0.08, 0.02"
}

PLAY RECAP **********************************************************************************
ansible1                   : ok=6    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

- Second output (O2)

```
dungho@DungHos-MBP 6.1 Ansible % ansible-playbook DevOps_6.1_ansible.yml

PLAY [all] ***********************************************************************************

TASK [Gathering Facts] **********************************************************************
ok: [ansible1]

TASK [Ensure that the image has the latest version of git version management system] *********
ok: [ansible1]

TASK [Check Git version] ********************************************************************
changed: [ansible1]

TASK [Print Git version to console] ********************************************************
ok: [ansible1] => {
    "msg": "git version 2.34.1"
}

TASK [Check hosts's uptime info] ***********************************************************
changed: [ansible1]

TASK [Print hosts's uptime info to console] ***********************************************
ok: [ansible1] => {
    "msg": " 22:55:21 up 21 min,  0 users,  load average: 0.08, 0.05, 0.01"
}

PLAY RECAP **********************************************************************************
ansible1                   : ok=6    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

- Start second container

```
● dungho@DungHos-MBP 6.1 Ansible % docker run -d -p 2222:22 --name ansible2 ansible
  b96eced34bdabb1cd2dd3d19e130e1ac6c7757a7540d31a36b26f58db9b63107
○ dungho@DungHos-MBP 6.1 Ansible %
```

- Add second container's port (2222) to the hosts file

```
6.1 Ansible > inv > ≡ hosts
    1    ansible1 ansible_host=127.0.0.1 ansible_user=ssldung ansible_port=2022 ansible_ssh_private_key_file=./.ssh/id_rsa
    2    ansible2 ansible_host=127.0.0.1 ansible_user=ssldung ansible_port=2222 ansible_ssh_private_key_file=./.ssh/id_rsa
    3
```

- Third output (O3)

```
TASK [Check Git version] ***********************************************************************************************
changed: [ansible1]
changed: [ansible2]

TASK [Print Git version to console] ************************************************************************************
ok: [ansible1] => {
    "msg": "git version 2.34.1"
}
ok: [ansible2] => {
    "msg": "git version 2.34.1"
}

TASK [Check hosts's uptime info] ***************************************************************************************
changed: [ansible1]
changed: [ansible2]

TASK [Print hosts's uptime info to console] ****************************************************************************
ok: [ansible1] => {
    "msg": " 22:58:24 up 24 min,  0 users,  load average: 0.21, 0.07, 0.02"
}
ok: [ansible2] => {
    "msg": " 22:58:24 up 24 min,  0 users,  load average: 0.21, 0.07, 0.02"
}

PLAY RECAP *************************************************************************************************************
ansible1                   : ok=6    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
ansible2                   : ok=6    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

- Fourth output (O4)

```
TASK [Check Git version] ***********************************************************************************************
changed: [ansible1]
changed: [ansible2]

TASK [Print Git version to console] ************************************************************************************
ok: [ansible1] => {
    "msg": "git version 2.34.1"
}
ok: [ansible2] => {
    "msg": "git version 2.34.1"
}

TASK [Check hosts's uptime info] ***************************************************************************************
changed: [ansible1]
changed: [ansible2]

TASK [Print hosts's uptime info to console] ****************************************************************************
ok: [ansible1] => {
    "msg": " 22:59:07 up 25 min,  0 users,  load average: 0.26, 0.09, 0.02"
}
ok: [ansible2] => {
    "msg": " 22:59:07 up 25 min,  0 users,  load average: 0.26, 0.09, 0.02"
}

PLAY RECAP *************************************************************************************************************
ansible1                   : ok=6    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
ansible2                   : ok=6    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```