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Отчет по лабораторной работе №3

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## Dockerfile для создания образа контейнеров

```
FROM ubuntu:latest

RUN apt-get update && apt-get install -y \
    openssh-server \
    python3 \
    python3-pip \
    sudo

RUN useradd -m -s /bin/bash user && echo "user:password" | chpasswd \
    && mkdir /home/user/.ssh && chmod 700 /home/user/.ssh \
    && usermod -aG sudo user

COPY id_rsa.pub /home/user/.ssh/authorized_keys
RUN chmod 600 /home/user/.ssh/authorized_keys \
    && chown -R user:user /home/user/.ssh

RUN echo "PasswordAuthentication yes" >> /etc/ssh/sshd_config \
    && echo "PermitRootLogin no" >> /etc/ssh/sshd_config \
    && echo "AllowUsers user" >> /etc/ssh/sshd_config

RUN mkdir /var/run/ssh

EXPOSE 22

CMD ["/usr/sbin/sshd", "-D"]
```

## Запускаем 2 контейнера

```
root@timofei-Aspire-E5-575G:/home/timofei/Coding/Architecture/Lab_3# docker run -d -p 2224:22 --hostname cont1 --name lab3_1 lab3
52add4dc6a5daf6f15ebcfcb682db2b78292c23e93907c6ed314e4163a81d8de
root@timofei-Aspire-E5-575G:/home/timofei/Coding/Architecture/Lab_3# docker run -d -p 2225:22 --hostname cont2 --name lab3_2 lab3
7e7c49258cead005c3d96bae09696e4b3ae3224beb2115df5c6f7bff5f81bfb2
root@timofei-Aspire-E5-575G:/home/timofei/Coding/Architecture/Lab_3# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
7e7c49258cea   lab3     "/usr/sbin/sshd -D"      2 seconds ago Up 2 seconds  0.0.0.0:2225->22/tcp, [::]:2225->22/tcp   lab3_2
52add4dc6a5d   lab3     "/usr/sbin/sshd -D"      9 seconds ago Up 9 seconds  0.0.0.0:2224->22/tcp, [::]:2224->22/tcp   lab3_1
root@timofei-Aspire-E5-575G:/home/timofei/Coding/Architecture/Lab_3#
```

## Проверяем вход в контейнеры через ssh-ключ

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible$ ssh user@localhost -p 2224
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.11.0-9-generic x86_64)

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

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.

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.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

user@cont1:~$ exit
logout
Connection to localhost closed.
```

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible$ ssh user@localhost -p 2225
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.11.0-9-generic x86_64)

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

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

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Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

user@cont2:~$ █
```

## Создаем директорию ansible

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible$ ls
ansible.cfg  inventory  playbooks  roles
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible$ █
```

Создаем ansible.cfg

```
[defaults]
inventory = inventory/hosts
roles_path = roles
remote_user = root
become = true
```

Создаем конфигурацию для подключения к контейнерам

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible/inventory$ cat hosts
[containers]
lab3_1 ansible_host=localhost ansible_port=2224 ansible_user=user ansible_ssh_private_key_file=/home/timofei/.ssh/id_rsa
lab3_2 ansible_host=localhost ansible_port=2225 ansible_user=user ansible_ssh_private_key_file=/home/timofei/.ssh/id_rsa
```

Проверяем доступ

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible$ ansible -m ping all
lab3_2 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
lab3_1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
```

Вывод команды “hostname”

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible$ ansible -m shell -a hostname lab3_1,lab3_2
lab3_1 | CHANGED | rc=0 >>
cont1
lab3_2 | CHANGED | rc=0 >>
cont2
```

Создаем playbook и шаблон для сохранения информации о системе контейнеров

system\_info.yaml

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible/playbooks$ cat system_info.yml
---
- name: Gather and generate detailed system information
  hosts: all
  gather_facts: yes
  tasks:
    - name: Generate system information file
      ansible.builtin.template:
        src: templates/system_info.j2
        dest: /tmp/system_info.json
      tags: sysinfo
```

## templates/system\_info.j2

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible/playbooks/templates$ cat system_info.j2
{
    hostname: "{{ ansible_hostname }}"
    kernel: "{{ ansible_kernel }}"
    architecture: "{{ ansible_architecture }}"
    processor_cores: "{{ ansible_processor_cores }}"
    memory_mb: "{{ ansible_memtotal_mb }}"
    distribution: "{{ ansible_distribution }}"
    distribution_version: "{{ ansible_distribution_version }}"
    os_family: "{{ ansible_os_family }}"
}
```

```
timofei@timofei-Aspire-E5-575G:~/Coding/Architecture/Lab_3/ansible$ ansible-playbook playbooks/system_info.yml

PLAY [Gather and generate detailed system information] *****

TASK [Gathering Facts] *****
ok: [lab3_1]
ok: [lab3_2]

TASK [Generate system information file] *****
changed: [lab3_2]
changed: [lab3_1]

PLAY RECAP *****
lab3_1      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
lab3_2      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

## Результат работы

```
user@cont1:~$ cat /tmp/system_info.json
{
    hostname: "cont1"
    kernel: "6.11.0-9-generic"
    architecture: "x86_64"
    processor_cores: "2"
    memory_mb: "5280"
    distribution: "Ubuntu"
    distribution_version: "24.04"
    os_family: "Debian"
}
```

```
user@cont2:~$ cat /tmp/system_info.json
{
    hostname: "cont2"
    kernel: "6.11.0-9-generic"
    architecture: "x86_64"
    processor_cores: "2"
    memory_mb: "5280"
    distribution: "Ubuntu"
    distribution_version: "24.04"
    os_family: "Debian"
}
```