Balai Pengembangan Talenta Indonesia
Pusat Prestasi Nasional
Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi

MERDEKA BELAJAR

LKS SMK TINGKAT NASIONAL

SMK

Soal

Lomba Kompetensi Siswa Nasional 2024

Teknologi Informasi Sistem Administrasi Jaringan *(IT Network System Administration)*

MERDEKA BERPRESTASI
Talenta Vokasi Menginspirasi

ACTUAL TEST PROJECT
MODUL C – INFRASTRUCTURE PROGRAMMABILITY & AUTOMATION

IT NETWORK SYSTEMS ADMINISTRATION

LOMBA KOMPETENSI SISWA SMK
TINGKAT NASIONAL 2024

Description of project and tasks

- We have installed these IDEs in JUMPHOST.
  - VSCode
  - Atom
  - Other IDEs available in DLBD can also be installed and used.
- No offline documentations provided.

Instructions to the Competitor

- Use user **root/Administrator** with password **P@ssw0rd** to access VMs.
- We require you to use ansible playbooks, but you may also use Bash and/or Python script for tasks that are not inventory, with 50% score reduction for that particular task.
- Ansible playbooks or scripts must be run by user root from JUMPHOST, and must not require any additional input (e.g. password, SSH key authentication, and so on).
- Please write all command examples on how to run the playbook (or script if you choose) in /etc/motd in JUMPHOST, we provided an example file in the appendix.
- If your script or playbook is not documented, we may use it wrongly and you may lose score.
- Filename is provided in each task, please place all created playbook in /home/user/ansible/
- If you choose to use Bash/Python, place the scripts in /home/user/scripts/, change the filename from .yml to .sh or .py, and give proper permission to run the script.
- For each task, don't create both files in /home/user/scripts and /home/user/ansible, choose one location only.
- Before we check the competitor's score, all vms will be rebooted and we will run a script to remove packages, users, and configurations to make sure the competitor's playbook/script functionality.
- **DO NOT CHANGE 192.168.40.x IP addresses already present in linux hosts**. This IP is also used for vms identification, you may lose score if you change/remove the IP.

Part I – Basic Automation

1. Create a basic inventory file in **/home/user/ansible/all-linux** containing all linux hosts except jumphost.
2. Create role-based inventory file that is compatible with other tasks:
   - /home/user/ansible/site-1, with this setup:
     - Sinabung as **dns**
     - Rinjani as **web**
     - Serua as **web**
   - /home/user/ansible/site-2, with this setup:
     - Rinjani as **dns**
     - Sinabung as **web**
3. Create a playbook with name **hostname-all.yml** to change all hostname in all linux hosts to the correct as shown in Topology.
4. Create a playbook with name **dns-install.yml** to install DNS service in all linux hosts. You may use any DNS service. Make sure the service listens on each IP address the server has, not on 0.0.0.0. For example, if the host has 192.168.1.1 and 127.0.0.1, then the service must listen on these IPs only. We will add a new IP to grade the task.
5. Create a playbook with name **haproxy-all.yml** to install and configure to listen in port 8081, and reverse proxy all requests to apache service on localhost. This must be executed on all linux hosts.

Part II – Idempotency

1. Create a playbook with name **etc-hosts-all.yml** to append /etc/hosts record in all linux hosts, with content specified in appendix. Make sure the same records are not created multiple times, and the original /etc/hosts is not deleted.
2. Create a playbook with name **dns-config.yml** to configure DNS service in all linux hosts to reply to query lksn2024.id with an A record to 10.17.8.45. Make sure the same records are not created multiple times.

Part III – Role-based

1. Create a playbook with name **restart-dns.yml** to reboot hosts with **dns** role.
2. Create a playbook with name **restart-web.yml** to reboot hosts with **web** role.
3. Create a playbook with name **stop-dns.yml** to stop DNS service in hosts with **dns** role.

Part IV – Arguments

1. Create a playbook with name **add-user.yml** to create users in all linux hosts with specified password, from the text file **/root/usernames.txt**. We will change the text file to grade the task later.
2. Create a playbook with name **install-package.yml** to install a package in all linux hosts, by reading from a text file **/root/packages.txt**. Sample text file is provided in the appendix, and we will change the text file to grade the task later

Part V – Complex

1. Create playbook with name **apache-install.yml** to install and configure apache service in all linux hosts with these details (change hostname with each hostname):
    - Edit default index.html to “Welcome to $(hostname)”
2. Create playbook with name **dns-add-record.yml** to add specific DNS entry to the DNS service in all linux hosts from text file **/root/dnslist.txt** :
    - Automatically restart service if there is change.
    - Don’t restart service if there is no change.
    - Apply to all hosts with condition if DNS service installed.
    - If DNS service is not installed then it must not return an error but just skip the execution.

Part VI – Windows

1. Create a playbook with name **windows-iis.yml** to install IIS in windows server and create webpages for all users specified in **/root/usernames.txt** with index.html content rendered correctly (refer to appendix). We will change the text file to grade the task later. Use /$(username)/index.html as path, for example:
    - /abdul/index.html
    - /ahmad/index.html
    - and so on
2. Create a playbook with name **windows-dns.yml** to install DNS in windows hosts and create the record awu.lks2024.id to IP 10.17.8.45
    - Delete the record after your testing

Appendix

- /etc/motd

```
## i_03 Change all hostname in linux hosts
ansible-playbook -i /root/ansible/all-linux /root/ansible/hostname-all.yml

## i_04 Install DNS in all linux hosts
ansible-playbook -i /root/ansible/all-linux /root/ansible/dns-install.yml

## i_05 Configure DNS in all linux hosts
ansible-playbook -i /root/ansible/ all-linux /root/ansible/etc-hosts-all.yml
```

- /etc/hosts

```
10.17.10.17 lksn2024.local
10.19.45.19 pic.lksn2024.local
```

- /root/usernames.txt

```
user,password
abdul,password123
ahmad,password345
salma,passwerd111
ihsan,asdfghjkl
bagas,qwertyuiop
saepul,11223344
```

- /root/dnslist.txt

```
awu IN A 10.17.8.45
dns IN A 10.31.9.65
```

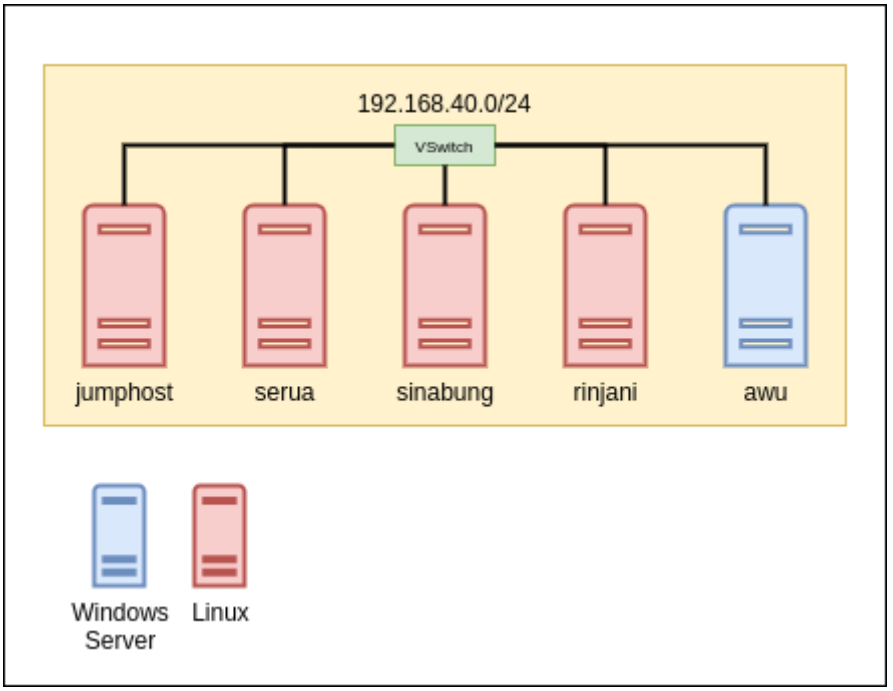
- /root/packages.txt

```
links
curl
wget
```

- index.html
  - Make sure variable username and hostname are rendered correctly

```
This is homepage for $(username) in $(hostname)
```

Topology


192.168.40.0/24
VSwitch
jumphost
serua
sinabung
rinjani
awu
Windows Server
Linux