LOMBA KOMPETENSI SISWA (LKS)
SEKOLAH MENENGAH KEJURUAN
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TEST PROJECT MODUL B
INFRASTRUCTURE PROGRAMMABLE & AUTOMATION

Bidang Lomba
IT NETWORK SYSTEMS ADMINISTRATION

Introduction

This Test Project consists of the following documentation/files:

- hosts (on BASTION VM: /home/user/workfolder)
- users.csv (on BASTION VM: /home/user/workfolder)

Accurate and up-to-date documentation has always been a challenge in IT. With multiple engineers working on the same systems, it is hard to keep track of who changed what. Applix Corporation decided to fix this problem and hired you to modernize, harden, and extend their infrastructure.

Documentations

The following documentation is installed in BASTION. You can use it with Zeal Docs.

- Ansible (version 2.14.3)
- Python 3 (version 3.11.2)
- Jinja (version 3.1.2)

Description of Project and Tasks

You will be migrating VMs to Infrastructure as Code (IaC) and simplifying the process of creating new services. You have access to development VMs (DEV-LIN). These VMs can be used for developing and testing your work.

Login for all VMs and Devices:

Linux

Username : root/user

Password : P@ssw0rd

Windows

Username : administrator/user

Password : P@ssw0rd

All VMs and devices are connected to the management network (10.0.10.0/24) and have a statically configured IP address. All IP addresses in the network table will not change for marking. The management network will be used for configuring the different hosts. You can log in using username and password over SSH or WinRM.

You may install any additional required packages and features on the VMs.

Instructions to the Competitor

Part 1. Linux

Use Ansible to configure the Linux hosts LIN[1-2] from BASTION VM. A preconfigured hosts file is located under /home/user/workfolder/hosts. Do not change this file. For marking, all playbooks will be run in order using the command “ansible-playbook -i linux/playbookname.yml” in the **/home/user/workfolder** directory.

Variables like “hostname”, “webport” and “webcolor” in **/home/user/workfolder/hosts** are subject to change for marking.

General

- Create a directory **/home/user/workfolder/linux**
  - Place all playbooks directly inside this directory.
  - You are free to create folders/files in this directory for running the playbooks.
  - When you run the playbooks for the second time, every task should either be in the “ok” state or be “skipped.”

Hostname

- Create a playbook called **1-hostname.yml** for configuring the hostname
  - Every host should be assigned a hostname, derived from the “hostname” variable found in the **/home/user/workfolder/hosts** file.

DNS

- Create a playbook called **2-dns-server.yml** for configuring at least two DNS servers
  - Install a DNS service **(Bind9)** on hosts in the group “dns”.
  - Create zone domain “linux.com”.
  - Create A record for linux.com to 10.0.10.11.
  - Ensure every host in the group Linux has an A record for <hostname>.linux.com.
- Create a playbook called **3-dns-client.yml**
  - Configure DNS nameservers to 10.0.10.11 and 10.0.10.20 for all group “linux”.

WEB Server

- Create a playbook called **4-web-server.yml** for configuring two or more web servers **(nginx)**
- Install a web service on all hosts in the group “web”
  - The local website should listen on port “webport” variable in /home/user/workfolder/hosts called <hostname>.linux.com.
  - Display the following content with text color based on the “webcolor” variable in /home/user/workfolder/hosts file

“Hello from <hostname> !”

Users

- Create a playbook called **5-users.yml** for importing users on all LIN hosts
  - Import the users from **/home/user/workfolder/users.csv** on all LIN hosts
  - Make sure, that the password is not changed if there is already an existing user with the same username and UID

Part 2. Windows

Use Ansible for configuring the Windows hosts, labeled as WIN, from the BASTION VM. A pre-configured hosts file is already available at /home/user/workfolder/hosts. This file should remain unchanged. For evaluation purposes, all playbooks will be executed in sequence using the command “ansible-playbook -i hosts windows/playbookname.yml” within the /home/user/workfolder directory.

General

- Create a directory **/home/user/workfolder/windows**
  - All playbooks should be located at the root of this directory
  - You are free to create folders/files in this directory for running the playbooks
  - When you run the playbooks for the second time, every task should either be in the “ok” state or be “skipped.”

Hostname

- Create a playbook called **1-hostname.yml** for configuring the hostname
  - All hosts should receive the hostname based on the “hostname” variable in /home/user/workfolder/hosts file

Security and logging

- Create a playbook called **2-sec-log.yml** for configuring security settings
  - Stop and disable the Remote Desktop Service on all Windows hosts

DNS

- Create a playbook called **3-dns-server.yml** to configure DNS Server
  - Install DNS Server on WIN
  - Create Zone windows.com set as primary
  - Create A record for windows.com to 10.0.10.20.
  - Create A record for <hostname>.windows.com.
  - Create A record for www.windows.com to 10.0.10.20
- Create a playbook called **3-dns-client.yml**
  - Configure DNS nameservers to 10.0.10.20 and 10.0.10.11 for all group “windows”.

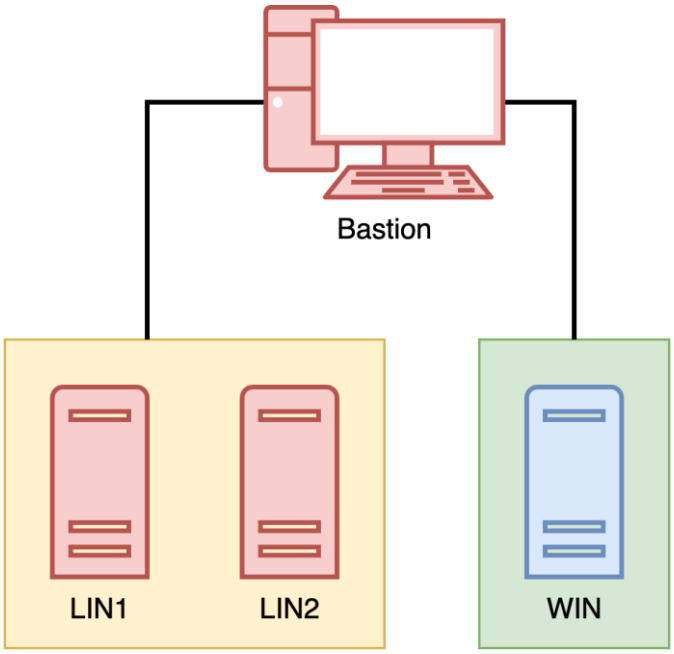
WEB Server

- Create a playbook called **4-web-server.yml** for installing the web server
  - Install the IIS WEB Server feature in the group windows
- Create http only for www.windows.com.
  - Display the following content.

“Hello from <hostname> !”

Appendix

Topology



System table

ID	IP	OS	DESCRIPTION
BASTION	10.0.10.1	Debian 12.4 (GUI)	Bastion Server for deployer ansible with the following software installed: - Python3 - Zeal Docs - Visual Studio Code
LIN1	10.0.10.11	Debian 12.4 (CLI)	Dynamic Config
LIN2	10.0.10.12	Debian 12.4 (CLI)	Dynamic Config
WIN	10.0.10.20	Windows Server 2022 (Desktop)	Dynamic Config