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# Red Hat Enterprise Linux Automation with Ansible

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# Lab: Creating Playbooks



In this review, you will create three playbooks in the Ansible project directory, `/home/student/review-playbooks`. One playbook will ensure that `lftp` is installed on systems that should be FTP clients, one playbook will ensure that `vsftpd` is installed and configured on systems that should be FTP servers, and one playbook (`site.yml`) will run both of the other playbooks.

## Outcomes

You should be able to:

Create and execute playbooks to perform tasks on managed hosts.

Utilize Jinja2 templates, variables, and handlers in playbooks.

### IMPORTANT

If you are having trouble with your `site.yml` playbook, make sure that both `ansible-vsftpd.yml` and `ftpclients.yml` use consistent indentation.

Log in to workstation as student using student as the password.

On workstation, run the lab `review-playbooks start` command.

```
[student@workstation ~]$ lab review-playbooks start
```

## Procedure 10.2. Instructions

As the student user on workstation, create the inventory file `/home/student/review-playbooks/inventory`, containing `serverc.lab.example.com` in the `ftpcclients` group, and `serverb.lab.example.com` and `serverd.lab.example.com` in the `ftpservers` group.

- 1.1. Change directory into the Ansible project directory, `/home/student/review-playbooks`, created by the setup script.

```
[student@workstation ~]$ cd ~/review-playbooks
```

- 1.2. Populate the inventory file with the following entries, and then save and exit.

```
[ftpservers]
serverb.lab.example.com
serverd.lab.example.com

[ftpcclients]
serverc.lab.example.com
```

### HIDE SOLUTION

Create the Ansible configuration file, `/home/student/review-playbooks/ansible.cfg`, and populate it with the necessary entries to meet these requirements:

Configure the Ansible project to use the newly created inventory

Connect to managed hosts as the `devops` user

Utilize privilege escalation using `sudo` as the `root` user

Escalate privileges for each task by default

```
[defaults]
remote_user = devops
inventory = ./inventory

[privilege_escalation]
become_user = root
become_method = sudo
become = true
```

**HIDE SOLUTION**

Create the playbook, `/home/student/review-playbooks/ftpclients.yml`, containing a play that targets hosts in the `ftpclients` inventory group and ensures that the `lftp` package is installed.

```
---
- name: Ensure FTP Client Configuration
  hosts: ftpclients

  tasks:
    - name: latest version of lftp is installed
      yum:
        name: lftp
        state: latest
```

**HIDE SOLUTION**

Place the provided `vsftpd.conf.j2` file in the `templates` subdirectory.

**4.1. Create the `templates` subdirectory.**

```
[student@workstation review-playbooks]$ mkdir -v templates
mkdir: created directory 'templates'
```

**4.2. Move the `vsftpd.conf.j2` file to the newly created `templates` subdirectory.**

```
[student@workstation review-playbooks]$ mv -v vsftpd.conf.j2 templates/
renamed 'vsftpd.conf.j2' -> 'templates/vsftpd.conf.j2'
```

**HIDE SOLUTION**

Place the provided `defaults-template.yml` file in the `vars` subdirectory.

**5.1. Create the `vars` subdirectory.**

```
[student@workstation review-playbooks]$ mkdir -v vars
mkdir: created directory 'vars'
```

**5.2. Move the `defaults-template.yml` file to the newly created `vars` subdirectory.**

```
[student@workstation review-playbooks]$ mv -v defaults-template.yml vars/
renamed 'defaults-template.yml' -> 'vars/defaults-template.yml'
```

**HIDE SOLUTION**

Create a `vars.yml` variable definition file in the `vars` subdirectory to define the following three variables and their values:

Variable	Value
<code>vsftpd_package</code>	<code>vsftpd</code>
<code>vsftpd_service</code>	<code>vsftpd</code>
<code>vsftpd_config_file</code>	<code>/etc/vsftpd/vsftpd.conf</code>

```
vsftpd_package: vsftpd
vsftpd_service: vsftpd
vsftpd_config_file: /etc/vsftpd/vsftpd.conf
```

**HIDE SOLUTION**

Using the previously created Jinja2 template and variable definition files, create a second playbook, `/home/student/review-playbooks/ansible-vsftpd.yml`, to configure the `vsftpd` service on the hosts in the `ftpservers` inventory group.

```

---
- name: FTP server is installed
  hosts:
    - ftpservers
  vars_files:
    - vars/defaults-template.yml
    - vars/vars.yml

  tasks:
    - name: Packages are installed
      yum:
        name: "{{ vsftpd_package }}"
        state: present

    - name: Ensure service is started
      service:
        name: "{{ vsftpd_service }}"
        state: started
        enabled: true

    - name: Configuration file is installed
      template:
        src: templates/vsftpd.conf.j2
        dest: "{{ vsftpd_config_file }}"
        owner: root
        group: root
        mode: 0600
        setype: etc_t
      notify: restart vsftpd

    - name: firewalld is installed
      yum:
        name: firewalld
        state: present

    - name: firewalld is started and enabled
      service:
        name: firewalld
        state: started
        enabled: yes

    - name: FTP port is open
      firewallld:
        service: ftp
        permanent: true
        state: enabled
        immediate: yes

    - name: FTP passive data ports are open
      firewallld:
        port: 21000-21020/tcp
        permanent: yes
        state: enabled
        immediate: yes

  handlers:
    - name: restart vsftpd
      service:
        name: "{{ vsftpd_service }}"
        state: restarted

```

**HIDE SOLUTION**

Create a third playbook, `/home/student/review-playbooks/site.yml`, and include the plays from the two playbooks created previously, `ftpclients.yml` and `ansible-vsftpd.yml`.

```

---
# FTP Servers playbook
- import_playbook: ansible-vsftpd.yml

# FTP Clients playbook
- import_playbook: ftpclients.yml

```

**HIDE SOLUTION**

Execute the `/home/student/review-playbooks/site.yml` playbook to verify that it performs the desired tasks on the managed hosts.

```
[student@workstation review-playbooks]$ ansible-playbook site.yml
```

HIDE SOLUTION

## Evaluation

As the student user on workstation, run the `lab review-playbooks grade` command to confirm success of this exercise. Correct any reported failures and rerun the script until successful.

```
[student@workstation ~]$ lab review-playbooks grade
```

## Finish

Run the `lab review-playbooks finish` command to clean up the lab tasks on `serverb`, `serverc`, and `serverd`.

```
[student@workstation ~]$ lab review-playbooks finish
```

This concludes the lab.

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