# Linux RedHat Certified Engineer (RHCE - EX294)

## Manage Complex Plays and Playbooks

# Setup Apache and Open Firewall Port

- The playbook will
  1. Install httpd package
  2. Start httpd service
  3. Open http service port in firewall
  4. Restart firewalld service

```
# Login to LinuxCleint1
# rpm -qa | grep http
# systemctl status firewalld

# Login to ControlNode
```

- Install additional Ansible collection for firewalld

```
# ansible-galaxy collection install ansible.posix

# cd /home/ansible/playbooks
# vim httpsetup.yml
```

- Ansible modules and options

**https://docs.ansible.com/ansible/2.5/modules/**

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# Setup Apache and Open Firewall Port

```
---
- name: Setup httpd and open firewall port
  hosts: all
  tasks:
  - name: Install apache packages
    yum:
     name: httpd
     state: present

  - name: Start httpd
    service:
     name: httpd
     state: started

  - name: Open port 80 for http access
    firewalld:
     service: http
     permanent: true
     state: enabled

  - name: Restart firewalld service to load firewall changes
    service:
     name: firewalld
     state: reloaded
```

**State** = What to do with the package?

- present or installed = Install
- absent or removed = Un-install
- latest = Upgrade

**State** = What to do with the service?

- started|stopped|reloaded|restarted

`save httpsetup.yml`

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# Setup Apache and Open Firewall Port

- Login back to **LinuxCleint1**

- Check httpd package status

```
# rpm –qa | grep http
```

- Check httpd package service status

```
# systemctl status httpd
```

- Check firewalld service status

```
# systemctl status firewalld
```

- Check if http service is enabled in firewalld

```
# firewall-cmd --list-all
```

- Open FireFox and go to 10.253.1.115

# Run Shell Scripts on Remote Clients

- The playbook will run shell script on the remote client (LinuxClient1)
- Create **`/home/iafzal/cfile.sh`** script on **`LinuxClient1`**
- The **`cfile.sh`** script should create a new file **`example1`**

```
# vim shellscript.yml

---
- name: Playbook for shell script
  hosts: all or 10.253.1.115

  tasks:
  - name: Run shell script
    shell: “/home/iafzal/cfile.sh”
```

- name: Playbook for shell script → Description of the playbook
- hosts: all or 10.253.1.115 → Run on client1
- tasks: → Run the following task
- name: Run shell script → Name/description of the task
- shell: “/home/iafzal/cfile.sh” → Run <u>**shell**</u> module which will execute shell script on LinuxClient1

Run the playbook

```
# anisble-playbook shellscript.yml
```

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# Schedule a job (crontab)

- The playbook **cronjob.yml** will
  - Schedule a job as a **root**
  - Every thursday at 10am
  - Define job **(/home/iafzal/cfile.sh)** to be executed by **root**

```
# vim cronjob.yml

---
- name: Create a cron job
  hosts: all

  tasks:
    - name: Schedule cron:
      cron:
        name: This job is scheduled by Ansible
        minute: “0”
        hour: “10”
        day: “*”
        month: “*”
        weekday: “4“
        user: root
        job: “/home/iafzal/cfile.sh”
```

day → Day of the month

weekday → Day of the week

Run the playbook

```
# anisble-playbook cronjob.yml
```

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# Download Package from a URL

- The playbook tomcat.yml will
  - Create a directory for tomcat with required permissions
  - Download tomcat from a url and place it in that directory with modified permissions

```
vim tomcat.yml
---
- name: Download Tomcat from tomcat.apache.org
  hosts: localhost
  tasks:
   - name: Create a Directory /opt/tomcat
     file:
       path: /opt/tomcat
       state: directory
       mode: 0755
       owner: root
       group: root
   - name: Download Tomcat using get_url
     get_url:
       url: https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.78/bin/apache-tomcat-8.5.78.tar.gz
       dest: /opt/tomcat
       mode: 0755
       group: iafzal
       owner: iafzal
```

Run the playbook

```
# anisble-playbook tomcat.yml
```

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# Create and Mount New Storage

- To create a new storage, we will power-off the VM add new disk (2GiB) from our virtualization software
- Also “**`parted`**” and “**`mount`**” module will be used in Ansible playbook
- Some Ansible distribution does not come with parted and mount module
  - Install **`parted`** and **`mount`** module
  - **`ansible-galaxy collection install community.general`**
  - **`ansible-galaxy collection install ansible.posix`**

```
ERROR! couldn't resolve module/action 'mount'. This often indicates
a misspelling, missing collection, or incorrect module path.
```

# Create and Mount New Storage

```
# vim newstorage.yml
---
- name: Create and mount new storage
  hosts: all

  tasks:
1       - name: create new partition
          parted:
                name: files
                label: gpt
                device: /dev/sdb
                number: 1
                state: present
                part_start: 1MiB
                part_end: 1GiB
2       - name: Create xfs filesystem
          filesystem:
                dev: /dev/sdb1
                fstype: xfs
3       - name: Create mount directory
          file:
                path: /data
                state: directory
4       - name: mount the filesystem
          mount:
                src: /dev/sdb1
                fstype: xfs
                state: mounted
```

Run the playbook

```
# anisble-playbook newstorage.yml
```

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