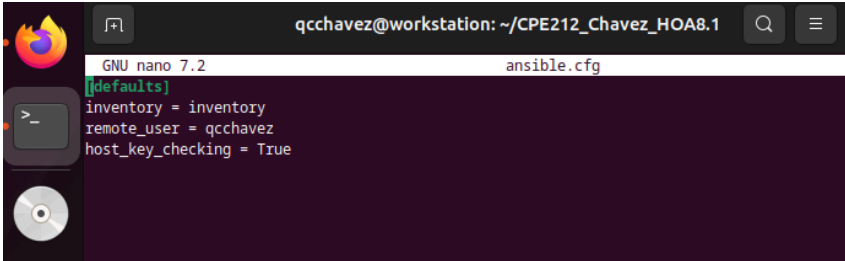
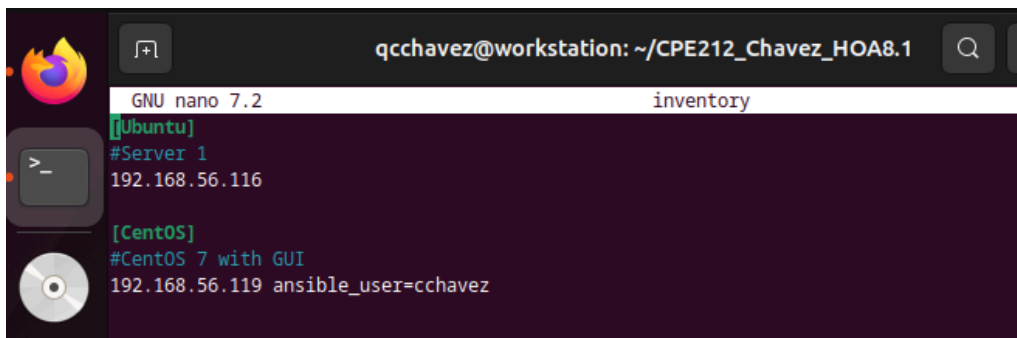


Name: Clarence B. Chavez	Date Performed: October 14, 2024
Course/Section: CPE31S2	Date Submitted: October 16, 2024
Instructor: Engr. Robin Valenzuela	Semester and SY: 1st Sem, 2024-2025
Activity 8: Install, Configure, and Manage Availability Monitoring tools	
1. Objectives	
Create and design a workflow that installs, configure and manage enterprise monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.	
2. Discussion	
Availability monitoring is a type of monitoring tool that we use if the certain workload is up or reachable on our end. Site downtime can lead to loss of revenue, reputational damage and severe distress. Availability monitoring prevents adverse situations by checking the uptime of infrastructure components such as servers and apps and notifying the webmaster of problems before they impact on business.	
3. Tasks	
<ol style="list-style-type: none">1. Create a playbook that installs Nagios in both Ubuntu and CentOS. Apply the concept of creating roles.2. Describe how you did step 1. (Provide screenshots and explanations in your report. Make your report detailed such that it will look like a manual.)3. Show an output of the installed Nagios for both Ubuntu and CentOS.4. Make sure to create a new repository in GitHub for this activity.	
4. Output (screenshots and explanations)	
<div><div>Task No.2</div><div><div>I. Introduction</div><p>This manual provides detailed instructions on installing and configuring Nagios on Linux, an event monitoring system that offers monitoring and alerting services for servers, switches, applications and services.</p></div><div><div>II. System Requirements</div><p>Before proceeding with the activity, ensure that the following system requirements are met:</p><p>Operating System/s: Ubuntu Desktop and CentOS 7</p><p>Memory: Minimum 2 GB RAM</p><p>Storage: Minimum 1 GB of free space</p></div><div><div>III. Procedure</div><ol style="list-style-type: none">1. Make sure that you already have Ubuntu Desktop and CentOS installed in your Oracle VirtualBox2. Create a directory where you will store the files that will be created for this activity.</div></div> <div><div>File content of ansible.cfg</div><div></div></div> <div><ol style="list-style-type: none">3. Creation of file named ansible.cfg for the configuration file of ansible-playbook that will be used later on.</div>	

File content of inventory



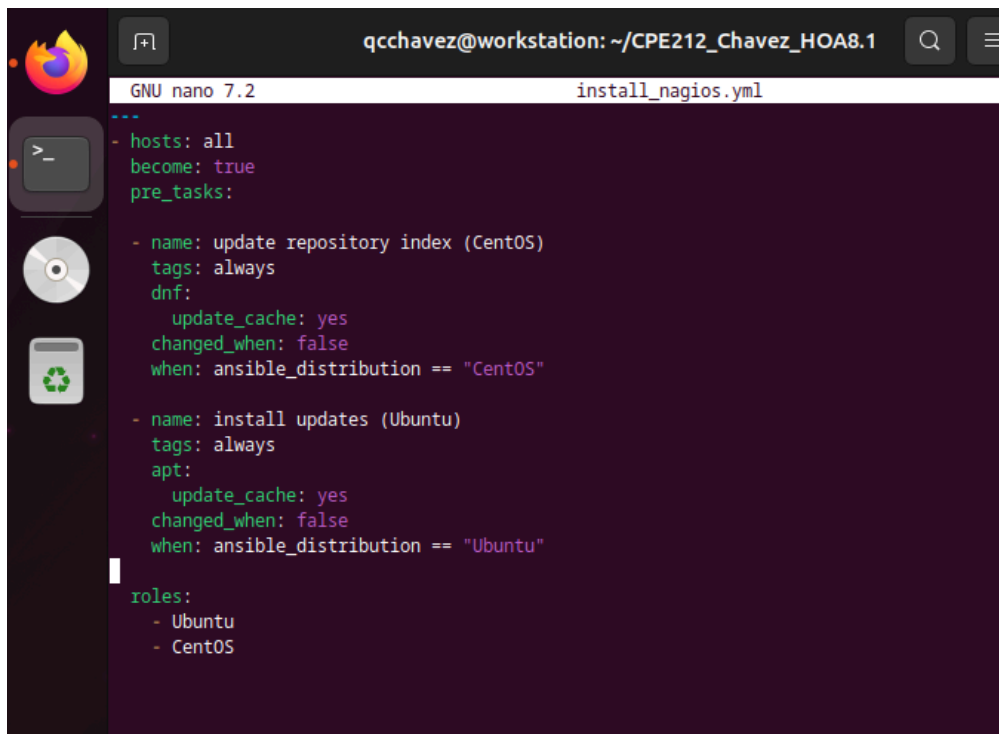
The screenshot shows a terminal window with the title bar 'qcchavez@workstation: ~/CPE212_Chavez_HOA8.1'. The nano editor is open to a file named 'inventory'. The content of the file is as follows:

```
GNU nano 7.2 inventory
[Ubuntu]
#Server 1
192.168.56.116

[CentOS]
#CentOS 7 with GUI
192.168.56.119 ansible_user=cchavez
```

- 4. Creation of file named **inventory** that contains the **group names** and the **ip addresses** of the remote servers that will be used for the hands-on activity.

File content of your playbook for initiation of every role's task



The screenshot shows a terminal window with the title bar 'qcchavez@workstation: ~/CPE212_Chavez_HOA8.1'. The nano editor is open to a file named 'install_nagios.yml'. The content of the file is as follows:

```
GNU nano 7.2 install_nagios.yml
---
- hosts: all
  become: true
  pre_tasks:

- name: update repository index (CentOS)
  tags: always
  dnf:
    update_cache: yes
    changed_when: false
    when: ansible_distribution == "CentOS"

- name: install updates (Ubuntu)
  tags: always
  apt:
    update_cache: yes
    changed_when: false
    when: ansible_distribution == "Ubuntu"

roles:
  - Ubuntu
  - CentOS
```

- 5. Creation of main ansible playbook file named **install_nagios.yml** that contains the tasks for **repository index update of both CentOS and Ubuntu** remote servers, and also the **initiation of the roles for Ubuntu and CentOS groups** in the inventory file.

File content of CentOS's task

```
qcchavez@workstation:~/CPE212_Chavez_H0A8.1/roles/CentOS/tasks$ cat main.yml
---
- name: Install EPEL repository
  yum:
    name: epel-release
    state: latest
    when: ansible_distribution == "CentOS"

- name: Installing required packages for Nagios
  yum:
    name: nagios
    state: latest
    when: ansible_distribution == "CentOS"

- name: Enable Nagios service
  service:
    name: nagios
    state: restarted
    enabled: true
    when: ansible_distribution == "CentOS"

- name: Install Nagios Dependencies
  yum:
    name:
      - gd-devel
      - libpng-devel
      - freetype-devel
      - gcc
      - glibc
    state: latest
    when: ansible_distribution == "CentOS"
qcchavez@workstation:~/CPE212_Chavez_H0A8.1/roles/CentOS/tasks$
```

6. Creation of ansible playbook task file named **main.yml for CentOS** that contains the tasks for **installation of EPEL repository** (which is required for nagios installation), **installation of nagios itself and its dependencies**, and the task for **starting the nagios service**.

File content of Ubuntu's task

```
qcchavez@workstation:~/CPE212_Chavez_H0A8.1/roles/Ubuntu/tasks$ cat main.yml
---
- name: Install required packages
  apt:
    name: nagios4-core
    state: latest
    when: ansible_distribution == "Ubuntu"

- name: Enable Nagios service
  service:
    name: nagios4
    state: restarted
    enabled: true
    when: ansible_distribution == "Ubuntu"

- name: Install Nagios Dependencies
  apt:
    name:
      - libgd-dev
      - libpng-dev
      - libfreetype6-dev
      - gcc
      - libc6-dev
    state: latest
    when: ansible_distribution == "Ubuntu"
qcchavez@workstation:~/CPE212_Chavez_H0A8.1/roles/Ubuntu/tasks$
```

7. Creation of ansible playbook task file named **main.yml for Ubuntu** that contains the tasks for **installation of nagios4-core and its dependencies**, and the **starting of nagios service**.

File contents of your repository

```
qcchavez@workstation:~/CPE212_Chavez_HOA8.1$ tree
.
├── ansible.cfg
├── install_nagios.yml
├── inventory
└── roles
    ├── CentOS
    │   └── tasks
    │       └── main.yml
    └── Ubuntu
        └── tasks
            └── main.yml

6 directories, 5 files
```

8. This is the overall file contents of the whole repository for this task.

Task No. 3

```
qcchavez@workstation: ~/CPE212_Chavez_HOA8.1/roles/Ubunt...
qcchavez@workstation:~/CPE212_Chavez_HOA8.1$ ansible-playbook --ask-become-pass install_nagios.yml
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.116]
ok: [192.168.56.119]

TASK [update repository index (CentOS)] *****
skipping: [192.168.56.116]
ok: [192.168.56.119]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.119]
ok: [192.168.56.116]

TASK [Ubuntu : Install required packages] *****
skipping: [192.168.56.119]
ok: [192.168.56.116]

TASK [Ubuntu : Enable Nagios service] *****
skipping: [192.168.56.119]
changed: [192.168.56.116]

TASK [Ubuntu : Install Nagios Dependencies] *****
skipping: [192.168.56.119]
ok: [192.168.56.116]

TASK [CentOS : Install EPEL repository] *****
skipping: [192.168.56.116]
ok: [192.168.56.119]

TASK [CentOS : Installing required packages for Nagios] *****
skipping: [192.168.56.116]
ok: [192.168.56.119]

TASK [CentOS : Enable Nagios service] *****
skipping: [192.168.56.116]
changed: [192.168.56.119]

TASK [CentOS : Install Nagios Dependencies] *****
skipping: [192.168.56.116]
```

```
TASK [Ubuntu : Install Nagios Dependencies] *****
skipping: [192.168.56.119]
ok: [192.168.56.119]

TASK [CentOS : Install EPEL repository] *****
skipping: [192.168.56.116]
ok: [192.168.56.119]

TASK [CentOS : Installing required packages for Nagios] *****
skipping: [192.168.56.116]
ok: [192.168.56.119]

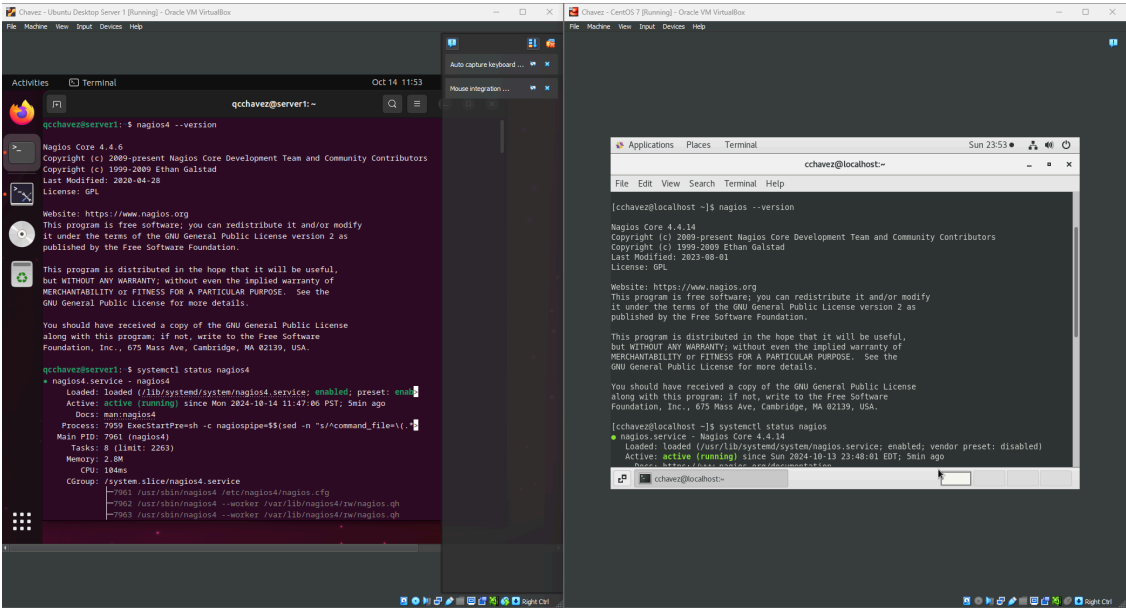
TASK [CentOS : Enable Nagios service] *****
skipping: [192.168.56.116]
changed: [192.168.56.119]

TASK [CentOS : Install Nagios Dependencies] *****
skipping: [192.168.56.116]
ok: [192.168.56.119]

PLAY RECAP *****
192.168.56.116      : ok=5    changed=1    unreachable=0    failed=0    skipped=5    rescued=0
ignored=0
192.168.56.119      : ok=6    changed=1    unreachable=0    failed=0    skipped=4    rescued=0
ignored=0

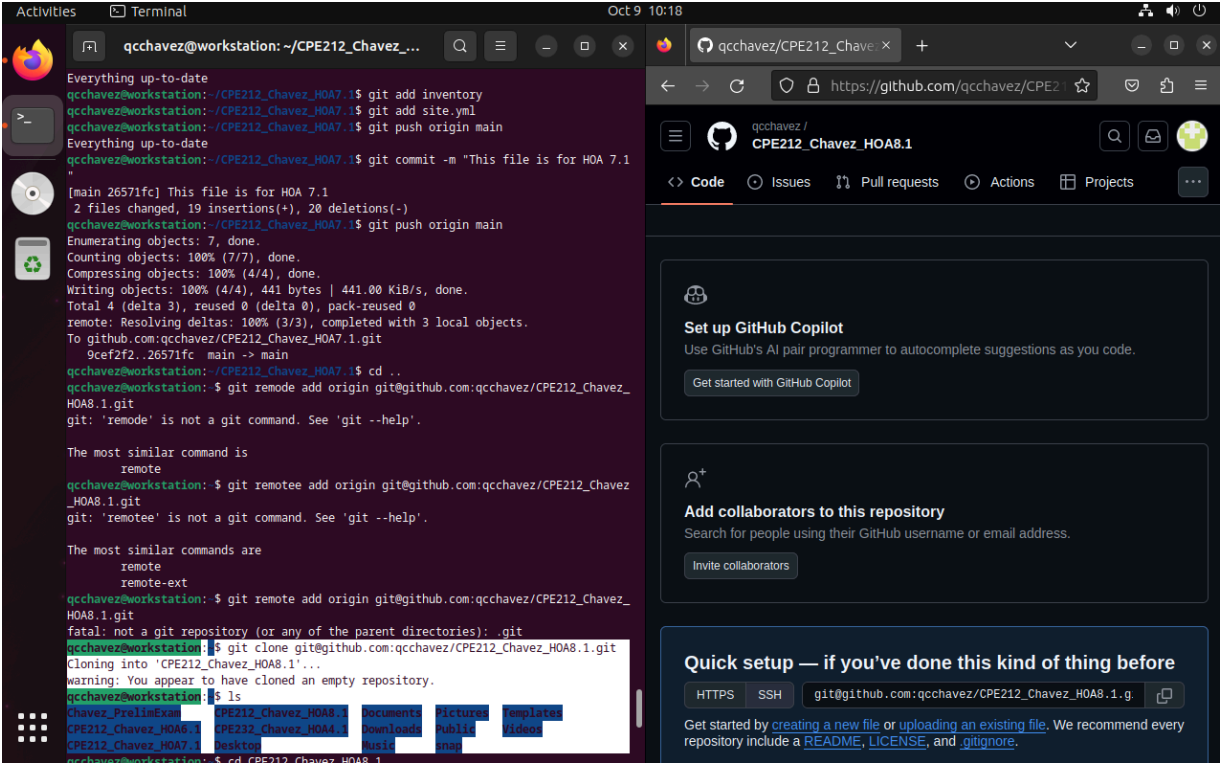
qcchavez@workstation:~/CPE212_Chavez_H0A8.1$ cd roles/CentOS/tasks
qcchavez@workstation:~/CPE212_Chavez_H0A8.1/roles/CentOS/tasks$ cat main.yml
```

9. After doing all the necessary tasks that were shown from the previous screenshots, I ran the main ansible-playbook which is the **install_nagios.yml**. It shows that the playbook worked properly.



10. In this screenshot, it shows that **Nagios** monitoring tool is indeed installed on both remote servers (**CentOS and Ubuntu Desktop**) and is working properly.

Task No. 4



11. Committing the CPE212_Chavez_HOA8.1 repository to GitHub.

Reflections:

Answer the following:

1. What are the benefits of having an availability monitoring tool?
 - The benefits of having an availability monitoring tool is that it detects issues early to reduce downtime, alerts the system administrators for quicker issue fixes, produces optimal performance and availability for users, being able to identify potential problems before they can cause major failures, and also minimizes costs from downtime and emergency fixes.

Conclusions:

- In this activity, I’ve learned that implementing an availability monitoring tool is very important in terms of maintaining the reliability of your system, as it improves overall operational efficiency, and also ensuring the optimal user experience. This is a key component especially to business continuity since it provides real-time alerts, pro-active maintenance and produces valuable performance data that will make the system administrators be able to quickly solve these possible issues.