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Course/Section: CPE212 - CPE31S2	Date Submitted: 10/16/2024
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

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)

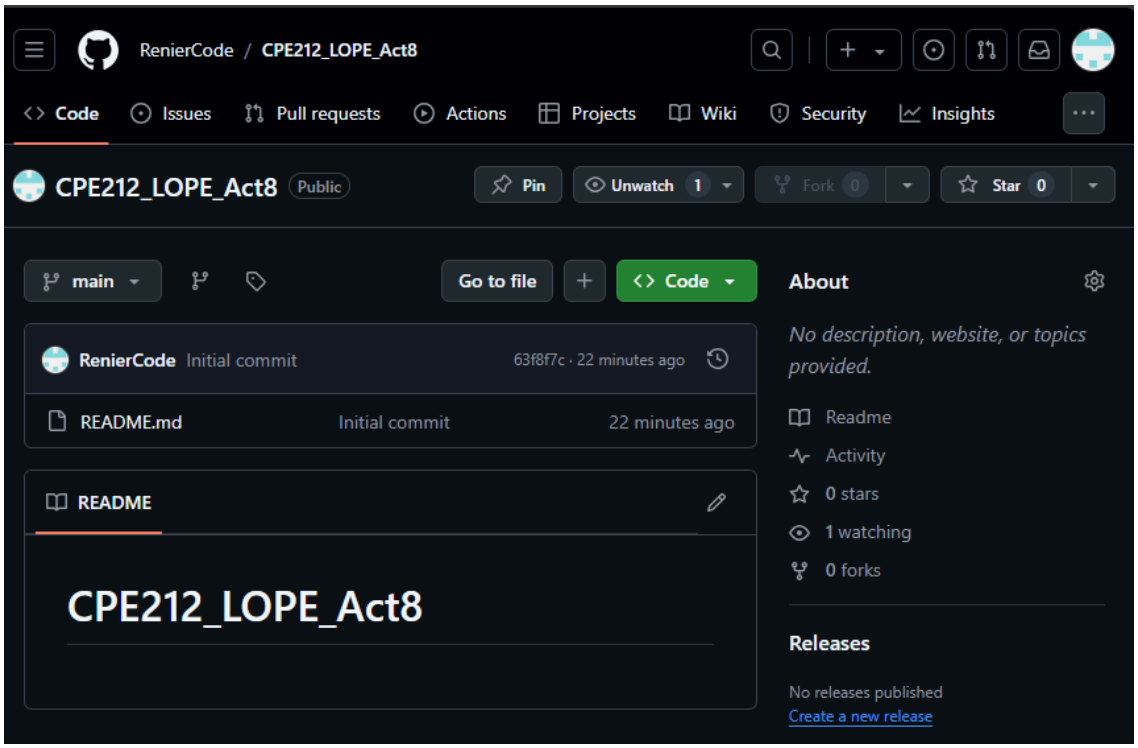

Figure 4.1: Create a new Repository.

```
rnrlope@workstation:~$ git clone git@github.com:RenierCode/CPE212_LOPE_Act8
Cloning into 'CPE212_LOPE_Act8'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
rnrlope@workstation:~$ cd CPE*8
rnrlope@workstation:~/CPE212_LOPE_Act8$
```

Figure 4.2: Clone the repository to the local machine.

```
rnrlope@workstation:~/CPE212_LOPE_Act8$ nano ansible.cfg
rnrlope@workstation:~/CPE212_LOPE_Act8$ cat ansible.cfg
[defaults]
inventory = inventory
remote_user = rnrlope
host_key_checking = True
deprecation_warnings = False
rnrlope@workstation:~/CPE212_LOPE_Act8$ nano inventory
rnrlope@workstation:~/CPE212_LOPE_Act8$ cat inventory
[web_servers]
server1

[db_servers]
centOS
rnrlope@workstation:~/CPE212_LOPE_Act8$
```

Figure 4.3: Create an ansible.cfg and inventory file inside the repository.

```
rnrlope@workstation:~/CPE212_LOPE_Act8$ nano nagios.yml
rnrlope@workstation:~/CPE212_LOPE_Act8$ cat 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"

- hosts: all
  become: true
  roles:
    -  base

- hosts: all
  become: true
  roles:
    - reqs_nagios

- hosts: db_servers:web_servers
  become: true
  roles:
    - install_nagios
rnrlope@workstation:~/CPE212_LOPE_Act8$
```

Figure 4.4: Create a playbook named nagios.yml inside the repository. This Play will play the desired playbooks inside the roles.

```
rnrlope@workstation:~/CPE212_LOPE_Act8$ mkdir roles
rnrlope@workstation:~/CPE212_LOPE_Act8$ cd roles
rnrlope@workstation:~/CPE212_LOPE_Act8/roles$ mkdir base reqs_nagios install_nagios
rnrlope@workstation:~/CPE212_LOPE_Act8/roles$ ls
base  install_nagios  reqs_nagios
```

Figure 4.5: Create a directory named roles. Inside roles create a new directory named base, reqs_nagios, and install_nagios respectively.

```
rnrlope@workstation:~/CPE212_LOPE_Act8/roles$ cd base
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/base$ mkdir tasks
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/base$ cd ..
rnrlope@workstation:~/CPE212_LOPE_Act8/roles$ cd install_nagios
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/install_nagios$ mkdir tasks
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/install_nagios$ cd ..
rnrlope@workstation:~/CPE212_LOPE_Act8/roles$ cd reqs_nagios
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/reqs_nagios$ mkdir tasks
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/reqs_nagios$ cd ..
rnrlope@workstation:~/CPE212_LOPE_Act8/roles$
```

Figure 4.6: Create directories named ‘tasks’ inside the base, reqs_nagios, and install_nagios directories respectively.

```
rnrlope@workstation:~/CPE212_LOPE_Act8/roles$ cd base/tasks
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/base/tasks$ nano main.yml
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/base/tasks$ cat main.yml
---
- name: install updates (CentOS)
  tags: always
  dnf:
    update_only: yes
    update_cache: yes
  when: ansible_distribution == "CentOS"

- name: install updates (Ubuntu)
  tags: always
  apt:
    upgrade: dist
    update_cache: yes
  when: ansible_distribution == "Ubuntu"
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/base/tasks$
```

Figure 4.7: Create a playbook file inside tasks, which is inside the directory ‘base’. This playbook will update both CentOS and Ubuntu.

```
rnrlope@workstation:~/CPE212_LOPE_Act8$ cd roles/reqs_nagios/tasks
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/reqs_nagios/tasks$ nano main.yml
rnrlope@workstation:~/CPE212_LOPE_Act8/roles/reqs_nagios/tasks$ cat main.yml
---
- name: Install nagios requirements (Ubuntu)
  apt:
    name:
      - autoconf
      - gcc
      - libc6
      - make
      - wget
      - unzip
      - libssl-dev
      - apache2
      - php
      - libapache2-mod-php7.2
      - libgd-dev
      - build-essential
    state: latest
    force: true
    update_cache: true
  become: true
  when: ansible_distribution == "Ubuntu"

- name: Install nagios requirements (CentOS)
  dnf:
    name:
      - gcc
      - glibc
      - glibc-common
      - wget
      - unzip
      - httpd
      - php
      - gd
      - gd-devel
      - perl
      - postfix
      - openssl-devel
    state: latest
  become: true
  when: ansible_distribution == "CentOS"

rnrlope@workstation:~/CPE212_LOPE_Act8/roles/reqs_nagios/tasks$
```

Figure 4.8: Create a playbook file inside tasks, which is inside the directory 'reqs_nagios'. This playbook will Install the requirements of Nagios on both Ubuntu and CentOS.

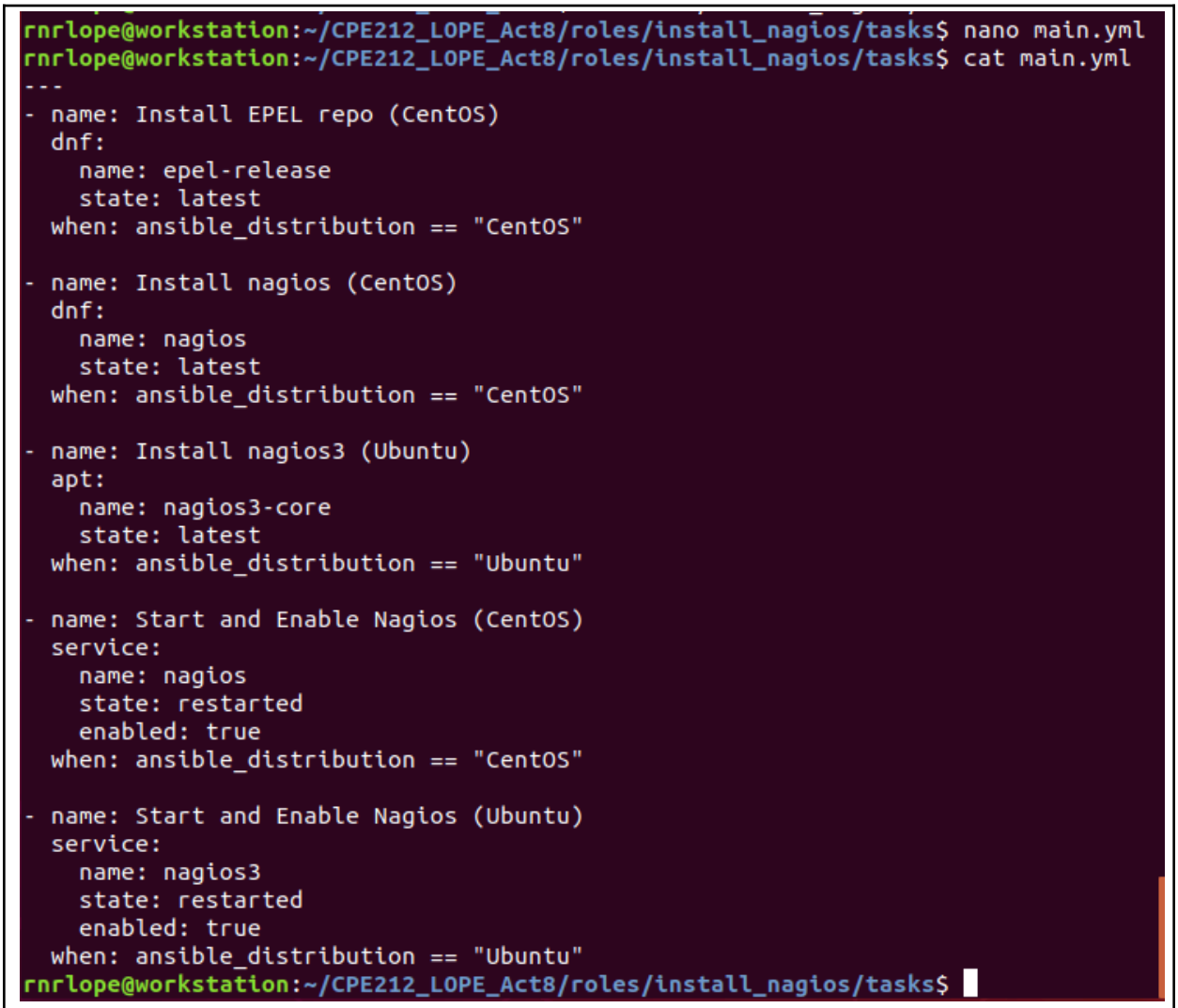

Figure 4.9: Create a playbook file inside tasks, which is inside the directory 'install_nagios'. This playbook will install and start the Nagios on both Ubuntu and CentOS.

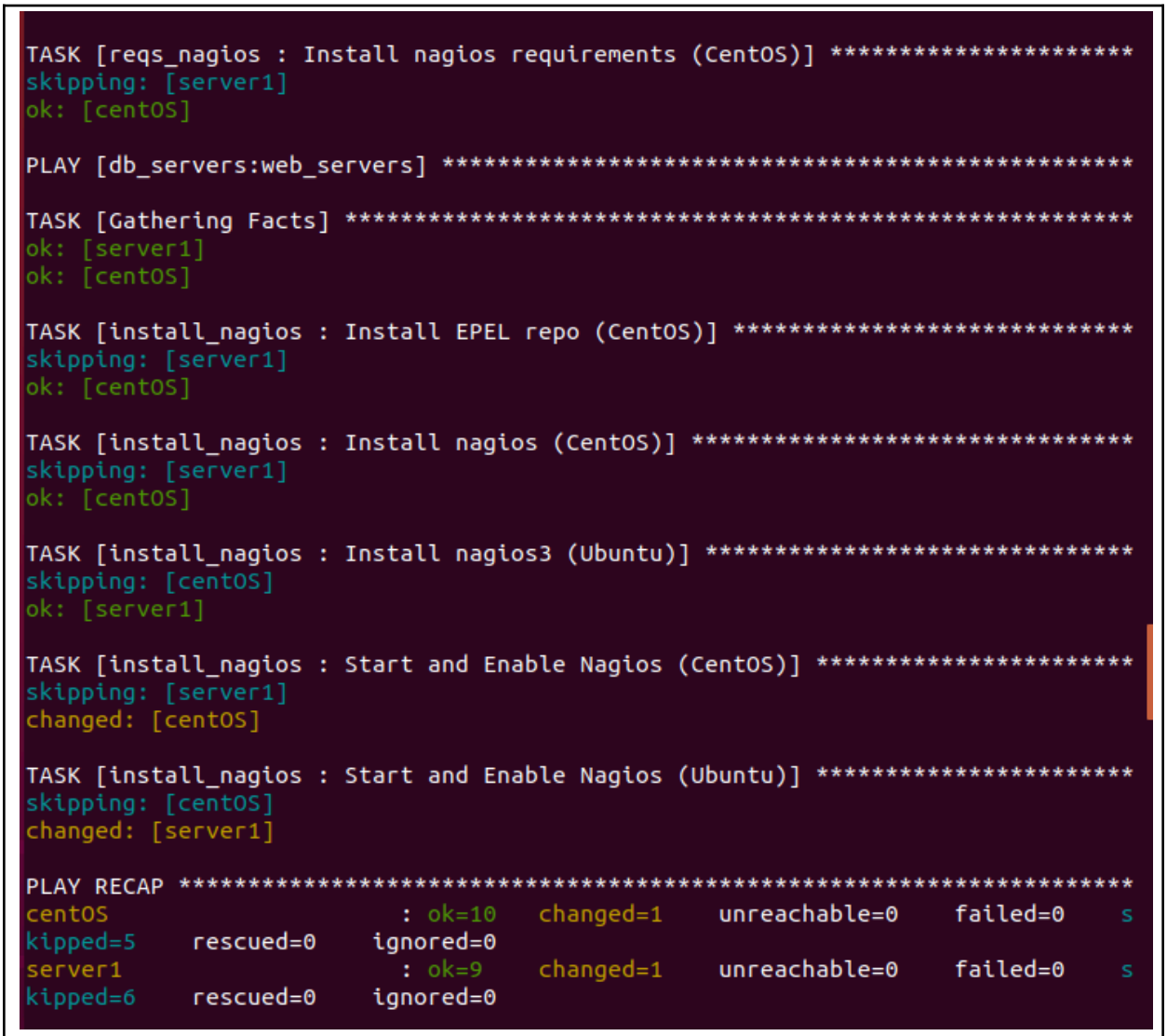

Figure 4.10: Output of executing nagios.yml.

```
rnrlope@workstation:~$ ssh rnrlope@centOS
Last login: Sun Oct 13 23:16:22 2024 from 192.168.56.11
[rnrlope@localhost ~]$ which nagios
/usr/sbin/nagios
[rnrlope@localhost ~]$ nagios --version

Nagios Core 4.4.14
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rs
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[rnrlope@localhost ~]$
```

Figure 4.11: Verifying if Nagios is installed on CentOS.

```
rnrlope@server1:~$ which nagios3
/usr/sbin/nagios3
rnrlope@server1:~$ nagios3 --version

Nagios Core 3.5.1
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rnrlope@server1:~$
```
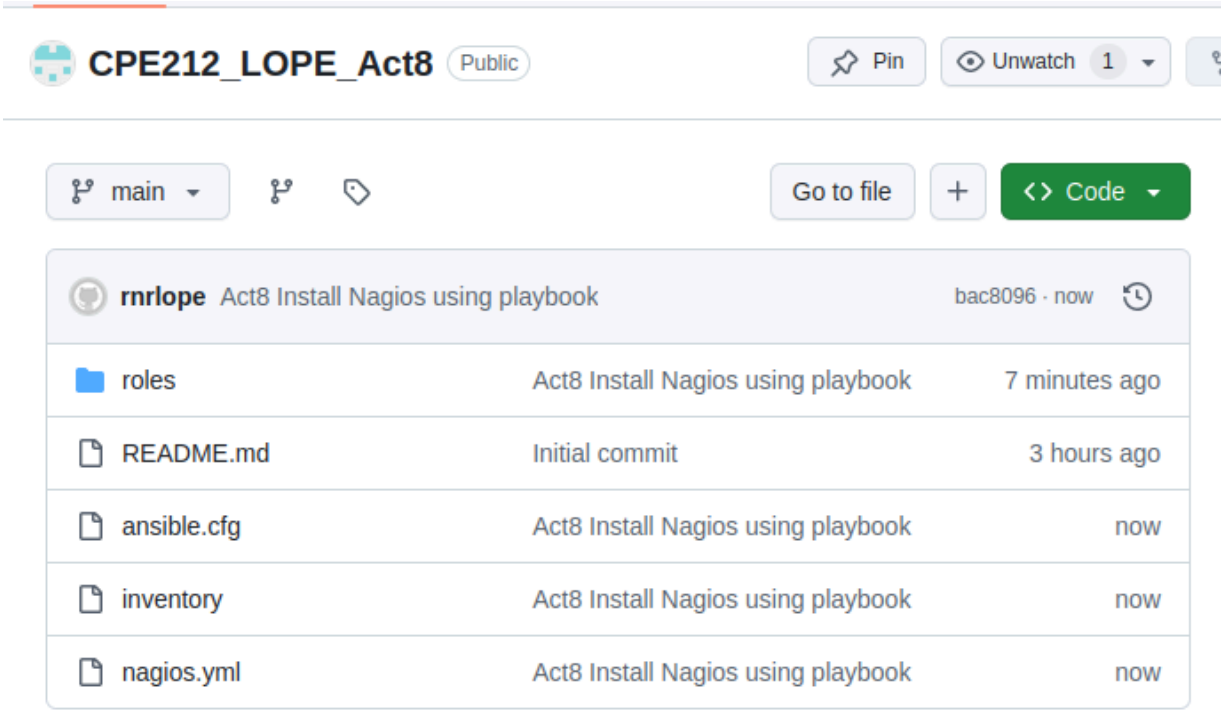

Figure 4.12: Verifying if Nagios is installed on Ubuntu.

GIT PUSH:

```
rnrlope@workstation:~/CPE212_LOPE_Act8$ git add ansible.cfg
rnrlope@workstation:~/CPE212_LOPE_Act8$ git add inventory
rnrlope@workstation:~/CPE212_LOPE_Act8$ git add roles
rnrlope@workstation:~/CPE212_LOPE_Act8$ git add nagios.yml
rnrlope@workstation:~/CPE212_LOPE_Act8$ git commit -m "Act8 Install Nagios using
 playbook"
[main bac8096] Act8 Install Nagios using playbook
 3 files changed, 4 deletions(-)
rnrlope@workstation:~/CPE212_LOPE_Act8$ git push origin main
Counting objects: 5, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 501 bytes | 501.00 KiB/s, done.
Total 5 (delta 2), reused 1 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To github.com:RenierCode/CPE212_LOPE_Act8
   7932ff6..bac8096  main -> main
rnrlope@workstation:~/CPE212_LOPE_Act8$
```



GITHUB LINK:

https://github.com/RenierCode/CPE212_LOPE_Act8.git

Reflections:

Answer the following:

1. **What are the benefits of having an availability monitoring tool?**
   - Availability monitoring tool provides benefits by proactively detecting performance issues and outages, allowing for quick and efficient responses resulting in improved service reliability. Availability monitoring tools also reduce the manual effort involved in both monitoring and supporting an IT infrastructure.

Conclusions:

- In this activity, I manage to create a playbook that installs Nagios in both Ubuntu and CentOS, while also applying the concept of creating roles. I created a main playbook at the repository ‘CPE212_LOPE_Act8’ named ‘nagios.yml’ containing a play that will call the desired playbooks inside roles. In roles I separated the updates, installation of nagios requirements, and the installation of nagios, which is ‘base’, ‘reqs_nagios’, and ‘install_nagios’ respectively, this setup will help me in maintaining the playbooks. In this activity, I also manage to further my understanding of creating playbooks while also applying the concept of roles.