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| **Course/Section:** CPE232/CPE31S4 | **Date Submitted:** 10/17/2023 |
| **Instructor:** Dr. Jonathan V. Taylar | **Semester and SY:** 1st sem 2023-2024 |

**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

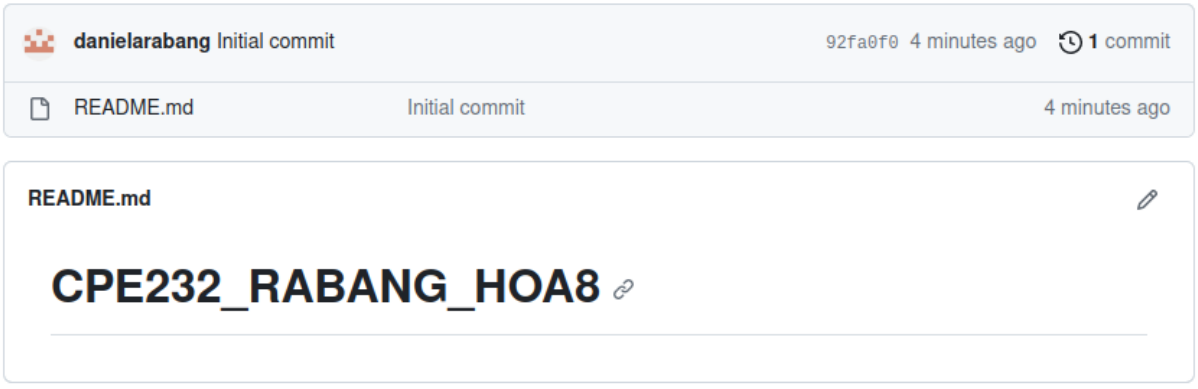
Availability monitoring is a type of monitoring tool that we use if the certain workload is up or reachable on our end. Site downtime can lead to loss of revenue, reputational damage and severe distress. Availability monitoring prevents adverse situations by checking the uptime of infrastructure components 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)

**Created a new repository that is named (CPE232_RABANG_HOA8)**




- I have created a new repository where I can push all the tasks that I will do in this activity.

**Clone the repository that you created to your workstation.**

```
daniela@workstation:~$ git clone https://github.com/danielarabang/CPE232_RABANG_HOA8.git
Cloning into 'CPE232_RABANG_HOA8'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
daniela@workstation:~$ cd CPE232_RABANG_HOA8
daniela@workstation:~/CPE232_RABANG_HOA8$
```

- I cloned the CPE232_RABANG_HOA8 repository to my workstation so I can access it.

**Create a inventory file**

```
 GNU nano 6.2                                                    inventory
192.168.56.113 ansible_python_interpreter=/usr/bin/python3
192.168.1.6    ansible_python_interpreter=/usr/bin/python
```

- This is where I had put the ip of my server 1 and CentOS.

**Create a ansible.cfg**

```
 GNU nano 6.2                                                  ansible.cfg
[defaults]

inventory = inventory
host_key checking = False

deprecation_warning = False

remote_user = daniela
private_key_file = ~/.ssh/
```

- I have created a ansible.cfg file where I assign user daniela as a remote_user.

**Create directory roles, nagios, and tasks. I also created a main.yml inside the tasks directory.**

```
daniela@workstation:~/CPE232_RABANG_HOA8$ cd roles
daniela@workstation:~/CPE232_RABANG_HOA8/roles$ cd nagios
daniela@workstation:~/CPE232_RABANG_HOA8/roles/nagios$ cd tasks
daniela@workstation:~/CPE232_RABANG_HOA8/roles/nagios/tasks$ sudo nano main.yml
```

- I had created the following directory from inside of another directory.

**Create a nagios.yml and input the role nagios.**

```
 GNU nano 6.2                                                   nagios.yml

- hosts: all
  roles:
    - nagios
```

- I had created a nagios.yml in the directory, this is for calling the role nagios where it has the tasks that had my main.yml playbook.

**Create a main.yml and insert the codes for installation of nagios for both Ubuntu and CentOS.**

```
GNU nano 6.2                                                main.yml *

- name: update package cache for Ubuntu
  apt:
    become: yes
    name: "*"
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: install nagios for Ubuntu
  apt:
    name:
      - nagios4
      - nagios-plugins
  when: ansible_distribution == "Ubuntu"

- name: enable and start service for Ubuntu
  service:
    name: nagios4
    state: present
    enabled: yes
  when: ansible_distribution == "Ubuntu"

- name: update package cache for CentOS
  yum:
    name: epel-release
    state: latest
  when: ansible_distribution == "CentOS"

- name: install nagios for CentOS
  yum:
    name:
      - nagios
      - nagios-plugins-all
  when: ansible_distribution == "CentOS"

- name: enable and start service for CentOS
  service:
    name: nagios
    state: started
    enabled: yes
  when: ansible_distribution == "CentOS"
```

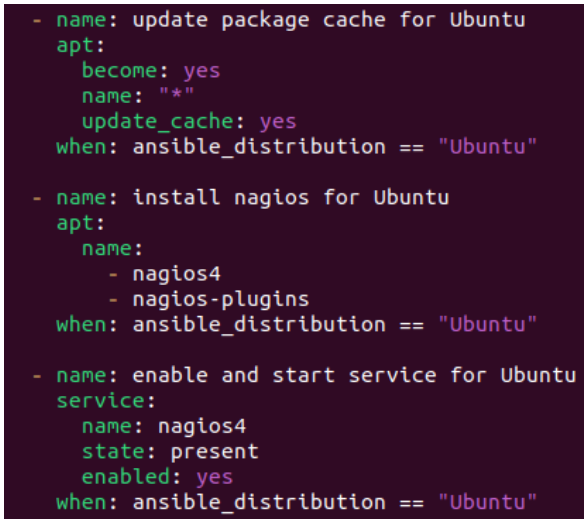
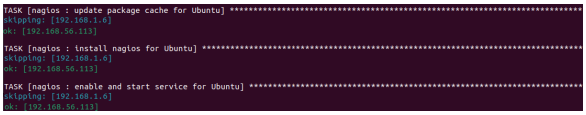
- created a playbook where I can assign roles to update package cache, install nagios, and enable and start the nagios service.

**Then run the playbook nagios.yml**

```
daniela@workstation:~/CPE232_RABANG_HOA8$ ansible-playbook --ask-become-pass nagios.yml
BECOME password:

PLAY [all] *********************************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************
ok: [192.168.1.6]
ok: [192.168.56.113]

TASK [nagios : update package cache for Ubuntu] ********************************************************************************
skipping: [192.168.1.6]
ok: [192.168.56.113]

TASK [nagios : install nagios for Ubuntu] **************************************************************************************
skipping: [192.168.1.6]
ok: [192.168.56.113]

TASK [nagios : enable and start service for Ubuntu] ****************************************************************************
skipping: [192.168.1.6]
ok: [192.168.56.113]

TASK [nagios : update package cache for CentOS] ********************************************************************************
skipping: [192.168.56.113]
ok: [192.168.1.6]

TASK [nagios : install nagios for CentOS] **************************************************************************************
skipping: [192.168.56.113]
ok: [192.168.1.6]

TASK [nagios : enable and start service for CentOS] ****************************************************************************
skipping: [192.168.56.113]
ok: [192.168.1.6]

PLAY RECAP *********************************************************************************************************************
192.168.1.6                : ok=4    changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
192.168.56.113             : ok=4    changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
```

- Then runned the playbook nagios.yml to play all the tasks that are inside the main.yml playbook. This is where it installs the nagios on both Ubuntu and CentOS.

IPO for Ubuntu

| Input | Process |
|---|---|
|  |  |
| **Output** | |

```
daniela@server1:~$ nagios4 -V

Nagios Core 4.4.6
Copyright (c) 2009-present Nagios Core Development Team and Commu
nity Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2020-04-28
License: GPL

Website: https://www.nagios.org
This program is free software; you can redistribute it and/or mod
ify
it under the terms of the GNU General Public License version 2 as
published by the Free Software Foundation.

This program is distributed in the hope that it will be useful,
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You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.
```
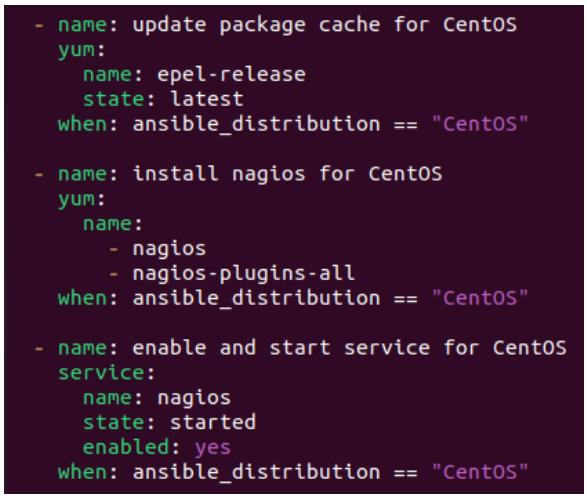
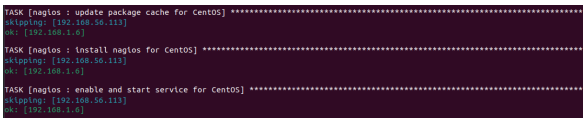

- It shows that the tasks that are inside the playbook are well done and the nagios is already installed into the Ubuntu server which is the server 1.

## IPO for CentOS

| Input | Process |
|---|---|
|  |  |

**Output**

```
[daniela@localhost ~]$ nagios -V

Nagios Core 4.4.9
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2022-11-16
License: GPL

Website: https://www.nagios.org
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License version 2 as
published by the Free Software Foundation.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.
```

```
[daniela@localhost ~]$ systemctl status nagios
● nagios.service - Nagios Core 4.4.9
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor preset: disa
bled)
   Active: active (running) since Tue 2023-10-17 00:00:58 PST; 2min 25s ago
     Docs: https://www.nagios.org/documentation
  Process: 1197 ExecStart=/usr/sbin/nagios -d /etc/nagios/nagios.cfg (code=exited, stat
us=0/SUCCESS)
  Process: 1185 ExecStartPre=/usr/sbin/nagios -v /etc/nagios/nagios.cfg (code=exited, s
tatus=0/SUCCESS)
 Main PID: 1204 (nagios)
    Tasks: 6
   CGroup: /system.slice/nagios.service
           ├─1204 /usr/sbin/nagios -d /etc/nagios/nagios.cfg
           ├─1206 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
           ├─1208 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
           ├─1209 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
           ├─1210 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
           └─1221 /usr/sbin/nagios -d /etc/nagios/nagios.cfg

Oct 17 00:00:58 localhost.localdomain nagios[1204]: qh: Socket '/var/spool/nagios/c...d
Oct 17 00:00:58 localhost.localdomain nagios[1204]: qh: core query handler registered
Oct 17 00:00:58 localhost.localdomain nagios[1204]: qh: echo service query handler ...d
Oct 17 00:00:58 localhost.localdomain nagios[1204]: qh: help for the query handler ...d
Oct 17 00:00:58 localhost.localdomain nagios[1204]: wproc: Successfully registered ...r
Oct 17 00:00:58 localhost.localdomain nagios[1204]: wproc: Registry request: name=C...0
```

- It shows that the tasks that are inside the playbook are well done and the nagios is already installed into the CentOS server.

```
daniela@workstation:~/CPE232_RABANG_HOA8$ git add *
daniela@workstation:~/CPE232_RABANG_HOA8$ git commit -m "Finish"
[main 9f522db] Finish
 6 files changed, 100 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 inventory
 create mode 100644 main.yml
 create mode 100644 nagios.yml
 create mode 100644 roles/nagios/tasks/main.yml
 create mode 100644 roles/tasks/main.yml
```

```
daniela@workstation:~/CPE232_RABANG_HOA8$ git push
Username for 'https://github.com': daniela
Password for 'https://daniela@github.com':
Enumerating objects: 13, done.
Counting objects: 100% (13/13), done.
Delta compression using up to 2 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (12/12), 1.23 KiB | 420.00 KiB/s, done.
Total 12 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/danielarabang/CPE232_RABANG_HOA8.git
   92fa0f0..9f522db  main -> main
```

- Then I push all the files that I had done for this activity in the repository that I had made on github.

**Reflections:**

Answer the following:

1. **What are the benefits of having an availability monitoring tool?**
   - There are many benefits that are from having an availability monitoring tool, just like it is used as an enhancing tool for system stability. for monitoring the performance such as keeping all data-driven decision-making.

**Conclusions:**

For this activity which focuses on the install, configure, and manage the availability of monitoring tools. So for this hands-on activity we are tasked to make a playbook that can install nagios services for the two which are Ubuntu and the CentOS. So first I had created a repository in my github account for this hands-on activity. Then I cloned it into my workstation so I can access it. After cloning I had created and inserted the ip address in the inventory file while I modified the ansible.cfg file where I assigned Daniela as a user. Then I created directories inside a directory and a role which is the nagios where I put the role for nagios. I had created the playbook where I can update packages, install nagios, enable, and start its service. Then I had to run the command where the playbook should play to make all the tasks work. After all the tasks to be done, which took me a lot of time to make it work since I had encountered a lot of errors. This is where the output looks like that which it just indicates ok. Then finally I had to confirm that the nagios services are fully installed into my Ubuntu and CentOS server.