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Course/Section: BSCPE31S5	**Date Submitted:** Oct 25, 2023
Instructor: Engr. Roman Richard	**Semester and SY:** 1st Semester

Activity 9: Install, Configure, and Manage Performance Monitoring tools

1. Objectives

Create and design a workflow that installs, configure and manage enterprise performance tools using Ansible as an Infrastructure as Code (IaC) tool.

2. Discussion

Performance monitoring is a type of monitoring tool that identifies current resource consumption of the workload, in this page we will discuss multiple performance monitoring tool.

Prometheus

Prometheus fundamentally stores all data as timeseries: streams of timestamped values belonging to the same metric and the same set of labeled dimensions. Besides stored time series, Prometheus may generate temporary derived time series as the result of queries. Source: Prometheus - Monitoring system & time series database

Cacti

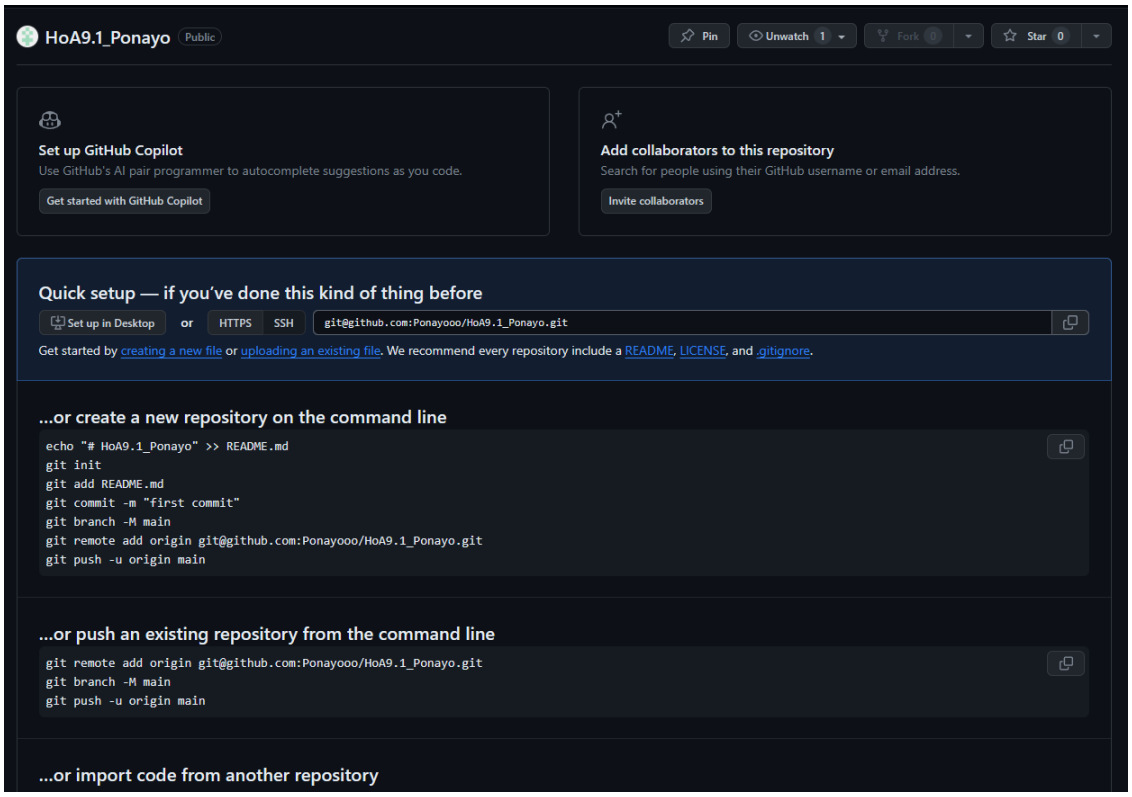
Cacti is a complete network graphing solution designed to harness the power of RRDTool's data storage and graphing functionality. Cacti provides a fast poller, advanced graph templating, multiple data acquisition methods, and user management features out of the box. All of this is wrapped in an intuitive, easy to use interface that makes sense for LAN-sized installations up to complex networks with thousands of devices. Source: Cacti® - The Complete RRDTool-based Graphing Solution

3. Tasks

1. Create a playbook that installs Prometheus 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 Prometheus for both Ubuntu and CentOS.
4. Make sure to create a new repository in GitHub for this activity.

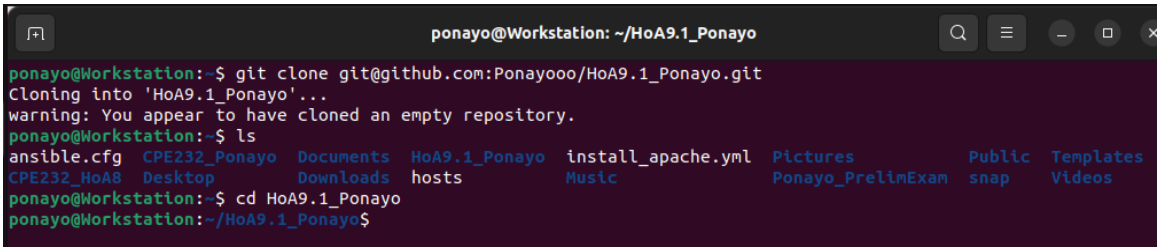
4. Output (screenshots and explanations)

Creating new Repository



Cloning repository

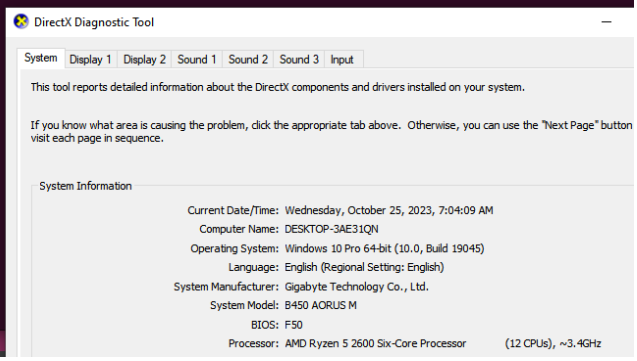
On this step, I use git clone to apply the new repository in the workstation. And use the “ls” command to show if the cloning is successful.



Creating files

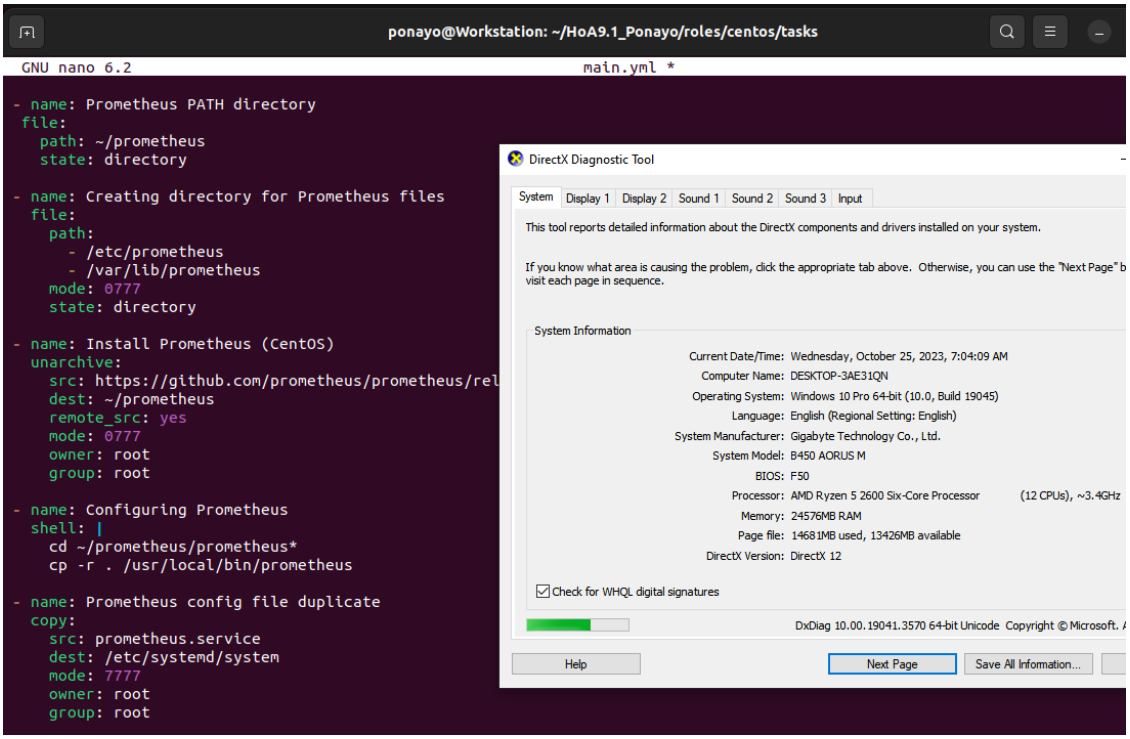
On this step, I created the files that I need to install the Prometheus.

```
ponayo@Workstation:~/HoA9.1_Ponayo$
ponayo@Workstation:~/HoA9.1_Ponayo$
ponayo@Workstation:~/HoA9.1_Ponayo$
ponayo@Workstation:~/HoA9.1_Ponayo$
ponayo@Workstation:~/HoA9.1_Ponayo$
ponayo@Workstation:~/HoA9.1_Ponayo$
ponayo@Workstation:~/HoA9.1_Ponayo$ tree
.
├── ansible.cfg
├── files
│   └── prometheus.service
├── inventory
└── roles
    ├── centos
    │   └── tasks
    │       └── main.yml
    └── ubuntu
        └── tasks
            └── main.yml

6 directories, 5 files
ponayo@Workstation:~/HoA9.1_Ponayo$
```

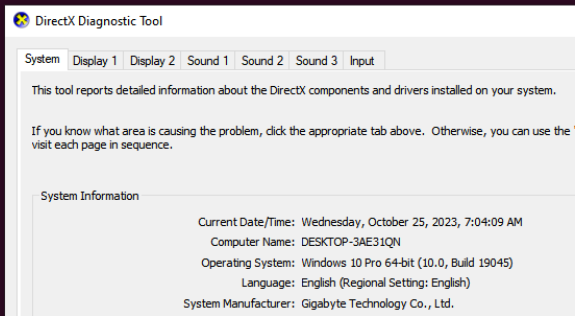


Creating centos tasks

On this step, i created a tasks file that contains the installation of prometheus, configuring of prometheus, and Prometheus Start/Enable Check.

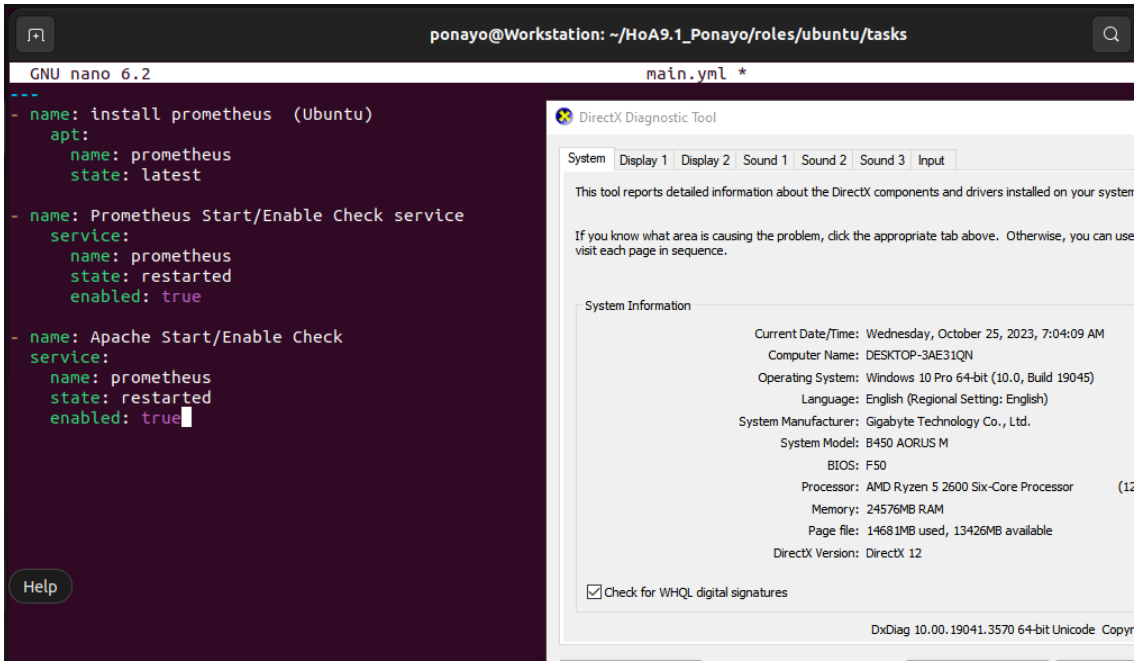


```
- name: Prometheus config file duplicate
  copy:
    src: prometheus.service
    dest: /etc/systemd/system
    mode: 7777
    owner: root
    group: root

- name: Prometheus Start/Enable Check
  service:
    name: prometheus.service
    state: restarted
    enabled: true

- name: httpd Start/Enable check
  service:
    name: httpd
    state: restarted
    enabled: true
```



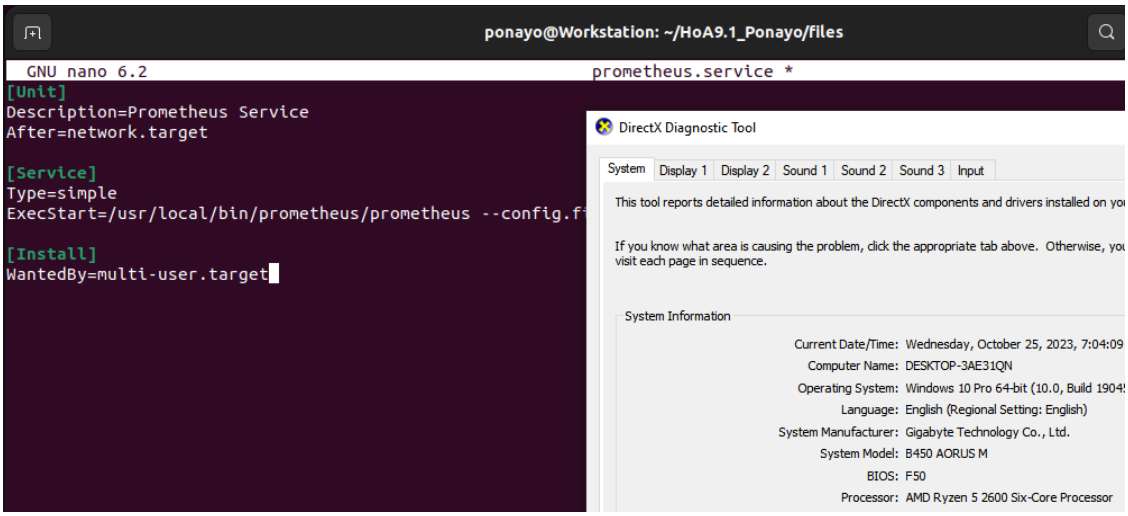
Creating the ubuntu tasks

On this step, i created a task file to install prometheus for ubuntu server. I also created the prometheus start/enable check services and apache start/enable check.



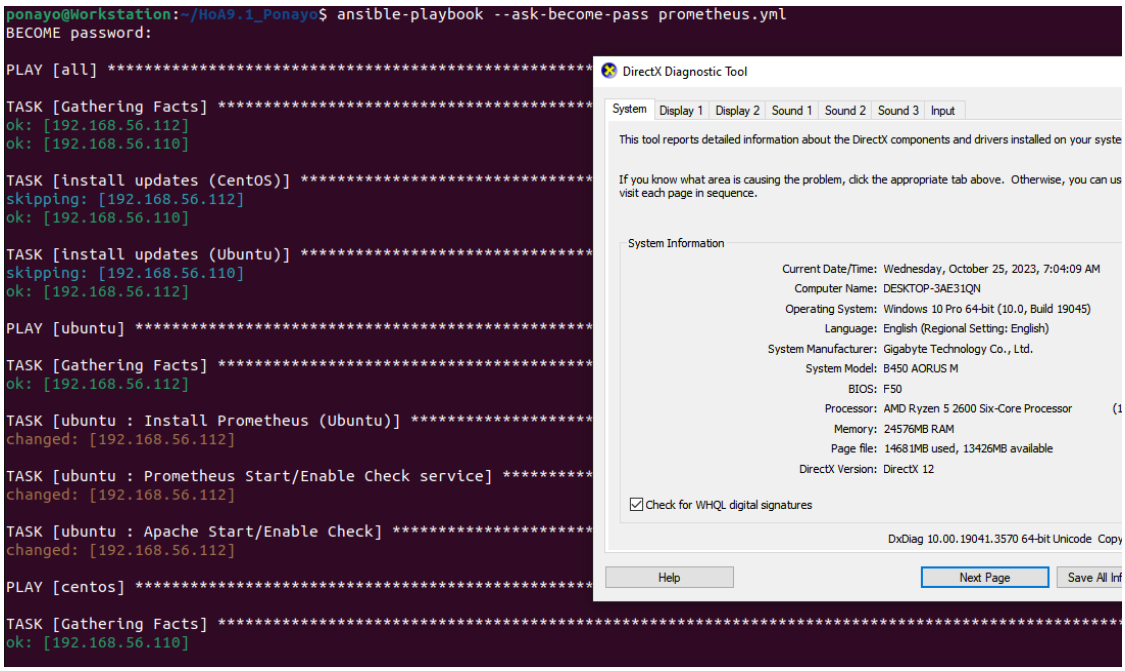
Creating prometheus.service

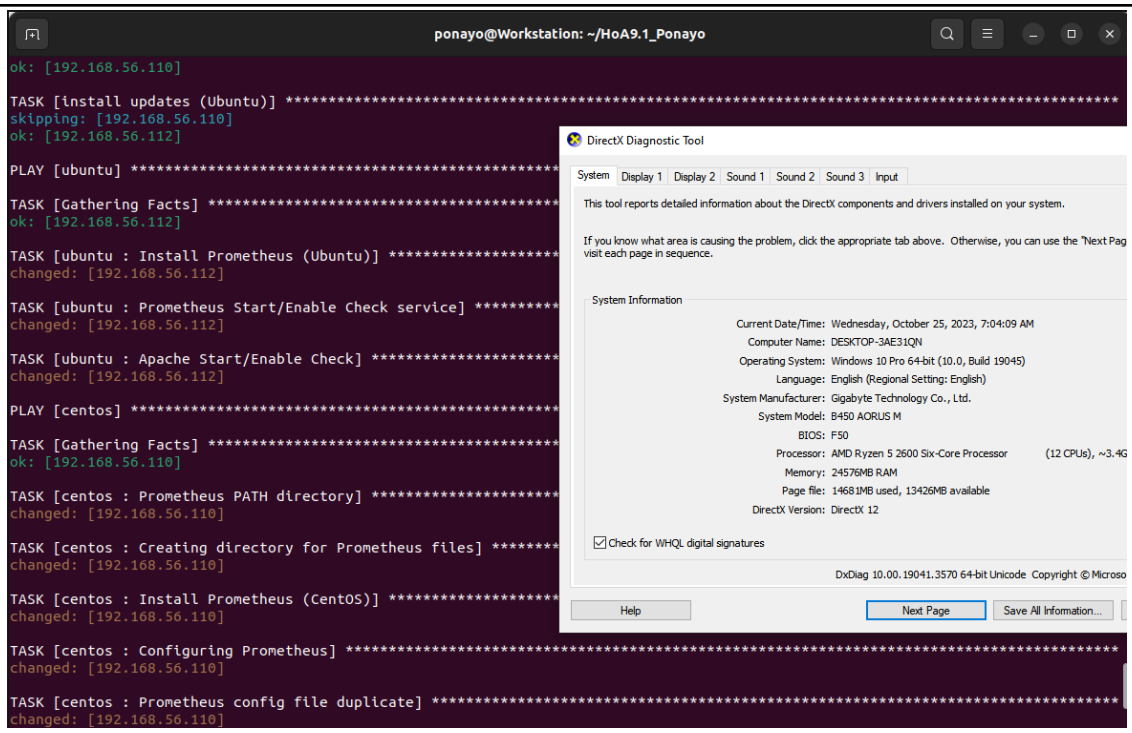
In this step, in order to make the main.yml playbook for both Ubuntu and Centos work, we need a file directory in the repository which is the prometheus.service. This file contains the commands in order to function.

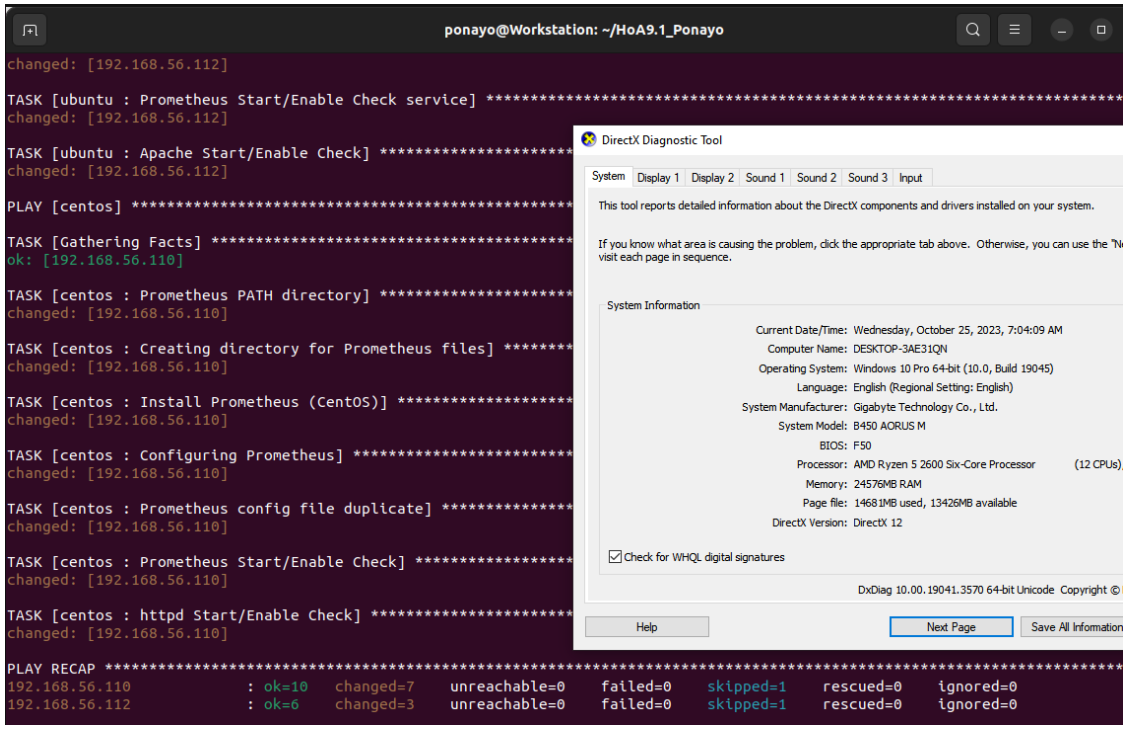


Running the service

On this step, i use the “ansible-playbook –ask-become-pass prometheus.yml” in order to run the scripts and install the prometheus in both Ubuntu and CentOS.

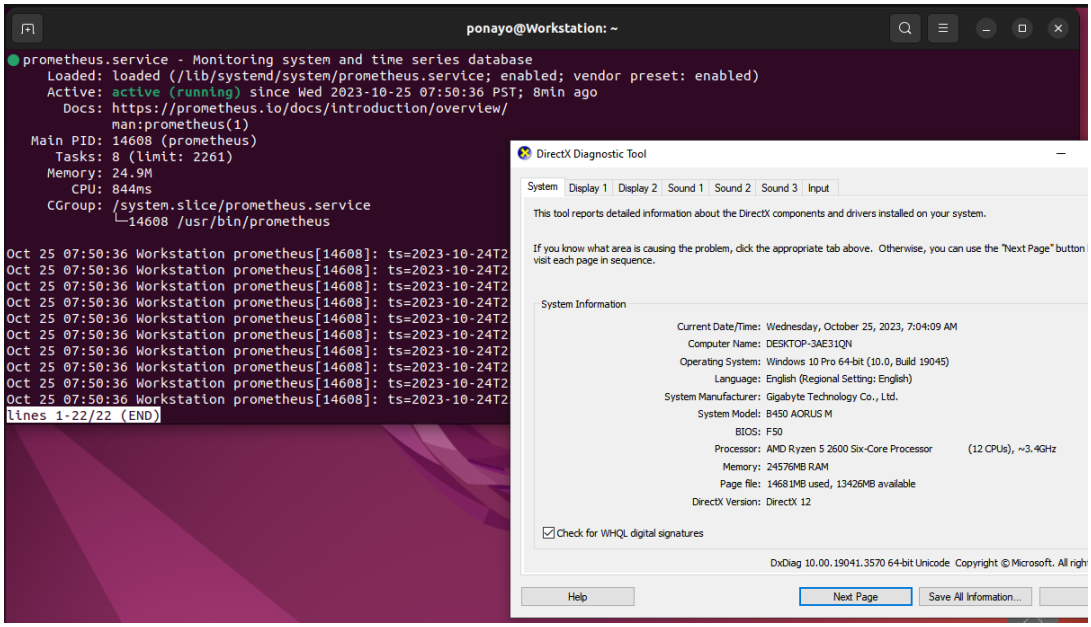


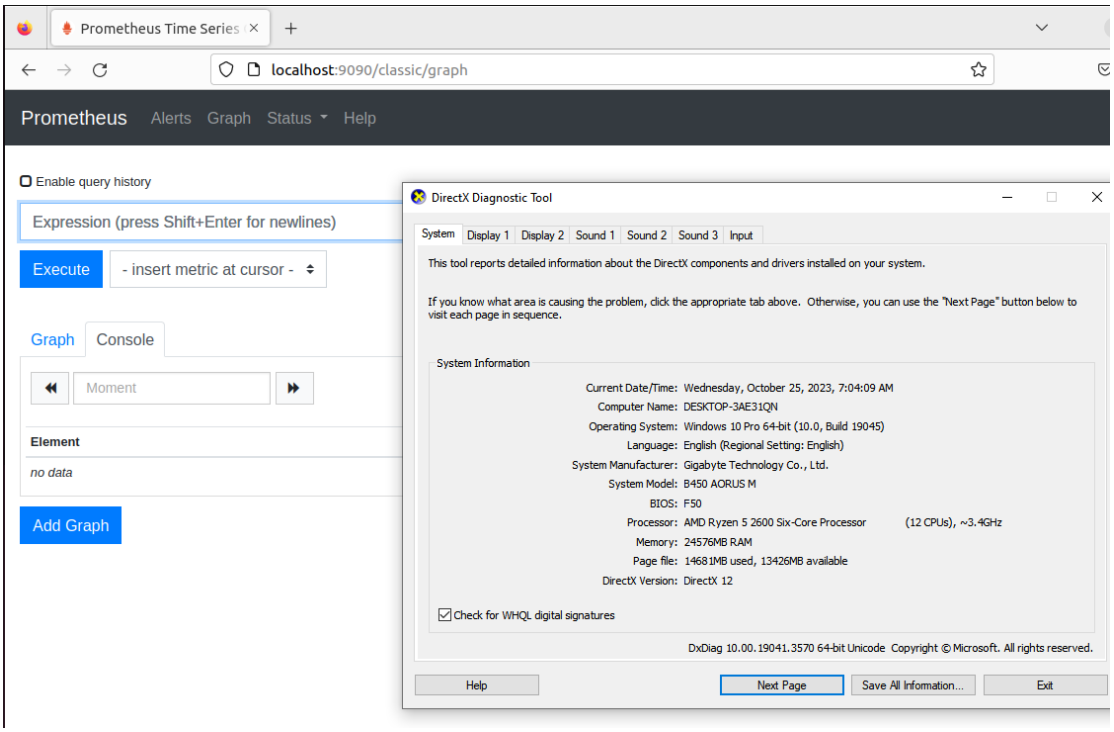

ponayo@Workstation: ~/HoA9.1_Ponayo
ok: [192.168.56.110]
TASK [install updates (Ubuntu)] ********
skipping: [192.168.56.110]
ok: [192.168.56.112]
PLAY [ubuntu] ********
TASK [Gathering Facts] ********
ok: [192.168.56.112]
TASK [ubuntu : Install Prometheus (Ubuntu)] ********
changed: [192.168.56.112]
TASK [ubuntu : Prometheus Start/Enable Check service] ********
changed: [192.168.56.112]
TASK [ubuntu : Apache Start/Enable Check] ********
changed: [192.168.56.112]
PLAY [centos] ********
TASK [Gathering Facts] ********
ok: [192.168.56.110]
TASK [centos : Prometheus PATH directory] ********
changed: [192.168.56.110]
TASK [centos : Creating directory for Prometheus files] ********
changed: [192.168.56.110]
TASK [centos : Install Prometheus (CentOS)] ********
changed: [192.168.56.110]
TASK [centos : Configuring Prometheus] ********
changed: [192.168.56.110]
TASK [centos : Prometheus config file duplicate] ********
changed: [192.168.56.110]
DirectX Diagnostic Tool
System Display 1 Display 2 Sound 1 Sound 2 Sound 3 Input
This tool reports detailed information about the DirectX components and drivers installed on your system.
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Pag
visit each page in sequence.
System Information
Current Date/Time: Wednesday, October 25, 2023, 7:04:09 AM
Computer Name: DESKTOP-3AE31QN
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: Gigabyte Technology Co., Ltd.
System Model: B450 AORUS M
BIOS: F50
Processor: AMD Ryzen 5 2600 Six-Core Processor (12 CPUs), ~3.4G
Memory: 24576MB RAM
Page file: 14681MB used, 13426MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
DxDiag 10.00.19041.3570 64-bit Unicode Copyright © Microso
Help
Next Page
Save All Infomation...


ponayo@Workstation: ~/HoA9.1_Ponayo
changed: [192.168.56.112]
TASK [ubuntu : Prometheus Start/Enable Check service] ********
changed: [192.168.56.112]
TASK [ubuntu : Apache Start/Enable Check] ********
changed: [192.168.56.112]
PLAY [centos] ********
TASK [Gathering Facts] ********
ok: [192.168.56.110]
TASK [centos : Prometheus PATH directory] ********
changed: [192.168.56.110]
TASK [centos : Creating directory for Prometheus files] ********
changed: [192.168.56.110]
TASK [centos : Install Prometheus (CentOS)] ********
changed: [192.168.56.110]
TASK [centos : Configuring Prometheus] ********
changed: [192.168.56.110]
TASK [centos : Prometheus config file duplicate] ********
changed: [192.168.56.110]
TASK [centos : Prometheus Start/Enable Check] ********
changed: [192.168.56.110]
TASK [centos : httpd Start/Enable Check] ********
changed: [192.168.56.110]
PLAY RECAP ********
192.168.56.110 : ok=10 changed=7 unreachable=0 failed=0 skipped=1 rescued=0 ignored=0
192.168.56.112 : ok=6 changed=3 unreachable=0 failed=0 skipped=1 rescued=0 ignored=0
DirectX Diagnostic Tool
System Display 1 Display 2 Sound 1 Sound 2 Sound 3 Input
This tool reports detailed information about the DirectX components and drivers installed on your system.
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "N
visit each page in sequence.
System Information
Current Date/Time: Wednesday, October 25, 2023, 7:04:09 AM
Computer Name: DESKTOP-3AE31QN
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: Gigabyte Technology Co., Ltd.
System Model: B450 AORUS M
BIOS: F50
Processor: AMD Ryzen 5 2600 Six-Core Processor (12 CPUs)
Memory: 24576MB RAM
Page file: 14681MB used, 13426MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
DxDiag 10.00.19041.3570 64-bit Unicode Copyright ©
Help
Next Page
Save All Information

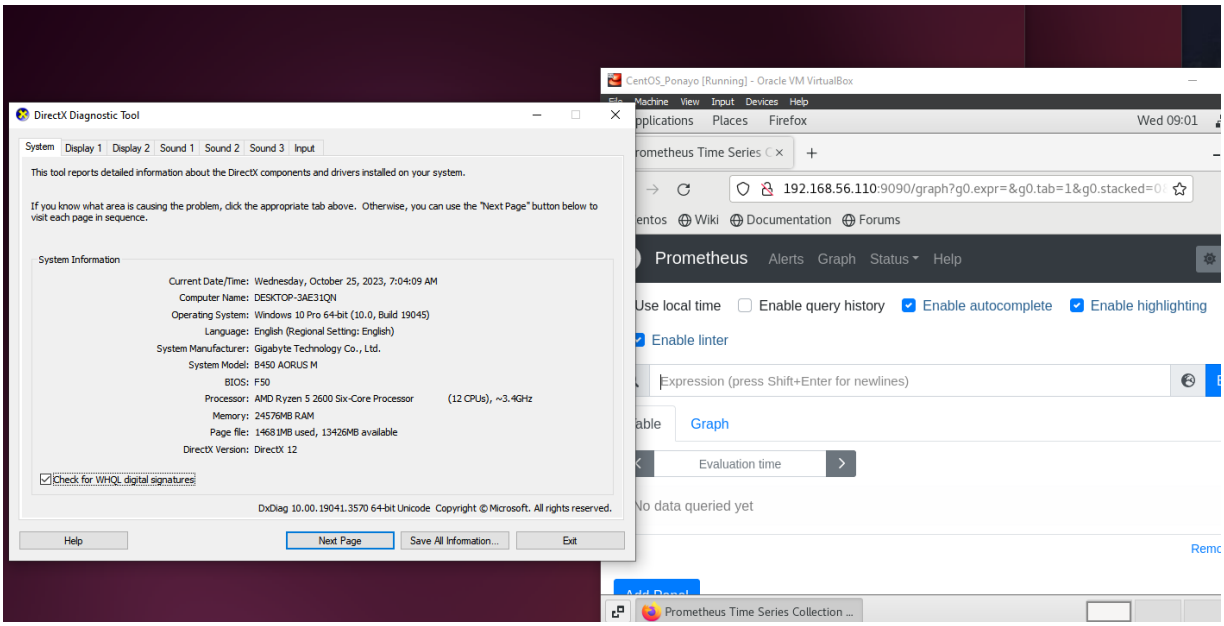
Proof of i successfully install prometheus

Server 1





CentOS:



Git push

```
ponayo@Workstation:~/HoA9.1_Ponayo$ git commit -m "HoA 9"
[main (root-commit) 42ac156] HoA 9
 6 files changed, 115 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 files/prometheus.service
 create mode 100644 inventory
 create mode 100644 prometheus.yml
 create mode 100644 roles/centos/tasks/main.yml
 create mode 100644 roles/ubuntu/tasks/main.yml
ponayo@Workstation:~/HoA9.1_Ponayo$ git push origin
Enumerating objects: 14, done.
Counting objects: 100% (14/14), done.
Delta compression using up to 2 threads
Compressing objects: 100% (8/8), done.
Writing objects: 100% (14/14), 1.65 KiB | 843.00 KiB/s, done.
Total 14 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:Ponayooo/HoA9.1_Ponayo.git
 * [new branch]      main -> main
ponayo@Workstation:~/HoA9.1_Ponayo$ tree
.
├── ansible.cfg
├── files
│   └── prometheus.service
├── inventory
├── prometheus.yml
└── roles
    ├── centos
    │   └── tasks
    │       └── main.yml
    └── ubuntu
        └── tasks
            └── main.yml

6 directories, 6 files
ponayo@Workstation:~/HoA9.1_Ponayo$
```

https://github.com/Ponayooo/HoA9.1_Ponayo

Reflections:

Answer the following:

1. What are the benefits of having a performance monitoring tool?
    - Through a performance monitoring tool, we can determine the conditions of the machine whether the performance of the machine is slower than it should be or whether the machine is at the expected level. Having a performance monitoring tool can also help to reduce downtime. This is one of the benefits as downtime can result in lost productivity, loss of data and lost opportunities.

Conclusions:

The implementation of a workflow that combines Ansible as an IaC tool with the installation of Prometheus empowers organizations to maintain optimal performance, minimize downtime, and make data-driven decisions for continuous improvement. Prometheus is an open source that is versatile monitoring tool which can be used to monitor a large variety of infrastructure and application metrics. This approach not only enhances operational efficiency but also supports a proactive approach to managing and optimizing enterprise performance, a crucial element in today's fast-paced and demanding IT landscape.