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<b>Course/Section: CPE31S2</b>	<b>Date Submitted:10-16-2024</b>
<b>Instructor: Engr. Robin Valenzuela</b>	<b>Semester and SY: 1st sem / 2024-2025</b>
<b>Activity 8: Install, Configure, and Manage Availability Monitoring tools</b>	
<b>1. Objectives</b>	
Create and design a workflow that installs, configure and manage enterprise monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.	
<b>2. Discussion</b>	
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.	
<b>3. Tasks</b>	
1. Create a playbook that installs Nagios in both Ubuntu and CentOS. Apply the concept of creating roles.	
Playbook code:	
<pre> ---  - name: Install required dependencies on Ubuntu   apt:     name:       - gcc       - libc6       - make       - wget       - unzip       - apache2       - php       - libgd-dev       - openssl       - libssl-dev       - autoconf       - bc       - gawk       - dc       - build-essential </pre>	

```
- snmp
- libnet-snmp-perl
- gettext
state: present
when: ansible_distribution == "Ubuntu"

- name: Install required dependencies on CentOS
  yum:
    name:
      - gcc
      - glibc
      - glibc-common
      - wget
      - unzip
      - httpd
      - php
      - gd
      - gd-devel
      - perl
      - postfix
      - openssl
      - openssl-devel
      - make
      - autoconf
    state: present
    when: ansible_distribution == "CentOS"

- name: Download Nagios Core source code
  get_url:
    url:
      "https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.6.tar.gz"
    dest: /tmp/nagios-4.5.6.tar.gz

- name: Extract Nagios source code
  unarchive:
    src: /tmp/nagios-4.5.6.tar.gz
    dest: /tmp
    remote_src: yes

- name: Download Nagios Plugins
  get_url:
    url: "https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz"
    dest: /tmp/nagios-plugins-2.4.11.tar.gz

- name: Extract Nagios Plugins
```

```

unarchive:
  src: /tmp/nagios-plugins-2.4.11.tar.gz
  dest: /tmp
  remote_src: yes

- name: Create Nagios group
  group:
    name: nagios

- name: Create Nagios user and group
  user:
    name: nagios
    group: nagios

- name: Create nagcmd group
  group:
    name: nagcmd

- name: Add nagios and apache/httpd users to nagcmd group
  user:
    name: "{{ item }}"
    groups: nagcmd
    append: yes
  loop:
    - nagios
    - "{{ 'www-data' if ansible_os_family == 'Debian' else 'apache' }}"

- name: Compile and install Nagios Core
  shell: |
    cd /tmp/nagios-4.5.6
    ./configure --with-command-group=nagcmd
    make all
    make install
    make install-init
    make install-commandmode
    make install-config
    make install-webconf
  args:
    creates: /usr/local/nagios/bin/nagios

- name: Install Nagios Plugins
  shell: |
    cd /tmp/nagios-plugins-2.4.11
    ./configure --with-nagios-user=nagios --with-nagios-group=nagios
    make

```

```
make install
args:
creates: /usr/local/nagios/libexec/check_http
```

```
- name: Set Nagios admin password
  command: htpasswd -b -c /usr/local/nagios/etc/htpasswd.users
nagios_admin "123qweasdzxc"
```

```
- name: Enable and start Apache/Httpd service on Ubuntu
  service:
    name: apache2
    enabled: yes
    state: started
    when: ansible_distribution == "Ubuntu"
```

```
- name: Enable and start Apache/Httpd service on CentOS
  service:
    name: httpd
    enabled: yes
    state: started
    when: ansible_distribution == "CentOS"
```

```
- name: Enable and start Nagios service
  service:
    name: nagios
    enabled: yes
    state: started
```

```
- name: Enable external command execution in Nagios
  lineinfile:
    path: /usr/local/nagios/etc/nagios.cfg
    regexp: '^#?check_external_commands='
    line: 'check_external_commands=1'
```

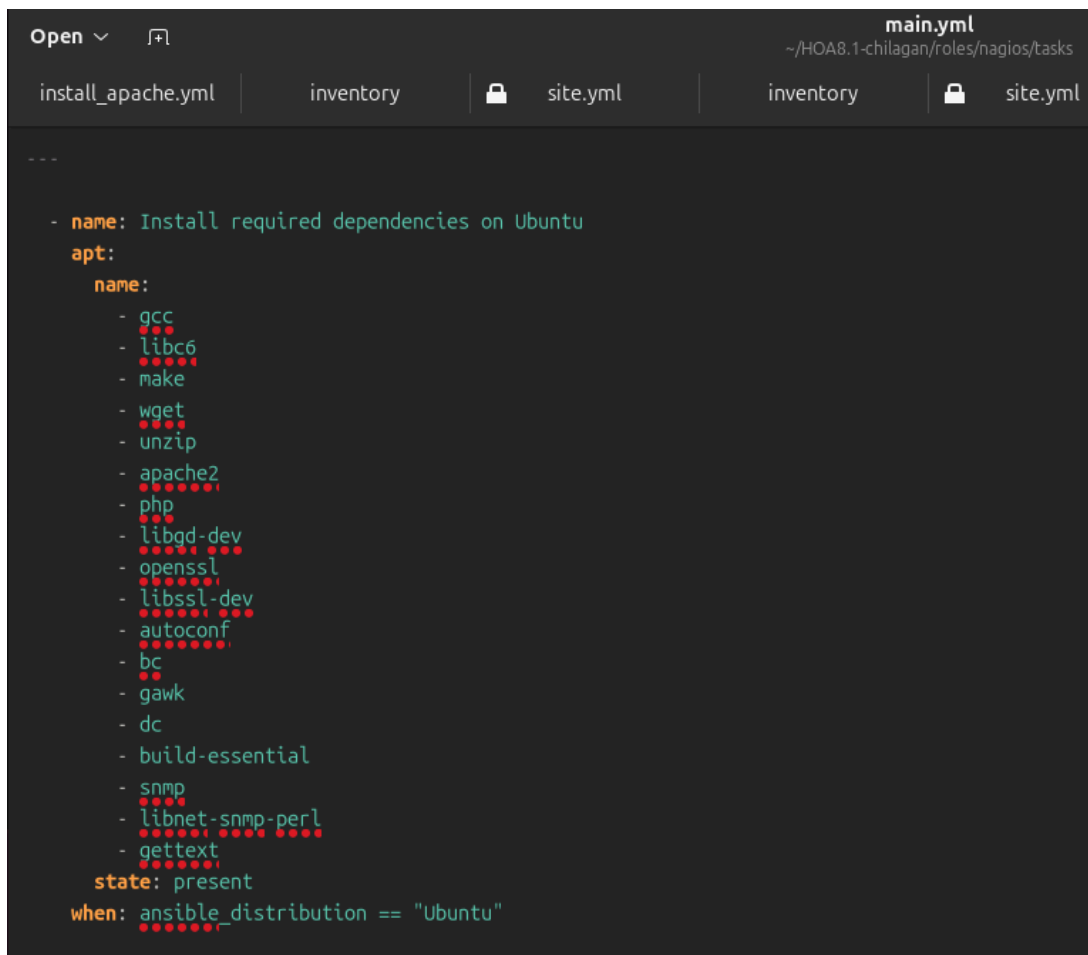
```
- name: Restart Nagios service to apply changes
  service:
    name: nagios
    state: restarted
```

```
- name: Restart Apache/Httpd to apply changes on Ubuntu
  service:
    name: apache2
    state: restarted
    when: ansible_distribution == "Ubuntu"
```

```
- name: Restart Apache/Httpd to apply changes on CentOS
  service:
    name: httpd
    state: restarted
    when: ansible_distribution == "CentOS"
```

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.)

Install required dependencies for both CentOS and Ubuntu in order to run Nagios

A screenshot of a code editor window with a dark theme. The window title is 'main.yml' and the path is '~/.HOA8.1-chilagan/roles/nagios/tasks'. The editor shows a snippet of an Ansible playbook. The first line is a comment '---'. The second line is a task definition: '- name: Install required dependencies on Ubuntu'. The third line is 'apt:'. The fourth line is 'name:'. The fifth line is a list of packages: gcc, libc6, make, wget, unzip, apache2, php, libgd-dev, openssl, libssl-dev, autoconf, bc, gawk, dc, build-essential, snmp, libnet-snmp-perl, and gettext. The sixth line is 'state: present'. The seventh line is 'when: ansible\_distribution == "Ubuntu"'.

```
---
- name: Install required dependencies on Ubuntu
  apt:
    name:
      - gcc
      - libc6
      - make
      - wget
      - unzip
      - apache2
      - php
      - libgd-dev
      - openssl
      - libssl-dev
      - autoconf
      - bc
      - gawk
      - dc
      - build-essential
      - snmp
      - libnet-snmp-perl
      - gettext
    state: present
    when: ansible_distribution == "Ubuntu"
```

```

- name: Install required dependencies on CentOS
  yum:
    name:
      - gcc
      - glibc
      - glibc-common
      - wget
      - unzip
      - httpd
      - php
      - gd
      - gd-devel
      - perl
      - postfix
      - openssl
      - openssl-devel
      - make
      - autoconf
    state: present
  when: ansible_distribution == "CentOS"

```

Download and Extract Nagios source code and plugins (Make sure that version will match the destination)

```

- name: Download Nagios Core source code
  get_url:
    url: "https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.6.tar.gz"
    dest: /tmp/nagios-4.5.6.tar.gz

- name: Extract Nagios source code
  unarchive:
    src: /tmp/nagios-4.5.6.tar.gz
    dest: /tmp
    remote_src: yes

- name: Download Nagios Plugins
  get_url:
    url: "https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz"
    dest: /tmp/nagios-plugins-2.4.11.tar.gz

- name: Extract Nagios Plugins
  unarchive:
    src: /tmp/nagios-plugins-2.4.11.tar.gz
    dest: /tmp
    remote_src: yes

```

Create a user and groups for Nagios and nagcmd:

```
- name: Create Nagios group
  group:
    name: nagios

- name: Create Nagios user and group
  user:
    name: nagios
    group: nagios

- name: Create nagcmd group
  group:
    name: nagcmd
```

Add nagios to nagcmd group

```
- name: Add nagios and apache/httpd users to nagcmd group
  user:
    name: "{{ item }}"
    groups: nagcmd
    append: yes
  loop:
    - nagios
    - "{{ 'www-data' if ansible_os_family == 'Debian' else 'apache' }}"
```

```

- name: Compile and install Nagios Core
  shell: |
    cd /tmp/nagios-4.5.6
    ./configure --with-command-group=nagcmd
    make all
    make install
    make install-init
    make install-commandmode
    make install-config
    make install-webconf
  args:
    creates: /usr/local/nagios/bin/nagios

- name: Install Nagios Plugins
  shell: |
    cd /tmp/nagios-plugins-2.4.11
    ./configure --with-nagios-user=nagios --with-nagios-group=nagios
    make
    make install
  args:
    creates: /usr/local/nagios/libexec/check_http

```

Set admin and password for nagios:

```

- name: Set Nagios admin password
  command: htpasswd -b -c /usr/local/nagios/etc/htpasswd.users nagios_admin "123qweasdzxc"

```

Start the apache service on both ubuntu and CentOS

```

- name: Enable and start Apache/Httpd service on Ubuntu
  service:
    name: apache2
    enabled: yes
    state: started
  when: ansible_distribution == "Ubuntu"

- name: Enable and start Apache/Httpd service on CentOS
  service:
    name: httpd
    enabled: yes
    state: started
  when: ansible_distribution == "CentOS"

- name: Enable and start Nagios service
  service:
    name: nagios
    enabled: yes
    state: started

```



Make sure to allow external command execution for nagios:

```
- name: Enable external command execution in Nagios
  lineinfile:
    path: /usr/local/nagios/etc/nagios.cfg
    regexp: '^#?check_external_commands='
    line: 'check_external_commands=1|'
```

Restart services for apache and httpd to make sure that the nagios will run properly:

```
- name: Restart Nagios service to apply changes
  service:
    name: nagios
    state: restarted

- name: Restart Apache/Httpd to apply changes on Ubuntu
  service:
    name: apache2
    state: restarted
  when: ansible_distribution == "Ubuntu"

- name: Restart Apache/Httpd to apply changes on CentOS
  service:
    name: httpd
    state: restarted
  when: ansible_distribution == "CentOS"
```

3. Show an output of the installed Nagios for both Ubuntu and CentOS.

CentOS web interface:

localhost/nagios

Documentation Forums

localhost

This site is asking you to sign in.

Username

Password

Cancel Sign in

Activities Firefox Oct 14 18:06

about:sessionrestore Nagios: localhost Welcome to CentOS Stre...

localhost/nagios/

CentOS Blog Documentation Forums

# Nagios®

**General**

- Home
- Documentation

**Current Status**

- Tactical Overview
- Map
- Hosts
- Services
- Host Groups
  - Summary
  - Grid
- Service Groups
  - Summary
  - Grid
- Problems**
  - Services (Unhandled)
  - Hosts (Unhandled)
  - Network Outages

Quick Search:

**Reports**

- Availability
- Trends
- Alerts
  - History
  - Summary
  - Histogram
- Notifications
- Event Log

**System**

- Comments
- Downtime
- Process Info

# Nagios® Core™

✓ Daemon running with PID 147260

**Nagios® Core™**  
**Version 4.5.6**  
October 08, 2024  
[Check for updates](#)

### Get Started

- Start monitoring your infrastructure
- Change the look and feel of Nagios
- Extend Nagios with hundreds of addons
  - Get support
  - Get training
  - Get certified

### Quick Links

- [Nagios Library](#) (tutorials and docs)
- [Nagios Labs](#) (development blog)
- [Nagios Exchange](#) (plugins and addons)
- [Nagios Support](#) (tech support)
- [Nagios.com](#) (company)
- [Nagios.org](#) (project)

### Latest News

### Don't Miss...

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## Ubuntu web interface:

ilagan-UBUNTU Clone [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Oct 14 18:23

Firefox Web Browser

localhost/nagios/

# Nagios®

General

- Home
- Documentation

Current Status

- Tactical Overview
- Map
- Hosts
- Services
- Host Groups
  - Summary
  - Grid
- Service Groups
  - Summary
  - Grid
- Problems
  - Services (Unhandled)
  - Hosts (Unhandled)
  - Network Outages

Quick Search:

Reports

- Availability
- Trends
- Alerts
  - History
  - Summary
  - Histogram
- Notifications
- Event Log

System

- Comments

# Nagios® Core™

✓ Daemon running with PID 34856

**Nagios® Core™**  
**Version 4.5.6**  
October 08, 2024  
[Check for updates](#)

### Get Started

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- [Nagios.org](#) (project)


### Latest News


### Don't Miss...


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4. Make sure to create a new repository in GitHub for this activity.


 **HOA8.1-chilagan** Private







 main ▾


 1 Branch

 0 Tags

 Add file ▾

 **hideki** DONE 8.1 8034aae · now

 roles	DONE 8.1
 README.md	Initial commit
 ansible.cfg	DONE 8.1
 inventory	DONE 8.1
 nagios.yml	DONE 8.1
 site.yml	DONE 8.1

 README

# HOA8.1-chilagan

Github link: <https://github.com/chilagan-github/HOA8.1-chilagan>

#### 4. Output (screenshots and explanations)

CentOS Nagios Output:

```
hideki@localhost:~ — systemctl status nagios
/usr/sbin)
[hideki@localhost ~]$ systemctl status nagios
● nagios.service - Nagios Core 4.5.6
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: d>
   Active: active (running) since Mon 2024-10-14 17:24:30 PST; 6min ago
     Docs: https://www.nagios.org/documentation
   Process: 147258 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nag>
   Process: 147259 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios>
   Main PID: 147260 (nagios)
      Tasks: 6 (limit: 10951)
     Memory: 7.6M
        CPU: 797ms
    CGroup: /system.slice/nagios.service
            └─147260 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nag>
              └─147261 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/v>
                └─147262 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/v>
                  └─147263 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/v>
                    └─147264 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/v>
                      └─147373 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nag>

Oct 14 17:24:30 localhost.localdomain nagios[147260]: wproc: Successfully regis>
Oct 14 17:24:30 localhost.localdomain nagios[147260]: wproc: Registry request: >
Oct 14 17:24:30 localhost.localdomain nagios[147260]: wproc: Registry request: >
Oct 14 17:24:30 localhost.localdomain nagios[147260]: wproc: Registry request: >
Oct 14 17:24:30 localhost.localdomain nagios[147260]: wproc: Registry request: >
lines 1-23
```

Ubuntu Nagios Output:

```
hideki@server1:~$ which nagios
hideki@server1:~$ systemctl status nagios
● nagios.service - Nagios Core 4.5.6
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: e>
   Active: active (running) since Mon 2024-10-14 17:24:32 PST; 7min ago
     Docs: https://www.nagios.org/documentation
   Process: 30699 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagi>
   Process: 30701 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/>
   Main PID: 30703 (nagios)
      Tasks: 6 (limit: 4616)
     Memory: 6.0M (peak: 8.1M)
        CPU: 453ms
    CGroup: /system.slice/nagios.service
            └─30703 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagi>
              └─30704 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/va>
                └─30705 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/va>
                  └─30706 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/va>
                    └─30707 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/va>
                      └─30731 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagi>

Oct 14 17:29:37 server1 nagios[30703]: SERVICE ALERT: localhost;Root Partition;>
Oct 14 17:29:52 server1 nagios[30703]: SERVICE ALERT: localhost;Swap Usage;CRIT>
Oct 14 17:30:37 server1 nagios[30703]: SERVICE NOTIFICATION: nagiosadmin;localh>
```

**Reflections:**

Answer the following:

1. What are the benefits of having an availability monitoring tool?

Having a monitoring tool will help a system administrator to ensure that each server is running properly and will have the ability to instantly fix issues that might occur. In this case, we used an application called Nagios. It is a powerful monitoring tool that provides insights into the performance and health of managed nodes. By alerting administrators to potential issues and enabling proactive management of servers, it helps maintain the reliability and availability of critical systems and services.

**Conclusions:**

In conclusion, the use of monitoring tools is essential for maintaining the performance and reliability of critical workloads. By implementing tools and software such as Nagios, administrators can monitor their infrastructure, ensuring that any issues are identified and addressed before they escalate into serious problems. This practice not only provides precaution against downtime of the servers but also protects the revenue of the organization.