

Adv DevOps Practical 9

Aim: To Understand Continuous monitoring and Installation and configuration of Nagios Core, Nagios Plugins and NRPE (Nagios Remote Plugin Executor) on Linux Machine.

Theory:

What is Nagios?

Nagios is an open-source software for continuous monitoring of systems, networks, and infrastructures. It runs plugins stored on a server that is connected with a host or another server on your network or the Internet. In case of any failure, Nagios alerts about the issues so that the technical team can perform the recovery process immediately.

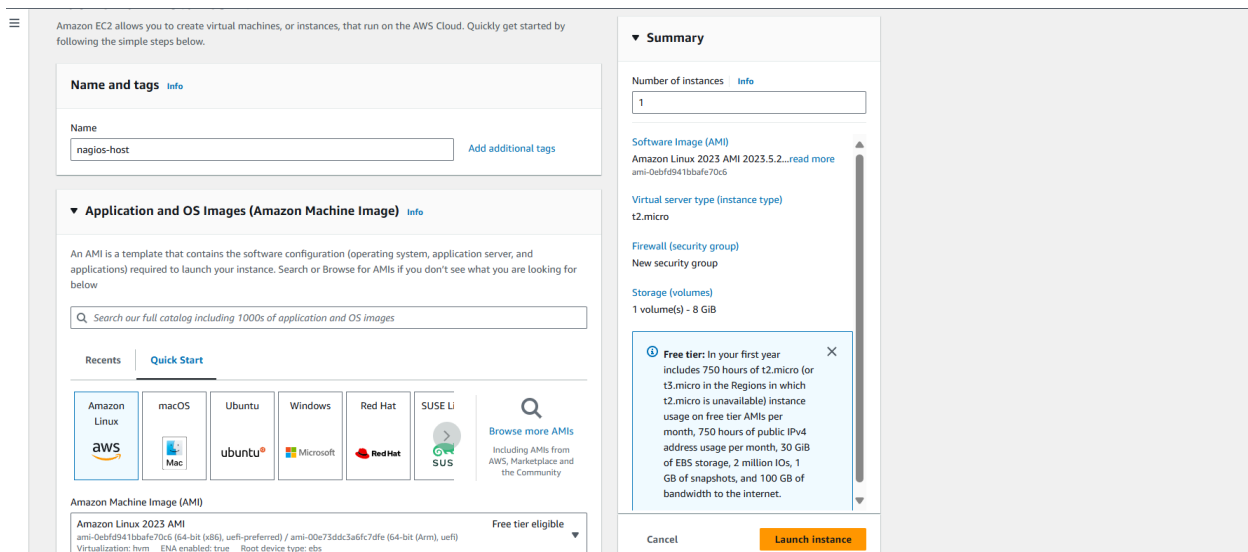
Nagios is used for continuous monitoring of systems, applications, service and business processes in a DevOps culture

Installation of Nagios

Prerequisites: AWS Free Tier

Steps:

1. Create an Amazon Linux EC2 Instance in AWS and name it - nagios-host



The screenshot displays the AWS Management Console interface for configuring an EC2 instance. The left sidebar shows navigation options like Dashboard, Global View, Events, and various instance types. The main content area is divided into several sections:

- Instance type:** Shows the selected instance type as **t2.micro**, which is **Free tier eligible**. It lists pricing for different operating systems (Windows, SUSE, RHEL, Linux) and provides a link to **Compare instance types**.
- Key pair (login):** A section explaining the use of a key pair for secure connection. It includes a text input for the **Key pair name** (set to **exp_09**) and a **Create new key pair** button.
- Security group:** A section for configuring firewall rules. It offers options to **Create security group** or **Select existing security group**. Under the 'Create' option, it lists rules for **Allow SSH traffic from** (set to **Anywhere**), **Allow HTTPS traffic from the internet**, and **Allow HTTP traffic from the internet**. A warning message states: "Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only."
- Firewall (security group):** A section for configuring the security group. It shows the **New security group** and **Storage (volumes)** (1 volume(s) - 8 GiB). A **Free tier** notification indicates that the first year includes 750 hours of t2.micro (or t3.micro) instance usage, 750 hours of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of snapshots.

Below these configuration steps, a table lists the instances. The table has columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, Public IPv4, Elastic IP, IPv6 IPs, and Monitoring. The instance **magos-host** (ID: i-095b567c2f3ae6a91) is shown in a **Running** state.

The bottom section shows the **Security details** for the instance **i-095b567c2f3ae6a91 (magos-host)**. It includes the **Owner ID** (013402147861), the **Launch time** (Wed Oct 02 2024 19:47:03 GMT+0530 (India Standard Time)), and the **Security groups** (sg-0128ed55967080c4a (launch-wizard-1)).

2. Under Security Group, make sure HTTP, HTTPS, SSH, ICMP are open from everywhere.

The screenshot displays the AWS Management Console interface for the **Security Groups** section. The left sidebar shows navigation options like Dashboard, Global View, Events, and various instance types. The main content area shows a list of security groups with columns for Name, Security group ID, Security group name, VPC ID, Description, and Owner. The security groups are listed as follows:

Name	Security group ID	Security group name	VPC ID	Description	Owner
-	sg-070583550d576c53e	launch-wizard-2	vpc-0d4c0d8f48c2e4508	launch-wizard-2 created 2024-09-27T...	217253764927
-	sg-030c0a1b62a1e9894	NodeGroup	vpc-0d4c0d8f48c2e4508	Node	217253764927
-	sg-03f412e8ec9ec5946	launch-wizard-1	vpc-0d4c0d8f48c2e4508	launch-wizard-1 created 2024-09-27T...	217253764927
-	sg-000c20590a5551206	default	vpc-0d4c0d8f48c2e4508	default VPC security group	217253764927
-	sg-097fc30a345c1a537	MasterGroup	vpc-0d4c0d8f48c2e4508	Master	217253764927
-	sg-09d51590eb1851b46	launch-wizard-3	vpc-0d4c0d8f48c2e4508	launch-wizard-3 created 2024-09-29T...	217253764927

EC2 > Security Groups > sg-09d51590eb1851b46

sg-09d51590eb1851b46 - launch-wizard-3 Actions

Details

Security group name launch-wizard-3	Security group ID sg-09d51590eb1851b46	Description launch-wizard-3 created 2024-09-29T06:49:51.498Z	VPC ID vpc-0d4c0d8f48c2e4508
Owner 217253764927	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry	

Inbound rules | Outbound rules | Tags

Inbound rules (1) Manage tags Edit inbound rules

<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
<input type="checkbox"/>	-	sgr-0ec19557ab93305...	IPv4	SSH	TCP	22	0.0.0.0/0	-

Edit inbound rules info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules info

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	
sgr-0ec19557ab9330565	SSH	TCP	22	Custom	<input type="text" value="0.0.0.0/0"/>	Delete
-	HTTP	TCP	80	Anywhere-I...	<input type="text" value="0.0.0.0/0"/>	Delete
-	All ICMP - IPv6	IPv6 ICMP	All	Anywhere-I...	<input type="text" value="0.0.0.0/0"/>	Delete
-	HTTPS	TCP	443	Anywhere-I...	<input type="text" value="0.0.0.0/0"/>	Delete
-	All traffic	All	All	Anywhere-I...	<input type="text" value="0.0.0.0/0"/>	Delete
-	Custom TCP	TCP	5666	Anywhere-I...	<input type="text" value="0.0.0.0/0"/>	Delete
-	All ICMP - IPv4	ICMP	All	Anywhere-I...	<input type="text" value="0.0.0.0/0"/>	Delete

Security group name launch-wizard-3	Security group ID sg-09d51590eb1851b46	Description launch-wizard-3 created 2024-09-29T06:49:51.498Z	VPC ID vpc-0d4c0d8f48c2e4508
Owner 217253764927	Inbound rules count 7 Permission entries	Outbound rules count 1 Permission entry	

Inbound rules | Outbound rules | Tags

Inbound rules (7) Manage tags Edit inbound rules

<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
<input type="checkbox"/>	-	sgr-034c50eeff5e5fa00	IPv4	All ICMP - IPv6	IPv6 ICMP	All	0.0.0.0/0	-
<input type="checkbox"/>	-	sgr-038d0d3791dfcc60e	IPv4	HTTPS	TCP	443	0.0.0.0/0	-
<input type="checkbox"/>	-	sgr-0e8ad1dd008b14...	IPv4	All ICMP - IPv4	ICMP	All	0.0.0.0/0	-
<input type="checkbox"/>	-	sgr-0ec19557ab93305...	IPv4	SSH	TCP	22	0.0.0.0/0	-
<input type="checkbox"/>	-	sgr-00a0e56d560959f45	IPv4	HTTP	TCP	80	0.0.0.0/0	-
<input type="checkbox"/>	-	sgr-064c062d69916fa84	IPv4	Custom TCP	TCP	5666	0.0.0.0/0	-
<input type="checkbox"/>	-	sgr-0613b7b6aa9d30def	IPv4	All traffic	All	All	0.0.0.0/0	-

You have to edit the inbound rules of the specified Security Group for this.

3. SSH into Your EC2 instance or simply use EC2 Instance Connect from the browser.

The screenshot shows the AWS Management Console interface for connecting to an EC2 instance. The breadcrumb trail is **EC2 > Instances > i-095b567c2f5ae6a91 > Connect to instance**. The main heading is **Connect to instance** with an **Info** link. Below it, a message states: "Connect to your instance i-095b567c2f5ae6a91 (nagios-host) using any of these options". There are four tabs: **EC2 Instance Connect** (selected), **Session Manager**, **SSH client**, and **EC2 serial console**.

A warning box indicates: "All ports are open to all IPv4 addresses in your security group. All ports are currently open to all IPv4 addresses, indicated by All and 0.0.0.0/0 in the inbound rule in your security group. For increased security, consider restricting access to only the EC2 Instance Connect service IP addresses for your Region: 18.206.107.24/29. [Learn more.](#)"

The instance ID is **i-095b567c2f5ae6a91 (nagios-host)**. Under **Connection Type**, there are two options: **Connect using EC2 Instance Connect** (selected) and **Connect using EC2 Instance Connect Endpoint**. Under **Public IPv4 address**, the address **54.162.128.119** is listed. The **Username** field is set to **ec2-user**. A note states: "Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username." At the bottom are **Cancel** and **Connect** buttons.

Below the console, a terminal window is shown with a blue header: **Keyboard shortcut** and "To tab out of the terminal window and select the next button element, press the left and right Shift keys together." with a **Close permanently** button. The terminal output shows the **Amazon Linux 2023** logo, the URL <https://aws.amazon.com/linux/amazon-linux-2023>, and the prompt **[ec2-user@ip-172-31-34-174 ~]\$**.

sudo yum update

```
[ec2-user@ip-172-31-91-91 ~]$  
sudo yum update  
Last metadata expiration check: 0:19:03 ago on Sun Sep 29 06:56:15 2024.  
Dependencies resolved.  
Nothing to do.  
Complete!  
[ec2-user@ip-172-31-91-91 ~]$ |
```

sudo yum install httpd php

```
[ec2-user@ip-172-31-91-91 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:19:29 ago on Sun Sep 29 06:56:15 2024.
Dependencies resolved.
=====
Package                               Architecture Version                               Repository                               Size
=====
Installing:
httpd                                  x86_64      2.4.62-1.amzn2023.0.1                amazonlinux                               48 k
php8.3                                 x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               10 k
Installing dependencies:
apr                                    x86_64      1.7.2-2.amzn2023.0.2                amazonlinux                               129 k
apr-util                              x86_64      1.6.3-1.amzn2023.0.1                amazonlinux                               98 k
generic-logos-httpd                  noarch      18.0.0-12.amzn2023.0.3              amazonlinux                               19 k
httpd-core                            x86_64      2.4.62-1.amzn2023.0.1                amazonlinux                               1.4 M
httpd-filesystem                     noarch      2.4.62-1.amzn2023.0.1                amazonlinux                               14 k
httpd-tools                           x86_64      2.4.62-1.amzn2023.0.1                amazonlinux                               81 k
libbrotli                             x86_64      1.0.9-4.amzn2023.0.2                amazonlinux                               315 k
libsodium                             x86_64      1.0.19-4.amzn2023.0.1                amazonlinux                               176 k
libxslt                               x86_64      1.1.34-5.amzn2023.0.2                amazonlinux                               241 k
mailcap                               noarch      2.1.49-3.amzn2023.0.3                amazonlinux                               33 k
nginx-filesystem                     noarch      1.1.24.0-1.amzn2023.0.4              amazonlinux                               9.8 k
php8.3-cli                            x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               3.7 M
php8.3-common                         x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               737 k
php8.3-process                        x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               45 k
php8.3-xml                            x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               154 k
Installing weak dependencies:
apr-util-openssl                     x86_64      1.6.3-1.amzn2023.0.1                amazonlinux                               17 k
mod_http2                             x86_64      2.0.27-1.amzn2023.0.3                amazonlinux                               166 k
mod_lua                               x86_64      2.4.62-1.amzn2023.0.1                amazonlinux                               61 k
php8.3-fpm                            x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               1.9 M
php8.3-embedding                      x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               528 k
php8.3-opcache                        x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               379 k
php8.3-pdo                            x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               89 k
php8.3-sodium                         x86_64      8.3.10-1.amzn2023.0.1                amazonlinux                               41 k
Transaction Summary
=====
Total                                                                    22 MB/s | 10 MB 00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Installing : php8.3-common-8.3.10-1.amzn2023.0.1.x86_64 1/1
Installing : apr-1.7.2-2.amzn2023.0.2.x86_64 1/25
Installing : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 2/25
Installing : apr-util-1.6.3-1.amzn2023.0.1.x86_64 3/25
Installing : mailcap-2.1.49-3.amzn2023.0.3.noarch 4/25
Installing : httpd-filesystem-2.4.62-1.amzn2023.noarch 5/25
Running scriptlet: httpd-filesystem-2.4.62-1.amzn2023.noarch 6/25
```

sudo yum install gcc glibc glibc-common

```
[ec2-user@ip-172-31-91-91 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:20:41 ago on Sun Sep 29 06:56:15 2024.
Package glibc-2.34-52.amzn2023.0.11.x86_64 is already installed.
Dependencies resolved.
=====
Package                               Architecture Version                               Repository                               Size
=====
Installing:
gcc                                    x86_64      11.4.1-2.amzn2023.0.2                amazonlinux                               32 M
Installing dependencies:
annobin-docs                          noarch      10.93-1.amzn2023.0.1                amazonlinux                               92 k
annobin-plugin-gcc                    x86_64      10.93-1.amzn2023.0.1                amazonlinux                               887 k
cpp                                    x86_64      11.4.1-2.amzn2023.0.2                amazonlinux                               10 M
gcc                                     x86_64      8.0.4-5.amzn2023.0.2                amazonlinux                               185 k
glibc-devel                           x86_64      2.34-52.amzn2023.0.11                amazonlinux                               27 k
glibc-headers-x86                     noarch      2.34-52.amzn2023.0.11                amazonlinux                               427 k
guile22                               x86_64      2.2.7-2.amzn2023.0.3                amazonlinux                               6.4 M
kernel-headers                        x86_64      6.1.109-118.189.amzn2023.0.2        amazonlinux                               1.4 M
libbmc                                x86_64      1.2.1-2.amzn2023.0.2                amazonlinux                               62 k
libtool-ltdl                          x86_64      2.4.7-1.amzn2023.0.3                amazonlinux                               38 k
libxcrypt-devel                       x86_64      4.4.33-7.amzn2023.0.1                amazonlinux                               32 k
make                                  x86_64      1:4.3-5.amzn2023.0.2                amazonlinux                               934 k
Transaction Summary
=====
Install 13 Packages
Total download size: 52 M

Installed:
annobin-docs-10.93-1.amzn2023.0.1.noarch      annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64      cpp-11.4.1-2.amzn2023.0.2.x86_64
gcc-8.0.4-5.amzn2023.0.2.x86_64                glibc-headers-x86-2.34-52.amzn2023.0.11.noarch      glibc-devel-2.34-52.amzn2023.0.11.x86_64
guile22-2.2.7-2.amzn2023.0.3.x86_64            kernel-headers-6.1.109-118.189.amzn2023.x86_64      libbmc-1.2.1-2.amzn2023.0.2.x86_64
libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_64        libxcrypt-devel-4.4.33-7.amzn2023.x86_64            make-1:4.3-5.amzn2023.0.2.x86_64

Complete!
```

sudo yum install gd gd-devel

```
[ec2-user@ip-172-31-91-91 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:21:30 ago on Sun Sep 29 06:56:15 2024.
Dependencies resolved.
=====
Package                               Architecture Version                               Repository                               Size
=====
Installing:
gd                                    x86_64      2.3.3-5.amzn2023.0.3                amazonlinux                               139 k
gd-devel                              x86_64      2.3.3-5.amzn2023.0.3                amazonlinux                               38 k
Installing dependencies:
brotli                                x86_64      1.0.9-4.amzn2023.0.2                amazonlinux                               314 k
brotli-devel                          x86_64      1.0.9-4.amzn2023.0.2                amazonlinux                               31 k
bzip2-devel                           x86_64      1.0.8-6.amzn2023.0.2                amazonlinux                               214 k
cairo                                  x86_64      1.17.6-2.amzn2023.0.1                amazonlinux                               684 k
cmake-filesystem                      x86_64      3.22.2-1.amzn2023.0.4                amazonlinux                               16 k
fontconfig                             x86_64      2.13.94-2.amzn2023.0.2              amazonlinux                               273 k
```

```

Installed:
  brotli-1.0.9-4.amzn2023.0.2.x86_64
  cairo-1.17.6-2.amzn2023.0.1.x86_64
  fontconfig-devel-2.13.94-2.amzn2023.0.2.x86_64
  freetype-devel-2.13.2-5.amzn2023.0.1.x86_64
  glib2-devel-2.74.7-689.amzn2023.0.2.x86_64
  graphite2-1.3.14-7.amzn2023.0.2.x86_64
  harfbuzz-devel-7.0.0-2.amzn2023.0.1.x86_64
  langpacks-core-font-en-3.0-21.amzn2023.0.4.noarch
  libX11-1.7.2-3.amzn2023.0.4.x86_64
  libX11-xcb-1.7.2-3.amzn2023.0.4.x86_64
  libXext-1.3.4-6.amzn2023.0.2.x86_64
  libXrender-0.9.10-14.amzn2023.0.2.x86_64
  libffi-devel-3.4.4-1.amzn2023.0.1.x86_64
  libjpeg-turbo-2.1.4-2.amzn2023.0.5.x86_64
  libpng-2:1.6.37-10.amzn2023.0.6.x86_64
  libsepol-devel-3.4-3.amzn2023.0.3.x86_64
  libwebp-1.2.4-1.amzn2023.0.6.x86_64
  libxcb-devel-1.13.1-7.amzn2023.0.2.x86_64
  pcre2-utf16-10.40-1.amzn2023.0.3.x86_64
  sysprof-capture-devel-3.40.1-2.amzn2023.0.2.x86_64
  xz-devel-5.2.5-9.amzn2023.0.2.x86_64

  brotli-devel-1.0.9-4.amzn2023.0.2.x86_64
  cmake-filesystem-3.22.2-1.amzn2023.0.4.x86_64
  fonts-filesystem-1:2.0.5-12.amzn2023.0.2.noarch
  gd-2.3.3-5.amzn2023.0.3.x86_64
  google-noto-fonts-common-20201206-2.amzn2023.0.2.noarch
  graphite2-devel-1.3.14-7.amzn2023.0.2.x86_64
  harfbuzz-icu-7.0.0-2.amzn2023.0.1.x86_64
  libICE-1.0.10-6.amzn2023.0.2.x86_64
  libX11-common-1.7.2-3.amzn2023.0.4.noarch
  libXau-1.0.9-6.amzn2023.0.2.x86_64
  libXpm-3.5.15-2.amzn2023.0.3.x86_64
  libXt-1.2.0-4.amzn2023.0.2.x86_64
  libicu-67.1-7.amzn2023.0.3.x86_64
  libjpeg-turbo-devel-2.1.4-2.amzn2023.0.5.x86_64
  libpng-devel-2:1.6.37-10.amzn2023.0.6.x86_64
  libtiff-4.0.0-4.amzn2023.0.18.x86_64
  libwebp-devel-1.2.4-1.amzn2023.0.6.x86_64
  libxml2-devel-2.10.4-1.amzn2023.0.6.x86_64
  pcre2-utf32-10.40-1.amzn2023.0.3.x86_64
  xml-common-0.6.3-56.amzn2023.0.2.noarch
  zlib-devel-1.2.11-33.amzn2023.0.5.x86_64

  bzip2-devel-1.0.8-6.amzn2023.0.2.x86_64
  fontconfig-2.13.94-2.amzn2023.0.2.x86_64
  freetype-2.13.2-5.amzn2023.0.1.x86_64
  gd-devel-2.3.3-5.amzn2023.0.3.x86_64
  google-noto-sans-vf-fonts-20201206-2.amzn2023.0.2.noarch
  harfbuzz-7.0.0-2.amzn2023.0.1.x86_64
  jbigkit-libs-2.1-21.amzn2023.0.2.x86_64
  libSM-1.2.3-8.amzn2023.0.2.x86_64
  libX11-devel-1.7.2-3.amzn2023.0.4.x86_64
  libXau-devel-1.0.9-6.amzn2023.0.2.x86_64
  libXpm-devel-3.5.15-2.amzn2023.0.3.x86_64
  libblkid-devel-2.37.4-1.amzn2023.0.4.x86_64
  libicu-devel-67.1-7.amzn2023.0.3.x86_64
  libmount-devel-2.37.4-1.amzn2023.0.4.x86_64
  libselinux-devel-3.4-5.amzn2023.0.2.x86_64
  libtiff-devel-4.0.0-4.amzn2023.0.18.x86_64
  libxcb-1.13.1-7.amzn2023.0.2.x86_64
  pcre2-devel-10.40-1.amzn2023.0.3.x86_64
  pixman-0.40.0-3.amzn2023.0.3.x86_64
  xorg-x11-proto-devel-2021.4-1.amzn2023.0.2.noarch

Complete!

```

5. Create a new Nagios User with its password. You'll have to enter the password twice for confirmation.

```

sudo adduser -m nagios
sudo passwd nagios
(password : krushikesh)

```

```

[ec2-user@ip-172-31-34-174 ~]$ sudo adduser -m nagios
sudo passwd nagios
Changing password for user nagios.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.

```

6. Create a new user group

```

sudo groupadd nagcmd

```

```

[ec2-user@ip-172-31-91-91 ~]$ sudo groupadd nagcmd
[ec2-user@ip-172-31-91-91 ~]$

```

7. Use these commands so that you don't have to use sudo for Apache and Nagios

```

sudo usermod -a -G nagcmd nagios
sudo usermod -a -G nagcmd apache

```

```

[ec2-user@ip-172-31-91-91 ~]$ sudo usermod -a -G nagcmd nagios
sudo usermod -a -G nagcmd apache
[ec2-user@ip-172-31-91-91 ~]$

```

8. Create a new directory for Nagios downloads

```

mkdir ~/downloads
cd ~/downloads

```

```

[ec2-user@ip-172-31-91-91 ~]$ mkdir ~/downloads
cd ~/downloads

```

9. Use wget to download the source zip files.

wget <https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz>

```
[ec2-user@ip-172-31-91-91 downloads]$ cd ..
[ec2-user@ip-172-31-91-91 ~]$ cd ~/downloads
[ec2-user@ip-172-31-91-91 downloads]$ wget https://assets.nagios.com/downlo
ds/nagioscore/releases/nagios-4.5.5.tar.gz
--2024-09-29 09:11:59-- https://assets.nagios.com/downloads/nagioscore/rele
ases/nagios-4.5.5.tar.gz
Resolving assets.nagios.com (assets.nagios.com)... 45.79.49.120, 2600:3c00::
f03c:92ff:fe7:45ce
Connecting to assets.nagios.com (assets.nagios.com)|45.79.49.120|:443... con
nected.
HTTP request sent, awaiting response... 200 OK
Length: 2065473 (2.0M) [application/x-gzip]
Saving to: 'nagios-4.5.5.tar.gz'

nagios-4.5.5.tar.g 100%[======>] 1.97M 5.07MB/s in 0.4s

2024-09-29 09:11:59 (5.07 MB/s) - 'nagios-4.5.5.tar.gz' saved [2065473/20654
73]

[ec2-user@ip-172-31-91-91 downloads]$ |
```

wget <https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz>

```
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ cd ..
[ec2-user@ip-172-31-91-91 downloads]$ wget https://nagios-plugins.org/downlo
ad/nagios-plugins-2.4.11.tar.gz
--2024-09-29 09:14:28-- https://nagios-plugins.org/download/nagios-plugins-
2.4.11.tar.gz
Resolving nagios-plugins.org (nagios-plugins.org)... 45.56.123.251
Connecting to nagios-plugins.org (nagios-plugins.org)|45.56.123.251|:443...
connected.
HTTP request sent, awaiting response... 200 OK
Length: 2753049 (2.6M) [application/x-gzip]
Saving to: 'nagios-plugins-2.4.11.tar.gz'

nagios-plugins-2.4 100%[======>] 2.62M 6.92MB/s in 0.4s
```

10. Use tar to unzip and change to that directory.

`tar zxvf nagios-4.5.5.tar.gz`

```
[ec2-user@ip-172-31-91-91 downloads]$ tar zxvf nagios-4.0.8.tar.gz
nagios-4.0.8/
nagios-4.0.8/.gitignore
nagios-4.0.8/Changelog
nagios-4.0.8/INSTALLING
nagios-4.0.8/LLEGAL
nagios-4.0.8/LICENSE
nagios-4.0.8/Makefile.in
nagios-4.0.8/README
nagios-4.0.8/README.asciidoc
nagios-4.0.8/THANKS
nagios-4.0.8/UPGRADING
nagios-4.0.8/base/
nagios-4.0.8/base/.gitignore
```

11. Run the configuration script with the same group name you previously created.

`./configure --with-command-group=nagcmd`

Here we get an error

```
[ec2-user@ip-172-31-91-91 downloads]$ ./configure --with-command-group=nagcmd
-bash: ./configure: No such file or directory
[ec2-user@ip-172-31-91-91 downloads]$ |
```

Solution

Navigate to nagios folder in downloads

```
[ec2-user@ip-172-31-91-91 downloads]$ ls
nagios-4.0.8  nagios-4.0.8.tar.gz  nagios-plugins-2.0.3.tar.gz
[ec2-user@ip-172-31-91-91 downloads]$ cd nagios-4.0.8
[ec2-user@ip-172-31-91-91 nagios-4.0.8]$ |
```

Error 2: Cannot find SSL headers.

Solution: Install openssl dev library

Steps:

sudo yum install openssl-devel

```
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ sudo yum install openssl-devel
Last metadata expiration check: 2:24:05 ago on Sun Sep 29 06:56:15 2024.
Dependencies resolved.
=====
Package                Arch      Version                               Repository      Size
=====
Installing:
openssl-devel          x86_64    1:3.0.8-1.amzn2023.0.14             amazonlinux     3.0 M

Transaction Summary
=====
Install 1 Package

Total download size: 3.0 M
Installed size: 4.7 M
Is this ok [y/N]: y
Downloading Packages:
```

Now run

./configure --with-command-group=nagcmd

```
Event Broker: yes
Install ${prefix}: /usr/local/nagios
Install ${includedir}: /usr/local/nagios/include/nagios
Lock file: /run/nagios.lock
Check result directory: /usr/local/nagios/var/spool/checkresults
Init directory: /lib/systemd/system
Apache conf.d directory: /etc/httpd/conf.d
Mail program: /bin/mail
Host OS: linux-gnu
IOBroker Method: epoll

Web Interface Options:
-----
HTML URL: http://localhost/nagios/
CGI URL: http://localhost/nagios/cgi-bin/
Traceroute (used by WAP): /usr/bin/traceroute

Review the options above for accuracy. If they look okay,
type 'make all' to compile the main program and CGIs.

[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ |
```


12. Compile the source code.

make all

```
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/base'
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o nagios.o ./nagios.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o broker.o broker.c
```

13. Install binaries, init script and sample config files. Lastly, set permissions on the external command directory.

sudo make install

sudo make install-init

sudo make install-config

sudo make install-commandmode

```
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ make all

sudo make install
sudo make install-init
sudo make install-config
sudo make install-commandmode
cd ./base && make
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/base'
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o nagios.o ./nagios.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o broker.o broker.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o nebmods.o nebmods.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o ../common/shared.o ../common/shared.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o query-handler.o query-handler.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o workers.o workers.c
In function 'get_wproc_list',
    inlined from 'get_worker' at workers.c:277:12:
workers.c:253:17: warning: '%s' directive argument is null [-Wformat-overflo
w=]
   253 |         log_debug_info(DEBUGL_CHECKS, 1, "Found specialized
worker(s) for '%s'", (slash && *slash != '/') ? slash : cmd_name);
       |         ^ ~~~~~~
~~~~~
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o checks.o checks.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
CONFIG_H -DNSCORE -c -o config.o config.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_
```

14. Edit the config file and change the email address.

sudo nano /usr/local/nagios/etc/objects/contacts.cfg

```

#####
CONTACTS.CFG - SAMPLE CONTACT/CONTACTGROUP DEFINITIONS
#####
#
# NOTES: This config file provides you with some example contact and contact
# group definitions that you can reference in host and service
# definitions.
#
# You don't need to keep these definitions in a separate file from your
# other object definitions. This has been done just to make things
# easier to understand.
#####
#
# CONTACTS
#####
#
# Just one contact defined by default - the Nagios admin (that's you)
# This contact definition inherits a lot of default values from the
# 'generic-contact' template which is defined elsewhere.
define contact {
    contact_name    nagiosadmin        ; Short name of user
    use             generic-contact    ; Inherit default values from generic-contact template (defined above)
    alias           Region Admin       ; Full name of user
    email           2022.krushikesh.shelar@ves.ac.in ; <***** CHANGE THIS TO YOUR EMAIL ADDRESS *****>
}
#####
#
# CONTACT GROUPS
#####
#
# We only have one contact in this simple configuration file, so there is
# no need to create more than one contact group.
define contactgroup {
    contactgroup_name admins
    alias           Region Administrators
    members         nagiosadmin
}

```

And change email with your email

15. Configure the web interface.

sudo make install-webconf

```

[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ sudo make install-webconf
/usr/bin/install -c -m 644 sample-config/httpd.conf /etc/httpd/conf.d/nagios.conf
if [ 0 -eq 1 ]; then \
    ln -s /etc/httpd/conf.d/nagios.conf /etc/apache2/sites-enabled/nagios.conf; \
fi

*** Nagios/Apache conf file installed ***
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$

```

16. Create a nagiosadmin account for nagios login along with password. You'll have to specify the password twice.

sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin

```

[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ |

```

Password: krushikesh

17. Restart Apache

sudo service httpd restart

```
Adding password for user nagiosadmin
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ sudo service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$
```

18. Go back to the downloads folder and unzip the plugins zip file.

cd ~/downloads

tar zxvf nagios-plugins-2.4.11.tar.gz

```
[ec2-user@ip-172-31-91-91 downloads]$ cd ~/downloads
[ec2-user@ip-172-31-91-91 downloads]$ tar zxvf nagios-plugins-2.4.11.tar.gz
nagios-plugins-2.4.11/
nagios-plugins-2.4.11/build-aux/
nagios-plugins-2.4.11/build-aux/compile
nagios-plugins-2.4.11/build-aux/config.guess
nagios-plugins-2.4.11/build-aux/config.rpath
nagios-plugins-2.4.11/build-aux/config.sub
nagios-plugins-2.4.11/build-aux/install-sh
nagios-plugins-2.4.11/build-aux/ltmain.sh
nagios-plugins-2.4.11/build-aux/missing
nagios-plugins-2.4.11/build-aux/mkinstalldirs
nagios-plugins-2.4.11/build-aux/depcomp
nagios-plugins-2.4.11/build-aux/snippet/
nagios-plugins-2.4.11/build-aux/snippet/_Noreturn.h
nagios-plugins-2.4.11/build-aux/snippet/arg-nonnull.h
nagios-plugins-2.4.11/build-aux/snippet/c++defs.h
nagios-plugins-2.4.11/build-aux/snippet/warn-on-use.h
nagios-plugins-2.4.11/build-aux/test-driver
nagios-plugins-2.4.11/config_test/
```

19. Compile and install plugins

cd nagios-plugins-2.4.11

./configure --with-nagios-user=nagios --with-nagios-group=nagios

```
[ec2-user@ip-172-31-91-91 downloads]$ cd nagios-plugins-2.4.11
./configure --with-nagios-user=nagios --with-nagios-group=nagios
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether make supports nested variables... yes
checking whether to enable maintainer-specific portions of Makefiles... yes
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether gcc understands -c and -o together... yes
checking whether make supports the include directive... yes (GNU style)
checking dependency style of gcc... gcc3
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for Minix Amsterdam compiler... no
checking for ar... ar
checking for ranlib... ranlib
```

make

sudo make install

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$ make
sudo make install
make all-recursive
make[1]: Entering directory '/home/ec2-user/downloads/nagios-plugins-2.4.11'
Making all in gl
make[2]: Entering directory '/home/ec2-user/downloads/nagios-plugins-2.4.11/gl'
rm -f alloca.h-t alloca.h && \
{ echo '/* DO NOT EDIT! GENERATED AUTOMATICALLY! */'; \
cat ./alloca.in.h; \
} > alloca.h-t && \
mv -f alloca.h-t alloca.h
rm -f c++defs.h-t c++defs.h && \
sed -n -e '/_GL_CXXDEFS/, $p' \
< ../build-aux/snippet/c++defs.h \
> c++defs.h-t && \
mv c++defs.h-t c++defs.h
rm -f warn-on-use.h-t warn-on-use.h && \
sed -n -e '/^\.ifnndef/, $p' \
< ../build-aux/snippet/warn-on-use.h \
> warn-on-use.h-t && \
mv warn-on-use.h-t warn-on-use.h
rm -f arg-nonnull.h-t arg-nonnull.h && \
sed -n -e '/_GL_ARG_NONNULL/, $p' \
< ../build-aux/snippet/arg-nonnull.h \
> arg-nonnull.h-t && \
mv arg-nonnull.h-t arg-nonnull.h
/usr/bin/mkdir -p arpa
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.4.11/gl'
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.4.11'
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$
```

20. Start Nagios

Add Nagios to the list of system services

sudo chkconfig --add nagios

sudo chkconfig nagios on

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$ sudo chkconfig --add nagios
s
sudo chkconfig nagios on
Note: Forwarding request to 'systemctl enable nagios.service'.
Synchronizing state of nagios.service with SysV service script with /usr/lib
/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable nagios
Created symlink /etc/systemd/system/multi-user.target.wants/nagios.service →
/usr/lib/systemd/system/nagios.service.
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$
```

Verify the sample configuration files

sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Error

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.0.3]$ sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.0.8
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 08-12-2014
License: GPL

Website: http://www.nagios.org
Reading configuration data...
Error in configuration file '/usr/local/nagios/etc/nagios.cfg' - Line 452 (Check result path '/usr/local/nagios/var/spool/checkresults' is not a valid directory)
Error processing main config file!
```

Solution:

Create the missing directory: If the directory is missing, create it with the necessary permissions:

sudo mkdir -p /usr/local/nagios/var/spool/checkresults

sudo chown nagios:nagios /usr/local/nagios/var/spool/checkresults

sudo chmod 775 /usr/local/nagios/var/spool/checkresults

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.0.3]$ sudo mkdir -p /usr/local/nagios/var/spool/checkresults
sudo chown nagios:nagios /usr/local/nagios/var/spool/checkresults
sudo chmod 775 /usr/local/nagios/var/spool/checkresults
[ec2-user@ip-172-31-91-91 nagios-plugins-2.0.3]$
```

Now run again

sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$ sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.5.5
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2024-09-17
License: GPL

Website: https://www.nagios.org
Reading configuration data...
  Read main config file okay...
  Read object config files okay...

Running pre-flight check on configuration data...

Checking objects...
  Checked 8 services.
  Checked 1 hosts.
  Checked 1 host groups.
  Checked 0 service groups.
  Checked 1 contacts.
  Checked 1 contact groups.
  Checked 24 commands.
  Checked 5 time periods.
  Checked 0 host escalations.
  Checked 0 service escalations.
Checking for circular paths...
  Checked 1 hosts
  Checked 0 service dependencies
  Checked 0 host dependencies
  Checked 5 timeperiods
Checking global event handlers...
Checking obsessive compulsive processor commands...
Checking misc settings...

Total Warnings: 0
Total Errors: 0
```

sudo service nagios start

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$ sudo service nagios start
Starting nagios (via systemctl): [ OK ]
```

21. Check the status of Nagios

sudo systemctl status nagios

```
[ec2-user@ip-172-31-34-174 nagios-plugins-2.4.11]$ sudo service nagios start
Redirecting to /bin/systemctl start nagios.service
[ec2-user@ip-172-31-34-174 nagios-plugins-2.4.11]$ sudo systemctl status nagios
● nagios.service - Nagios Core 4.5.5
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: disabled)
   Active: active (running) since Wed 2024-10-02 15:10:02 UTC; 12s ago
     Docs: https://www.nagios.org/documentation
   Process: 65649 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Process: 65651 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 65652 (nagios)
    Tasks: 6 (limit: 1112)
   Memory: 5.6M
     CPU: 94ms
   CGroup: /system.slice/nagios.service
           └─65652 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             └─65653 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
               └─65654 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                 └─65655 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                   └─65656 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                     └─65657 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): qh: Socket '/usr/local/nagios/var/rw/nagios.qh' successfully initialized
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): qh: core query handler registered
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): qh: echo service query handler registered
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): qh: help for the query handler registered
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): wproc: Successfully registered manager as @wproc with query handler
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): wproc: Registry request: name=Core Worker 65656;pid=65656
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): wproc: Registry request: name=Core Worker 65655;pid=65655
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): wproc: Registry request: name=Core Worker 65654;pid=65654
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios(65652): wproc: Registry request: name=Core Worker 65653;pid=65653
Oct 02 15:10:03 ip-172-31-34-174.ec2.internal nagios(65652): Successfully launched command file worker with pid 65657
```

22. Go back to EC2 Console and copy the Public IP address of this instance

23. Open up your browser and look for http://<your_public_ip_address>/nagios

Enter username as nagiosadmin and password which you set in Step 16.

24. After entering the correct credentials, you will see this page.

The screenshot displays the Nagios Core web interface. The browser address bar shows the URL 54.162.128.119/nagios/. The interface features a sidebar on the left with navigation links under categories: 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), and System (Comments, Downtime, Process Info, Performance Info, Scheduling Queue, Configuration). The main content area shows the Nagios Core logo, a status message 'Daemon running with PID 65652', and the version 'Nagios® Core™ Version 4.5.5' dated September 17, 2024, with a 'Check for updates' link. Below this are four boxes: 'Get Started' with links to start monitoring, change look/feel, extend with addons, get support, training, and certification; 'Quick Links' with links to Nagios Library, Labs, Exchange, Support, Nagios.com, and Nagios.org; 'Latest News'; and 'Don't Miss...'. At the bottom, there is a copyright notice for 2010-2024 Nagios Core Development Team and Community Contributors, and a disclaimer for Nagios Core licensed under the GNU General Public License. Logos for Nagios and SourceForge are also present.

This means that Nagios was correctly installed and configured with its plugins so far.

Conclusion:

In this practical, we successfully installed and configured Nagios Core along with Nagios plugins and NRPE on an Amazon EC2 instance. We created a Nagios user, set up necessary permissions, and resolved common installation errors. Finally, we verified the setup by accessing the Nagios web interface, confirming that our monitoring system was fully operational.