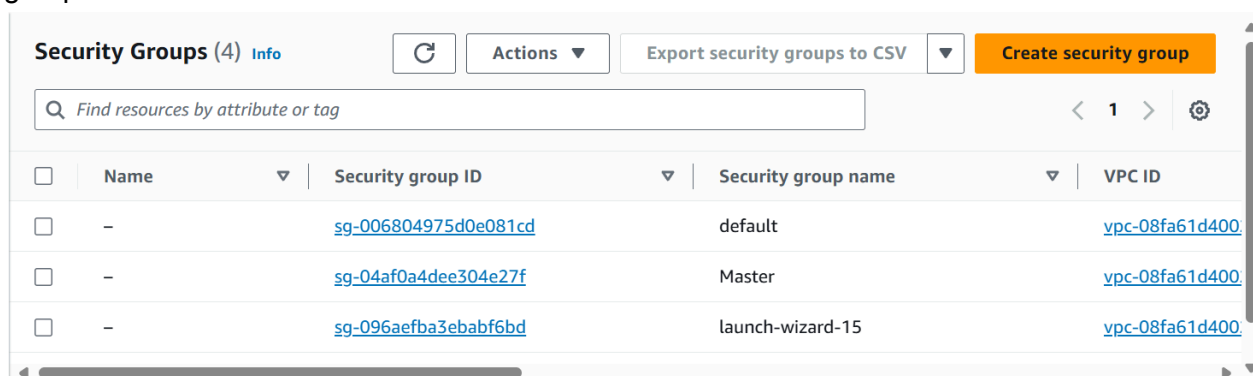


Experiment 9

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

Steps:

Step 1: Navigate to the EC2 section on your AWS console using the 'Services' section. Then, from the options in the left-side panel, click on 'Security groups'. Next, click on 'Create security group'.

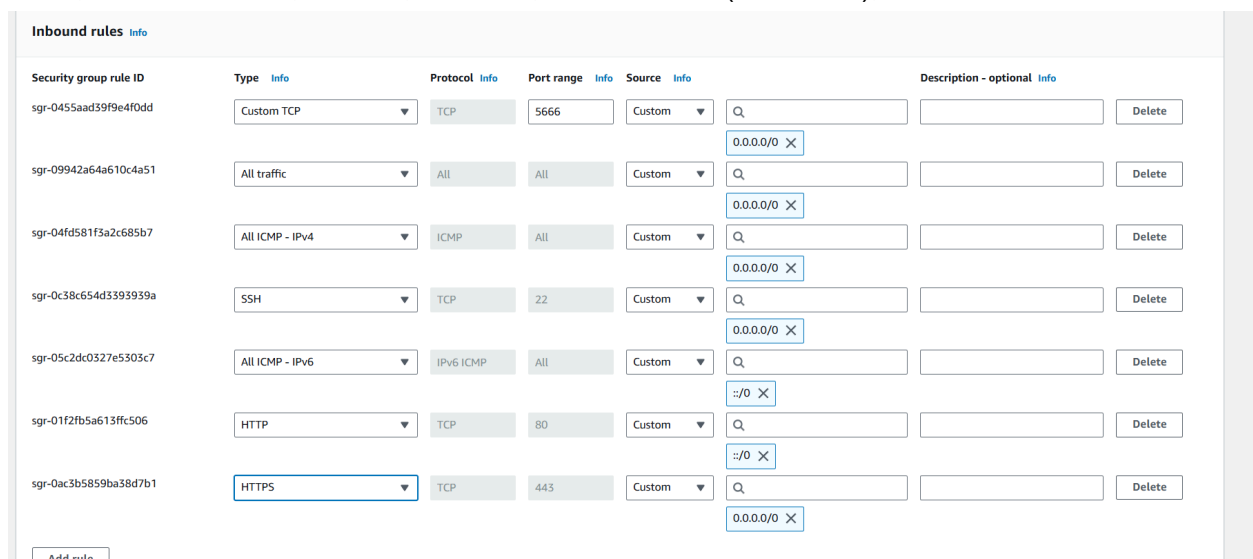


The screenshot shows the AWS Management Console for Security Groups. At the top, there's a header with 'Security Groups (4)', a refresh button, an 'Actions' dropdown, an 'Export security groups to CSV' button, and a 'Create security group' button. Below the header is a search bar with the placeholder text 'Find resources by attribute or tag'. The main content area is a table with the following columns: Name, Security group ID, Security group name, and VPC ID. There are three rows of security groups listed.

<input type="checkbox"/>	Name	Security group ID	Security group name	VPC ID
<input type="checkbox"/>	-	sg-006804975d0e081cd	default	vpc-08fa61d400
<input type="checkbox"/>	-	sg-04af0a4dee304e27f	Master	vpc-08fa61d400
<input type="checkbox"/>	-	sg-096aefba3ebabf6bd	launch-wizard-15	vpc-08fa61d400

Give your security group a name (here, the name is launch-wizard-15) and then in the 'Inbound rules' section, click on 'Edit'. Then, click on add rules, and add the rules for the following protocols:

HTTP, All ICMP - IPv6, HTTPS, All traffic, Custom TCP (Port 5666), All ICMP - IPv4



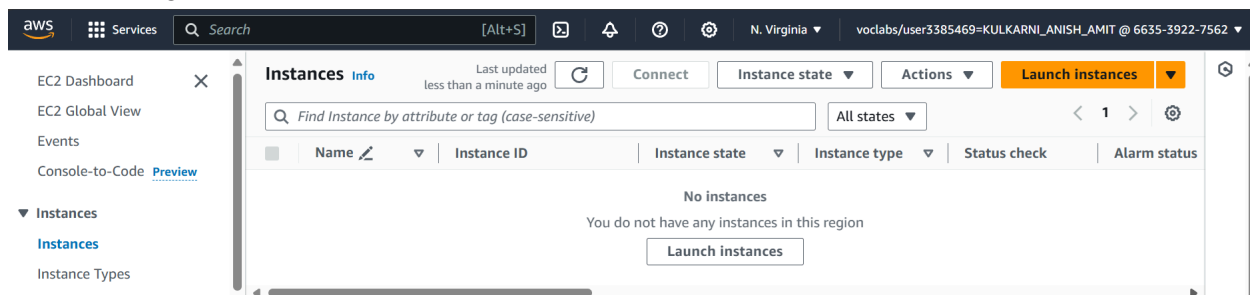
The screenshot shows the 'Inbound rules' section of the AWS console. It displays a table of existing rules for the security group 'sg-096aefba3ebabf6bd'. Each row includes the rule ID, type, protocol, port range, source, and a description. There are also 'Add rule' and 'Delete' buttons for each rule.

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sg-0455aad39f9e4f0dd	Custom TCP	TCP	5666	Custom	
sg-09942a64a610c4a51	All traffic	All	All	Custom	
sg-04fd581f3a2c685b7	All ICMP - IPv4	ICMP	All	Custom	
sg-0c38c654d3393939a	SSH	TCP	22	Custom	
sg-05c2dc0327e5303c7	All ICMP - IPv6	IPv6 ICMP	All	Custom	
sg-01f2fb5a613ffc506	HTTP	TCP	80	Custom	
sg-0ac3b5859ba38d7b1	HTTPS	TCP	443	Custom	

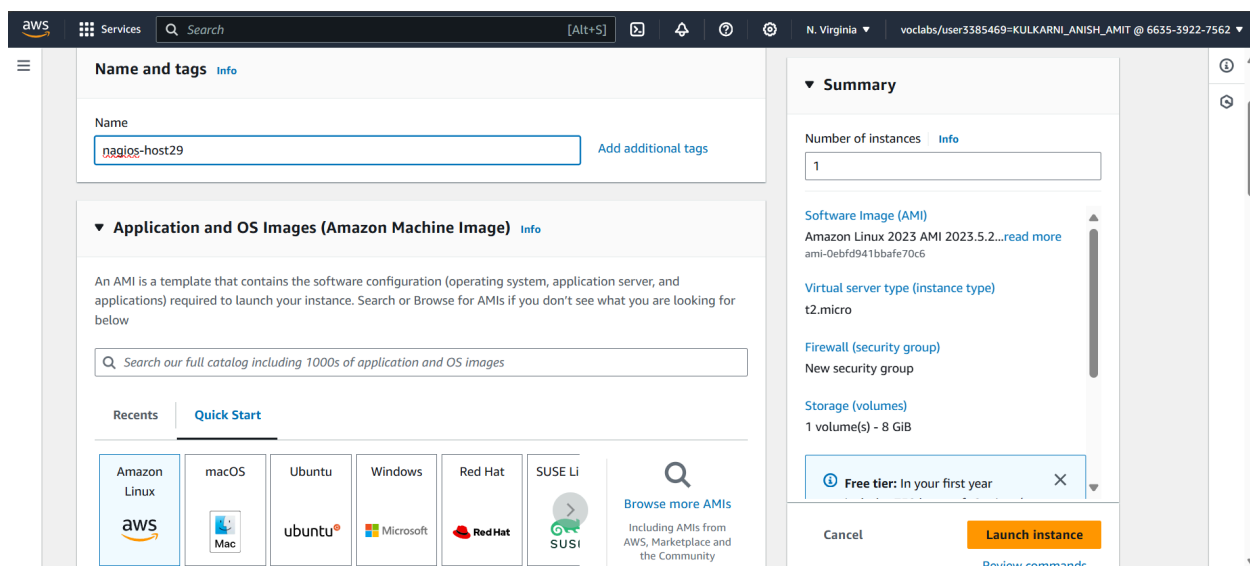
Your security group with the required inbound rules gets created as such:-

Inbound rules (7)						
<input type="text" value="Search"/>						
Security group rule...	IP version	Type	Protocol	Port range	Source	
sgr-0455aad39f9e4f0dd	IPv4	Custom TCP	TCP	5666	0.0.0.0/0	
sgr-09942a64a610c4a...	IPv4	All traffic	All	All	0.0.0.0/0	
sgr-04fd581f3a2c685b7	IPv4	All ICMP - IPv4	ICMP	All	0.0.0.0/0	
sgr-0c38c654d339393...	IPv4	SSH	TCP	22	0.0.0.0/0	
sgr-05c2dc0327e5303c7	IPv6	All ICMP - IPv6	IPv6 ICMP	All	::/0	
sgr-01f2fb5a613ffc506	IPv6	HTTP	TCP	80	::/0	
sgr-0ac3b5859ba38d7...	IPv4	HTTPS	TCP	443	0.0.0.0/0	

Step 2: Navigate to the EC2 section and click on 'Launch instances'.



Give your instance a name, choose 'Amazon Linux' as the instance type, insert the key pair for which you have the .pem file available in the 'Key pair' section, choose the security group that you created in Step 1 in the 'Network settings' section, keep all other options as default and click on 'Launch instance'.



Key pair (login)

Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

AdvDevopsLab

Create new key pair

Network settings

Info

Edit

Network

vpc-08fa61d4002ee05df

Subnet

No preference (Default subnet in any availability zone)

Auto-assign public IP

Enable

Additional charges apply when outside of free tier allowance

Firewall (security groups)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Common security groups

Select security groups

launch-wizard-15 sg-096aefba3ebabf6bd

VPC: vpc-08fa61d4002ee05df

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

Summary

Number of instances

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2...[read more](#)

ami-0ebfd941bbafe70c6

Virtual server type (instance type)

t2.micro

Firewall (security group)

launch-wizard-15

Storage (volumes)

1 volume(s) - 8 GiB

Free tier:

In your first year includes

750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Launch instance

Review commands

aws

Services

Search

[Alt+S]

N. Virginia

voclabs/user3385469=KULKARNI_ANISH_AMIT @ 6635-3922-7562

EC2 Dashboard

EC2 Global View

Events

Console-to-Code

Instances

Instance Types

Launch Templates

Instances (1)

Info

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input type="checkbox"/>	nagios-host29	i-03d0c63994db6400b	Running	t2.micro	-	View alarms

Your instance gets created.

aws

Services

Search

[Alt+]

N. Virginia

voclabs/user3385469=KULKARNI_ANISH_AMIT @ 6635-3922-7562

EC2 > Instances > i-03d0c63994db6400b > Connect to instance

Connect to instance [Info](#)

Connect to your instance i-03d0c63994db6400b (nagios-host29) using any of these options


EC2 Instance Connect

Session Manager


SSH client


EC2 serial console

Instance ID


 i-03d0c63994db6400b (nagios-host29)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is AdvDevopsLab.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.

```
 chmod 400 "AdvDevopsLab.pem"
```
4. Connect to your instance using its Public DNS:


```
 ec2-3-84-19-157.compute-1.amazonaws.com
```

Example:

```
 ssh -i "AdvDevopsLab.pem" ec2-user@ec2-3-84-19-157.compute-1.amazonaws.com
```

Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

```
PS C:\Users\anish\Downloads> ssh -i "AdvDevopsLab.pem" ec2-user@ec2-3-84-19-157.compute-1.amazonaws.com
The authenticity of host 'ec2-3-84-19-157.compute-1.amazonaws.com (3.84.19.157)' can't be established.
ED25519 key fingerprint is SHA256:a+QXqvwvW5WaiVmzblX2AJvzqISc12vkiVvsUMxtmoug.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-84-19-157.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
```



```
#_
~\_ ##### Amazon Linux 2023
~~\_#####\
~~~\###|
~~~~\#/ --- https://aws.amazon.com/linux/amazon-linux-2023
      V~' '->
          /
         /
        /
       /
      /
     /
    /
   /
  /
 /
/_/m/'
```

```
[ec2-user@ip-172-31-88-33 ~]$
```

Step 5: First, run the following command:-

```
sudo yum update
```

This command will check for any updates for the YUM library.

```
sudo yum update
```

This command will check for any updates for the YUM library.

```
[ec2-user@ip-172-31-88-33 ~]$ sudo yum update
Last metadata expiration check: 0:02:17 ago on Sun Sep 29 10:22:03 2024.
Dependencies resolved.
Nothing to do.
Complete!
```

Step 6: Run the command:

```
sudo yum install httpd php
```

This installs an Apache server and a PHP on your instance.

```
[ec2-user@ip-172-31-88-33 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:04:36 ago on Sun Sep 29 10:22:03 2024.
Dependencies resolved.
=====
Package                                Architecture      Version                                Repository          Size
=====
Installing:
httpd                                   x86_64            2.4.62-1.amzn2023                    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                    amazonlinux          1.4 M
httpd-filesystem                       noarch            2.4.62-1.amzn2023                    amazonlinux          14 k
httpd-tools                             x86_64            2.4.62-1.amzn2023                    amazonlinux          81 k
libbrotli                               x86_64            1.0.9-4.amzn2023.0.2                amazonlinux          315 k
libsodium                               x86_64            1.0.19-4.amzn2023                    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
=====

Installed:
apr-1.7.2-2.amzn2023.0.2.x86_64
apr-util-1.6.3-1.amzn2023.0.1.x86_64
httpd-2.4.62-1.amzn2023.x86_64
httpd-filesystem-2.4.62-1.amzn2023.noarch
libbrotli-1.0.9-4.amzn2023.0.2.x86_64
libxslt-1.1.34-5.amzn2023.0.2.x86_64
mod_http2-2.0.27-1.amzn2023.0.3.x86_64
nginx-filesystem-1:1.24.0-1.amzn2023.0.4.noarch
php8.3-cli-8.3.10-1.amzn2023.0.1.x86_64
php8.3-fpm-8.3.10-1.amzn2023.0.1.x86_64
php8.3-opcache-8.3.10-1.amzn2023.0.1.x86_64
php8.3-process-8.3.10-1.amzn2023.0.1.x86_64
php8.3-xml-8.3.10-1.amzn2023.0.1.x86_64
apr-util-1.6.3-1.amzn2023.0.1.x86_64
generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
httpd-core-2.4.62-1.amzn2023.x86_64
httpd-tools-2.4.62-1.amzn2023.x86_64
libsodium-1.0.19-4.amzn2023.x86_64
mailcap-2.1.49-3.amzn2023.0.3.noarch
mod_lua-2.4.62-1.amzn2023.x86_64
php8.3-8.3.10-1.amzn2023.0.1.x86_64
php8.3-common-8.3.10-1.amzn2023.0.1.x86_64
php8.3-mbstring-8.3.10-1.amzn2023.0.1.x86_64
php8.3-pdo-8.3.10-1.amzn2023.0.1.x86_64
php8.3-sodium-8.3.10-1.amzn2023.0.1.x86_64

Complete!
```

Step 7: Run the command:

```
sudo yum install gcc glibc glibc-common
```

This installs the C/C++ compiler (GCC) along with the necessary C libraries required for compiling and running C programs.

```
[ec2-user@ip-172-31-88-33 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:05:41 ago on Sun Sep 29 10:22:03 2024.
Package glibc-2.34-52.amzn2023.0.11.x86_64 is already installed.
Package glibc-common-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
gc                                       x86_64            8.0.4-5.amzn2023.0.2                amazonlinux          105 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            amazonlinux          1.4 M
libmpc                                  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                    amazonlinux          32 k
make                                     x86_64            1:4.3-5.amzn2023.0.2                amazonlinux          534 k
=====

Transaction Summary
=====
Install 13 Packages
```

```

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

Complete!
[ec2-user@ip-172-31-88-33 ~]$

```

Step 8: Run the command:
 sudo yum install gd gd-devel

```

[ec2-user@ip-172-31-88-33 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:06:51 ago on Sun Sep 29 10:22:03 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
  fontconfig-devel                    x86_64            2.13.94-2.amzn2023.0.2  amazonlinux      128 k
  fonts-filesystem                     noarch            1:2.0.5-12.amzn2023.0.2  amazonlinux      9.5 k
  freetype                             x86_64            2.13.2-5.amzn2023.0.1  amazonlinux      423 k
  freetype-devel                       x86_64            2.13.2-5.amzn2023.0.1  amazonlinux      912 k
  libffi-devel-3.4.4-1.amzn2023.0.1.x86_64
  libicu-devel-67.1-7.amzn2023.0.3.x86_64
  libjpeg-turbo-devel-2.1.4-2.amzn2023.0.5.x86_64
  libpng-2:1.6.37-10.amzn2023.0.6.x86_64
  libselinux-devel-3.4-5.amzn2023.0.2.x86_64
  libtiff-4.4.0-4.amzn2023.0.18.x86_64
  libwebp-1.2.4-1.amzn2023.0.6.x86_64
  libxcb-1.13.1-7.amzn2023.0.2.x86_64
  libxml2-devel-2.10.4-1.amzn2023.0.6.x86_64
  pcre2-utf16-10.40-1.amzn2023.0.3.x86_64
  pixman-0.40.0-3.amzn2023.0.3.x86_64
  xml-common-0.6.3-56.amzn2023.0.2.noarch
  xz-devel-5.2.5-9.amzn2023.0.2.x86_64
  libicu-67.1-7.amzn2023.0.3.x86_64
  libjpeg-turbo-2.1.4-2.amzn2023.0.5.x86_64
  libmount-devel-2.37.4-1.amzn2023.0.4.x86_64
  libpng-devel-2:1.6.37-10.amzn2023.0.6.x86_64
  libsepol-devel-3.4-3.amzn2023.0.3.x86_64
  libtiff-devel-4.4.0-4.amzn2023.0.18.x86_64
  libwebp-devel-1.2.4-1.amzn2023.0.6.x86_64
  libxcb-devel-1.13.1-7.amzn2023.0.2.x86_64
  pcre2-devel-10.40-1.amzn2023.0.3.x86_64
  pcre2-utf32-10.40-1.amzn2023.0.3.x86_64
  sysprof-capture-devel-3.40.1-2.amzn2023.0.2.x86_64
  xorg-x11-proto-devel-2021.4-1.amzn2023.0.2.noarch
  zlib-devel-1.2.11-33.amzn2023.0.5.x86_64

Complete!
[ec2-user@ip-172-31-88-33 ~]$

```

Step 9: Run the commands:

sudo adduser -m nagios

sudo passwd nagios

This creates a user named 'nagios', ensures it has a home directory and sets up a password for it.

```

[ec2-user@ip-172-31-88-33 ~]$ sudo adduser -m nagios
sudo passwd nagios
Changing password for user nagios.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.

```

Step 10: Create a user group named 'nagcmd' to execute nagios commands.

sudo groupadd nagcmd

```
[ec2-user@ip-172-31-88-33 ~]$ sudo groupadd nagcmd
[ec2-user@ip-172-31-88-33 ~]$
```

Step 11: Add users apache and nagios to this user group.

sudo usermod -a -G nagcmd nagios

sudo usermod -a -G nagcmd apache

```
[ec2-user@ip-172-31-88-33 ~]$ sudo usermod -a -G nagcmd nagios
sudo usermod -a -G nagcmd apache
[ec2-user@ip-172-31-88-33 ~]$
```

Step 12: mkdir ~/downloads

cd ~/downloads

This creates a directory named 'downloads', to store the files of the nagios server that are downloaded.

```
[ec2-user@ip-172-31-88-33 ~]$ mkdir ~/downloads
cd ~/downloads
[ec2-user@ip-172-31-88-33 downloads]$
```

Step 13: wget <https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz>

The above command installs the latest version of nagios-core.

```
[ec2-user@ip-172-31-88-33 downloads]$ wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz
--2024-09-29 10:33:56-- https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz
Resolving assets.nagios.com (assets.nagios.com)... 45.79.49.120, 2600:3c00::f03c:92ff:fef7:45ce
Connecting to assets.nagios.com (assets.nagios.com)|45.79.49.120|:443... connected.
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.gz      100%[=====] 1.97M  8.29MB/s   in 0.2s
2024-09-29 10:33:57 (8.29 MB/s) - 'nagios-4.5.5.tar.gz' saved [2065473/2065473]
```

Step 14: wget <https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz>

The above command installs the latest version of nagios-plugins.

```
[ec2-user@ip-172-31-88-33 downloads]$ wget https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz
--2024-09-29 10:34:29-- 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-2.4.11.tar.gz 100%[=====] 2.62M  9.99MB/s   in 0.3s
2024-09-29 10:34:30 (9.99 MB/s) - 'nagios-plugins-2.4.11.tar.gz' saved [2753049/2753049]
```

Step 15: `tar zxvf nagios-4.5.5.tar.gz`

This extracts the nagios-core files into the same directory using the tar command.

```
[ec2-user@ip-172-31-88-33 downloads]$ tar zxvf nagios-4.5.5.tar.gz
nagios-4.5.5/
nagios-4.5.5/.github/
nagios-4.5.5/.github/workflows/
nagios-4.5.5/.github/workflows/test.yml
nagios-4.5.5/.gitignore
nagios-4.5.5/CONTRIBUTING.md
nagios-4.5.5/Changelog
nagios-4.5.5/INSTALLING
nagios-4.5.5/LLEGAL
nagios-4.5.5/LICENSE
nagios-4.5.5/Makefile.in
nagios-4.5.5/README.md
nagios-4.5.5/THANKS
nagios-4.5.5/UPGRADING
nagios-4.5.5/aclocal.m4
nagios-4.5.5/autoconf-macros/
nagios-4.5.5/autoconf-macros/.gitignore
nagios-4.5.5/autoconf-macros/CHANGELOG.md
nagios-4.5.5/autoconf-macros/LICENSE
nagios-4.5.5/autoconf-macros/LICENSE.md
nagios-4.5.5/autoconf-macros/README.md
nagios-4.5.5/autoconf-macros/add_group_users
```

```
nagios-4.5.5/xdata/.gitignore
nagios-4.5.5/xdata/Makefile.in
nagios-4.5.5/xdata/xcddefault.c
nagios-4.5.5/xdata/xcddefault.h
nagios-4.5.5/xdata/xodtemplate.c
nagios-4.5.5/xdata/xodtemplate.h
nagios-4.5.5/xdata/xpddefault.c
nagios-4.5.5/xdata/xpddefault.h
nagios-4.5.5/xdata/xrddefault.c
nagios-4.5.5/xdata/xrddefault.h
nagios-4.5.5/xdata/xsddefault.c
nagios-4.5.5/xdata/xsddefault.h
[ec2-user@ip-172-31-88-33 downloads]$ |
```

Step 16: `./configure --with-command-group=nagcmd`

This command ensures that Nagios uses a specific group (in this case, nagcmd) for executing external commands.

```
[ec2-user@ip-172-31-88-33 downloads]$ ./configure --with-command-group=nagcmd
-bash: ./configure: No such file or directory
```

But, we encounter an error as we weren't in the correct directory.

Use 'ls' command to find the correct directory.

```
[ec2-user@ip-172-31-88-33 downloads]$ ls
nagios-4.5.5  nagios-4.5.5.tar.gz  nagios-plugins-2.4.11.tar.gz
```

Use cd to change directory to the correct directory. Then, run the './configure --with-command-group=nagcmd' command again.

```
[ec2-user@ip-172-31-88-33 downloads]$ cd nagios-4.5.5
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ ./configure --with-command-group=nagcmd
checking for a BSD-compatible install... /usr/bin/install -c
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 the compiler supports GNU C... yes
checking whether gcc accepts -g... yes
checking for gcc option to enable C11 features... none needed
checking whether make sets $(MAKE)... yes
checking whether ln -s works... yes
checking for strip... /usr/bin/strip
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for stdio.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
checking for unistd.h... yes
checking for unsetenv... yes
checking for type of socket size... size_t
checking for Kerberos include files... configure: WARNING: could not find include files
checking for pkg-config... pkg-config
checking for SSL headers... configure: error: Cannot find ssl headers
```

Another error occurs which says that ssl headers cannot be found.

To fix the above error, run the 'sudo yum install openssl-devel' command.

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ sudo yum install openssl-devel
Last metadata expiration check: 0:35:17 ago on Sun Sep 29 10:22:03 2024.
Dependencies resolved.
=====
Package                                Architecture      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:
openssl-devel-3.0.8-1.amzn2023.0.14.x86_64.rpm                26 MB/s | 3.0 MB    00:00
-----
Total                                                            16 MB/s | 3.0 MB    00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :                                1/1
  Installing    : openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64 1/1
  Running scriptlet: openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64 1/1
  Verifying     : openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64 1/1
```

```
Installed:
  openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64

Complete!
```

Then, run the './configure --with-command-group=nagcmd' command again.

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ ./configure --with-command-group=nagcmd
checking for a BSD-compatible install... /usr/bin/install -c
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 the compiler supports GNU C... yes
checking whether gcc accepts -g... yes
checking for gcc option to enable C11 features... none needed
checking whether make sets $(MAKE)... yes
checking whether ln -s works... yes
checking for strip... /usr/bin/strip
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for stdio.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
```

```
General Options:
-----
  Nagios executable:  nagios
  Nagios user/group:  nagios,nagios
  Command user/group: nagios,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.

```
sudo make install-commandmode
```

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ make all
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 nebmmods.o nebmmods.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-overflow=]
   253 |         log_debug_info(DEBUGL_CHECKS, 1, "Found specialized worker(s) for '%s'", (slash && *slash != '/')
       |         ^~~~~~
       |         |
       |         |
       |         v
       |         ? 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_CONFIG_H -DNSCORE -c -o commands.o commands.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o events.o events.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o flapping.o flapping.c
gcc -Wall -I.. -I. -I../lib -I../include -I../include -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o logging.o logging.c
```

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$
```

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ sudo make install
sudo make install-init
sudo make install-config
sudo make install-commandmode
cd ./base && make install
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/base'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/bin
/usr/bin/install -c -s -m 774 -o nagios -g nagios nagios /usr/local/nagios/bin
/usr/bin/install -c -s -m 774 -o nagios -g nagios nagiosstats /usr/local/nagios/bin
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-4.5.5/base'
cd ./cgi && make install
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/cgi'
make install-basic
make[2]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/cgi'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/sbin
for file in *.cgi; do \
    /usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/switch.cfg /usr/local/nagios/etc/objects/switch.cfg

*** Config files installed ***

Remember, these are *SAMPLE* config files. You'll need to read
the documentation for more information on how to actually define
services, hosts, etc. to fit your particular needs.

/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/var/rw
chmod g+s /usr/local/nagios/var/rw

*** External command directory configured ***
```

Step 18: We need to update the email linked with this server to our email for it to send notifications (if any needed).

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

```
GNU nano 5.8 /usr/local/nagios/etc/objects/contacts.cfg Modified

#####
#
# 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             Nagios Admin         ; Full name of user
    email             2022.anish.kulkarni@ves.ac.in ; <***** CHANGE THIS TO YOUR EMAIL ADDRESS *****>
}

#####
#
# CONTACT GROUPS
#

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo      M-A Set Mark
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo      M-C Copy
```

In the email section, enter your email address. Then, 'Write out' your file and 'Exit'.

Step 19: `sudo make install-webconf`

This installs the necessary configuration files for the Nagios web interface.

```
[ec2-user@ip-172-31-88-33 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 ***
```

Step 20: `sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin`

This creates a user named 'nagiosadmin' to access the nagios web interface. Create a password and keep it in mind as it will be required in the future steps.

```
[ec2-user@ip-172-31-88-33 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
```

Step 21: Restart the apache server to apply all the recent configurations.

`sudo service httpd restart`

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ sudo service httpd restart
Redirecting to /bin/systemctl restart httpd.service
```

Step 22: `cd ~/downloads`

`tar xzvf nagios-plugins-2.4.11.tar.gz`

This changes the directory to the 'downloads' directory and extracts the files for nagios-plugins.

```
[ec2-user@ip-172-31-88-33 downloads]$ tar xzvf 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/
nagios-plugins-2.4.11/config_test/Makefile
```

```
nagios-plugins-2.4.11/po/
nagios-plugins-2.4.11/po/Makefile.in.in
nagios-plugins-2.4.11/po/remove-potcdate.sin
nagios-plugins-2.4.11/po/Makevars
nagios-plugins-2.4.11/po/POTFILES.in
nagios-plugins-2.4.11/po/fr.po
nagios-plugins-2.4.11/po/de.po
nagios-plugins-2.4.11/po/fr.gmo
nagios-plugins-2.4.11/po/de.gmo
nagios-plugins-2.4.11/po/nagios-plugins.pot
nagios-plugins-2.4.11/po/stamp-po
nagios-plugins-2.4.11/po/ChangeLog
nagios-plugins-2.4.11/po/LINGUAS
nagios-plugins-2.4.11/release
```

Step 23: cd nagios-plugins-2.4.11

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

This installs the configurations for the nagios-plugins files.

```
config.status: creating test.pl
config.status: creating pkg/solaris/pkginfo
config.status: creating po/Makefile.in
config.status: creating config.h
config.status: config.h is unchanged
config.status: executing depfiles commands
config.status: executing libtool commands
config.status: executing po-directories commands
config.status: creating po/POTFILES
config.status: creating po/Makefile
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ |
```

Step 24: Next, we must compile all components of this software according to the instructions in the Makefile. To do so, use the following commands:

make

sudo make install

```
installing de.gmo as /usr/local/nagios/share/locale/de/LC_MESSAGES/nagios-plugins.mo
if test "nagios-plugins" = "gettext-tools"; then \
  /usr/bin/mkdir -p /usr/local/nagios/share/gettext/po; \
  for file in Makefile.in.in remove-potcdate.sin Makevars.template; do \
    /usr/bin/install -c -o nagios -g nagios -m 644 ./.$file \
      /usr/local/nagios/share/gettext/po/$file; \
  done; \
  for file in Makevars; do \
    rm -f /usr/local/nagios/share/gettext/po/$file; \
  done; \
else \
  : ; \
fi
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.4.11/po'
make[1]: Entering directory '/home/ec2-user/downloads/nagios-plugins-2.4.11'
make[2]: Entering directory '/home/ec2-user/downloads/nagios-plugins-2.4.11'
make[2]: Nothing to be done for 'install-exec-am'.
make[2]: Nothing to be done for 'install-data-am'.
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.4.11'
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-plugins-2.4.11'
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ |
```

Step 25: sudo chkconfig --add nagios

sudo chkconfig nagios on

This registers the Nagios service with the system ensuring that it can manage the server status.

```
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ sudo chkconfig --add nagios
sudo chkconfig nagios on
error reading information on service nagios: No such file or directory
Note: Forwarding request to 'systemctl enable nagios.service'.
Created symlink /etc/systemd/system/multi-user.target.wants/nagios.service → /usr/lib/systemd/system/nagios.service.
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ |
```

Step 26: `sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg`

This command checks and verifies that the sample configuration files has no errors.

```
[ec2-user@ip-172-31-88-33 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 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

Things look okay - No serious problems were detected during the pre-flight check
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ |
```

Step 27: `sudo service nagios start`

This starts the Nagios service.

```
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ sudo service nagios start
Redirecting to /bin/systemctl start nagios.service
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ |
```

Step 28: sudo systemctl status nagios

This checks the status of Nagios. Ensure that it is 'active(running)'.

```
[ec2-user@ip-172-31-88-33 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 Sun 2024-09-29 11:25:40 UTC; 2min 3s ago
     Docs: https://www.nagios.org/documentation
  Process: 67487 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0>
  Process: 67488 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SU>
 Main PID: 67489 (nagios)
    Tasks: 6 (limit: 1112)
   Memory: 6.1M
      CPU: 122ms
   CGroup: /system.slice/nagios.service
           └─67489 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             └─67490 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
               └─67491 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                 └─67492 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                   └─67493 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                     └─67494 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

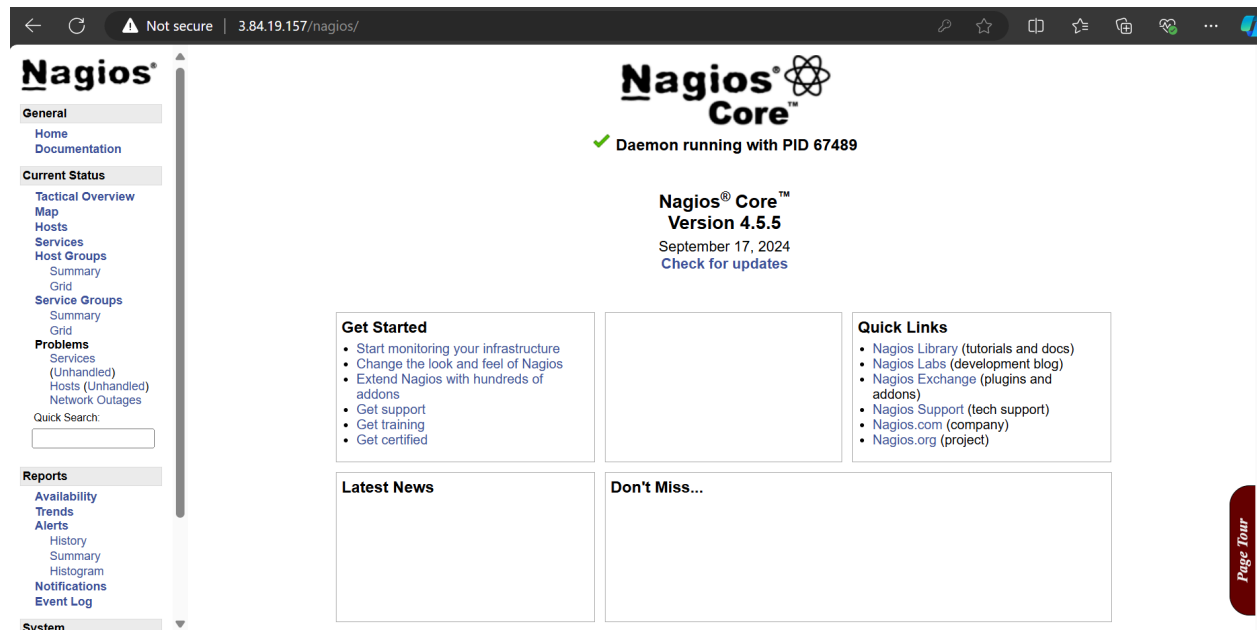
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: qh: core query handler registered
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: qh: echo service query handler registered
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: qh: help for the query handler registered
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: wproc: Successfully registered manager as @wproc with query>
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: wproc: Registry request: name=Core Worker 67492;pid=67492
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: wproc: Registry request: name=Core Worker 67493;pid=67493
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: wproc: Registry request: name=Core Worker 67491;pid=67491
Sep 29 11:25:40 ip-172-31-88-33.ec2.internal nagios[67489]: wproc: Registry request: name=Core Worker 67490;pid=67490
Sep 29 11:25:41 ip-172-31-88-33.ec2.internal nagios[67489]: Successfully launched command file worker with pid 67494
Sep 29 11:27:32 ip-172-31-88-33.ec2.internal nagios[67489]: SERVICE ALERT: localhost;HTTP;WARNING;SOFT;1;HTTP WARNING: >
Lines 1-28/28 (END)
```

Step 29: Navigate to your EC2 instance and copy the public IPv4 address.

The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services' link, a search bar, and the user's profile information. The left sidebar contains navigation links for 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Console-to-Code', and a list of instance-related categories. The main content area displays the 'Instance summary for i-03d0c63994db6400b (nagios-host29)'. This summary includes buttons for 'Connect', 'Instance state', and 'Actions'. Below the buttons, a table-like layout presents key instance details: Instance ID, Public IPv4 address (3.84.19.157), Private IPv4 addresses (172.31.88.33), Instance state (Running), Hostname type (IP name: ip-172-31-88-33.ec2.internal), Private IP DNS name, Instance type (t2.micro), and Elastic IP addresses.

Instance summary for i-03d0c63994db6400b (nagios-host29)		
Instance ID	Public IPv4 address	Private IPv4 addresses
i-03d0c63994db6400b (nagios-host29)	3.84.19.157 open address	172.31.88.33
IPv6 address	Instance state	Public IPv4 DNS
-	Running	ec2-3-84-19-157.compute-1.amazonaws.com open address
Hostname type	Private IP DNS name (IPv4 only)	Elastic IP addresses
IP name: ip-172-31-88-33.ec2.internal	ip-172-31-88-33.ec2.internal	-
Answer private resource DNS name	Instance type	
IPv4 (A)	t2.micro	

Step 30: In the address bar, enter 'http://<publicipaddress>/nagios'.



The above page is visible.

Conclusion: In the above experiment, we learned how to install and configure Nagios Core, Nagios Plugins and NRPE (Nagios Remote Plugin Executor) on Linux Machine. We created an EC2 Linux instance with the required security rules. Then, we installed the latest versions of nagios-core and nagios-plugins and configured them to ensure that they contained no errors. Once the setup was complete, we hosted the Nagios server and accessed the Nagios dashboard by pasting the public IPv4 address of our instance in the browser.