EXPERIMENT – (9)

AIM: To understand continous monitoring and installation and configuration of Nagios Core, nagios Plugins and NRPE (Nagios remote Plugin executor) on linux machine.

THEORY:

- Nagios is an open-source software for continous 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 failure, Nagios alerts about the issues so that the technical team can perform recovering process immediately.
- Nagios is used for continous monitoring of systems, applications, service and business processes in Devops culture.

Important reasons why Nagios monitoring tool is used is-

- Detects all the types of network or server issues.
- Helps you to find the root cause of problem which allows you to get permanent solution to the problem

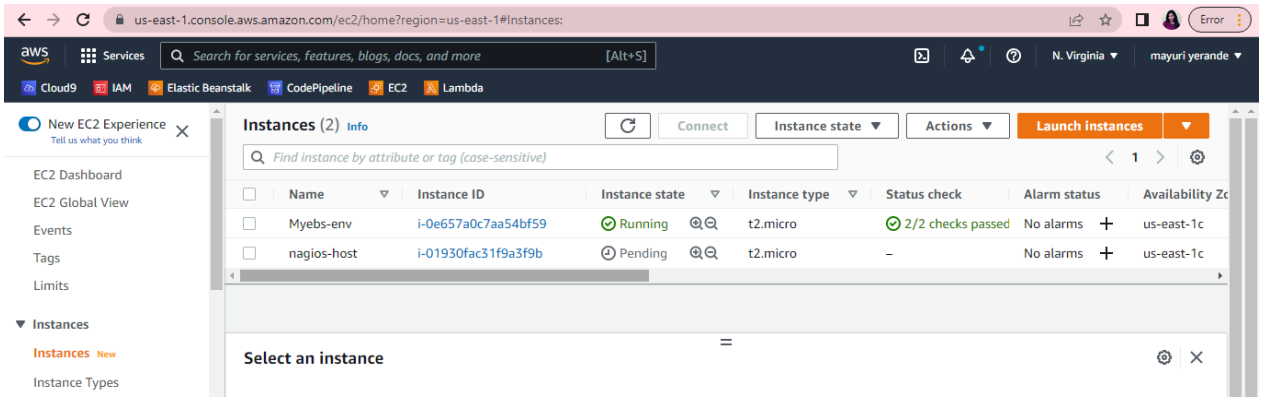
- Active monitoring of your entire infrastructure and business processes.
- Allows you to monitor and troubleshoot server performance issues.
- Helps you to plan for infrastructure upgrades before outdated systems create failures.
- You can maintain security and availability of service.
- Automatically fix problems in panic situation.

CONCLUSION: Thus we learned about Nagios and successfully set it up as host on Amazon linux.

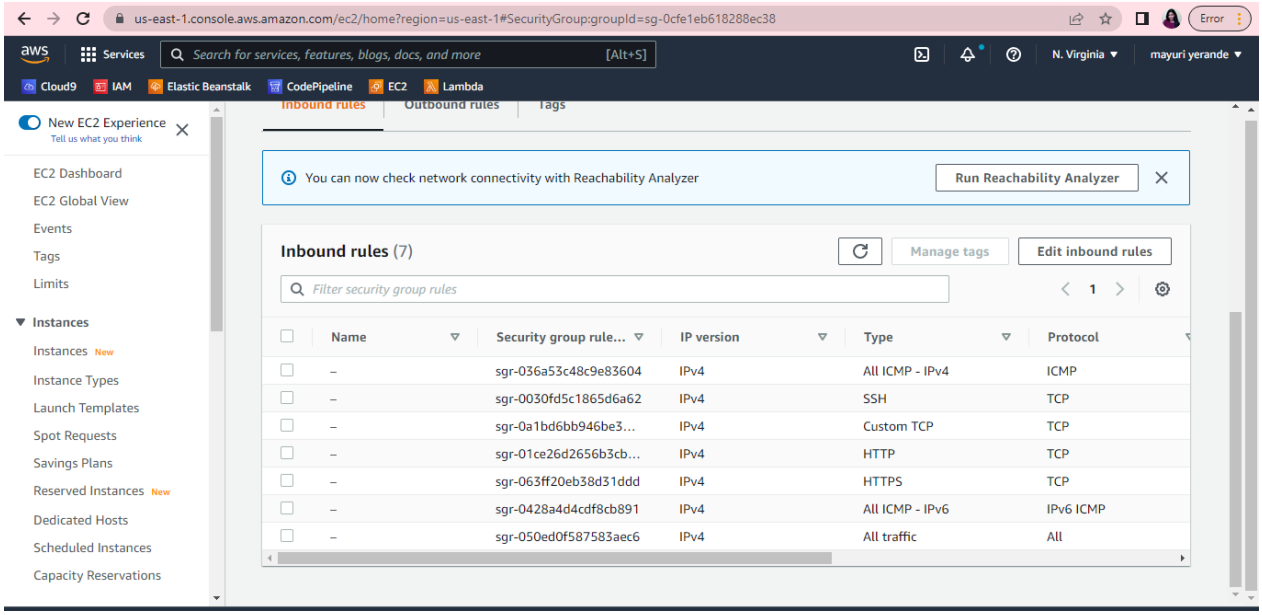
Installation of Nagios
Prerequisites: AWS Free Tier

Steps:

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

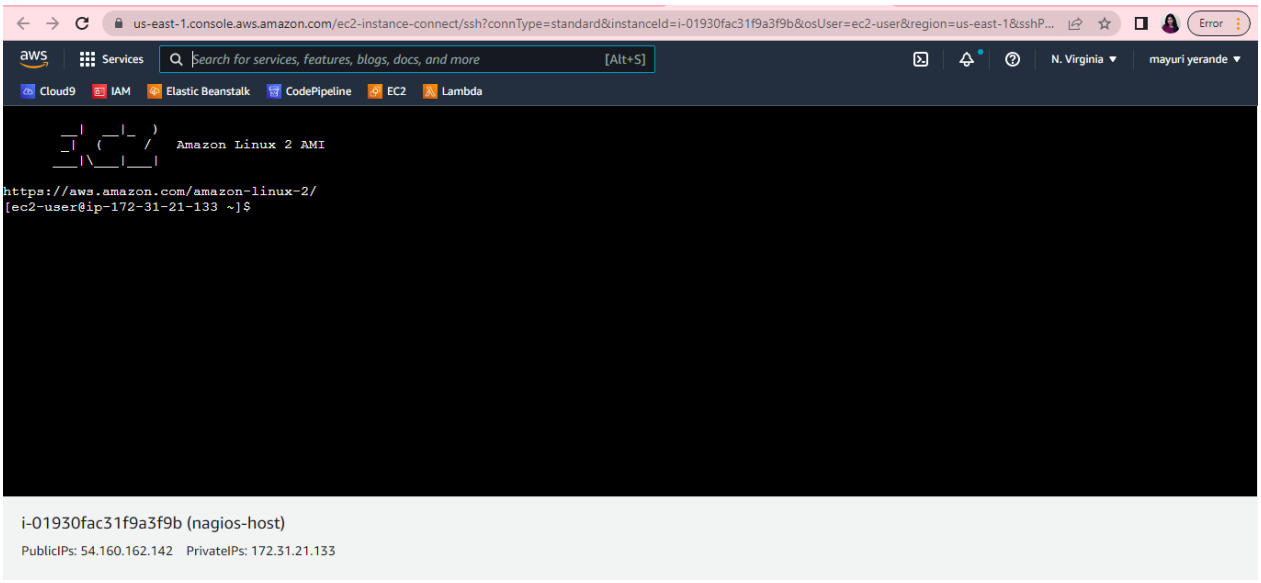


2. Under Security Group, make sure HTTP, HTTPS, SSH, ICMP are open from everywhere.



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.



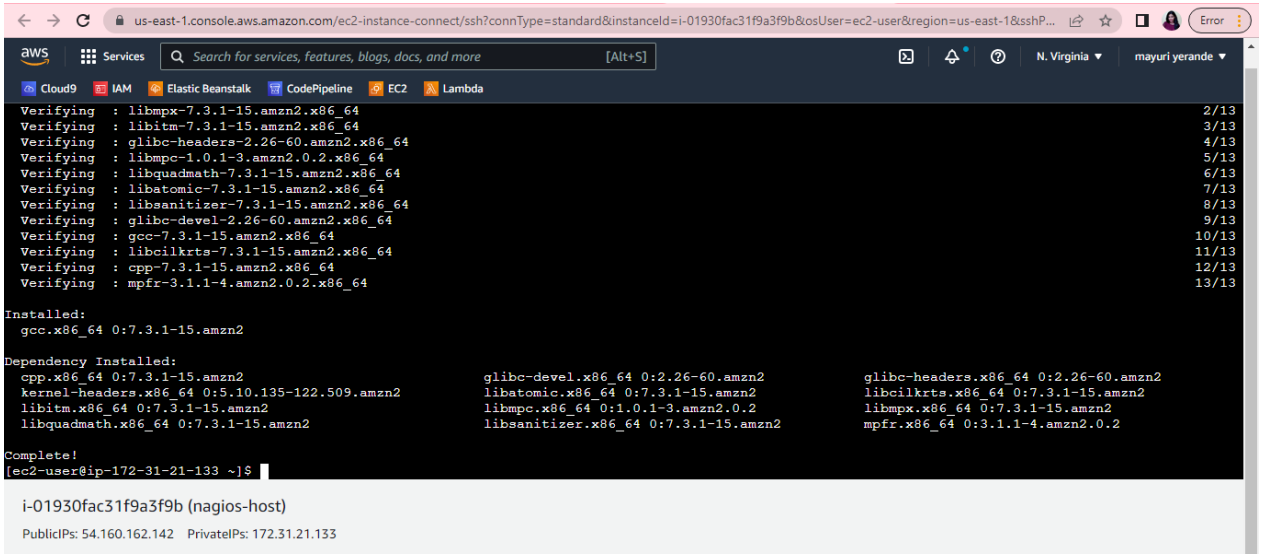
4. Update the package indices and install the following packages using yum

sudo yum update

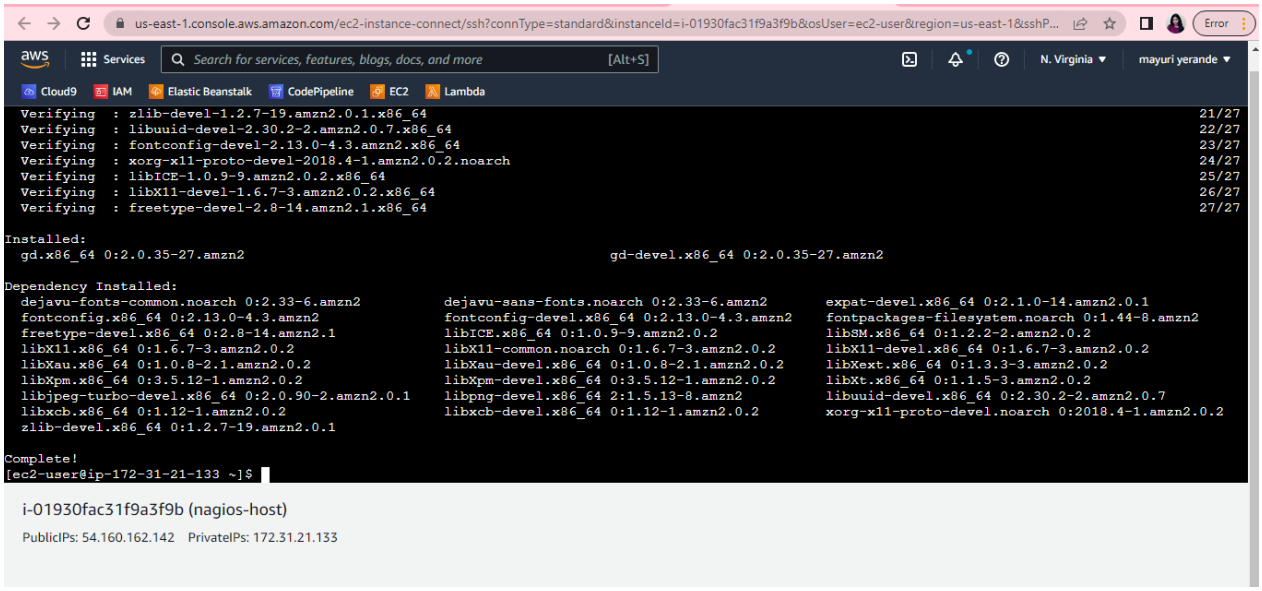
```
sudo yum install httpd php
```

```
  Verifying  : libzip010-compat-0.10.1-9.amzn2.0.5.x86_64                                                 2/13
  Verifying  : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64                                                      3/13
  Verifying  : php-cli-5.4.16-46.amzn2.0.2.x86_64                                                         4/13
  Verifying  : httpd-tools-2.4.54-1.amzn2.x86_64                                                          5/13
  Verifying  : php-5.4.16-46.amzn2.0.2.x86_64                                                             6/13
  Verifying  : mod_http2-1.15.19-1.amzn2.0.1.x86_64                                                       7/13
  Verifying  : httpd-2.4.54-1.amzn2.x86_64                                                                8/13
  Verifying  : mailcap-2.1.41-2.amzn2.noarch                                                              9/13
  Verifying  : generic-logos-httpd-18.0.0-4.amzn2.noarch                                                 10/13
  Verifying  : httpd-filesystem-2.4.54-1.amzn2.noarch                                                    11/13
  Verifying  : apr-1.7.0-9.amzn2.x86_64                                                                  12/13
  Verifying  : php-common-5.4.16-46.amzn2.0.2.x86_64                                                     13/13

Installed:
  httpd.x86_64 0:2.4.54-1.amzn2                                 php.x86_64 0:5.4.16-46.amzn2.0.2

Dependency Installed:
  apr.x86_64 0:1.7.0-9.amzn2                apr-util.x86_64 0:1.6.1-5.amzn2.0.2     apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2
  generic-logos-httpd.noarch 0:18.0.0-4.amzn2   httpd-filesystem.noarch 0:2.4.54-1.amzn2   httpd-tools.x86_64 0:2.4.54-1.amzn2
  libzip010-compat.x86_64 0:0.10.1-9.amzn2.0.5  mailcap.noarch 0:2.1.41-2.amzn2         mod_http2.x86_64 0:1.15.19-1.amzn2.0.1
  php-cli.x86_64 0:5.4.16-46.amzn2.0.2      php-common.x86_64 0:5.4.16-46.amzn2.0.2

Complete!
[ec2-user@ip-172-31-21-133 ~]$
```

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

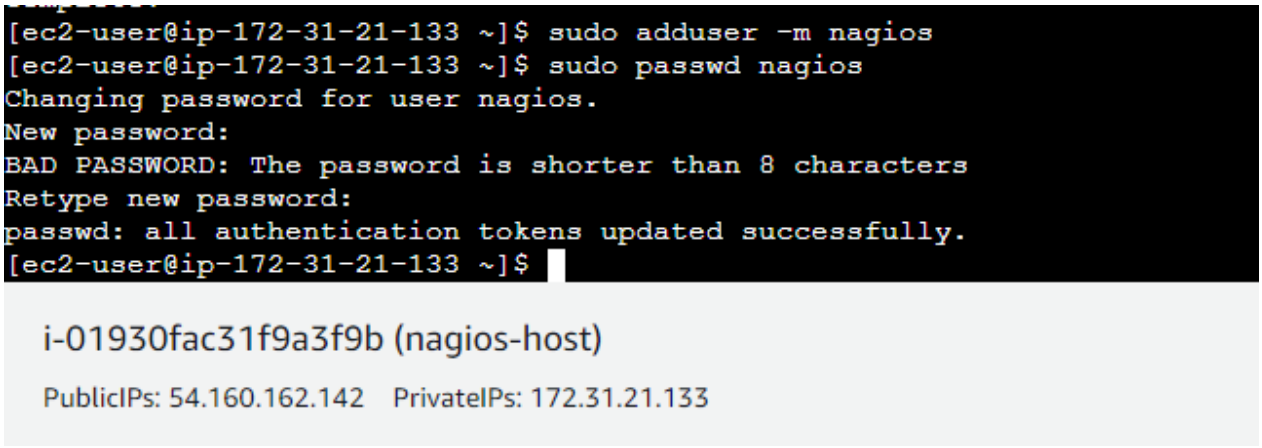


```
sudo yum install gd gd-devel
```



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
(mayuri)
```



6. Create a new user group

```
sudo groupadd nagcmd
```

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-172-31-21-133 ~]$ sudo groupadd nagcmd
[ec2-user@ip-172-31-21-133 ~]$ sudo usermod -a -G nagcmd nagios
[ec2-user@ip-172-31-21-133 ~]$ sudo usermod -a -G nagcmd apache
```

8. Create a new directory for Nagios downloads

```
mkdir ~/downloads
cd ~/downloads
```

```
[ec2-user@ip-172-31-21-133 ~]$ mkdir ~/downloads
[ec2-user@ip-172-31-21-133 ~]$ cd ~/downloads
[ec2-user@ip-172-31-21-133 downloads]$
```

i-01930fac31f9a3f9b (nagios-host)

PublicIPs: 54.160.162.142 PrivateIPs: 172.31.21.133

9. Use **wget** to download the source zip files.

```
wget
http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-4.0.8.tar.gz

wget http://nagios-plugins.org/download/nagios-plugins-2.0.3.tar.gz
```

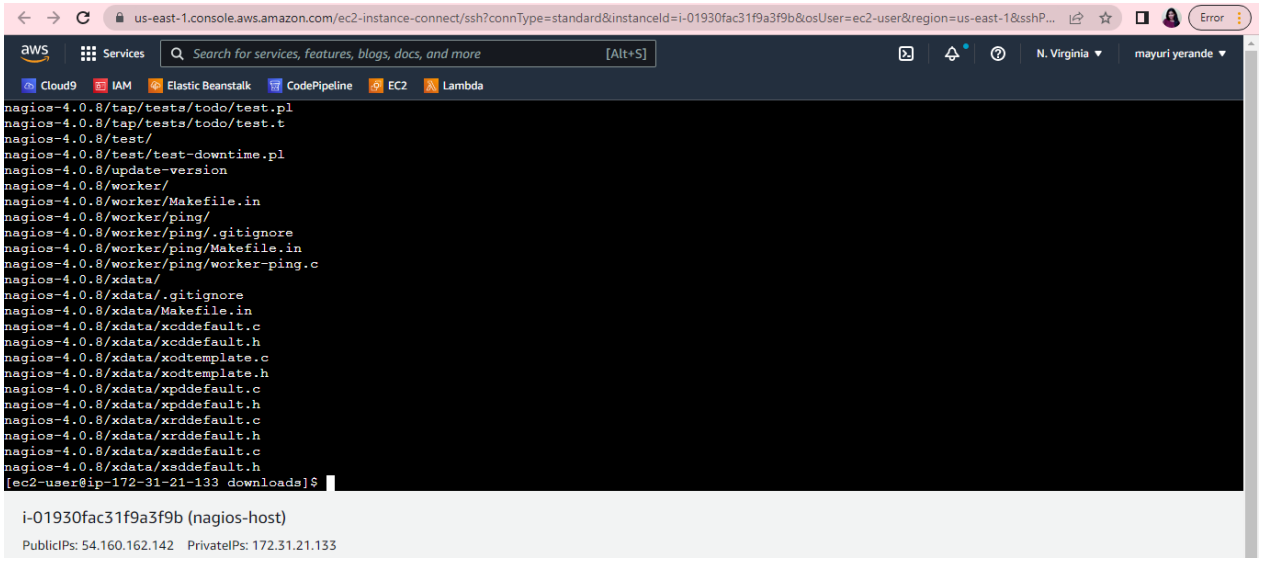
```
[ec2-user@ip-172-31-21-133 ~]$ cd downloads
[ec2-user@ip-172-31-21-133 downloads]$ wget http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-4.0.8.tar.gz
--2022-09-23 04:33:14--  http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-4.0.8.tar.gz
Resolving prdownloads.sourceforge.net (prdownloads.sourceforge.net)... 204.68.111.105
Connecting to prdownloads.sourceforge.net (prdownloads.sourceforge.net)|204.68.111.105|:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: http://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz [following]
--2022-09-23 04:33:14--  http://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz
Resolving downloads.sourceforge.net (downloads.sourceforge.net)... 204.68.111.105
Reusing existing connection to prdownloads.sourceforge.net:80.
HTTP request sent, awaiting response... 302 Found
Location: http://versaweb.dl.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz [following]
--2022-09-23 04:33:14--  http://versaweb.dl.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz
Resolving versaweb.dl.sourceforge.net (versaweb.dl.sourceforge.net)... 162.251.232.173
Connecting to versaweb.dl.sourceforge.net (versaweb.dl.sourceforge.net)|162.251.232.173|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1805059 (1.7M) [application/x-gzip]
Saving to: 'nagios-4.0.8.tar.gz'

100%[=============================================================================================>] 1,805,059   595KB/s   in 3.0s

2022-09-23 04:33:17 (595 KB/s) - 'nagios-4.0.8.tar.gz' saved [1805059/1805059]

[ec2-user@ip-172-31-21-133 downloads]$
```

i-01930fac31f9a3f9b (nagios-host)

PublicIPs: 54.160.162.142 PrivateIPs: 172.31.21.133

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

```
tar zxvf nagios-4.0.8.tar.gz
```

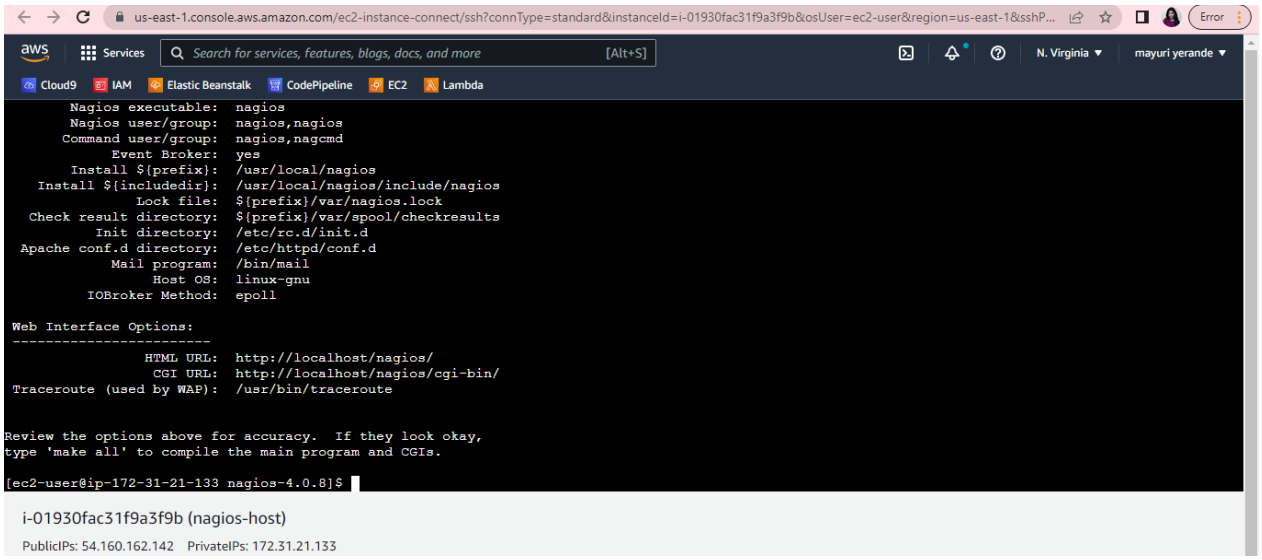


11. Run the configuration script with the same group name you previously created.

Switch to nagios-4.0.8/ directory

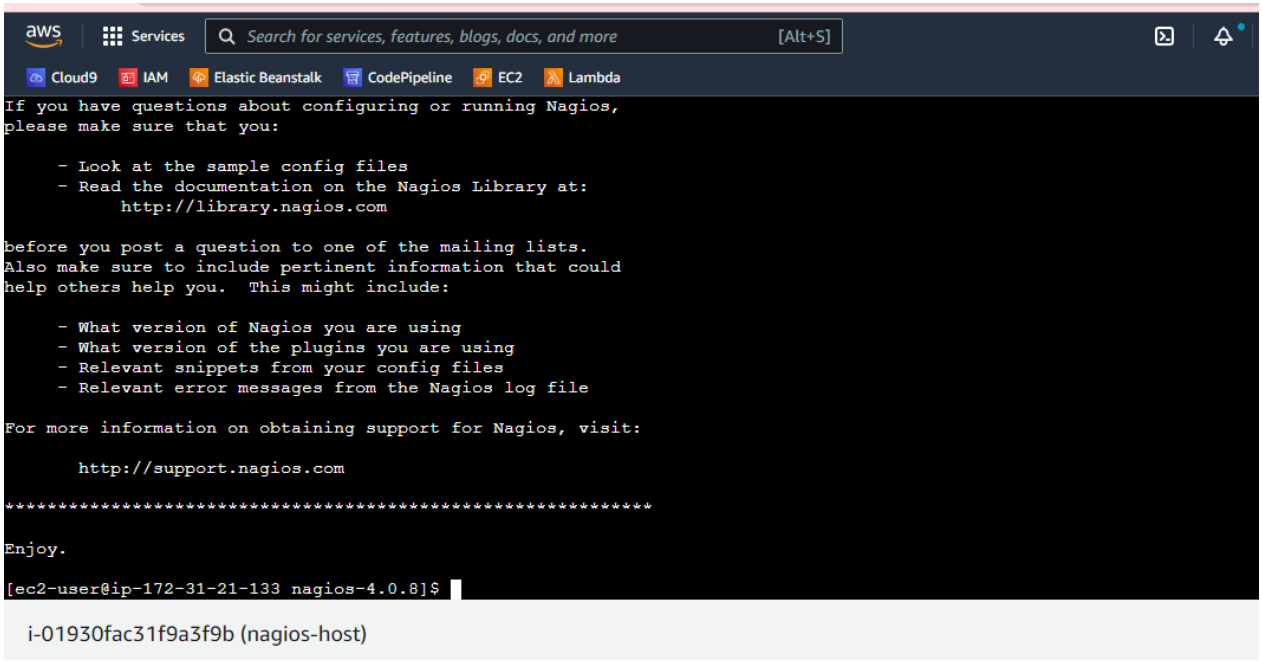
cd nagios-4.0.8/

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



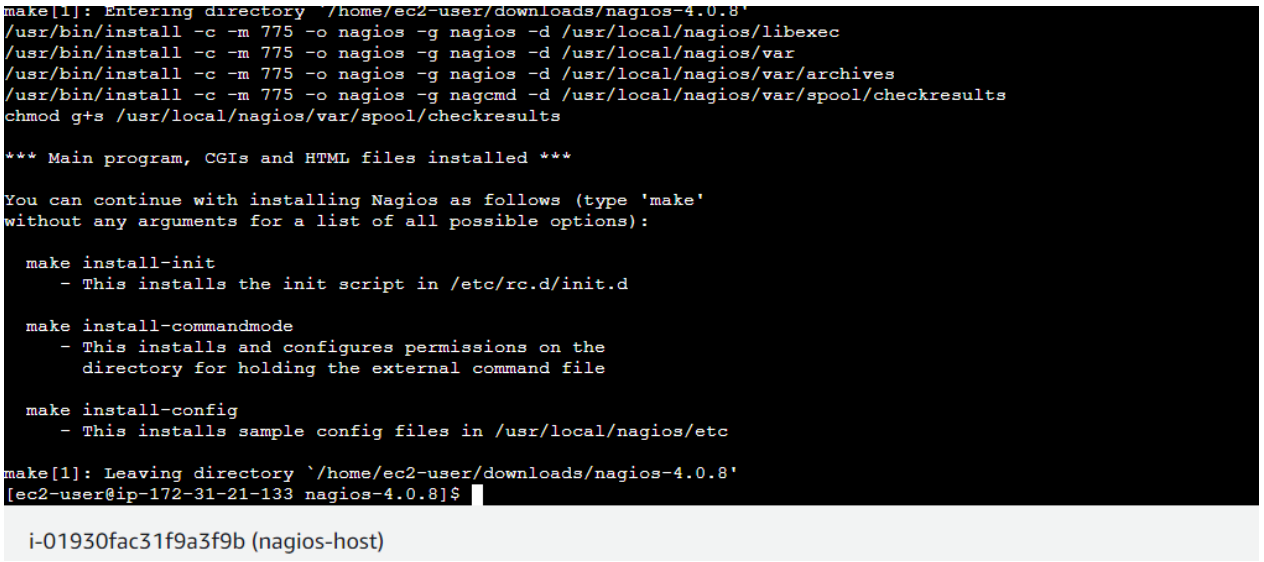
12. Compile the source code.

```
make all
```



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

```
sudo make install
```



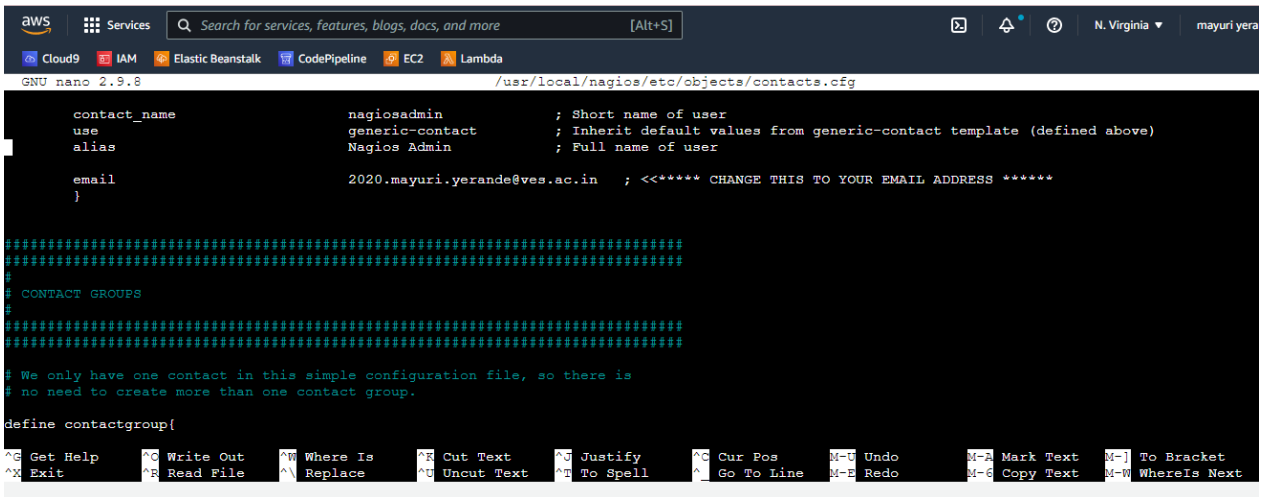

```
sudo make install-init
sudo make install-config
sudo make install-commandmode
```

```
[ec2-user@ip-172-31-21-133 nagios-4.0.8]$ sudo make install-init
/usr/bin/install -c -m 755 -d -o root -g root /etc/rc.d/init.d
/usr/bin/install -c -m 755 -o root -g root daemon-init /etc/rc.d/init.d/nagios

*** Init script installed ***

[ec2-user@ip-172-31-21-133 nagios-4.0.8]$ sudo make install-config
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc/objects
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/nagios.cfg /usr/local/nagios/etc/nagios.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/cgi.cfg /usr/local/nagios/etc/cgi.cfg
/usr/bin/install -c -b -m 660 -o nagios -g nagios sample-config/resource.cfg /usr/local/nagios/etc/resource.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/templates.cfg /usr/local/nagios/etc/objects/templates.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/commands.cfg /usr/local/nagios/etc/objects/commands.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/contacts.cfg /usr/local/nagios/etc/objects/contacts.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/timeperiods.cfg /usr/local/nagios/etc/objects/timeperiods.cfg
```

```
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/localhost.cfg /
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/windows.cfg /us
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/printer.cfg /us
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/switch.cfg /usr

*** 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.

[ec2-user@ip-172-31-21-133 nagios-4.0.8]$ sudo make install-commandmode
/usr/bin/install -c -m 775 -o nagios -g nagcmd -d /usr/local/nagios/var/rw
chmod g+s /usr/local/nagios/var/rw

*** External command directory configured ***

[ec2-user@ip-172-31-21-133 nagios-4.0.8]$
```

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

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



15. Configure the web interface.

```
sudo make install-webconf
```

```
[ec2-user@ip-172-31-21-133 nagios-4.0.8]$ sudo make install-webconf
/usr/bin/install -c -m 644 sample-config/httpd.conf /etc/httpd/conf.d/nagios.conf

*** Nagios/Apache conf file installed ***

[ec2-user@ip-172-31-21-133 nagios-4.0.8]$
```

i-01930fac31f9a3f9b (nagios-host)

PublicIPs: 54.160.162.142 PrivateIPs: 172.31.21.133

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
```

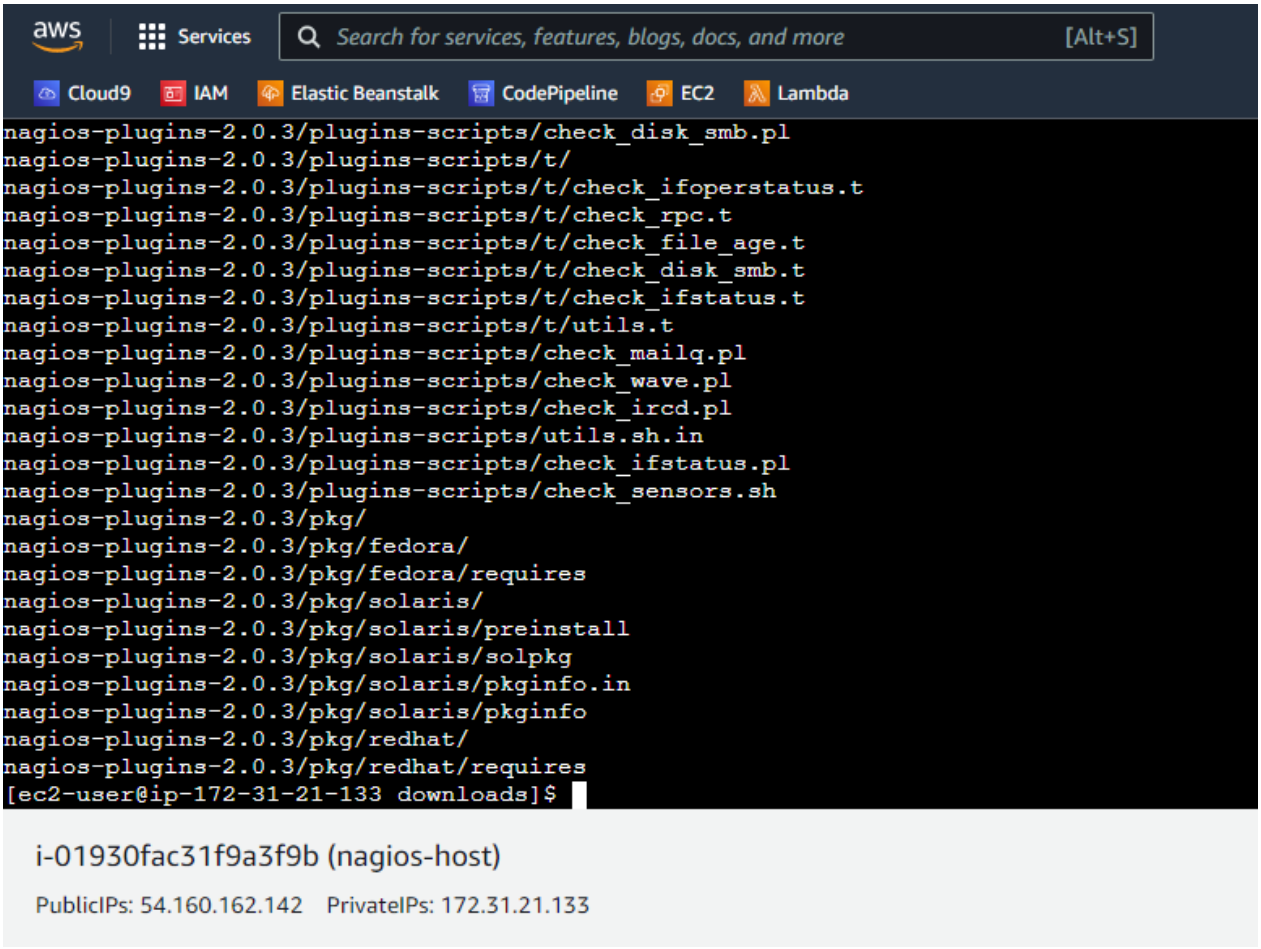
```
[ec2-user@ip-172-31-21-133 ~]$ sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
[ec2-user@ip-172-31-21-133 ~]$
```

17. Restart Apache

```
sudo service httpd restart
```

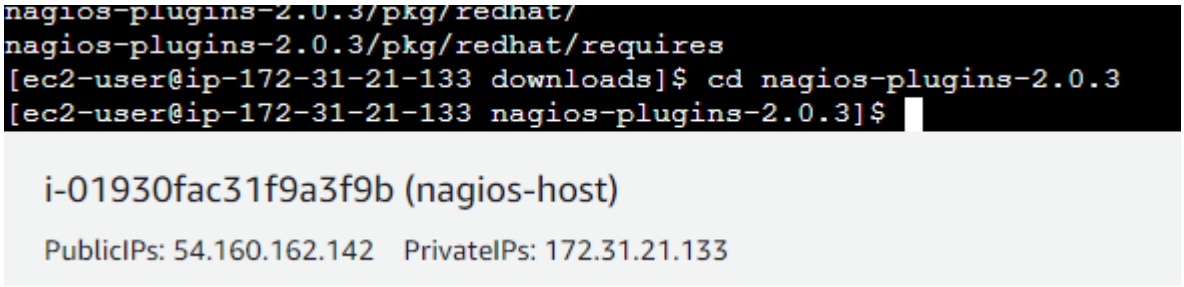
18. Go back to the downloads folder and unzip the plugins zip file.

```
cd ~/downloads
tar zxvf nagios-plugins-2.0.3.tar.gz
```

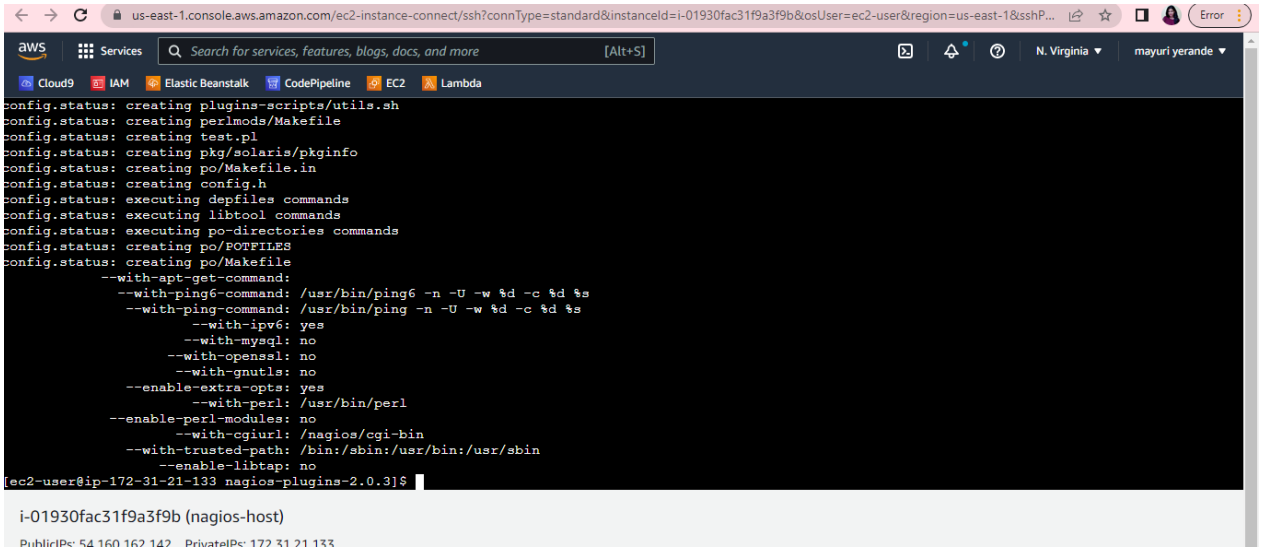


19. Compile and install plugins

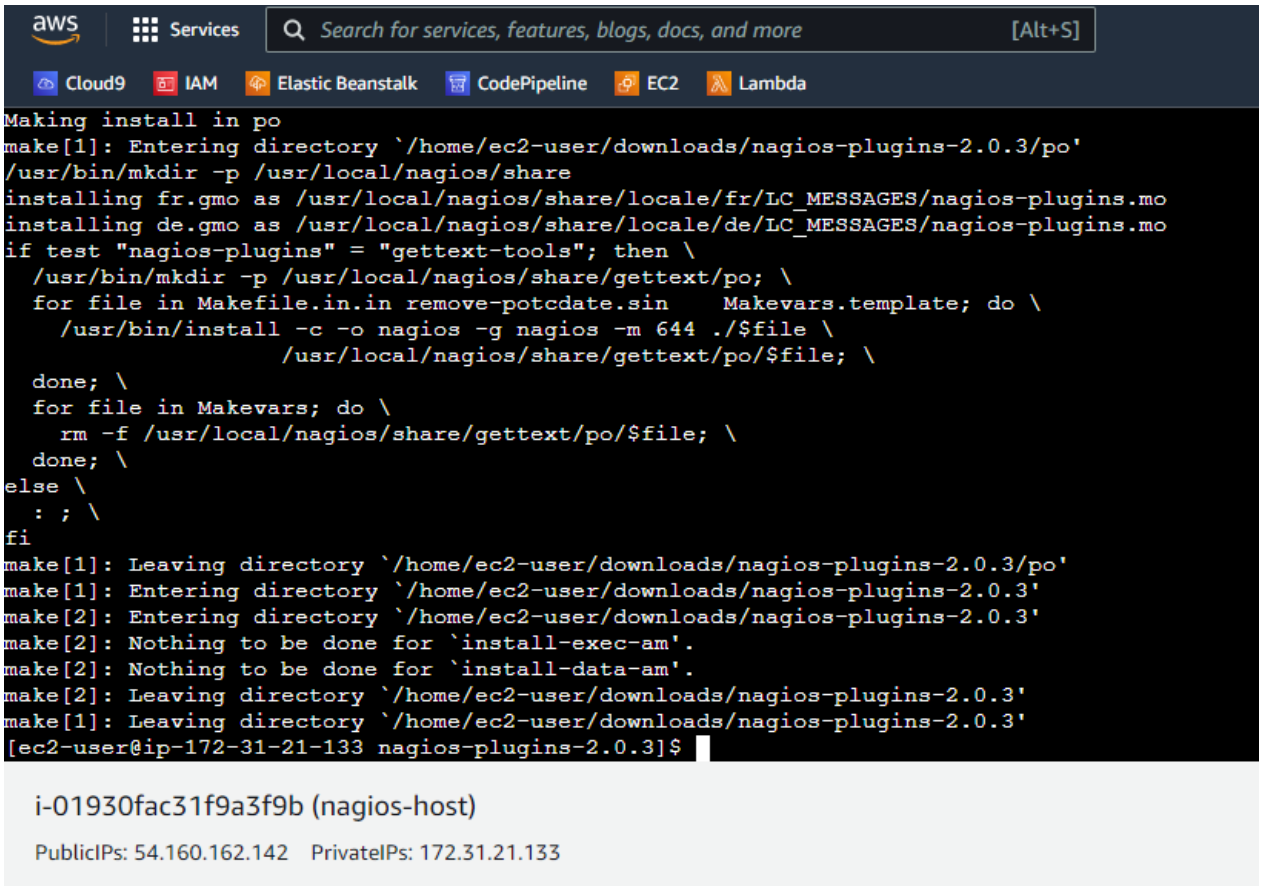
```
cd nagios-plugins-2.0.3
```




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




```
sudo make install
```



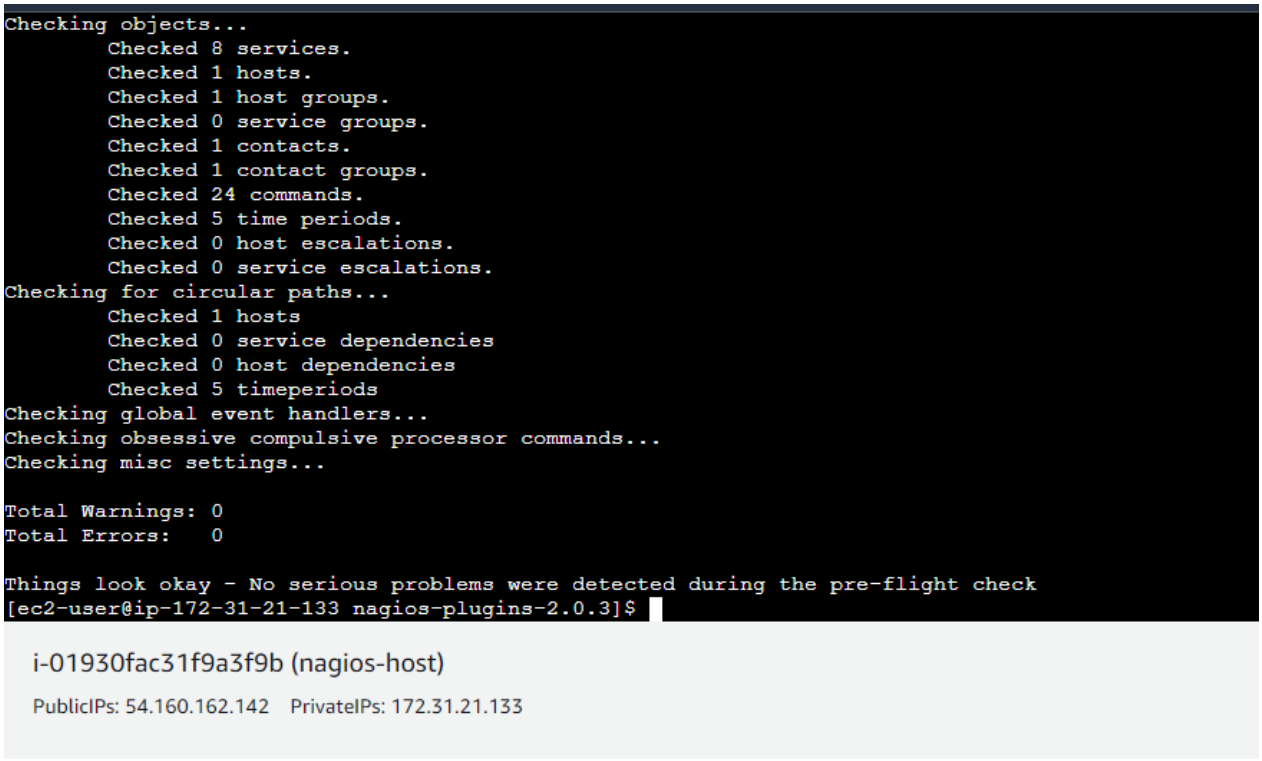
20. Start Nagios

Add Nagios to the list of system services

```
sudo chkconfig --add nagios
sudo chkconfig nagios on
```

Verify the sample configuration files

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



If there are no errors, you can go ahead and start Nagios.

```
sudo service nagios start
```

```
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
```

i-01930fac31f9a3f9b (nagios-host)

PublicIPs: 54.160.162.142 PrivateIPs: 172.31.21.133

21. Check the status of Nagios

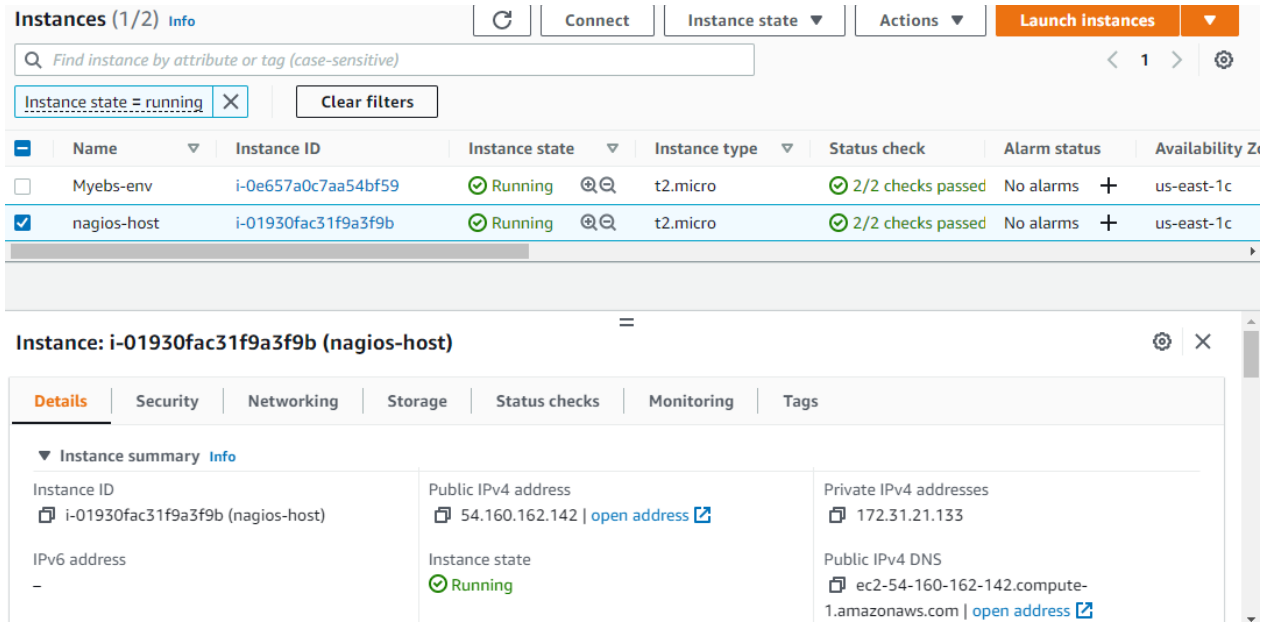
```
sudo systemctl status nagios
```

```
[ec2-user@ip-172-31-21-133 nagios-plugins-2.0.3]$ sudo systemctl status nagios
● nagios.service - LSB: Starts and stops the Nagios monitoring server
   Loaded: loaded (/etc/rc.d/init.d/nagios; bad; vendor preset: disabled)
   Active: active (running) since Fri 2022-09-23 04:46:16 UTC; 10s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 24411 ExecStart=/etc/rc.d/init.d/nagios start (code=exited, status=0/SUCCESS)
   CGroup: /system.slice/nagios.service
           ├─24432 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
           ├─24434 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
           ├─24435 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
           ├─24436 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
           ├─24437 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
           └─24438 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: nerd: Channel hostchecks registered successfully
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: nerd: Channel servicechecks registered successfully
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: nerd: Channel opathchecks registered successfully
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: nerd: Fully initialized and ready to rock!
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: wproc: Successfully registered manager as @wproc with query handler
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: wproc: Registry request: name=Core Worker 24437;pid=24437
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: wproc: Registry request: name=Core Worker 24436;pid=24436
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: wproc: Registry request: name=Core Worker 24435;pid=24435
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: wproc: Registry request: name=Core Worker 24434;pid=24434
Sep 23 04:46:16 ip-172-31-21-133.ec2.internal nagios[24432]: Successfully launched command file worker with pid 24438
[ec2-user@ip-172-31-21-133 nagios-plugins-2.0.3]$
```

i-01930fac31f9a3f9b (nagios-host)

PublicIPs: 54.160.162.142 PrivateIPs: 172.31.21.133

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.

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

Conclusion:

Thus, we learned about Nagios and successfully set it up as a host on our Amazon Linux machine