

## 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.

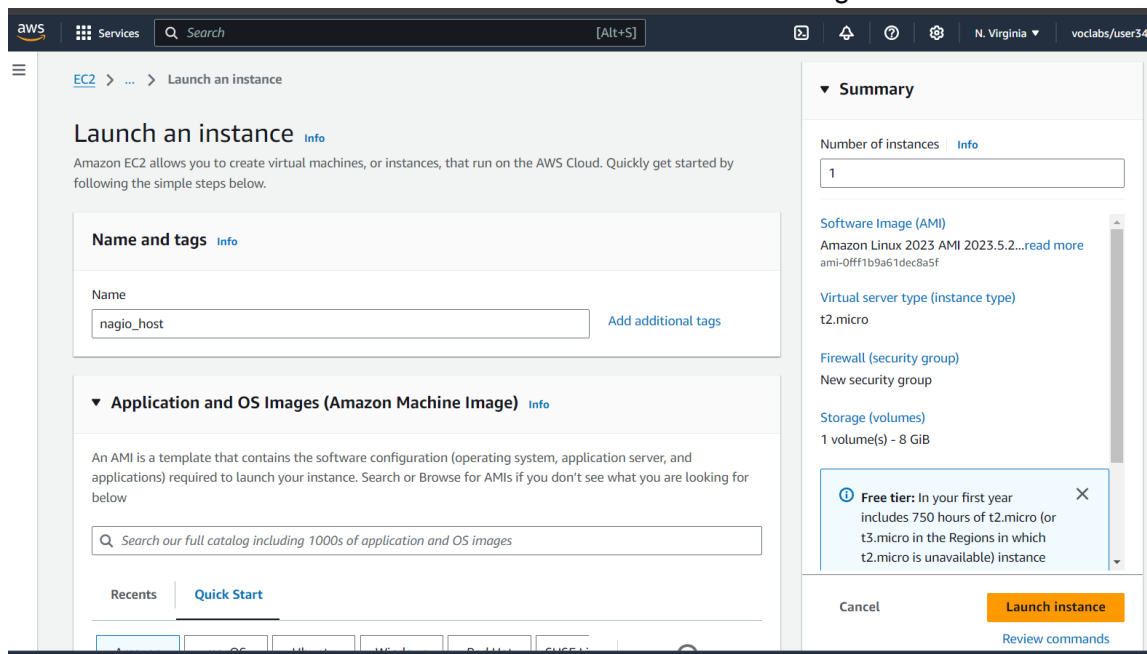
Nagios is used for continuous monitoring of systems, applications, service and business processes in a DevOps culture

#### Installation of Nagios

**Prerequisites:** AWS Free Tier

#### Steps:

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



The first screenshot shows the 'Launch wizard' for an EC2 instance. The 'Instance type' is set to 't2.micro', which is 'Free tier eligible'. The 'Key pair (login)' section shows 'advdevops' as the selected key pair. The 'Network settings' section is visible. The 'Summary' panel on the right shows 'Number of instances: 1', 'Free tier' information, and 'Storage (volumes): 1 volume(s) - 8 GiB'. A 'Launch instance' button is at the bottom right.

The second screenshot shows the 'Firewall (security groups)' step. The 'Create security group' option is selected. Rules are configured to allow SSH traffic from 'Anywhere' (0.0.0.0/0). The 'Configure storage' section shows '1x 8 GiB gp3' as the root volume. The 'Summary' panel on the right is identical to the first screenshot. A 'Launch instance' button is at the bottom right.

The third screenshot shows the 'Instances (2)' dashboard. It lists two running instances: 'Firstweb-env' (t3.micro) and 'nagio\_host' (t2.micro). The 'Launch instances' button is visible in the top right corner of the dashboard.

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

The screenshot shows the 'Security Groups (6)' console page. A search bar is at the top. Below is a table listing the security groups:

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

EC2 > Security Groups > sg-06aac81f9fb1fb0d2 - launch-wizard-11

### sg-06aac81f9fb1fb0d2 - launch-wizard-11

Actions

**Details**

Security group name launch-wizard-11	Security group ID sg-06aac81f9fb1fb0d2	Description launch-wizard-11 created 2024-10-04T03:33:13.481Z	VPC ID vpc-0759f59561929ed67
Owner 886807216329	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry	

**Inbound rules**

1

< > ⚙

	Name	Security group rule...	IP version	Type	Protocol	Port range

Add rule

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

Owner  
886807216329

Inbound rules count  
7 Permission entries

Outbound rules count  
1 Permission entry

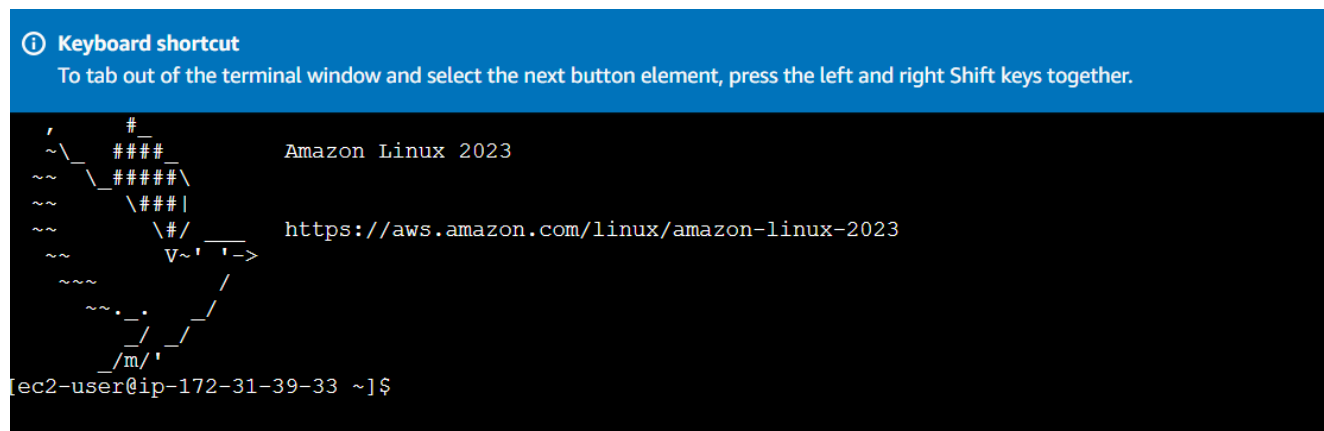
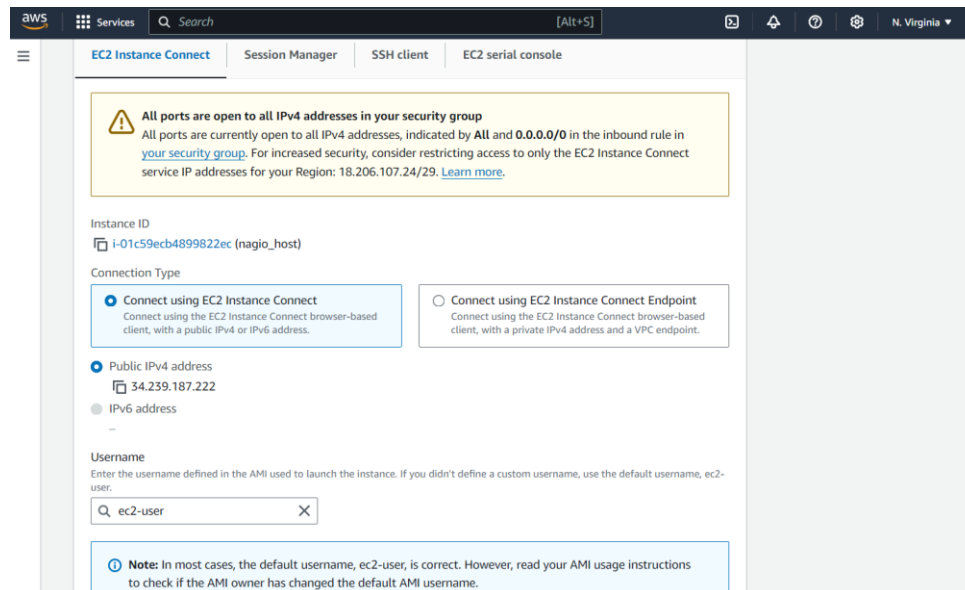
**Inbound rules**

1

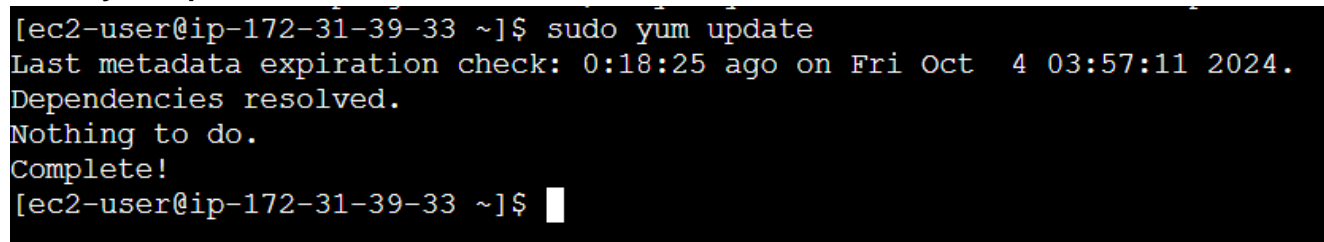
< > ⚙

	Name	Security group rule...	IP version	Type	Protocol	Port range
<input type="checkbox"/>	-	sgr-08bb54513a024f9...	IPv4	All ICMP - IPv4	ICMP	All
<input type="checkbox"/>	-	sgr-01fd6f6cb66c9acc	IPv4	All ICMP - IPv6	IPv6 ICMP	All
<input type="checkbox"/>	-	sgr-027cf43191735c273	IPv4	HTTPS	TCP	443
<input type="checkbox"/>	-	sgr-04672a6c3c0da02c9	IPv4	All traffic	All	All
<input type="checkbox"/>	-	sgr-0b5d4a836f0212ea5	IPv4	SSH	TCP	22
<input type="checkbox"/>	-	sgr-00b32d9740e081...	IPv4	HTTP	TCP	80
<input type="checkbox"/>	-	sgr-081691c3334699...	IPv4	Custom TCP	TCP	0

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



**sudo yum update**



**sudo yum install httpd php**

```
aws Services Search [Alt+S] N. Virginia voclabs/user3404137=Atharva_Shinde @ 8868-072

Keyboard shortcut
To tab out of the terminal window and select the next button element, press the left and right Shift keys together.

Complete!
ec2-user@ip-172-31-39-33 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:19:29 ago on Fri Oct 4 03:57:11 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 AmazonLinux          10 k
Installing dependencies:
apr                                     x86_64            1.7.2-2.amzn2023.0 AmazonLinux          129 k
apr-util                               x86_64            1.6.3-1.amzn2023.0 AmazonLinux          98 k
generic-logos-httpd                   noarch            18.0.0-12.amzn2023 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 AmazonLinux          315 k
libsodium                               x86_64            1.0.19-4.amzn2023 AmazonLinux          176 k
libxslt                                 x86_64            1.1.34-5.amzn2023.0 AmazonLinux          241 k
mailcap                                 noarch            2.1.49-3.amzn2023.0 AmazonLinux          33 k
nginx-filesystem                       noarch            1:1.24.0-1.amzn2023 AmazonLinux          9.8 k
php8.3-cli                             x86_64            8.3.10-1.amzn2023.0 AmazonLinux          3.7 M
php8.3-common                          x86_64            8.3.10-1.amzn2023.0 AmazonLinux          737 k
php8.3-process                         x86_64            8.3.10-1.amzn2023.0 AmazonLinux          45 k
php8.3-xml                             x86_64            8.3.10-1.amzn2023.0 AmazonLinux          154 k
Installing weak dependencies:
apr-util-openssl                       x86_64            1.6.3-1.amzn2023.0 AmazonLinux          17 k

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

Complete!
ec2-user@ip-172-31-39-33 ~]$
```

## sudo yum install gcc glibc glibc-common

```
Keyboard shortcut
To tab out of the terminal window and select the next button element, press the left and right Shift keys together.

Close permanently

ec2-user@ip-172-31-39-33 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:22:08 ago on Fri Oct 4 03:57:11 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 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
gc-8.0.4-5.amzn2023.0.2.x86_64
glibc-headers-x86-2.34-52.amzn2023.0.11.noarch
libmpc-1.2.1-2.amzn2023.0.2.x86_64
make-1:4.3-5.amzn2023.0.2.x86_64
annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64
gcc-11.4.1-2.amzn2023.0.2.x86_64
guile22-2.2.7-2.amzn2023.0.3.x86_64
libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_64
cpp-11.4.1-2.amzn2023.0.2.x86_64
glibc-devel-2.34-52.amzn2023.0.11.x86_64
kernel-headers-6.1.109-118.189.amzn2023.x86_64
libxcrypt-devel-4.4.33-7.amzn2023.x86_64

Complete!
ec2-user@ip-172-31-39-33 ~]$
```

## sudo yum install gd gd-devel

Keyboard shortcut

To tab out of the terminal window and select the next button element, press the left and right Shift keys together.

Close permanently

```
[ec2-user@ip-172-31-39-33 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:24:57 ago on Fri Oct 4 03:57:11 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:				
brotili	x86_64	1.0.9-4.amzn2023.0.2	amazonlinux	314 k
brotili-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-filessystem	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-filessystem	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
glib2-devel	x86_64	2.74.7-689.amzn2023.0.2	amazonlinux	486 k
google-noto-fonts-common	noarch	20201206-2.amzn2023.0.2	amazonlinux	15 k
google-noto-sans-vf-fonts	noarch	20201206-2.amzn2023.0.2	amazonlinux	492 k
graphite2	x86_64	1.3.14-7.amzn2023.0.2	amazonlinux	97 k
graphite2-devel	x86_64	1.3.14-7.amzn2023.0.2	amazonlinux	21 k
harfbuzz	x86_64	7.0.0-2.amzn2023.0.1	amazonlinux	868 k
harfbuzz-devel	x86_64	7.0.0-2.amzn2023.0.1	amazonlinux	404 k
harfbuzz-icu	x86_64	7.0.0-2.amzn2023.0.1	amazonlinux	18 k
Installed:				
brotili-1.0.9-4.amzn2023.0.2.x86_64		brotili-devel-1.0.9-4.amzn2023.0.2.x86_64		
bzip2-devel-1.0.8-6.amzn2023.0.2.x86_64		cairo-1.17.6-2.amzn2023.0.1.x86_64		
cmake-filessystem-3.22.2-1.amzn2023.0.4.x86_64		fontconfig-2.13.94-2.amzn2023.0.2.x86_64		
fontconfig-devel-2.13.94-2.amzn2023.0.2.x86_64		fonts-filessystem-1:2.0.5-12.amzn2023.0.2.noarch		
freetype-2.13.2-5.amzn2023.0.1.x86_64		freetype-devel-2.13.2-5.amzn2023.0.1.x86_64		
gd-2.3.3-5.amzn2023.0.3.x86_64		gd-devel-2.3.3-5.amzn2023.0.3.x86_64		
glib2-devel-2.74.7-689.amzn2023.0.2.x86_64		google-noto-fonts-common-20201206-2.amzn2023.0.2.noarch		
google-noto-sans-vf-fonts-20201206-2.amzn2023.0.2.noarch		graphite2-1.3.14-7.amzn2023.0.2.x86_64		
graphite2-devel-1.3.14-7.amzn2023.0.2.x86_64		harfbuzz-7.0.0-2.amzn2023.0.1.x86_64		
harfbuzz-devel-7.0.0-2.amzn2023.0.1.x86_64		harfbuzz-icu-7.0.0-2.amzn2023.0.1.x86_64		
jbigkit-libs-2.1-21.amzn2023.0.2.x86_64		langpacks-core-font-en-3.0-21.amzn2023.0.4.noarch		
libICE-1.0.10-6.amzn2023.0.2.x86_64		libSM-1.2.3-8.amzn2023.0.2.x86_64		

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 : 8177896780)**

```
ec2-user@ip-172-31-39-33 ~$ sudo adduser -m nagios
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[ec2-user@ip-172-31-39-33 ~]$
```

6. Create a new user group

**sudo groupadd nagcmd**

```
[ec2-user@ip-172-31-39-33 ~]$ sudo groupadd nagcmd
[ec2-user@ip-172-31-39-33 ~]$
```

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-172-31-39-33 downloads]$ wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz
--2024-10-04 04:35:18-- 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:fe7:45ce
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  6.20MB/s  in 0.3s

2024-10-04 04:35:18 (6.20 MB/s) - 'nagios-4.5.5.tar.gz' saved [2065473/2065473]
[ec2-user@ip-172-31-39-33 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/download/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-172-31-39-33 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_user
nagios-4.5.5/autoconf-macros/ax_nagios_get_distrib
```

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-172-31-39-33 downloads]$ ./configure --with-command-group=nagcmd
-bash: ./configure: No such file or directory
[ec2-user@ip-172-31-39-33 downloads]$
```

### Solution

Navigate to nagios folder in downloads

```
[ec2-user@ip-172-31-39-33 downloads]$ ls
nagios-4.5.5  nagios-4.5.5.tar.gz
[ec2-user@ip-172-31-39-33 downloads]$ cd nagios-4.5.5
[ec2-user@ip-172-31-39-33 nagios-4.5.5]$
```

Error 2: Cannot find SSL headers.

Solution: Install openssl dev library

Steps:

sudo yum install openssl-devel

```
[ec2-user@ip-172-31-39-33 nagios-4.5.5]$ sudo yum install openssl-devel
Last metadata expiration check: 0:45:54 ago on Fri Oct 4 03:57:11 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]:
```

```
Total
Running transaction check                               18 MB/s | 3.0 MB    00:00
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :
  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!
[ec2-user@ip-172-31-39-33 nagios-4.5.5]$
```

Now run

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

```
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.

[ec2-user@ip-172-31-39-33 nagios-4.5.5]$
```

## 12. Compile the source code. make all

```
[ec2-user@ip-172-31-39-33 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 nebmodes.o nebmodes.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:
```

## 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-172-31-39-33 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 nebmodes.o nebmodes.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 != '/') ? 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
```

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

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

```

GNU nano 5.8 /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
#####
Read 51 lines
^C Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^G Location   M-U Undo      M-A Set Mark  M-I To Bracket M-C Previous
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo      M-G Copy      ^C Where Was  M-W Next

```

And change email with your email

15. Configure the web interface.

**sudo make install-webconf**

```

[ec2-user@ip-172-31-39-33 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 ***

[ec2-user@ip-172-31-39-33 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-172-31-39-33 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
[ec2-user@ip-172-31-39-33 nagios-4.5.5]$

```

Password: 8177896780

17. Restart Apache

**sudo service httpd restart**

```
[ec2-user@ip-172-31-39-33 nagios-4.5.5]$ sudo service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[ec2-user@ip-172-31-39-33 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 '/^ifndef/, $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 ]
```

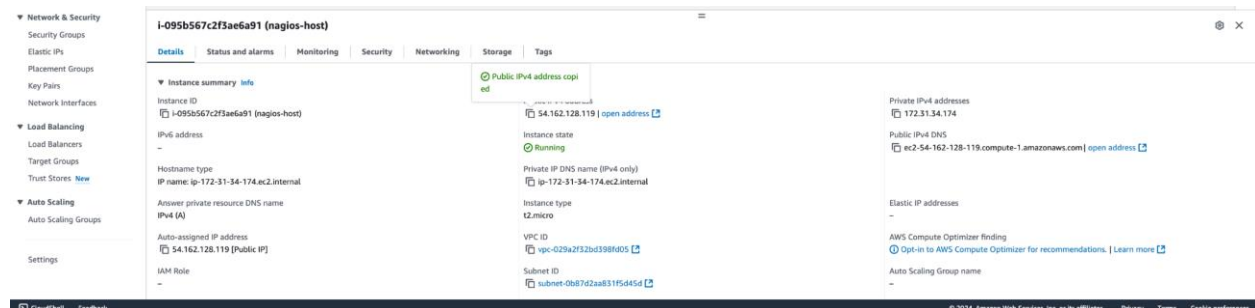
21. Check the status of Nagios

**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

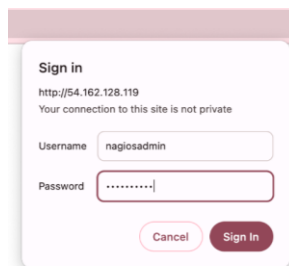
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios[65652]: qh: Socket '/usr/local/nagios/var/rw/nagios.qh' successfully initialized
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios[65652]: qh: core query handler registered
Oct 02 15:10:02 ip-172-31-34-174.ec2.internal nagios[65652]: qh: echo service 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](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.



**Nagios®**

General  
Home  
Documentation

**Current Status**  
Tactical Overview  
Map  
Hosts  
Services  
Host Groups  
Summary  
Grid  
Service Groups  
Summary  
Grid  
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Services (Unhandled)  
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Network Outages  
Quick Search:

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Summary  
Histogram  
Notifications  
Event Log

**System**  
Comments  
Downtime  
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Performance Info  
Scheduling Queue  
Configuration

**Nagios® Core™**  
✓ Daemon running with PID 65652  
**Nagios® Core™**  
Version 4.5.5  
September 17, 2024  
[Check for updates](#)

**Get Started**

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

**Quick Links**

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

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**Nagios**  
NAGIOS CORE

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Page Tour

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.