Name: Shreyash Kamat Div: D15C Roll No: 22

Adv DevOps Exp 09

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.

Why We Need Nagios tool?

Here are the important reasons to use Nagios monitoring tool:

- Detects all types of network or server issues
- Helps you to find the root cause of the problem which allows you to get the 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- Helps you to plan for infrastructure upgrades before outdated systems create failures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 the security and availability of the service
- Automatically fix problems in a panic situation

Features of Nagios

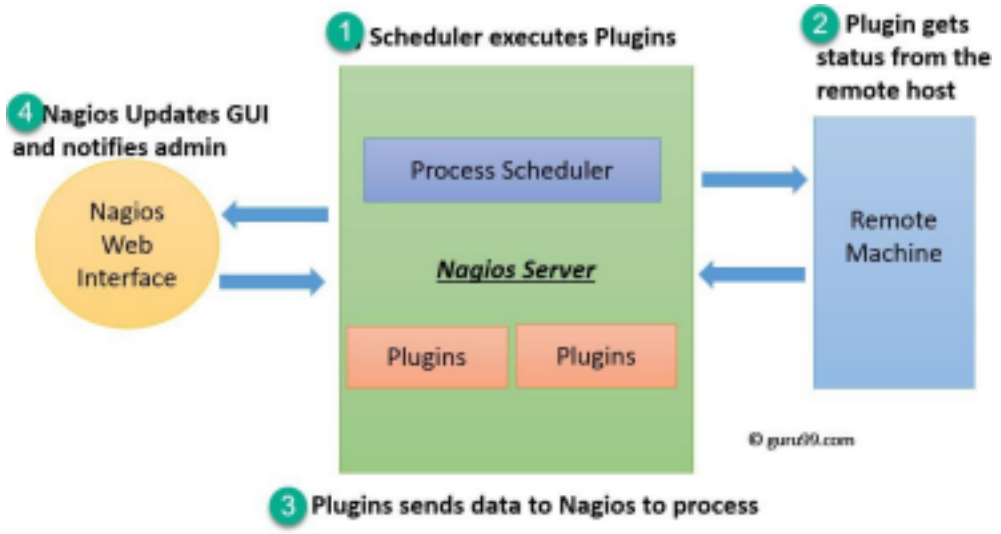
Following are the important features of Nagios monitoring tool:

- Relatively scalable, Manageable, and Secure
- Good log and database system
- Informative and attractive web interfaces
- Automatically send alerts if condition changes
- If the services are running fine, then there is no need to do check that host is an alive
- Helps you to detect network errors or server crashes
- You can troubleshoot the performance issues of the server.
- The issues, if any, can be fixed automatically as they are identified during the monitoring process
- You can monitor the entire business process and IT infrastructure with a single pass
- The product's architecture is easy to write new plugins in the language of your choice
- Nagios allows you to read its configuration from an entire directory which helps you to decide how to define individual files
- Utilizes topology to determine dependencies
- Monitor network services like HTTP, SMTP, HTTP, SNMP, FTP, SSH, POP, etc.
- Helps you to define network host hierarchy using parent hosts
- Ability to define event handlers that runs during service or host events for proactive

problem resolution
- Support for implementing redundant monitoring hosts

Nagios Architecture

Nagios is a client-server architecture. Usually, on a network, a Nagios server is running on a host, and plugins are running on all the remote hosts which should be monitored.



1. The scheduler is a component of the server part of Nagios. It sends a signal to execute the plugins at the remote host.
2. The plugin gets the status from the remote host
3. The plugin sends the data to the process scheduler
4. The process scheduler updates the GUI and notifications are sent to admins.

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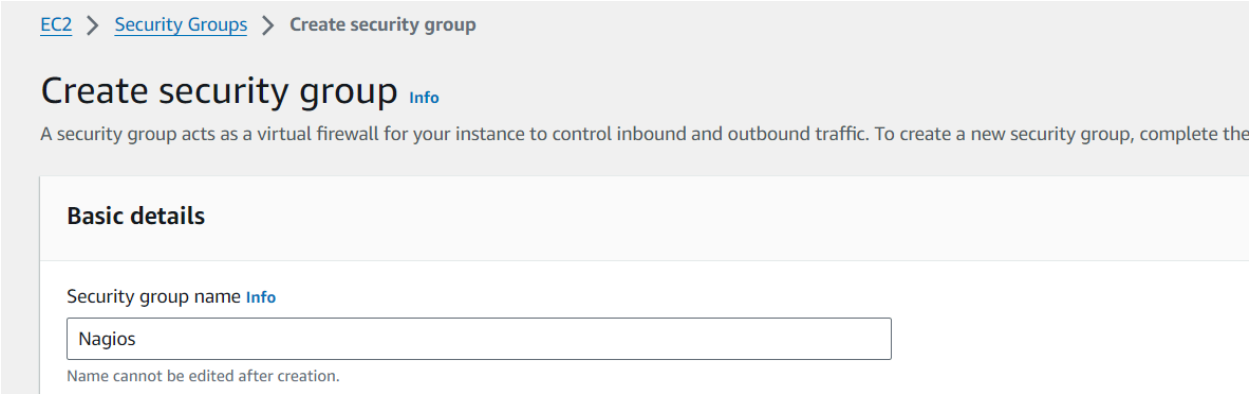
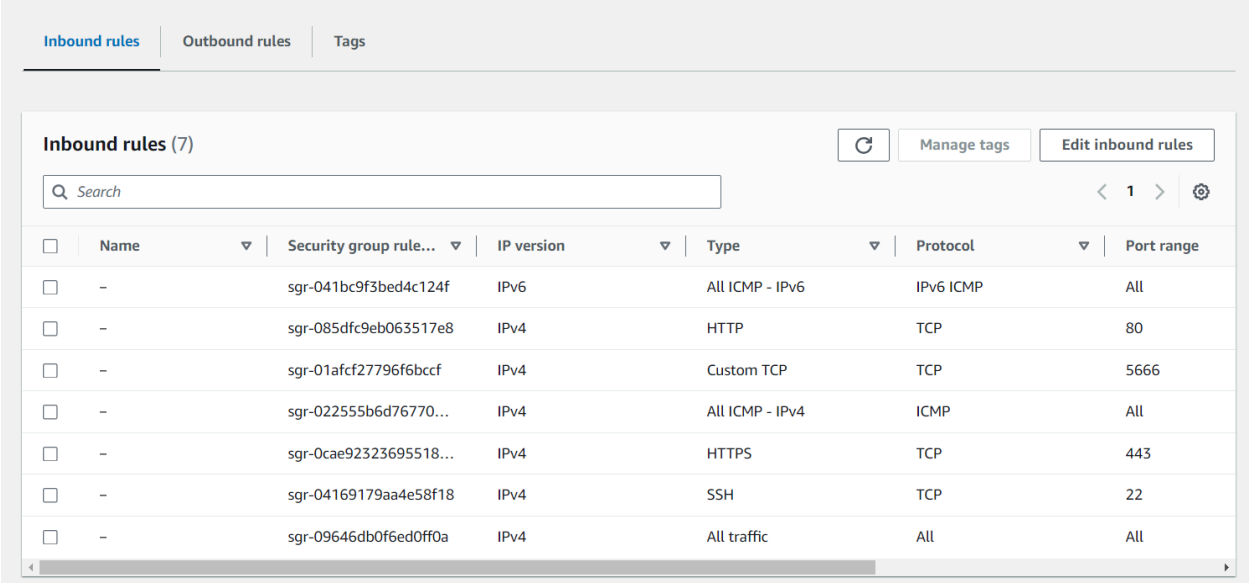
Step 1: Create a security group with the required configurations

I have created a new security group with a name ‘newsecurity’



I have modified the INBOUND RULES as follows



Step 2: Create ec2 instance

Name it as nagios-host. Select instance type as amazon-linux and choose the already created key pair and security group

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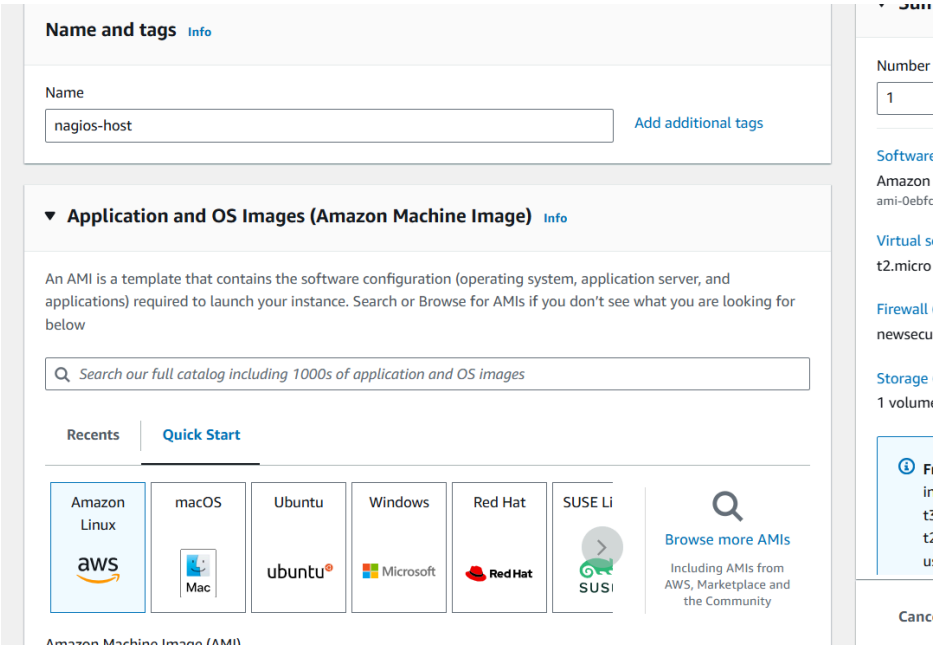

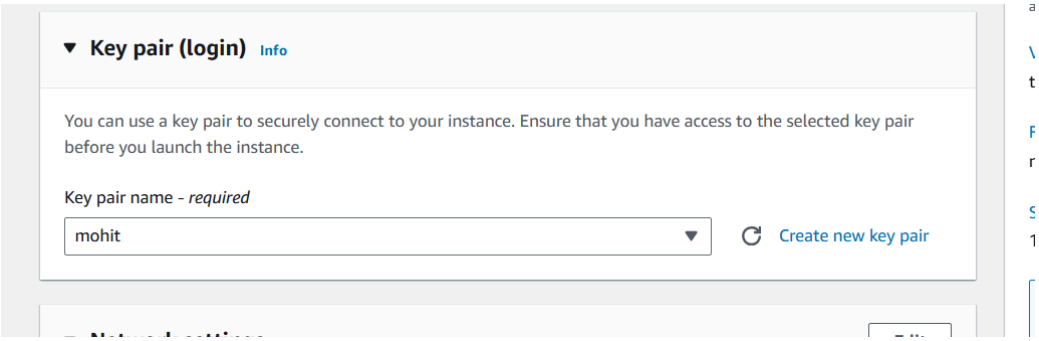

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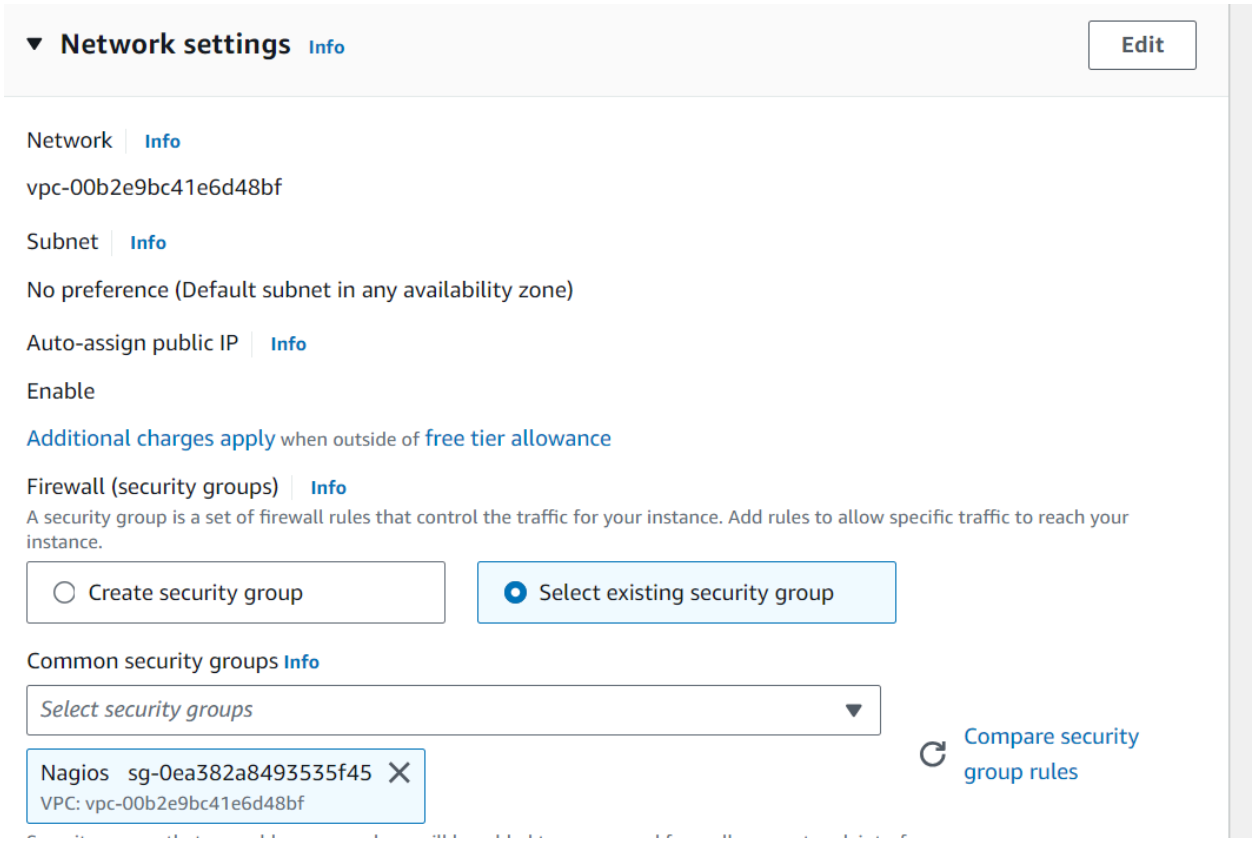
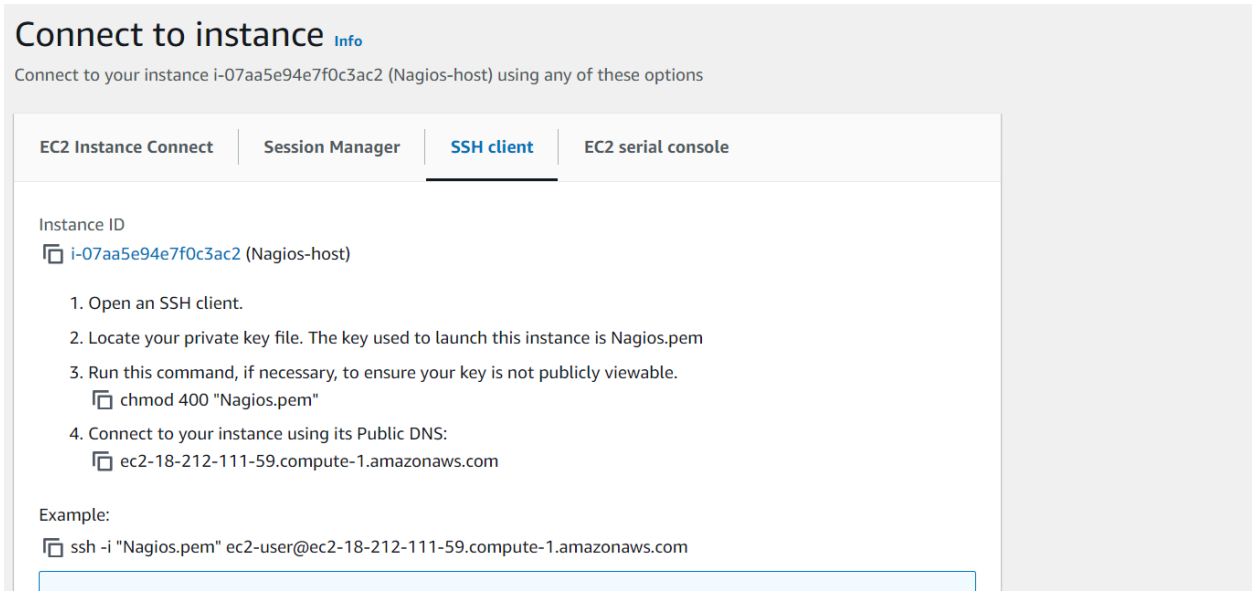


Copy the given ssh command, as we will require it for logging into our nagios-host instance from our windows powershell



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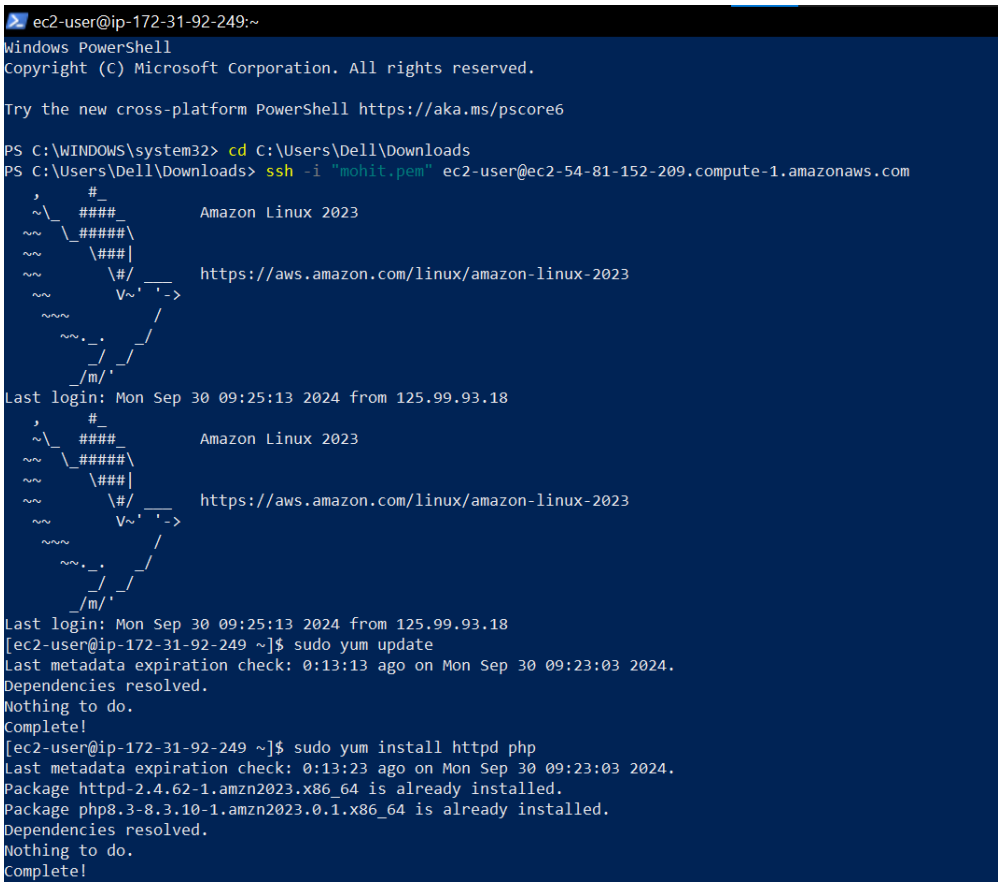
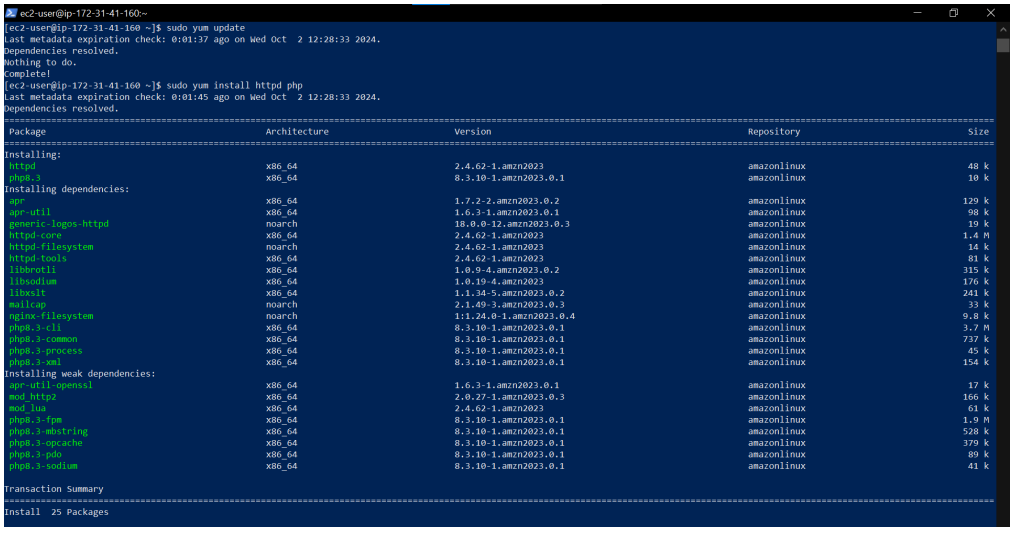
Step 3: Open an administrative powershell and remotely login using the above mentioned ssh command



And then run these commands

sudo yum update

sudo yum install httpd php



sudo yum install gcc glibc glibc-common

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```
ec2-user@ip-172-31-41-160:~
[ec2-user@ip-172-31-41-160 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:02:02 ago on Wed Oct  2 12:28:33 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

Total download size: 52 M
Installed size: 168 M
Is this ok [y/N]: y
Downloading Packages:
(1/13): annobin-docs-10.93-1.amzn2023.0.1.noarch.rpm          852 kB/s |  92 kB     00:00
(2/13): annobin-plugin-gcc-10.93-1.amzn2023.0.1.x86_64.rpm    6.5 MB/s | 887 kB     00:00
(3/13): gc-8.0.4-5.amzn2023.0.2.x86_64.rpm                    2.3 MB/s | 105 kB     00:00
(4/13): glibc-devel-2.34-52.amzn2023.0.11.x86_64.rpm          1.1 MB/s |  27 kB     00:00
(5/13): cpp-11.4.1-2.amzn2023.0.2.x86_64.rpm                   32 MB/s |  10 MB     00:00
(6/13): glibc-headers-x86-2.34-52.amzn2023.0.11.noarch.rpm    2.9 MB/s | 427 kB     00:00
(7/13): kernel-headers-6.1.109-118.189.amzn2023.x86_64.rpm     16 MB/s | 1.4 MB     00:00
(8/13): libmpc-1.2.1-2.amzn2023.0.2.x86_64.rpm                2.1 MB/s |  62 kB     00:00
(9/13): guile22-2.2.7-2.amzn2023.0.3.x86_64.rpm                27 MB/s | 6.4 MB     00:00
(10/13): libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_64.rpm         322 kB/s |  38 kB     00:00
(11/13): libxcrypt-devel-4.4.33-7.amzn2023.x86_64.rpm         1.4 MB/s |  32 kB     00:00
```

sudo yum install gd gd-devel

```
ec2-user@ip-172-31-41-160:~
[ec2-user@ip-172-31-41-160 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:02:25 ago on Wed Oct  2 12:28:33 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
 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
 jbigkit-libs            x86_64                  2.1-21.amzn2023.0.2     amazonlinux             54 k
 langpacks-core-font-en  noarch                  3.0-21.amzn2023.0.4     amazonlinux             10 k
 libICE                  x86_64                  1.0.10-6.amzn2023.0.2   amazonlinux             71 k
 libSM                   x86_64                  1.2.3-8.amzn2023.0.2    amazonlinux             42 k
 libX11                  x86_64                  1.7.2-3.amzn2023.0.4    amazonlinux            657 k
 libX11-common           noarch                  1.7.2-3.amzn2023.0.4    amazonlinux            152 k
 libX11-devel            x86_64                  1.7.2-3.amzn2023.0.4    amazonlinux            939 k
 libX11-xcb              x86_64                  1.7.2-3.amzn2023.0.4    amazonlinux             12 k
 libXau                  x86_64                  1.0.9-6.amzn2023.0.2    amazonlinux             31 k
 libXau-devel            x86_64                  1.0.9-6.amzn2023.0.2    amazonlinux             14 k
 libXext                 x86_64                  1.3.4-6.amzn2023.0.2    amazonlinux             41 k
 libXpm                  x86_64                  3.5.15-2.amzn2023.0.3   amazonlinux             65 k
 libXpm-devel            x86_64                  3.5.15-2.amzn2023.0.3   amazonlinux             59 k
 libXrender              x86_64                  0.9.10-14.amzn2023.0.2  amazonlinux             28 k
 libXt                   x86_64                  1.2.0-4.amzn2023.0.2    amazonlinux            181 k
 libblkid-devel          x86_64                  2.37.4-1.amzn2023.0.4   amazonlinux             15 k
```

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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

```
[ec2-user@ip-172-31-41-160 ~]$ sudo adduser -m nagios
[ec2-user@ip-172-31-41-160 ~]$ sudo passwd nagios
Changing password for user nagios.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[ec2-user@ip-172-31-41-160 ~]$
```

Create a new user group & create a new directory for Nagios downloads using the following commands

sudo groupadd nagcmd
sudo usermod -a -G nagcmd nagios
sudo usermod -a -G nagcmd apache
mkdir ~/downloads
cd ~/downloads

Use **wget** to download the source zip files.
In this step, we are downloading, the latest version of nagios and the necessary plugins required to carry out the tasks of setting up a nagios server

wget https://sourceforge.net/projects/nagios/files/latest/download

```
ec2-user@ip-172-31-41-160:~/downloads/nagios-4.5.5
[ec2-user@ip-172-31-41-160 downloads]$ wget https://sourceforge.net/projects/nagios/files/latest/download
--2024-10-02 12:34:21--  https://sourceforge.net/projects/nagios/files/latest/download
Resolving sourceforge.net (sourceforge.net)... 172.64.150.145, 104.18.37.111, 2606:4700:4400::6812:256f, ...
Connecting to sourceforge.net (sourceforge.net)|172.64.150.145|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.5.5/nagios-4.5.5.tar.gz?ts=gAAAAABm_T3NWNSZPzP-6la2TltvoOGCG7VvV7QGVHO8n3tC24QehfMw7vHcoKbGHg2iIRxbmfugII0LccN
fxEaOixg3j2kG3w%3D%3D&use_mirror=phoenixnap&r= [following]
--2024-10-02 12:34:21--  https://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.5.5/nagios-4.5.5.tar.gz?ts=gAAAAABm_T3NWNSZPzP-6la2TltvoOGCG7VvV7QGVHO8n3tC24QehfMw7vHcoKbGHg2i
IRxbmfugII0LccNfxEaOixg3j2kG3w%3D%3D&use_mirror=phoenixnap&r=
Resolving downloads.sourceforge.net (downloads.sourceforge.net)... 204.68.111.105
Connecting to downloads.sourceforge.net (downloads.sourceforge.net)|204.68.111.105|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://phoenixnap.dl.sourceforge.net/project/nagios/nagios-4.x/nagios-4.5.5/nagios-4.5.5.tar.gz?viasf=1 [following]
--2024-10-02 12:34:21--  https://phoenixnap.dl.sourceforge.net/project/nagios/nagios-4.x/nagios-4.5.5/nagios-4.5.5.tar.gz?viasf=1
Resolving phoenixnap.dl.sourceforge.net (phoenixnap.dl.sourceforge.net)... 184.164.141.26
Connecting to phoenixnap.dl.sourceforge.net (phoenixnap.dl.sourceforge.net)|184.164.141.26|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2065473 (2.0M) [application/x-gzip]
Saving to: 'download'

download                                    100%[=========================================================================================>]   1.97M  4.23MB/s    in 0.5s

2024-10-02 12:34:22 (4.23 MB/s) - 'download' saved [2065473/2065473]
```

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

```
ec2-user@ip-172-31-41-160:~/downloads/nagios-4.5.5
[ec2-user@ip-172-31-41-160 downloads]$ wget https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz
--2024-10-02 12:34:46--  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  7.48MB/s    in 0.4s

2024-10-02 12:34:46 (7.48 MB/s) - 'nagios-plugins-2.4.11.tar.gz' saved [2753049/2753049]
```

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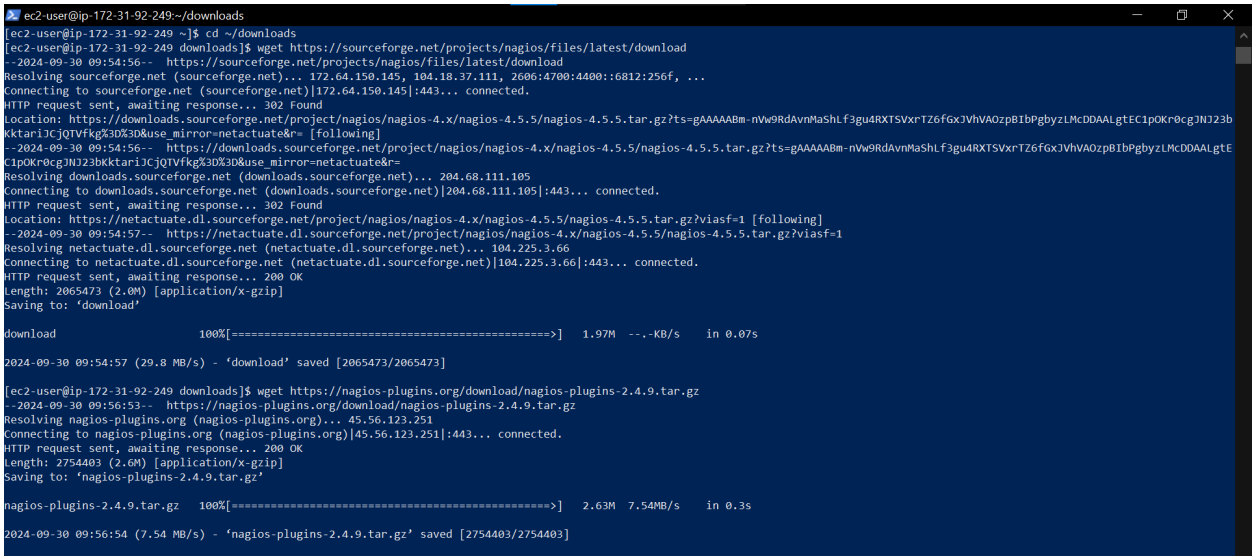
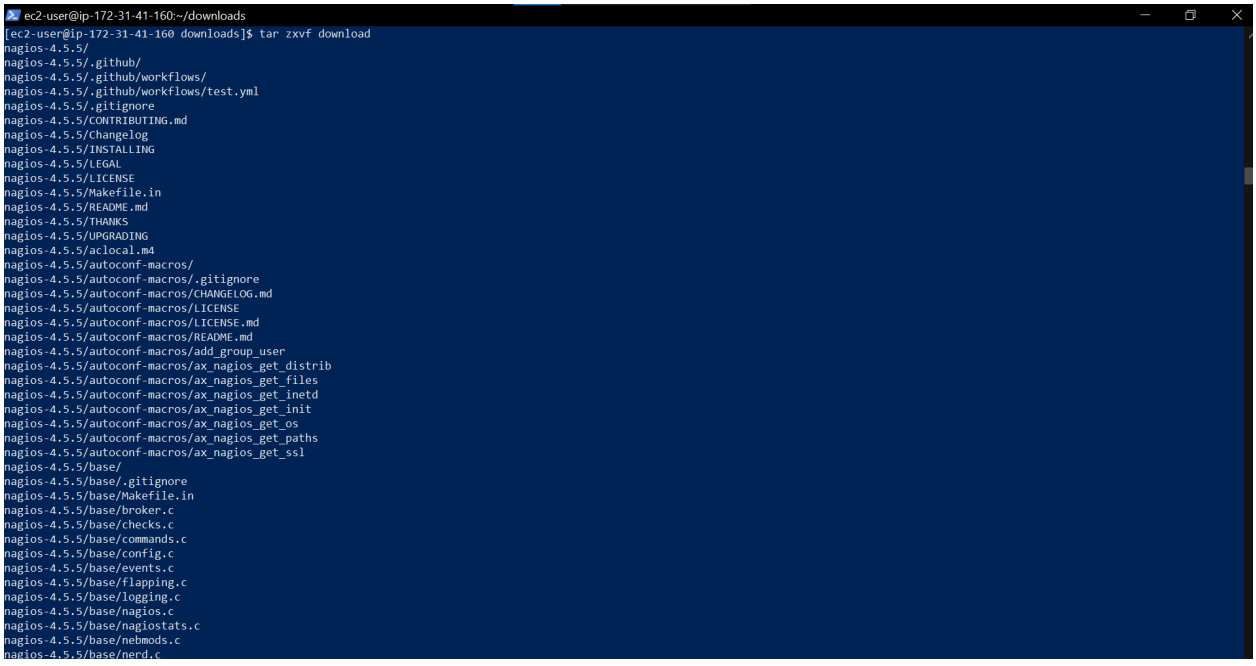


Now, we run the next command in the following manner
tar zxvf <nagios-4.5.5 version> (for me it has gotten saved as 'download')
So i wrote **tar zxvf download**



After which we are supposed to **change our directory** over there
For eg. **cd nagios-4.5.5**… depending on the version that we have downloaded

Next, Run this command (make sure that you are working inside nagios-4.x.x directory)
./configure --with-command-group=nagcmd

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```
ec2-user@ip-172-31-41-160:~/downloads/nagios-4.5.5
[ec2-user@ip-172-31-41-160 downloads]$  cd nagios-4.5.5
[ec2-user@ip-172-31-41-160 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 strings.h... yes
checking for sys/stat.h... yes
checking for sys/types.h... yes
checking for unistd.h... yes
checking for arpa/inet.h... yes
checking for ctype.h... yes
checking for dirent.h... yes
checking for errno.h... yes
checking for fcntl.h... yes
checking for getopt.h... yes
checking for grp.h... yes
checking for libgen.h... yes
checking for limits.h... yes
checking for math.h... yes
checking for netdb.h... yes
checking for netinet/in.h... yes
checking for pwd.h... yes
checking for regex.h... yes
checking for signal.h... yes
checking for socket.h... no
checking for stdarg.h... yes
```

```
checking for strtoul... 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
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$
```

After running this command, we get an **error related to ssl header being absent**

For that purpose, we are to run the following command.
sudo yum install openssl-devel (for ssl header)

```
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$ sudo yum install openssl-devel
Last metadata expiration check: 0:12:11 ago on Wed Oct  2 12:28:33 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                                            17 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!
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$
```

Now, Re-run **./configure --with-command-group=nagcmd**

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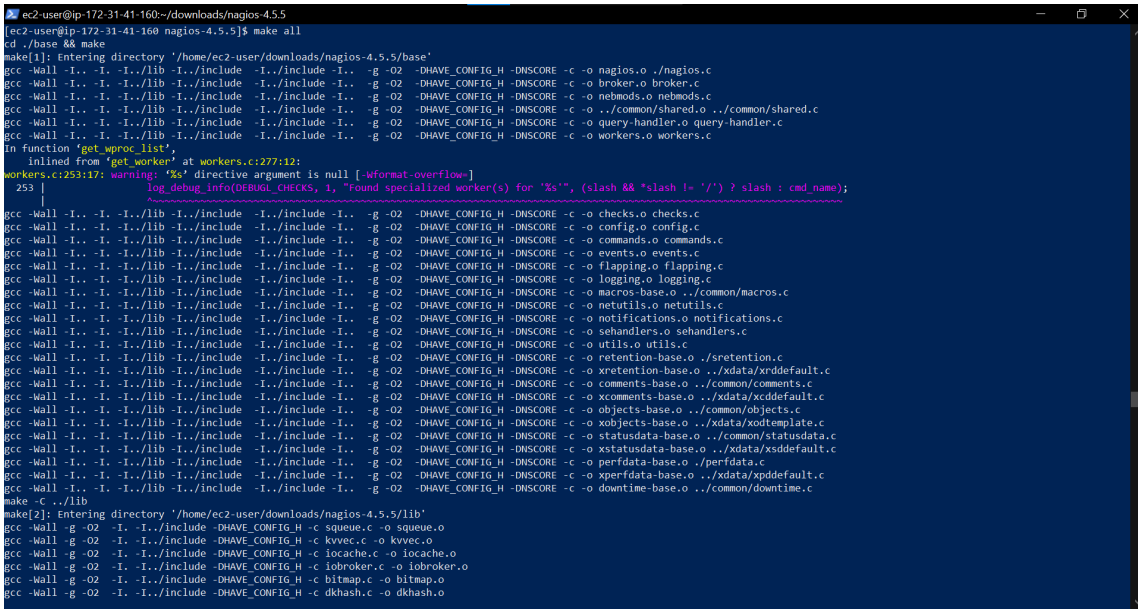
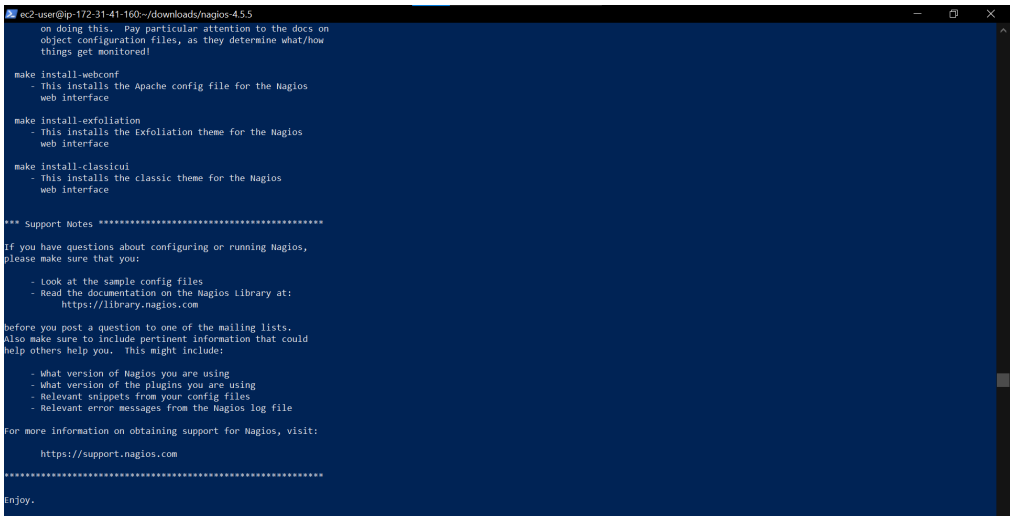
After this, run **make all** command





Run the following set of commands to ensure that
sudo make install

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```
ec2-user@ip-172-31-41-160:~/downloads/nagios-4.5.5
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$ sudo make install
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 nagiostats /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 -s -m 775 -o nagios -g nagios $file /usr/local/nagios/sbin; \
done
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-4.5.5/cgi'
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-4.5.5/cgi'
cd ./html && make install
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/html'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/media
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/stylesheets
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/contexthelp
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/docs
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/docs/images
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/js
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/images
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/images/logos
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/includes
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/ssi
/usr/bin/install -c -m 664 -o nagios -g nagios ./robots.txt /usr/local/nagios/share
/usr/bin/install -c -m 664 -o nagios -g nagios ./jsonquery.html /usr/local/nagios/share
rm -f /usr/local/nagios/share/index.html
rm -f /usr/local/nagios/share/main.html
rm -f /usr/local/nagios/share/side.html
rm -f /usr/local/nagios/share/map.html
rm -f /usr/local/nagios/share/rss-*
rm -f /usr/local/nagios/share/graph-header.html
rm -f /usr/local/nagios/share/histogram.html
rm -f /usr/local/nagios/share/histogram-form.html
rm -f /usr/local/nagios/share/histogram-graph.html
rm -f /usr/local/nagios/share/histogram-links.html
rm -f /usr/local/nagios/share/infobox.html
rm -f /usr/local/nagios/share/map.php
```

sudo make install-init

```
ec2-user@ip-172-31-41-160:~/downloads/nagios-4.5.5
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$ sudo make install-init
/usr/bin/install -c -m 755 -d -o root -g root /lib/systemd/system
/usr/bin/install -c -m 755 -o root -g root startup/default-service /lib/systemd/system/nagios.service
```

sudo make install-config

```
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$ 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/local/nagios/etc/objects/localhost.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/windows.cfg /usr/local/nagios/etc/objects/windows.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/printer.cfg /usr/local/nagios/etc/objects/printer.cfg
/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.
```

sudo make install-webconf

```
[ec2-user@ip-172-31-41-160 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-172-31-41-160 nagios-4.5.5]$
```

Next, we are supposed to create a nagiosadmin account for nagios login along with password. Specify the password twice.

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

```
[ec2-user@ip-172-31-41-160 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-172-31-41-160 nagios-4.5.5]$
```

Restart Apache

sudo service httpd restart

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-172-31-41-160:~/downloads
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$ sudo service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[ec2-user@ip-172-31-41-160 nagios-4.5.5]$ cd ~/downloads
[ec2-user@ip-172-31-41-160 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
```

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Compile and install plugins
cd nagios-plugins-2.4.11
./configure --with-nagios-user=nagios --with-nagios-group=nagios

Run the following command:
sudo chkconfig --add nagios
On running the above command

```
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$ sudo chkconfig --add nagios
error reading information on service nagios: No such file or directory
```

If this is the output that one is getting, then it means that the init script is missing…
We can check this by running ls /etc/init.d/

```
[ec2-user@ip-172-31-92-249 nagios-plugins-2.4.9]$ ls /etc/init.d/
README  functions
[ec2-user@ip-172-31-92-249 nagios-plugins-2.4.9]$
```

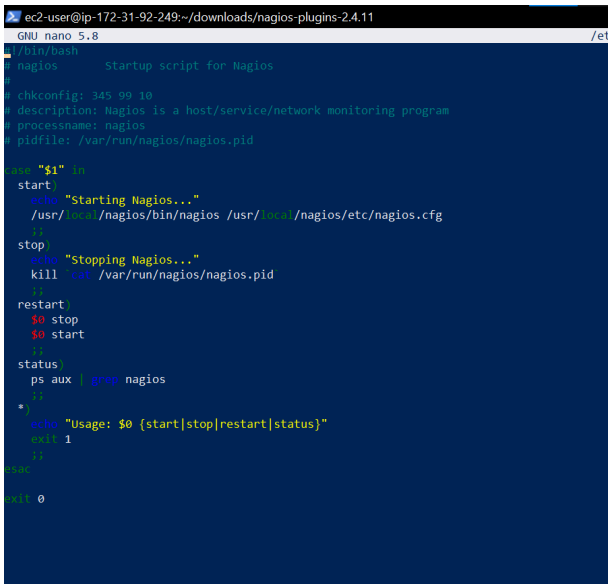
With ls command, we must see a file named nagios, which i was not able to see
If the Init Script is Missing i.e If you don't see the nagios script in /etc/init.d/, you can create it manually. Here's how:

Run the following command:
sudo nano /etc/init.d/nagios

Within this file, paste the following script

```
#!/bin/bash
# nagios       Startup script for Nagios
#
# chkconfig: 345 99 10
# description: Nagios is a host/service/network monitoring program
# processname: nagios
# pidfile: /var/run/nagios/nagios.pid
case "$1" in
  start)
    echo "Starting Nagios..."
    /usr/local/nagios/bin/nagios /usr/local/nagios/etc/nagios.cfg
    ;;
  stop)
    echo "Stopping Nagios..."
    kill `cat /var/run/nagios/nagios.pid`
    ;;
  restart)
    $0 stop
    $0 start
```

```
    ;;
  status)
    ps aux | grep nagios
    ;;
  *)
    echo "Usage: $0 {start|stop|restart|status}"
    exit 1
    ;;
esac
exit 0
```



Make the Script Executable: After saving the file, run the following command to make it executable:

sudo chmod +x /etc/init.d/nagios

Run **sudo chkconfig --add nagios** again

And then run **sudo chkconfig nagios on**

```
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$ sudo nano /etc/init.d/nagios
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$ sudo chmod +x /etc/init.d/nagios
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$ sudo chkconfig --add nagios
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$ 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-172-31-41-160 nagios-plugins-2.4.11]$
```

sudo service nagios start

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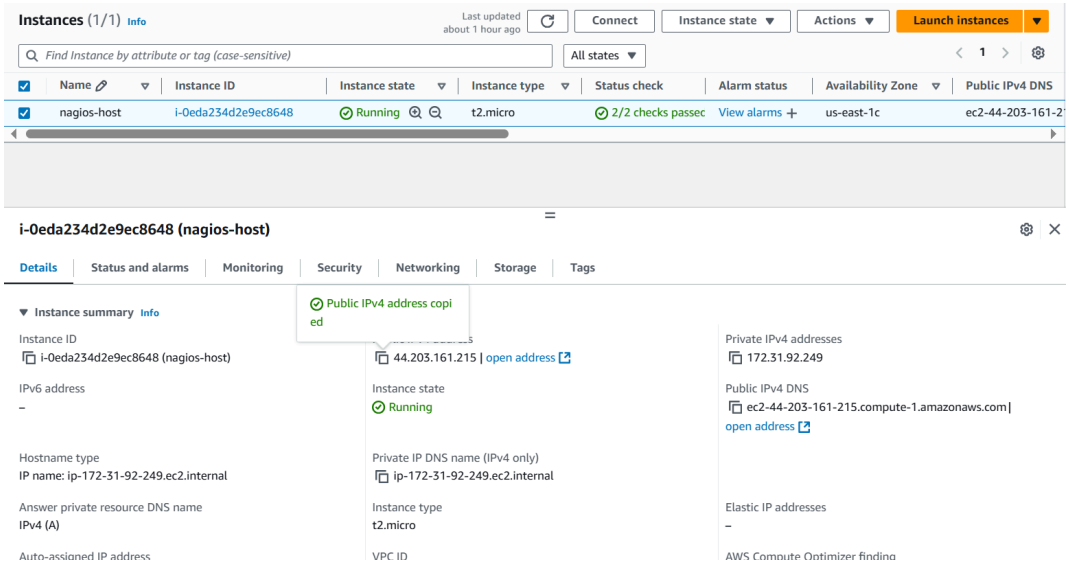
```
[ec2-user@ip-172-31-92-249 nagios-plugins-2.4.11]$ sudo service nagios start
Starting Nagios...

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
Nagios 4.5.5 starting... (PID=72261)
Local time is Tue Oct 01 20:59:58 UTC 2024
wproc: Successfully registered manager as @wproc with query handler
wproc: Registry request: name=Core Worker 72265;pid=72265
wproc: Registry request: name=Core Worker 72264;pid=72264
wproc: Registry request: name=Core Worker 72263;pid=72263
wproc: Registry request: name=Core Worker 72262;pid=72262
Successfully launched command file worker with pid 72266
wproc: NOTIFY job 4 from worker Core Worker 72262 is a non-check helper but exited with return code 127
wproc:   host=localhost; service=Swap Usage; contact=nagiosadmin
wproc:   early_timeout=0; exited_ok=1; wait_status=32512; error_code=0;
wproc:   stderr line 01: /bin/sh: line 1: /bin/mail: No such file or directory
wproc:   stderr line 02: /usr/bin/printf: write error: Broken pipe
```

Get your public IPv4 address from your instance. We will require it for connecting to our nginx server



Browse for this url: http://<your_public_ip_address>/nagios
The browser may ask you for your nagios credentials which set in the earlier steps
The username is nagiosadmin and enter the password that you set earlier

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Conclusion:

In this experiment, we successfully installed and configured Nagios Core on an Amazon Linux EC2 instance, showcasing its role in continuous monitoring within a DevOps environment. We learned about user management and service configuration, emphasizing Nagios's ability to monitor systems and networks effectively. This experience laid the groundwork for enhancing infrastructure reliability and integrating advanced monitoring strategies in future projects.