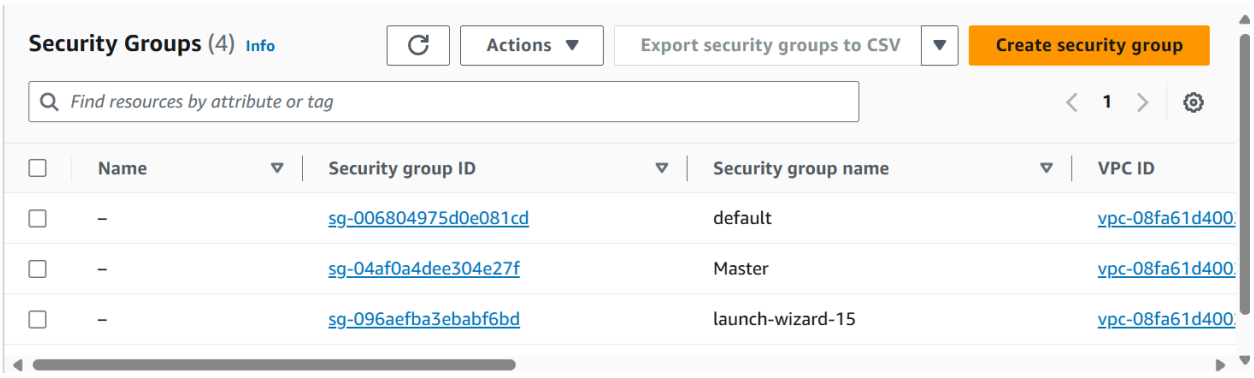
Name: Anish Kulkarni Roll No.: 29 Class: D15C AY: 2024-25

Experiment 9

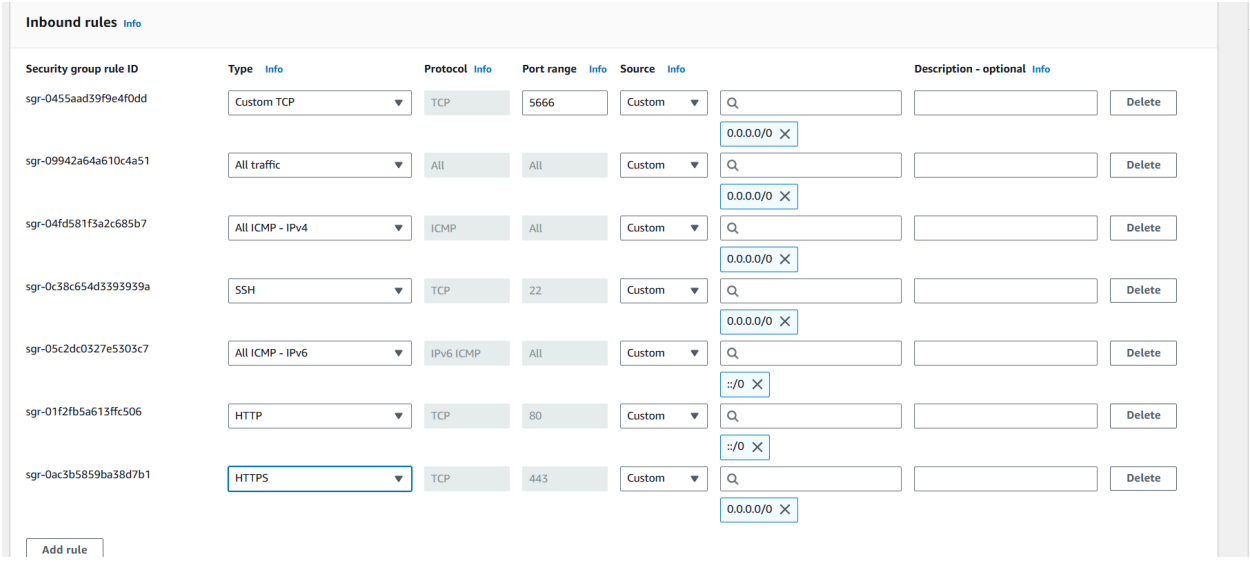
Aim: To Understand Continuous monitoring and Installation and configuration of Nagios Core, Nagios Plugins and NRPE (Nagios Remote Plugin Executor) on Linux Machine.

Steps:

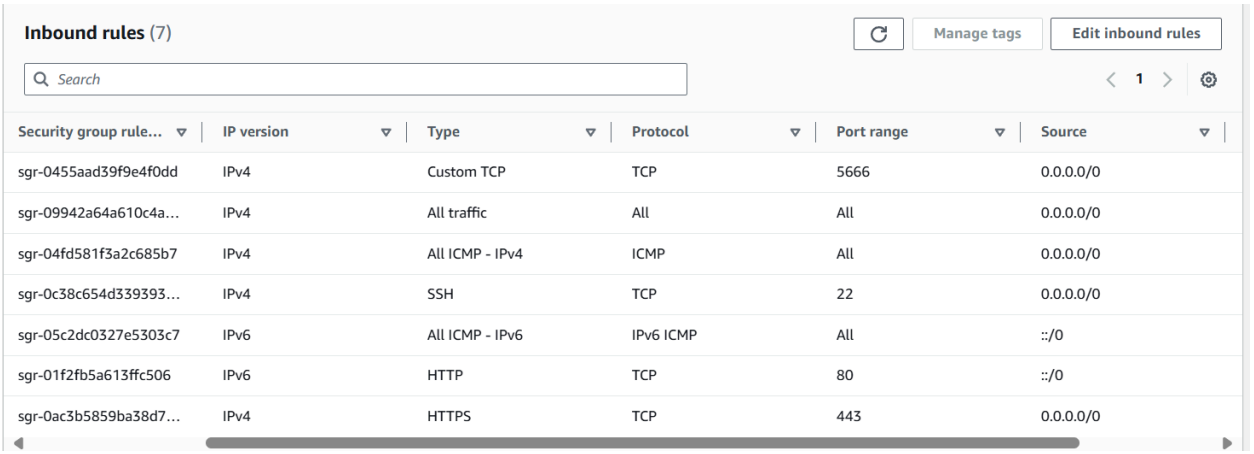
Step 1: Navigate to the EC2 section on your AWS console using the ‘Services’ section. Then, from the options in the left-side panel, click on ‘Security groups’. Next, click on ‘Create security group’.



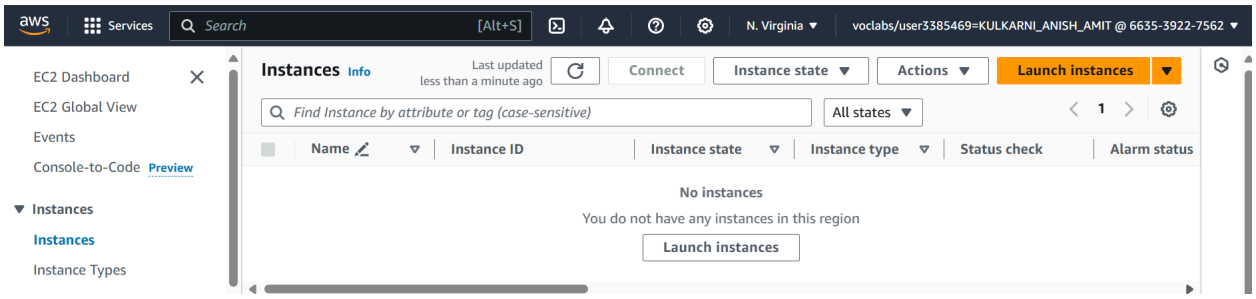
Give your security group a name (here, the name is launch-wizard-15) and then in the ‘Inbound rules’ section, click on ‘Edit’. Then, click on add rules, and add the rules for the following protocols:
HTTP, All ICMP - IPv6, HTTPS, All traffic, Custom TCP (Port 5666), All ICMP - IPv4



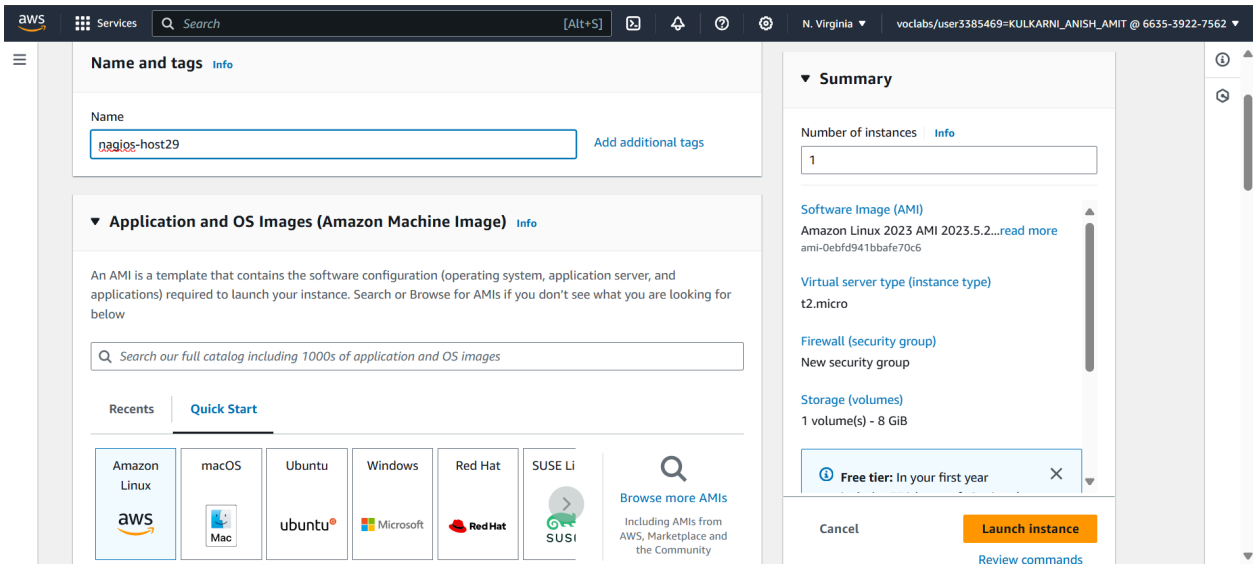
Your security group with the required inbound rules gets created as such:-

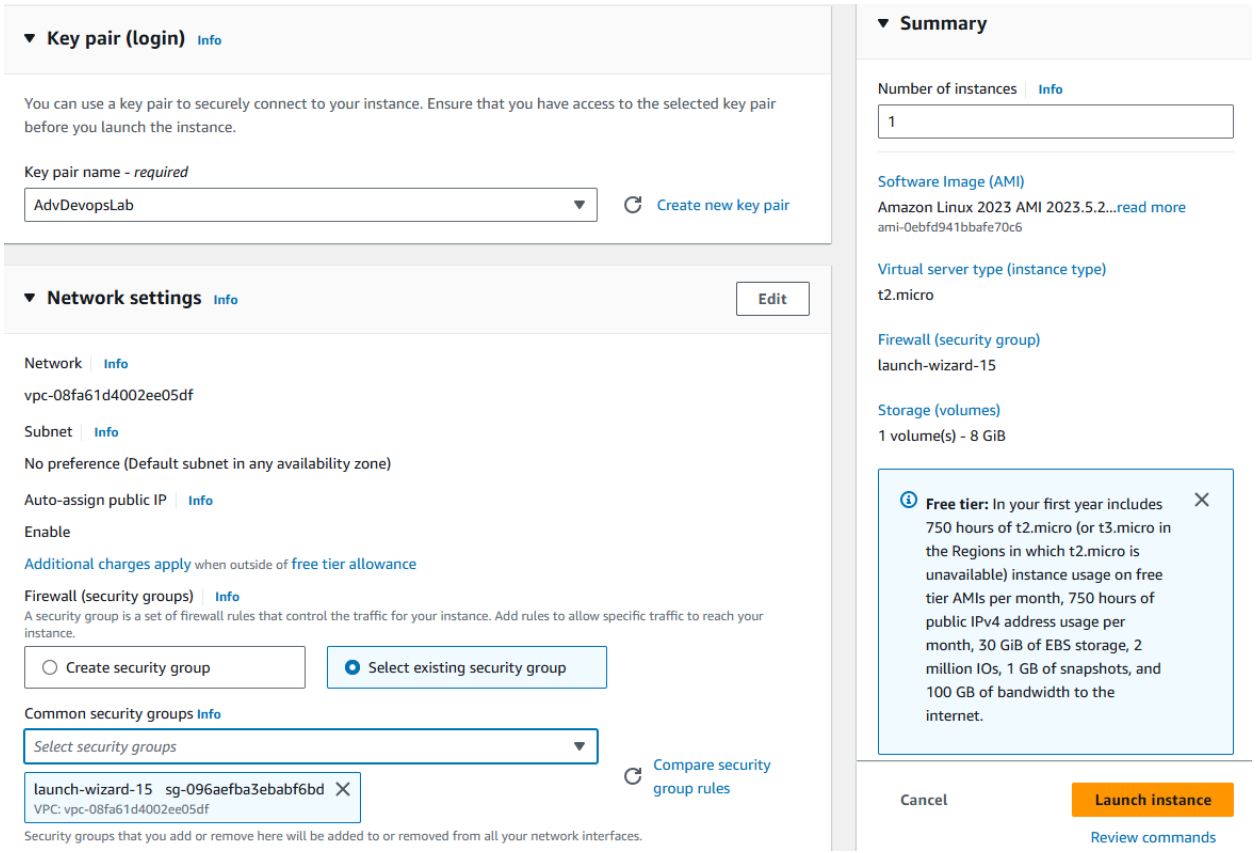


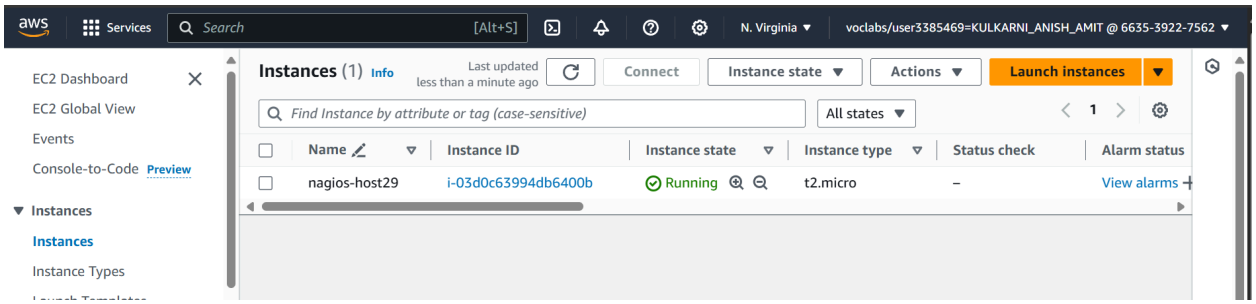
Step 2: Navigate to the EC2 section and click on ‘Launch instances’.



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

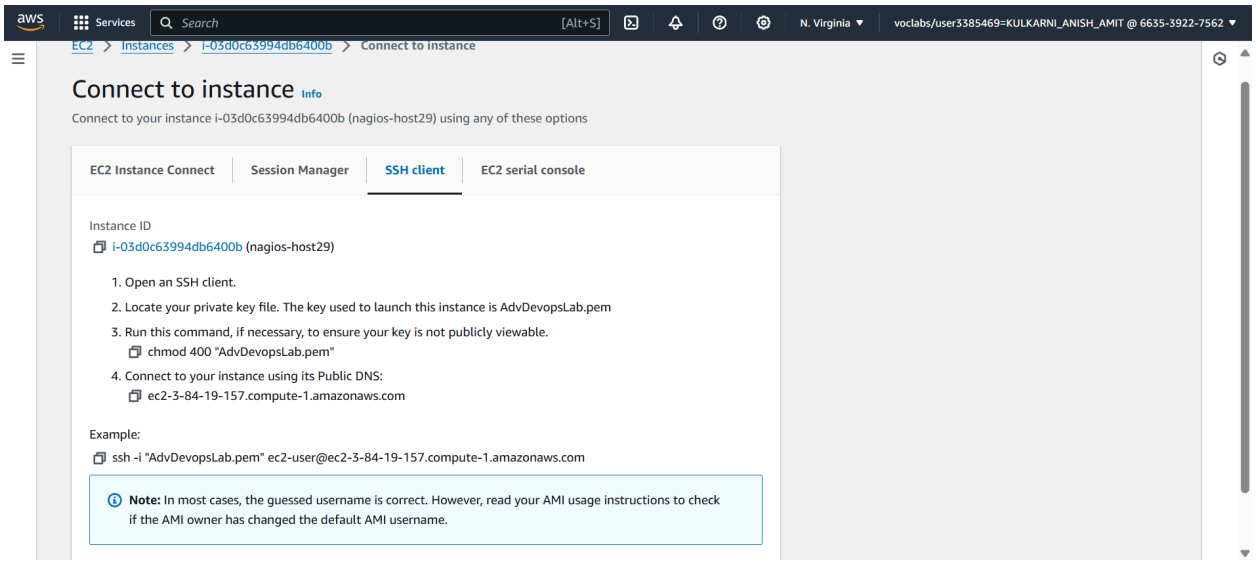




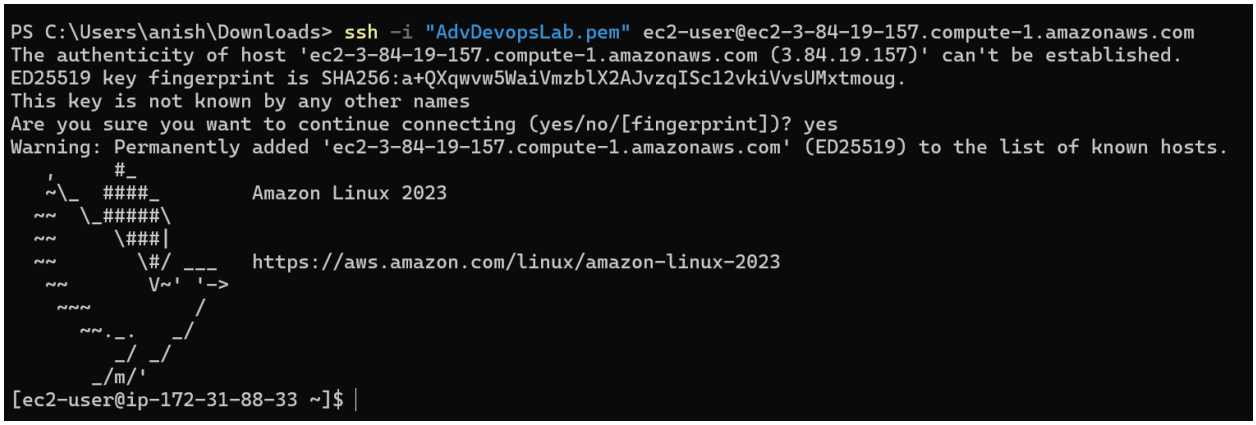


Your instance gets created.

Step 3: Click on the instance ID of your instance and click on ‘Connect’. Then, click on ‘SSH client’ and copy the command under ‘Example’.

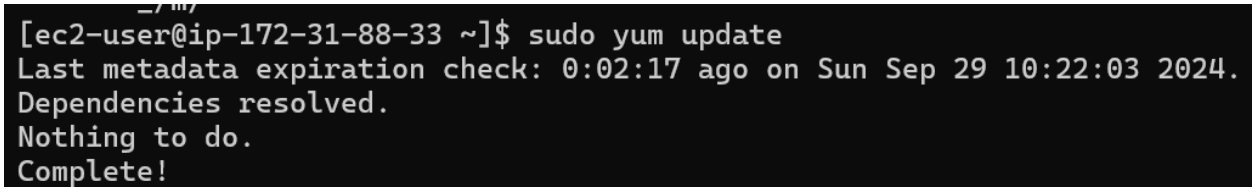


Step 4: Now, we need to connect our local terminal to the instance using SSH. To do so, open the terminal in the folder where the .pem file for your instance’s key pair is located and paste the SSH command that you copied in Step 3.



This connects your instance to your local terminal using SSH.

Step 5: First, run the following command:-
sudo yum update
This command will check for any updates for the YUM library.



Step 6: Run the command:
sudo yum install httpd php
This installs an Apache server and a PHP on your instance.

```
[ec2-user@ip-172-31-88-33 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:04:36 ago on Sun Sep 29 10:22:03 2024.
Dependencies resolved.
================================================================================
 Package                 Architecture    Version                     Repository          Size
================================================================================
Installing:
 httpd                   x86_64          2.4.62-1.amzn2023           amazonlinux         48 k
 php8.3                  x86_64          8.3.10-1.amzn2023.0.1       amazonlinux         10 k
Installing dependencies:
 apr                     x86_64          1.7.2-2.amzn2023.0.2        amazonlinux        129 k
 apr-util                x86_64          1.6.3-1.amzn2023.0.1        amazonlinux         98 k
 generic-logos-httpd     noarch          18.0.0-12.amzn2023.0.3      amazonlinux         19 k
 httpd-core              x86_64          2.4.62-1.amzn2023           amazonlinux        1.4 M
 httpd-filesystem        noarch          2.4.62-1.amzn2023           amazonlinux         14 k
 httpd-tools             x86_64          2.4.62-1.amzn2023           amazonlinux         81 k
 libbrotli               x86_64          1.0.9-4.amzn2023.0.2        amazonlinux        315 k
 libsodium               x86_64          1.0.19-4.amzn2023           amazonlinux        176 k
 libxslt                 x86_64          1.1.34-5.amzn2023.0.2       amazonlinux        241 k
 mailcap                 noarch          2.1.49-3.amzn2023.0.3       amazonlinux         33 k
 nginx-filesystem        noarch          1:1.24.0-1.amzn2023.0.4     amazonlinux        9.8 k
```

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

Complete!
```

Step 7: Run the command:
sudo yum install gcc glibc glibc-common
This installs the C/C++ compiler (GCC) along with the necessary C libraries required for compiling and running C programs.

```
[ec2-user@ip-172-31-88-33 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:05:41 ago on Sun Sep 29 10:22:03 2024.
Package glibc-2.34-52.amzn2023.0.11.x86_64 is already installed.
Package glibc-common-2.34-52.amzn2023.0.11.x86_64 is already installed.
Dependencies resolved.
================================================================================
 Package                 Architecture    Version                     Repository          Size
================================================================================
Installing:
 gcc                     x86_64          11.4.1-2.amzn2023.0.2       amazonlinux         32 M
Installing dependencies:
 annobin-docs            noarch          10.93-1.amzn2023.0.1        amazonlinux         92 k
 annobin-plugin-gcc      x86_64          10.93-1.amzn2023.0.1        amazonlinux        887 k
 cpp                     x86_64          11.4.1-2.amzn2023.0.2       amazonlinux         10 M
 gc                      x86_64          8.0.4-5.amzn2023.0.2        amazonlinux        105 k
 glibc-devel             x86_64          2.34-52.amzn2023.0.11       amazonlinux         27 k
 glibc-headers-x86       noarch          2.34-52.amzn2023.0.11       amazonlinux        427 k
 guile22                 x86_64          2.2.7-2.amzn2023.0.3        amazonlinux        6.4 M
 kernel-headers          x86_64          6.1.109-118.189.amzn2023    amazonlinux        1.4 M
 libmpc                  x86_64          1.2.1-2.amzn2023.0.2        amazonlinux         62 k
 libtool-ltdl            x86_64          2.4.7-1.amzn2023.0.3        amazonlinux         38 k
 libxcrypt-devel         x86_64          4.4.33-7.amzn2023           amazonlinux         32 k
 make                    x86_64          1:4.3-5.amzn2023.0.2        amazonlinux        534 k

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

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

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

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

```
[ec2-user@ip-172-31-88-33 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:06:51 ago on Sun Sep 29 10:22:03 2024.
Dependencies resolved.
================================================================================
 Package                 Architecture    Version                 Repository    Size
================================================================================
Installing:
 gd                      x86_64          2.3.3-5.amzn2023.0.3    amazonlinux  139 k
 gd-devel                x86_64          2.3.3-5.amzn2023.0.3    amazonlinux   38 k
Installing dependencies:
 brotli                  x86_64          1.0.9-4.amzn2023.0.2    amazonlinux  314 k
 brotli-devel            x86_64          1.0.9-4.amzn2023.0.2    amazonlinux   31 k
 bzip2-devel             x86_64          1.0.8-6.amzn2023.0.2    amazonlinux  214 k
 cairo                   x86_64          1.17.6-2.amzn2023.0.1   amazonlinux  684 k
 cmake-filesystem        x86_64          3.22.2-1.amzn2023.0.4   amazonlinux   16 k
 fontconfig              x86_64          2.13.94-2.amzn2023.0.2  amazonlinux  273 k
 fontconfig-devel        x86_64          2.13.94-2.amzn2023.0.2  amazonlinux  128 k
 fonts-filesystem        noarch          1:2.0.5-12.amzn2023.0.2 amazonlinux  9.5 k
 freetype                x86_64          2.13.2-5.amzn2023.0.1   amazonlinux  423 k
 freetype-devel          x86_64          2.13.2-5.amzn2023.0.1   amazonlinux  912 k
```

```
  libffi-devel-3.4.4-1.amzn2023.0.1.x86_64                libicu-67.1-7.amzn2023.0.3.x86_64
  libicu-devel-67.1-7.amzn2023.0.3.x86_64                 libjpeg-turbo-2.1.4-2.amzn2023.0.5.x86_64
  libjpeg-turbo-devel-2.1.4-2.amzn2023.0.5.x86_64         libmount-devel-2.37.4-1.amzn2023.0.4.x86_64
  libpng-2:1.6.37-10.amzn2023.0.6.x86_64                  libpng-devel-2:1.6.37-10.amzn2023.0.6.x86_64
  libselinux-devel-3.4-5.amzn2023.0.2.x86_64              libsepol-devel-3.4-3.amzn2023.0.3.x86_64
  libtiff-4.4.0-4.amzn2023.0.18.x86_64                    libtiff-devel-4.4.0-4.amzn2023.0.18.x86_64
  libwebp-1.2.4-1.amzn2023.0.6.x86_64                     libwebp-devel-1.2.4-1.amzn2023.0.6.x86_64
  libxcb-1.13.1-7.amzn2023.0.2.x86_64                     libxcb-devel-1.13.1-7.amzn2023.0.2.x86_64
  libxml2-devel-2.10.4-1.amzn2023.0.6.x86_64              pcre2-devel-10.40-1.amzn2023.0.3.x86_64
  pcre2-utf16-10.40-1.amzn2023.0.3.x86_64                 pcre2-utf32-10.40-1.amzn2023.0.3.x86_64
  pixman-0.40.0-3.amzn2023.0.3.x86_64                     sysprof-capture-devel-3.40.1-2.amzn2023.0.2.x86_64
  xml-common-0.6.3-56.amzn2023.0.2.noarch                 xorg-x11-proto-devel-2021.4-1.amzn2023.0.2.noarch
  xz-devel-5.2.5-9.amzn2023.0.2.x86_64                    zlib-devel-1.2.11-33.amzn2023.0.5.x86_64

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

Step 9: Run the commands:
sudo adduser -m nagios
sudo passwd nagios
This creates a user named ‘nagios’, ensures it has a home directory and sets up a password for it.

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

Step 10: Create a user group named ‘nagcmd’ to execute nagios commands.
sudo groupadd nagcmd

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

Step 11: Add users apache and nagios to this user group.
sudo usermod -a -G nagcmd nagios
sudo usermod -a -G nagcmd apache

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

Step 12: mkdir ~/downloads
cd ~/downloads
This creates a directory named ‘downloads’, to store the files of the nagios server that are downloaded.

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

Step 13: wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz
The above command installs the latest version of nagios-core.

```
[ec2-user@ip-172-31-88-33 downloads]$ wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz
--2024-09-29 10:33:56--  https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz
Resolving assets.nagios.com (assets.nagios.com)... 45.79.49.120, 2600:3c00::f03c:92ff:fef7:45ce
Connecting to assets.nagios.com (assets.nagios.com)|45.79.49.120|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2065473 (2.0M) [application/x-gzip]
Saving to: ‘nagios-4.5.5.tar.gz’

nagios-4.5.5.tar.gz          100%[=================================================>]   1.97M  8.29MB/s    in 0.2s

2024-09-29 10:33:57 (8.29 MB/s) - ‘nagios-4.5.5.tar.gz’ saved [2065473/2065473]
```

Step 14: wget https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz
The above command installs the latest version of nagios-plugins.

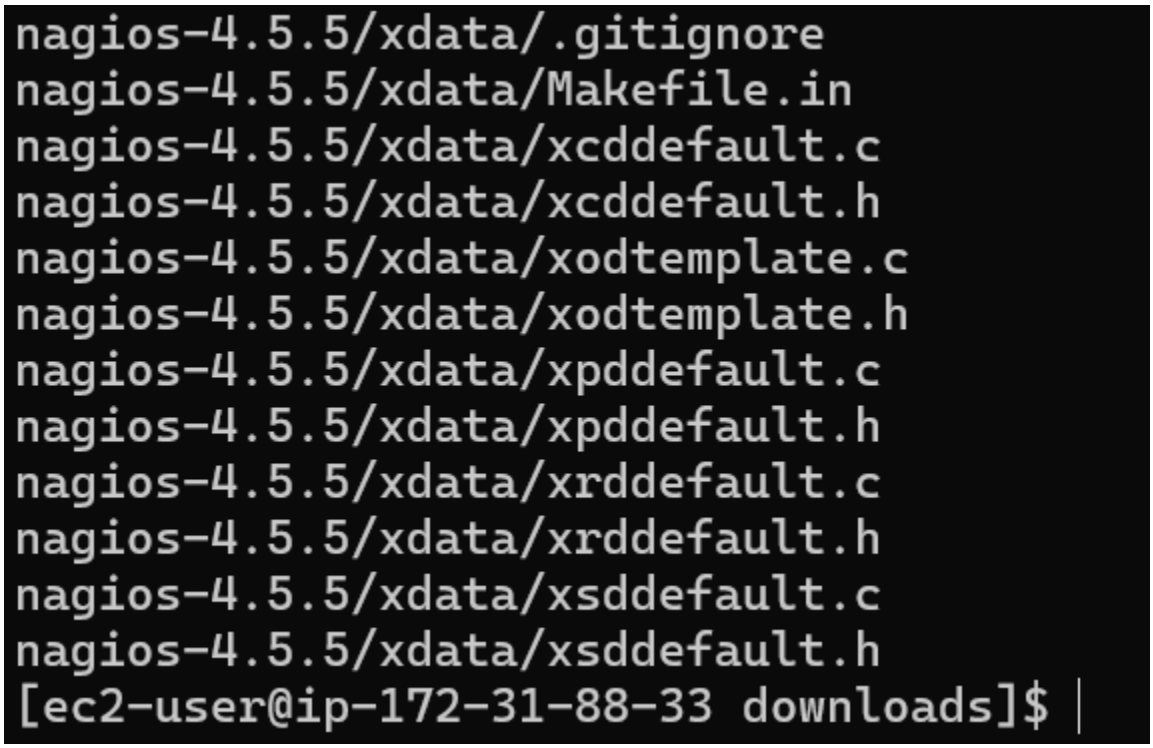
```
[ec2-user@ip-172-31-88-33 downloads]$ wget https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz
--2024-09-29 10:34:29--  https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz
Resolving nagios-plugins.org (nagios-plugins.org)... 45.56.123.251
Connecting to nagios-plugins.org (nagios-plugins.org)|45.56.123.251|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2753049 (2.6M) [application/x-gzip]
Saving to: ‘nagios-plugins-2.4.11.tar.gz’

nagios-plugins-2.4.11.tar.gz  100%[=================================================>]   2.62M  9.99MB/s    in 0.3s

2024-09-29 10:34:30 (9.99 MB/s) - ‘nagios-plugins-2.4.11.tar.gz’ saved [2753049/2753049]
```

Step 15: tar zxvf nagios-4.5.5.tar.gz
This extracts the nagios-core files into the same directory using the tar command.

```
[ec2-user@ip-172-31-88-33 downloads]$  tar zxvf nagios-4.5.5.tar.gz
nagios-4.5.5/
nagios-4.5.5/.github/
nagios-4.5.5/.github/workflows/
nagios-4.5.5/.github/workflows/test.yml
nagios-4.5.5/.gitignore
nagios-4.5.5/CONTRIBUTING.md
nagios-4.5.5/Changelog
nagios-4.5.5/INSTALLING
nagios-4.5.5/LEGAL
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
```



Step 16: ./configure --with-command-group=nagcmd
This command ensures that Nagios uses a specific group (in this case, nagcmd) for executing external commands.

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

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

Use ‘ls’ command to find the correct directory.

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

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

```
[ec2-user@ip-172-31-88-33 downloads]$ cd nagios-4.5.5
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ ./configure --with-command-group=nagcmd
checking for a BSD-compatible install... /usr/bin/install -c
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether the compiler supports GNU C... yes
checking whether gcc accepts -g... yes
checking for gcc option to enable C11 features... none needed
checking whether make sets $(MAKE)... yes
checking whether ln -s works... yes
checking for strip... /usr/bin/strip
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for stdio.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for inttypes.h... yes
checking for unsetenv... yes
checking for type of socket size... size_t
checking for Kerberos include files... configure: WARNING: could not find include files
checking for pkg-config... pkg-config
checking for SSL headers... configure: error: Cannot find ssl headers
```

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

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

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ sudo yum install openssl-devel
Last metadata expiration check: 0:35:17 ago on Sun Sep 29 10:22:03 2024.
Dependencies resolved.
================================================================================
 Package                 Architecture        Version                    Repository                Size
================================================================================
Installing:
 openssl-devel           x86_64              1:3.0.8-1.amzn2023.0.14    amazonlinux              3.0 M

Transaction Summary
================================================================================
Install  1 Package

Total download size: 3.0 M
Installed size: 4.7 M
Is this ok [y/N]: y
Downloading Packages:
openssl-devel-3.0.8-1.amzn2023.0.14.x86_64.rpm                  26 MB/s | 3.0 MB     00:00
--------------------------------------------------------------------------------
Total                                                           16 MB/s | 3.0 MB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                        1/1
  Installing       : openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64           1/1
  Running scriptlet: openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64           1/1
  Verifying        : openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64           1/1
```

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

Complete!
```

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

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ ./configure --with-command-group=nagcmd
checking for a BSD-compatible install... /usr/bin/install -c
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether the compiler supports GNU C... yes
checking whether gcc accepts -g... yes
checking for gcc option to enable C11 features... none needed
checking whether make sets $(MAKE)... yes
checking whether ln -s works... yes
checking for strip... /usr/bin/strip
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for stdio.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
```

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

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


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

Step 17: Next, we must compile all components of this software according to the instructions in the Makefile. To do so, use the following command:
make all
Then,
sudo make install
sudo make install-init
sudo make install-config
sudo make install-commandmode

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ make all
cd ./base && make
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/base'
gcc -Wall -I.. -I. -I../lib -I../include  -I../include -I..  -g -O2  -DHAVE_CONFIG_H -DNSCORE -c -o nagios.o ./nagios.c
gcc -Wall -I.. -I. -I../lib -I../include  -I../include -I..  -g -O2  -DHAVE_CONFIG_H -DNSCORE -c -o broker.o broker.c
gcc -Wall -I.. -I. -I../lib -I../include  -I../include -I..  -g -O2  -DHAVE_CONFIG_H -DNSCORE -c -o nebmods.o nebmods.c
gcc -Wall -I.. -I. -I../lib -I../include  -I../include -I..  -g -O2  -DHAVE_CONFIG_H -DNSCORE -c -o ../common/shared.o .
./common/shared.c
gcc -Wall -I.. -I. -I../lib -I../include  -I../include -I..  -g -O2  -DHAVE_CONFIG_H -DNSCORE -c -o query-handler.o quer
y-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
```

```
If you have questions about configuring or running Nagios,
please make sure that you:

     - Look at the sample config files
     - Read the documentation on the Nagios Library at:
          https://library.nagios.com

before you post a question to one of the mailing lists.
Also make sure to include pertinent information that could
help others help you.  This might include:

     - What version of Nagios you are using
     - What version of the plugins you are using
     - Relevant snippets from your config files
     - Relevant error messages from the Nagios log file

For more information on obtaining support for Nagios, visit:

       https://support.nagios.com

************************************************************

Enjoy.

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

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

*** Config files installed ***

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

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

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

Step 18: We need to update the email linked with this server to our email for it to send notifications (if any needed).
sudo nano /usr/local/nagios/etc/objects/contacts.cfg

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


##############################################################################
#
# CONTACTS
#
##############################################################################

# Just one contact defined by default - the Nagios admin (that's you)
# This contact definition inherits a lot of default values from the
# 'generic-contact' template which is defined elsewhere.

define contact {

    contact_name            nagiosadmin             ; Short name of user
    use                     generic-contact         ; Inherit default values from generic-contact template (defined abo>
    alias                   Nagios Admin            ; Full name of user
    email                   2022.anish.kulkarni@ves.ac.in ; <<***** CHANGE THIS TO YOUR EMAIL ADDRESS ******
}



##############################################################################
#
# CONTACT GROUPS
#

^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location    M-U Undo       M-A Set Mark
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo       M-6 Copy
```

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

Step 19: sudo make install-webconf
This installs the necessary configuration files for the Nagios web interface.

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ sudo make install-webconf
/usr/bin/install -c -m 644 sample-config/httpd.conf /etc/httpd/conf.d/nagios.conf
if [ 0 -eq 1 ]; then \
        ln -s /etc/httpd/conf.d/nagios.conf /etc/apache2/sites-enabled/nagios.conf; \
fi

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

Step 20: sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
This creates a user named ‘nagiosadmin’ to access the nagios web interface. Create a password and keep it in mind as it will be required in the future steps.

```
[ec2-user@ip-172-31-88-33 nagios-4.5.5]$ sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
```

Step 21: Restart the apache server to apply all the recent configurations.
sudo service httpd restart

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

Step 22: cd ~/downloads
tar zxvf nagios-plugins-2.4.11.tar.gz
This changes the directory to the ‘downloads’ directory and extracts the files for nagios-plugins.

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

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

Step 23: cd nagios-plugins-2.4.11
./configure --with-nagios-user=nagios --with-nagios-group=nagios
This installs the configurations for the nagios-plugins files.

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

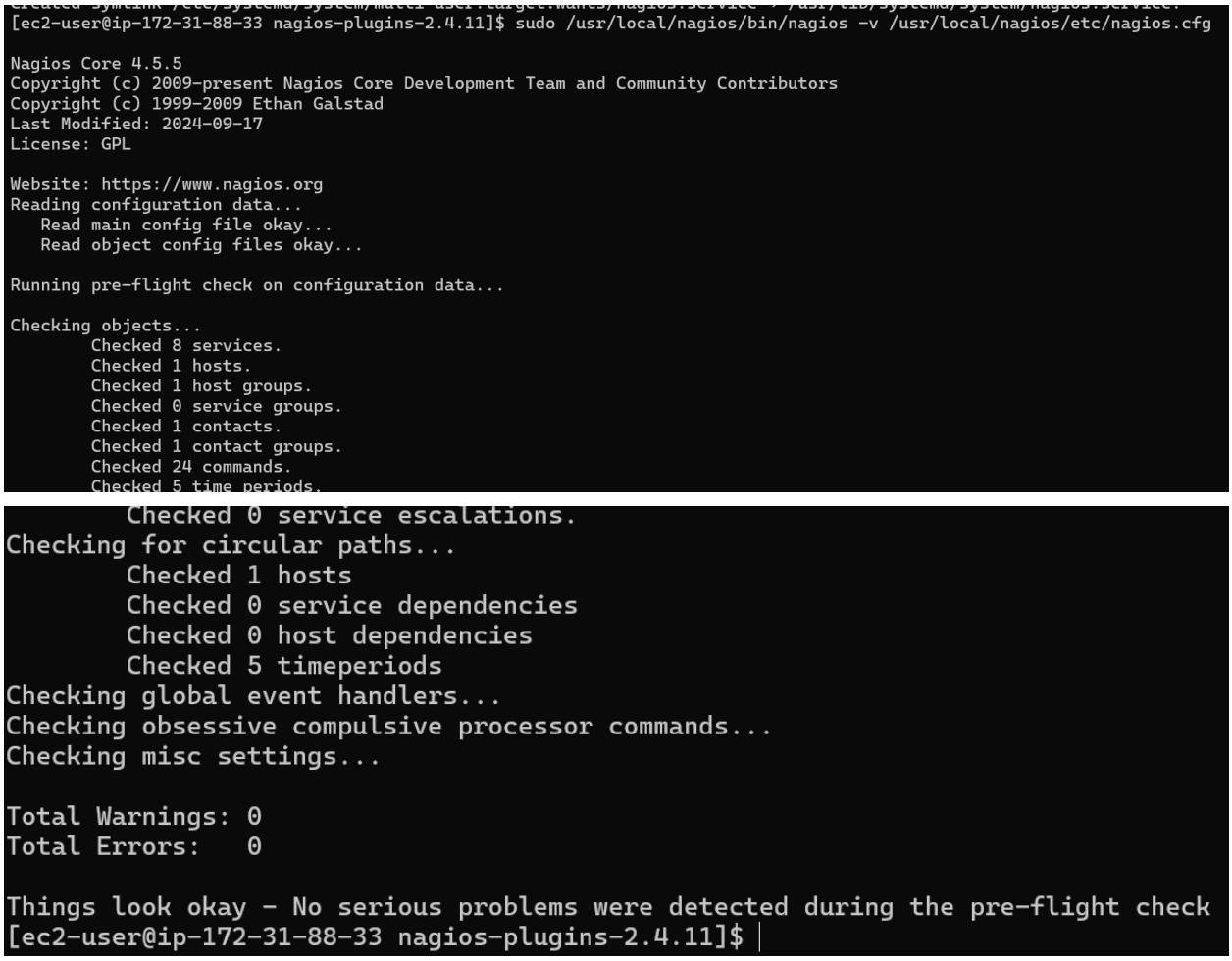
Step 24: Next, we must compile all components of this software according to the instructions in the Makefile. To do so, use the following commands:
make
sudo make install

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

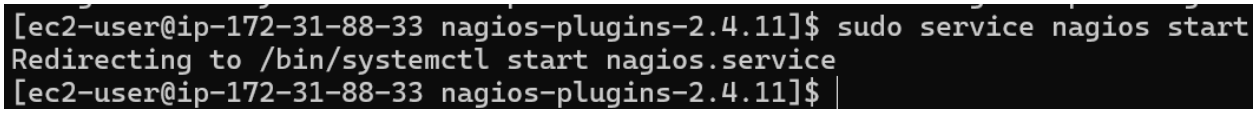
Step 25: sudo chkconfig --add nagios
sudo chkconfig nagios on
This registers the Nagios service with the system ensuring that it can manage the server status.

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

Step 26: sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg
This command checks and verifies that the sample configuration files has no errors.



Step 27: sudo service nagios start
This starts the Nagios service.



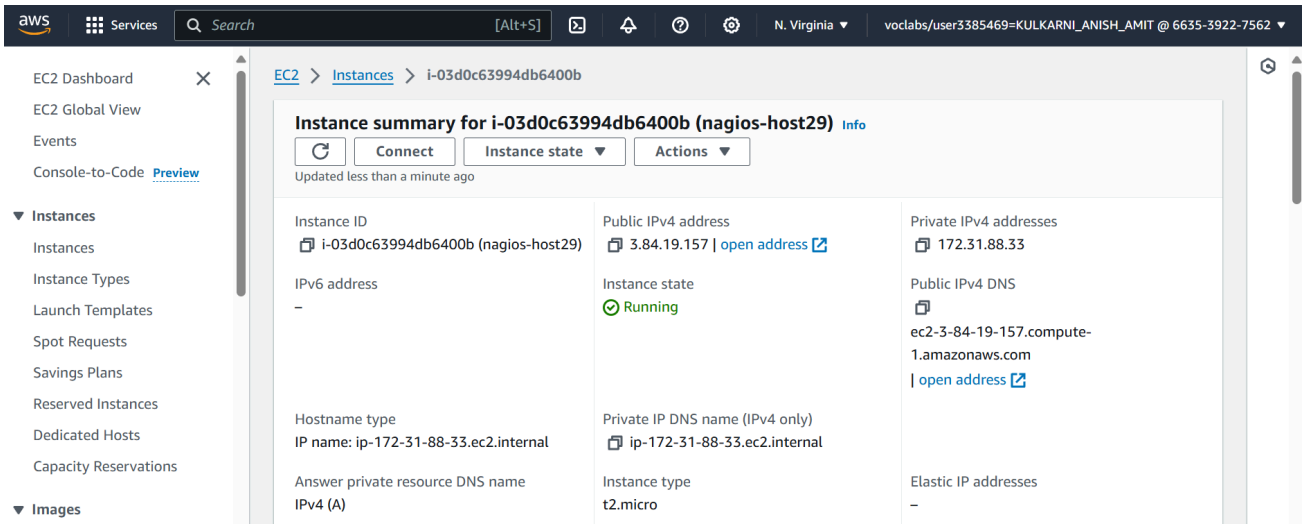
Step 28: sudo systemctl status nagios

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

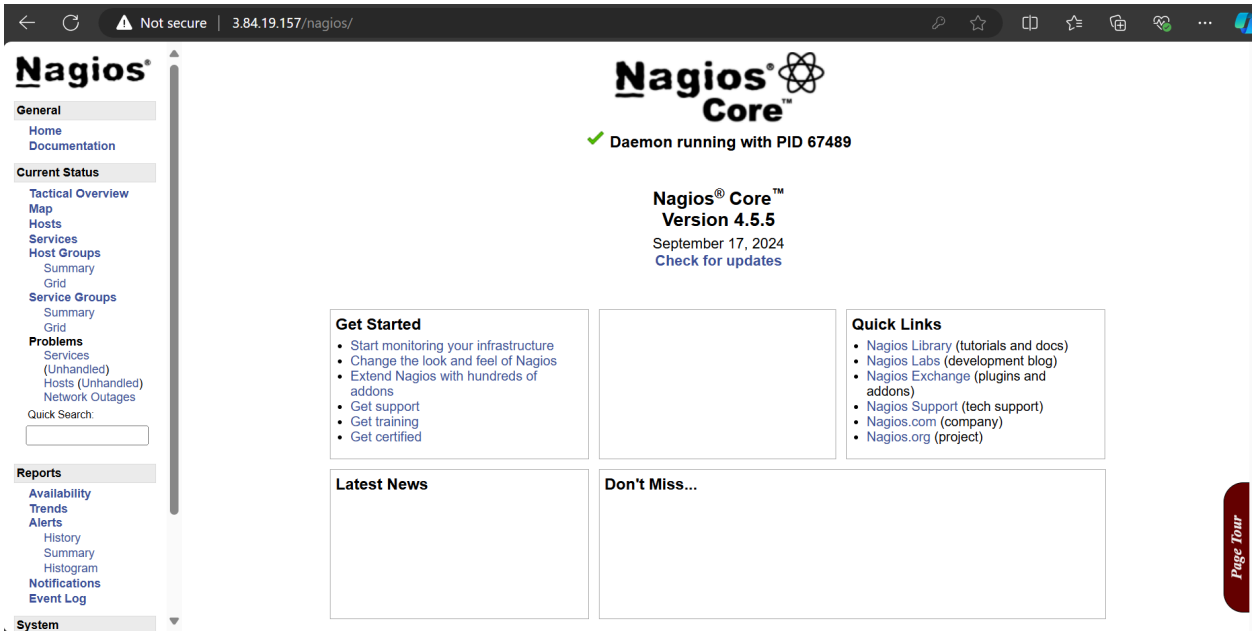
```
[ec2-user@ip-172-31-88-33 nagios-plugins-2.4.11]$ sudo systemctl status nagios
● nagios.service - Nagios Core 4.5.5
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: disabled)
     Active: active (running) since Sun 2024-09-29 11:25:40 UTC; 2min 3s ago
       Docs: https://www.nagios.org/documentation
    Process: 67487 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0>
    Process: 67488 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SU>
   Main PID: 67489 (nagios)
      Tasks: 6 (limit: 1112)
     Memory: 6.1M
        CPU: 122ms
     CGroup: /system.slice/nagios.service
             ├─67489 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─67490 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─67491 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─67492 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─67493 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─67494 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

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

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



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



The above page is visible.

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