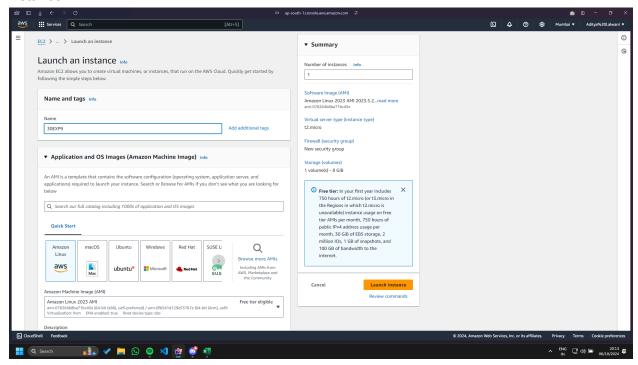
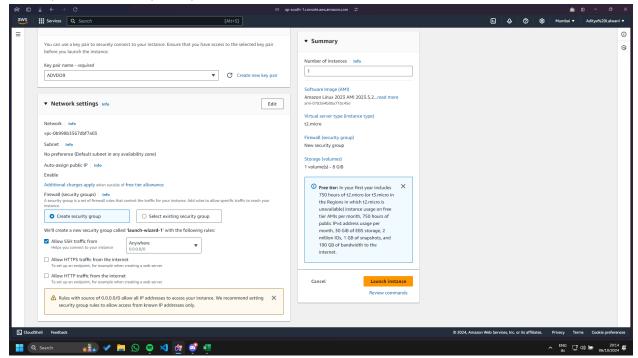
Login to your AWS account. Search for EC2 on services. Open the interface and click on Create Instance.

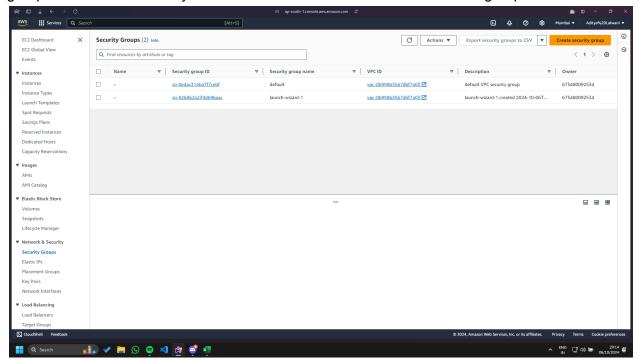


Select The OS Image as Amazon Linux.

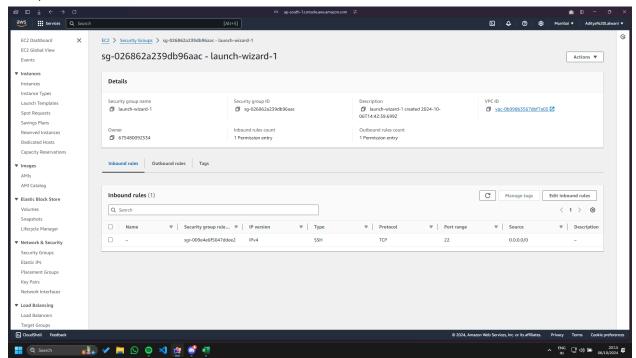
If you do not have a private key created or a .pem file created, click on create a key pair. Else select the key pair that you had created before. (Make sure you know where the .pem file for that key is present on your system)



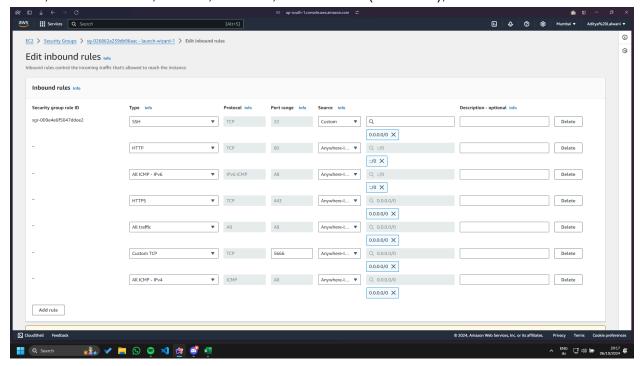
AWS will create a security group for this instance. Keep the name of that instance saved. After creating the instance, click on Security Groups from the left side pane. Find the security group that was created for your instance. Click on the instance ID for that group.



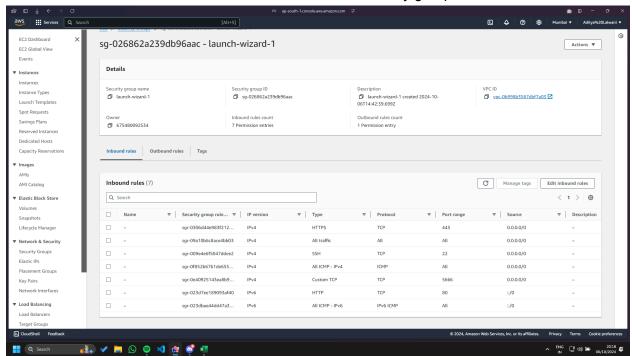
Here, click on Edit Inbound Rules.



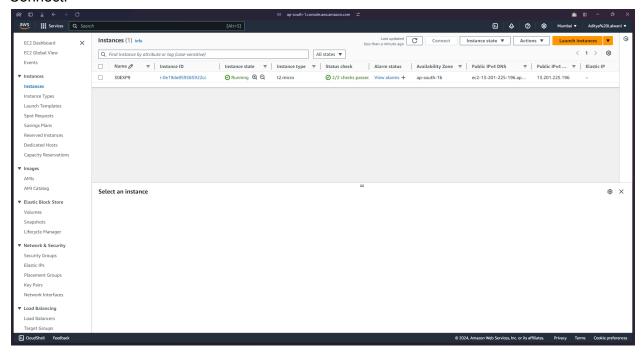
Now, click on add rules, and add the rules for the following protocols: HTTP, All ICMP - IPv6, HTTPS, All traffic, Custom TCP (Port 5666), All ICMP - IPv4



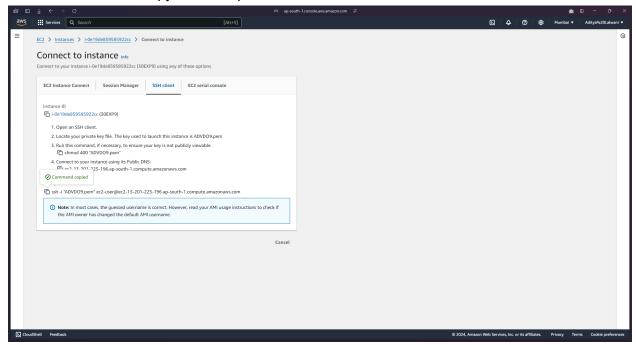
Click on save. This will add all the inbound rules to the security group.



Now come back to the instances screen. Click on the instance ID of your instance. Then click on Connect.



Click on SSH client. Copy the example command.



Step 5: Now, we have to connect our local OS terminal to the instance using SSH. For this,

Open terminal where the private key file is located (.pem) Paste the copied SSH command and run it.

Now we start working on this terminal. First run the command sudo yum update

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

```
[ec2-user@ip-172-31-11-56 ~]$ sudo yum update
Last metadata expiration check: 0:00:55 ago on Sun Oct 6 15:30:26 2024.
Dependencies resolved.
Nothing to do.
Complete!
```

We are going to install an Apache server and a PHP on this instance. For that, run this command.

sudo yum install httpd php

```
[ec2-user@ip-172-31-11-56 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:01:09 ago on Sun Oct 6 15:30:26 2024.
Dependencies resolved.
 Package
                                  Architecture
                                                     Version
                                                                                            Repository
                                                                                                                      Size
Installing:
                                  x86_64
                                                     2.4.62-1.amzn2023
                                                                                            amazonlinux
                                                                                                                      48 k
                                 x86_64
                                                     8.3.10-1.amzn2023.0.1
                                                                                            amazonlinux
                                                                                                                      10 k
Installing dependencies:
                                                                                                                     129 k
                                  x86 64
                                                     1.7.2-2.amzn2023.0.2
                                                                                            amazonlinux
 apr-util
                                                     1.6.3-1.amzn2023.0.1
                                  x86 64
                                                                                                                      98 k
                                                                                            amazonlinux
  eneric-logos-httpd
                                 noarch
                                                     18.0.0-12.amzn2023.0.3
                                                                                            amazonlinux
```

```
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
                                                               libsodium-1.0.19-4.amzn2023.x86_64
  libbrotli-1.0.9-4.amzn2023.0.2.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
                                                               php8.3-8.3.10-1.amzn2023.0.1.x86_64
  nginx-filesystem-1:1.24.0-1.amzn2023.0.4.noarch
  php8.3-cli-8.3.10-1.amzn2023.0.1.x86_64
                                                               php8.3-common-8.3.10-1.amzn2023.0.1.x86_64
                                                              php8.3-mbstring-8.3.10-1.amzn2023.0.1.x86_64
php8.3-pdo-8.3.10-1.amzn2023.0.1.x86_64
  php8.3-fpm-8.3.10-1.amzn2023.0.1.x86_64
  php8.3-opcache-8.3.10-1.amzn2023.0.1.x86_64
  php8.3-process-8.3.10-1.amzn2023.0.1.x86_64
                                                               php8.3-sodium-8.3.10-1.amzn2023.0.1.x86_64
  php8.3-xml-8.3.10-1.amzn2023.0.1.x86_64
Complete!
[ec2-user@ip-172-31-11-56 ~]$
```

Next we install C/C++ compiler (GCC) along with the necessary C libraries required for compiling and running C programs. Use the following command. sudo yum install gcc glibc glibc-common

[ec2-user@ip-172-31-11-56 ~]\$ sudo yum install gcc glibc glibc-common Last metadata expiration check: 0:01:48 ago on Sun Oct 6 15:30:26 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				
срр	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				
Installed: annobin-docs-10.93-1.amzn2023.0.1.noarch cpp-11.4.1-2.amzn2023.0.2.x86_64 gc-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 kernel-headers-6.1.109-118.189.amzn2023.x86_64 libtool-ltdl-2.4.7-1.amzn2023.0.3.x86_64 libtc-ypt-devel-4.4.33-7.amzn2023.x86_64								

We would also need GD library and its development tools. For that, run this command sudo yum install gd gd-devel

make-1:4.3-5.amzn2023.0.2.x86_64

[ec2-user@ip-172-31-11-56 ~]\$

```
[ec2-user@ip-172-31-11-56 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:02:29 ago on Sun Oct 6 15:30:26 2024.
Dependencies resolved.
 Package
                                          Architecture
                                                             Version
                                                                                                         Repository
                                                                                                                                   Size
Installing:
                                                                                                                                  139 k
                                                              2.3.3-5.amzn2023.0.3
                                                                                                         amazonlinux
                                                             2.3.3-5.amzn2023.0.3
                                          x86_64
                                                                                                         amazonlinux
                                                                                                                                   38 k
Installing dependencies:
                                          x86_64
                                                             1.0.9-4.amzn2023.0.2
                                                                                                         amazonlinux
                                                                                                                                  314 k
                                                             1.0.9-4.amzn2023.0.2
                                          x86_64
x86_64
                                                                                                                                   31 k
                                                                                                         amazonlinux
  ozip2-devel
                                                              1.0.8-6.amzn2023.0.2
                                                                                                         amazonlinux
                                                                                                                                  214 k
  libpng-2:1.6.37-10.amzn2023.0.6.x86_64
libselinux-devel-3.4-5.amzn2023.0.2.x86_64
                                                                        libpng-devel-2:1.6.37-10.amzn2023.0.6.x86_64
                                                                       libsepol-devel-3.4-3.amzn2023.0.3.x86_64
  libtiff-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
libxcb-1.13.1-7.amzn2023.0.2.x86_64
libxml2-devel-2.10.4-1.amzn2023.0.6.x86_64
                                                                       libwebp-devel-1.2.4-1.amzn2023.0.6.x86_64
libxcb-devel-1.13.1-7.amzn2023.0.2.x86_64
                                                                       pcre2-devel-10.40-1.amzn2023.0.3.x86_64
  pcre2-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
                                                                       xorg-x11-proto-devel-2021.4-1.amzn2023.0.2.noarch
  xml-common-0.6.3-56.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-172-31-11-56 ~]$|
```

Now, we create a user called as 'nagios' and make sure that it has a home directory, and set up a password for it.

sudo adduser -m nagios sudo passwd nagios

```
[ec2-user@ip-172-31-11-56 ~]$ sudo adduser -m nagios sudo passwd nagios
Changing password for user nagios.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[ec2-user@ip-172-31-11-56 ~]$
```

Create a user group called as 'nagcmd' to execute nagios commands. sudo groupadd nagcmd

```
[ec2-user@ip-172-31-11-56 ~]$ sudo groupadd nagcmd
```

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

```
[ec2-user@ip-172-31-11-56 ~]$ sudo usermod -a -G nagcmd nagios sudo usermod -a -G nagcmd apache
```

We create a directory downloads, to store the files of nagios server that are downloaded. mkdir ~/downloads

cd ~/downloads

```
[ec2-user@ip-172-31-11-56 ~]$ mkdir ~/downloads
```

Now we need to install the latest versions of nogios-core and nagios-plugins. Go to the respective websites and check whether a better version is available. If not run these commands. If newer versions are available, then right click on the download button \rightarrow Copy link address. Paste this link address in place of the current link in command.

wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz

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

Now, we need to extract nagios-core file into the same directory. For that, we will use tar command.

tar zxvf nagios-4.5.5.tar.gz

```
[ec2-user@ip-172-31-11-56 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/LICENSE
nagios-4.5.5/LICENSE
nagios-4.5.5/README.md
nagios-4.5.5/README.md
nagios-4.5.5/THANKS
```

```
nagios-4.5.5/worker/ping/.gitignore
nagios-4.5.5/worker/ping/Makefile.in
nagios-4.5.5/worker/ping/worker-ping.c
nagios-4.5.5/xdata/
nagios-4.5.5/xdata/.gitignore
nagios-4.5.5/xdata/Makefile.in
nagios-4.5.5/xdata/xcddefault.c
nagios-4.5.5/xdata/xcddefault.h
nagios-4.5.5/xdata/xodtemplate.c
nagios-4.5.5/xdata/xodtemplate.h
nagios-4.5.5/xdata/xpddefault.c
nagios-4.5.5/xdata/xpddefault.h
nagios-4.5.5/xdata/xrddefault.c
nagios-4.5.5/xdata/xrddefault.h
nagios-4.5.5/xdata/xsddefault.c
nagios-4.5.5/xdata/xsddefault.h
[ec2-user@ip-172-31-7-70 downloads]$
```

We need to ensure that Nagios uses a specific group (in this case, nagcmd) for executing external commands.

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

```
[ec2-user@ip-172-31-11-56 downloads]$ ./configure --with-command-group=nagcmd -bash: ./configure: No such file or directory
```

Solution: Navigate to the nagios-4.5.5 folder in downloads.

Steps: Is

```
[ec2-user@ip-172-31-11-56 downloads]$ ls
nagios-4.5.5 nagios-4.5.5.tar.gz nagios-plugins-2.4.11.tar.gz
```

- cd nagios-4.5.5
- ./configure --with-command-group=nagcmd

```
checking for SSL headers... configure: error: Cannot find ssl headers
[ec2-user@ip-172-31-11-56 nagios-4.5.5]$
```

Steps:

sudo yum install openssl-devel

[ec2-user@ip-172-31-11-56 nagios-4.5.5]\$ sudo yum install openssl-devel Last metadata expiration check: 0:08:11 ago on Sun Oct 6 15:30:26 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				=====			

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

```
*** Configuration summary for nagios 4.5.5 2024-09-17 ***:
General Options:
       Nagios executable:
                           nagios
                           nagios, nagios
       Nagios user/group:
      Command user/group:
                           nagios, nagcmd
            Event Broker: yes
       Install ${prefix}: /usr/local/nagios
   Install ${includedir}: /usr/local/nagios/include/nagios
               Lock file: /run/nagios.lock
  Check result directory: /usr/local/nagios/var/spool/checkresults
          Init directory:
                           /lib/systemd/system
 Apache conf.d directory: /etc/httpd/conf.d
                           /bin/mail
            Mail program:
                 Host OS: linux-gnu
         IOBroker Method:
                           epoll
Web Interface Options:
                HTML URL: http://localhost/nagios/
                 CGI URL:
                           http://localhost/nagios/cgi-bin/
Traceroute (used by WAP): /usr/bin/traceroute
Review the options above for accuracy. If they look okay,
type 'make all' to compile the main program and CGIs.
[ec2-user@ip-172-31-11-56 nagios-4.5.5]$
```

We need to compile all components of this software according to the instruction in the Makefile. For that, use this command:

make all sudo make install sudo make install-init

sudo make install-config

sudo make install-commandmode

```
/usr/bin/install -c -b -m 660 -0 nagios -g nagios sample-contig/resource.ctg /usr/local/nagios/etc/resource.ctg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/templates.cfg /usr/local/nagios/etc/obje
cts/templates.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/commands.cfg /usr/local/nagios/etc/objec
ts/commands.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/contacts.cfg /usr/local/nagios/etc/objec
ts/contacts.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/timeperiods.cfg /usr/local/nagios/etc/ob
jects/timeperiods.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/localhost.cfg /usr/local/nagios/etc/obje
cts/localhost.cfg
/usr/bin/install´-c -b -m 664 -o nagios -g nagios sample-config/template-object/windows.cfg /usr/local/nagios/etc/object
s/windows.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/printer.cfg /usr/local/nagios/etc/object
s/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.
/usr/bin/install -c -m 775 -o nagios -g nagcmd -d /usr/local/nagios/var/rw
chmod g+s /usr/local/nagios/var/rw
*** External command directory configured ***
[ec2-user@ip-172-31-11-56 nagios-4.5.5]$ |
```

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

We need to install the necessary configuration files for the Nagios web interface. Run the following command.

sudo make install-webconf

Now we need to setup a user to access this nagios web interface. So we run this command to create a user called 'nagiosadmin'.

Keep this username and password saved as it is needed to login to the web interface. sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin

```
[ec2-user@ip-172-31-11-56 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-172-31-11-56 nagios-4.5.5]$ |
```

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

```
[ec2-user@ip-172-31-11-56 nagios-4.5.5]$ sudo service httpd restart Redirecting to /bin/systemctl restart httpd.service
```

Now we go back to the downloads folder and extract the files of nagios plugin. cd ~/downloads

tar zxvf nagios-plugins-2.4.11.tar.gz

```
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
[ec2-user@ip-172-31-11-56 downloads]$
```

we need to install the configurations for these files. cd nagios-plugins-2.4.11 ./configure --with-nagios-user=nagios --with-nagios-group=nagios

```
[ec2-user@ip-172-31-11-56 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 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
```

```
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-172-31-11-56 nagios-plugins-2.4.11]$
```

compile all components of this software according to the instruction in the Makefile. For that, use the commands:

make all

sudo make install

```
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-172-31-11-56 nagios-plugins-2.4.11]$
```

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

```
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:
Things look okay - No serious problems were detected during the pre-flight check
[ec2-user@ip-172-31-11-56 nagios-plugins-2.4.11]$
```

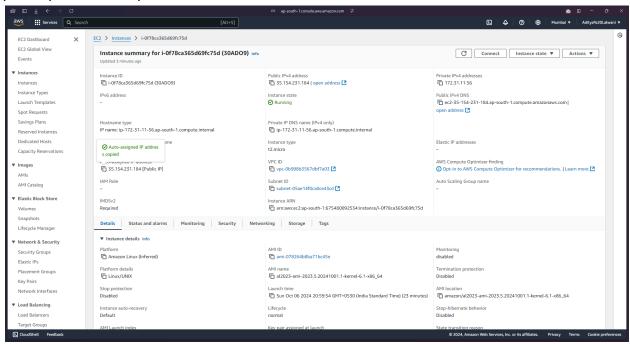
sudo service nagios start

```
[ec2-user@ip-172-31-11-56 nagios-plugins-2.4.11]$ sudo service nagios start Redirecting to /bin/systemctl start nagios.service [ec2-user@ip-172-31-11-56 nagios-plugins-2.4.11]$
```

sudo systemctl status nagios

```
[ec2-user@ip-172-31-11-56 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 2024-10-06 15:48:17 UTC; 2min 7s ago
        Docs: https://www.nagios.org/documentation
     Process: 64622 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0>Process: 64623 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SU>
    Main PID: 64624 (nagios)
       Tasks: 6 (limit: 1112)
      Memory: 6.1M
          CPU: 296ms
      CGroup: /system.slice/nagios.service
                  -64624 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
                  —64625 /usr/local/nagios/bin/nagios — worker /usr/local/nagios/var/rw/nagios.qh
—64626 /usr/local/nagios/bin/nagios — worker /usr/local/nagios/var/rw/nagios.qh
                  -64627 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
-64628 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                 L64629 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: qh: core query handler registered
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: qh: echo service query handler registered
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: qh: help for the query handler registered
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: wproc: Successfully registered manager as @w
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: wproc: Registry request: name=Core Worker 64
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: wproc: Registry request: name=Core Worker
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: wproc: Registry request: name=Core Worker 64
Oct 06 15:48:17 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: wproc: Registry request: name=Core Worker 64 Oct 06 15:48:19 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: Successfully launched command file worker wi
Oct 06 15:50:09 ip-172-31-11-56.ap-south-1.compute.internal nagios[64624]: SERVICE ALERT: localhost;HTTP;WARNING;SOFT;1
lines 1-28/28 (END)
```

Now, go to EC2 instance and click on instance id. Then, click on the copy icon just before the public ip address on public IP.



Open a new tab. In the address bar type http://<publicipaddress>/nagios. This would be in the output

