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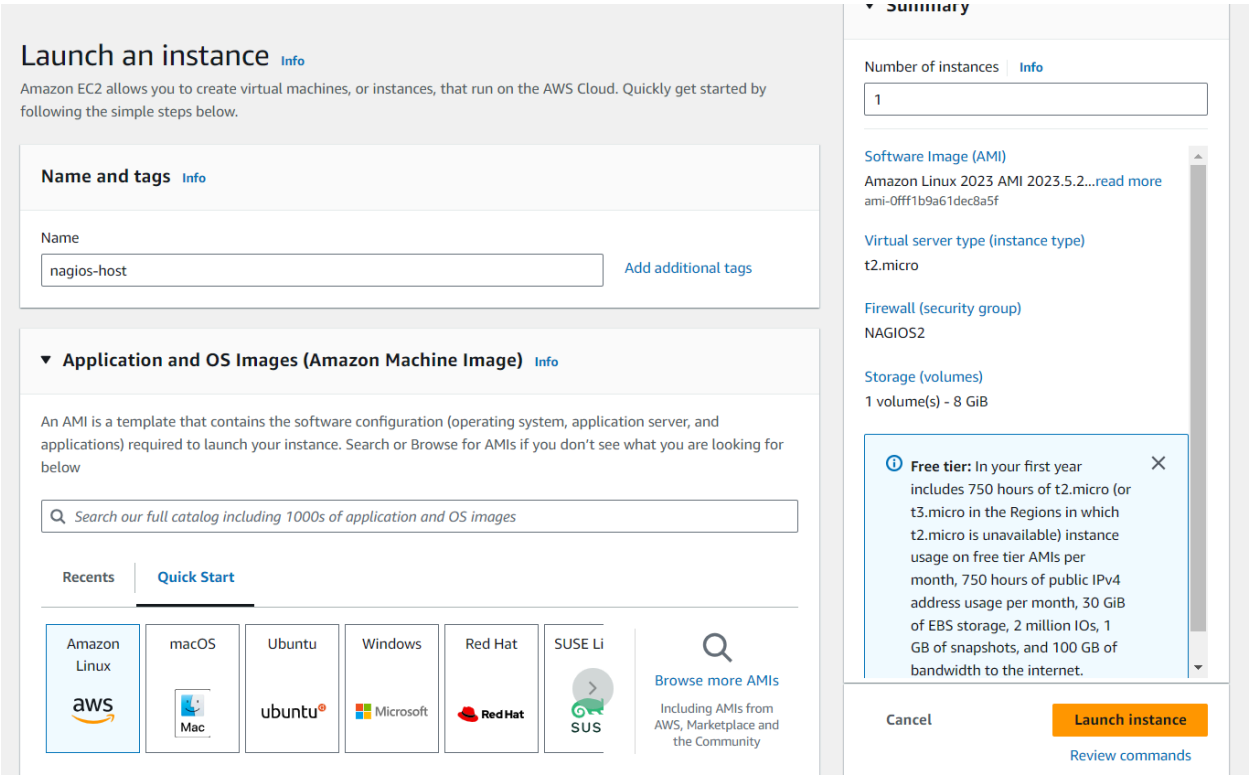
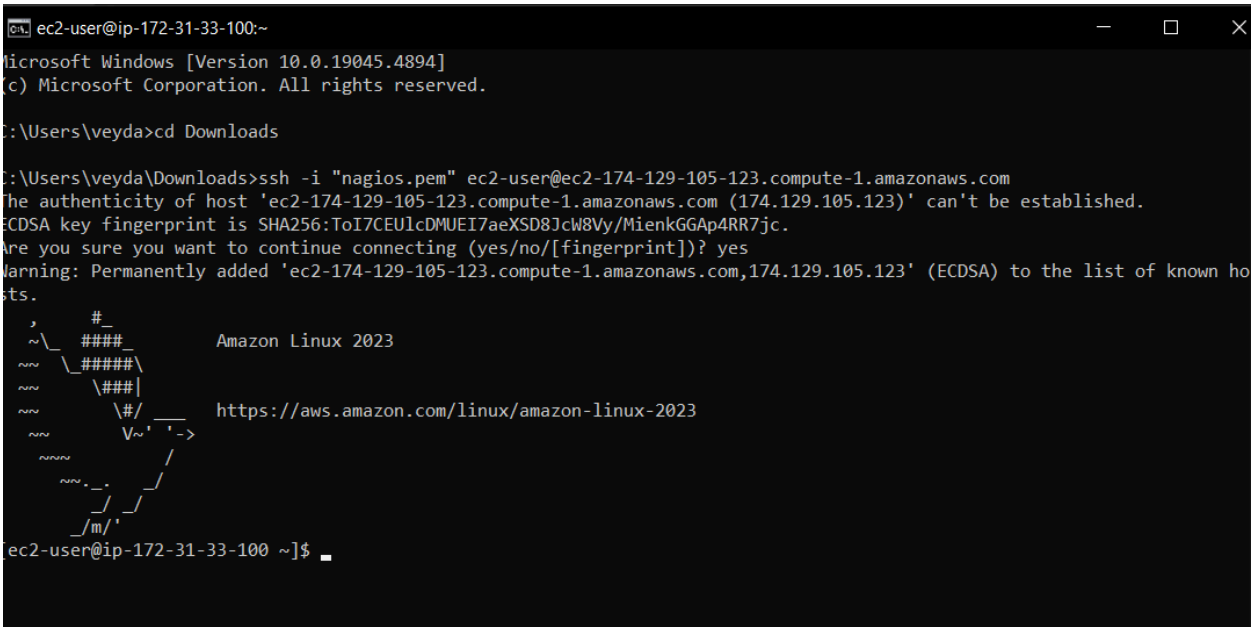
Experiment 9

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

Step 1: Create an ec2 instance, select amazon linux, t2.micro , select a key name and launch instance.



Step 2 : Connect to the instance using the SSH client, and copy and paste the command on the terminal



Step 3: First, run the following command:- sudo yum update This command will check for any updates for the YUM library.

```
[ec2-user@ip-172-31-35-21 ~]$ sudo yum update
Last metadata expiration check: 0:02:03 ago on Tue Oct  8 05:47:23 2024.
Dependencies resolved.
Nothing to do.
Complete!
```

Step 4: Run the command: sudo yum install httpd php This installs an Apache server and a PHP on your instance.

```
[ec2-user@ip-172-31-35-21 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:02:58 ago on Tue Oct  8 05:47:23 2024.
Dependencies resolved.
================================================================================
 Package                 Arch      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
```

Step 5: 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-172-31-35-21 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:03:21 ago on Tue Oct  8 05:47:23 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               Arch      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
```

Step 6: Run the command: sudo yum install gd gd-devel

```
[ec2-user@ip-172-31-35-21 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:03:44 ago on Tue Oct  8 05:47:23 2024.
Dependencies resolved.
================================================================================
 Package                   Arch     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
```

Step 7: Run the commands: sudo adduser -m nagios sudo passwd nagios

```
[ec2-user@ip-172-31-35-21 ~]$ sudo adduser -m nagios
[ec2-user@ip-172-31-35-21 ~]$ sudo passwd -m nagios
passwd: bad argument -m: unknown option
[ec2-user@ip-172-31-35-21 ~]$ sudo passwd nagios
Changing password for user nagios.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
```

```
[ec2-user@ip-172-31-35-21 ~]$ sudo usermod -a -G nagcmd nagios
[ec2-user@ip-172-31-35-21 ~]$ sudo usermod -a -G nagcmd apache
```

Step 10: mkdir ~/downloads cd ~/downloads This creates a directory named ‘downloads’, to store the files of the nagios server that are downloaded

```
[ec2-user@ip-172-31-35-21 ~]$ : mkdir ~/downloads
[ec2-user@ip-172-31-35-21 ~]$ cd ~/downloads
```

Step 11: wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.gz The above command installs the latest version of nagios-core
Step 12: 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-172-31-35-21 downloads]$ wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.5.tar.g
--2024-10-09 05:42:49--  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.1’

nagios-4.5.5.tar.gz.1        100%[=============================================>]   1.97M  5.56MB/s    in 0.4s

2024-10-09 05:42:50 (5.56 MB/s) - ‘nagios-4.5.5.tar.gz.1’ saved [2065473/2065473]

[ec2-user@ip-172-31-35-21 downloads]$ wget https://nagios-plugins.org/download/nagios-plugins-2.4.11.tar.gz
--2024-10-09 05:43:04--  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.1’

nagios-plugins-2.4.11.tar.gz. 100%[=============================================>]   2.62M  5.49MB/s    in 0.5s

2024-10-09 05:43:05 (5.49 MB/s) - ‘nagios-plugins-2.4.11.tar.gz.1’ saved [2753049/2753049]
```

Step 13:
tar zxvf nagios-4.5.5.tar.gz This extracts the nagios-core files into the same directory using the tar command.
Use ‘ls’ command to find the correct directory
run the ‘sudo yum install openssl-devel’ command.

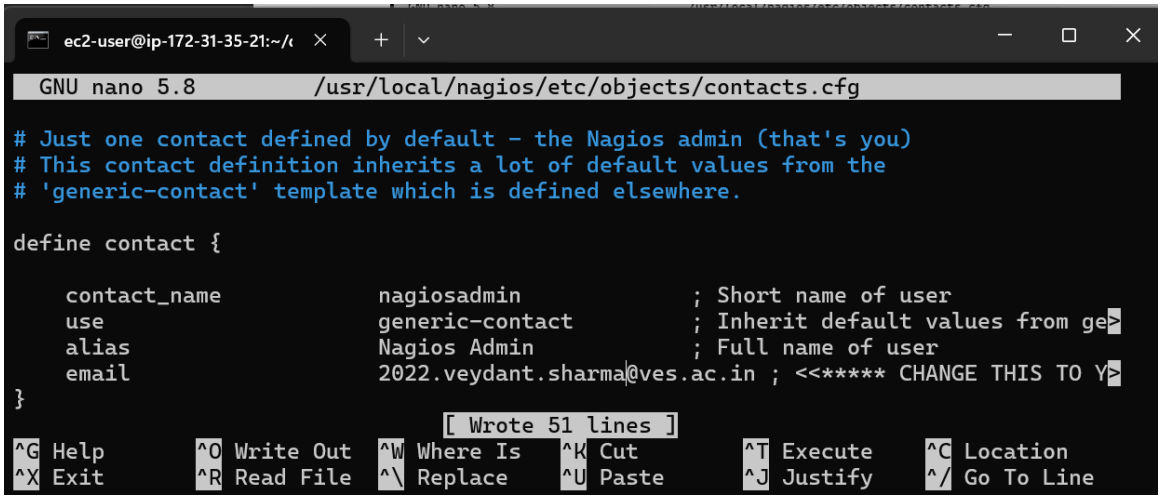
```
[ec2-user@ip-172-31-35-21 downloads]$ ls
nagios-4.5.5  nagios-4.5.5.tar.gz  nagios-4.5.5.tar.gz.1  nagios-plugins-2.4.11.tar.gz
[ec2-user@ip-172-31-35-21 downloads]$ cd nagios-4.5.5
[ec2-user@ip-172-31-35-21 nagios-4.5.5]$ sudo yum install openssl-devel
Last metadata expiration check: 23:58:21 ago on Tue Oct  8 05:47:23 2024.
Package openssl-devel-1:3.0.8-1.amzn2023.0.14.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-35-21 nagios-4.5.5]$ ./configure --with-command-group=nagcmd
```

Step 14: 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-172-31-35-21 nagios-4.5.5]$ make all
cd ./base && make
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.5.5/base'
make -C ../lib
```

```
[ec2-user@ip-172-31-35-21 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'
```

Step 15: : 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



Step 17: sudo make install-webconf This installs the necessary configuration files for the Nagios web interface.

Step 18: 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.

Step 19: Restart the apache server to apply all the recent configurations. sudo service httpd restart
Step 20: 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-172-31-35-21 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-172-31-35-21 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-172-31-35-21 nagios-4.5.5]$ sudo service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[ec2-user@ip-172-31-35-21 nagios-4.5.5]$ cd ~/downloads
[ec2-user@ip-172-31-35-21 downloads]$ tar zxvf nagios-plugins-2.4.11.tar.gz
nagios-plugins-2.4.11/
nagios-plugins-2.4.11/build-aux/
```

Step 21: cd nagios-plugins-2.4.11 ./configure --with-nagios-user=nagios --with-nagios-group=nagios This installs the configurations for the nagios-plugins files.

```
[ec2-user@ip-172-31-35-21 downloads]$ cd nagios-plugins-2.4.11
[ec2-user@ip-172-31-35-21 nagios-plugins-2.4.11]$ ./configure --with-nagios-user=nagios --with-nagios-group=nagios
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether make supports nested variables... yes
checking whether to enable maintainer-specific portions of Makefiles... yes
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
```

Step22:: sudo chkconfig --add nagios
sudo chkconfig nagios on

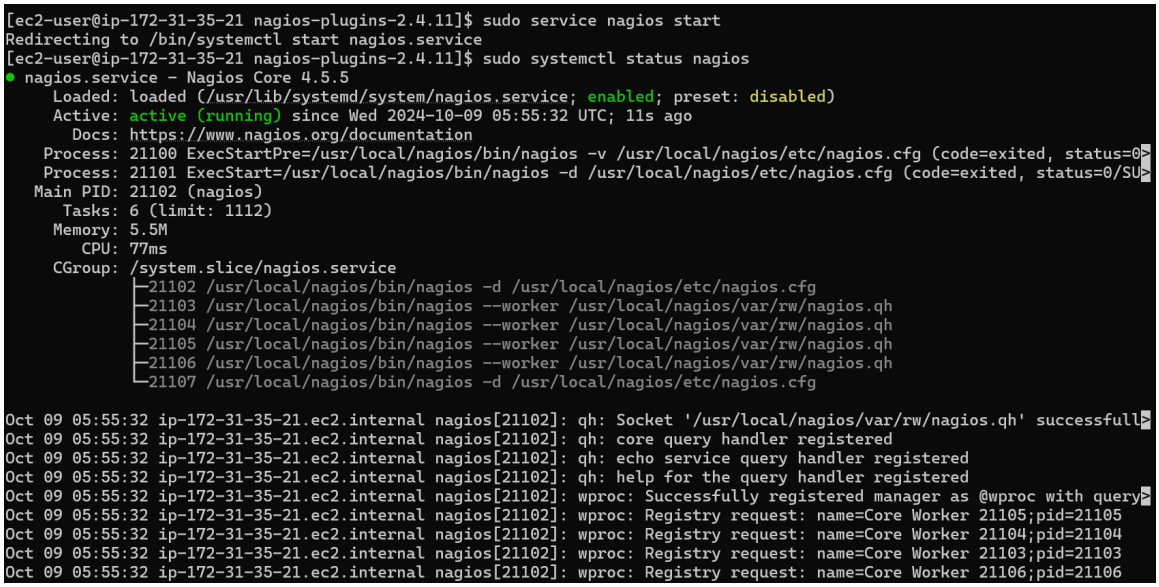
```
[ec2-user@ip-172-31-35-21 nagios-plugins-2.4.11]$  sudo chkconfig --add nagios
sudo chkconfig nagios on
error reading information on service nagios: No such file or directory
Note: Forwarding request to 'systemctl enable nagios.service'.
Created symlink /etc/systemd/system/multi-user.target.wants/nagios.service → /usr/lib/systemd/system/nagios.service.
[ec2-user@ip-172-31-35-21 nagios-plugins-2.4.11]$ sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.5.5
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2024-09-17
License: GPL

Website: https://www.nagios.org
Reading configuration data...
```

```
[ec2-user@ip-172-31-35-21 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
```

Step 23: sudo service nagios start This starts the Nagios service.
sudo systemctl status nagios This checks the status of Nagios. Ensure that it is ‘active(running)’.



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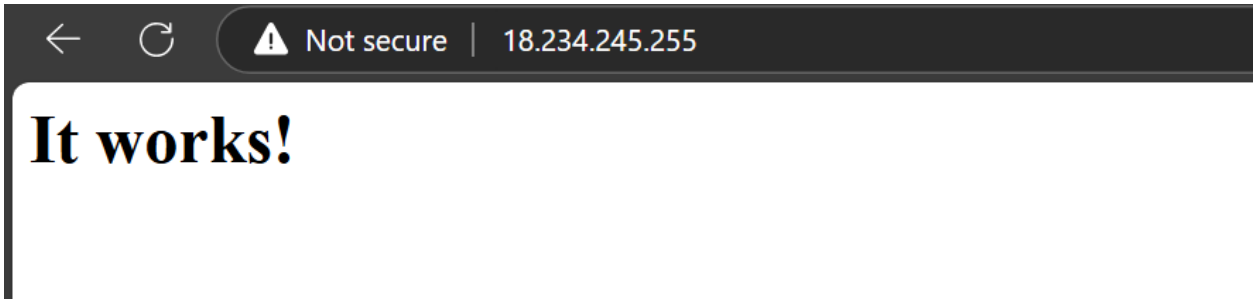
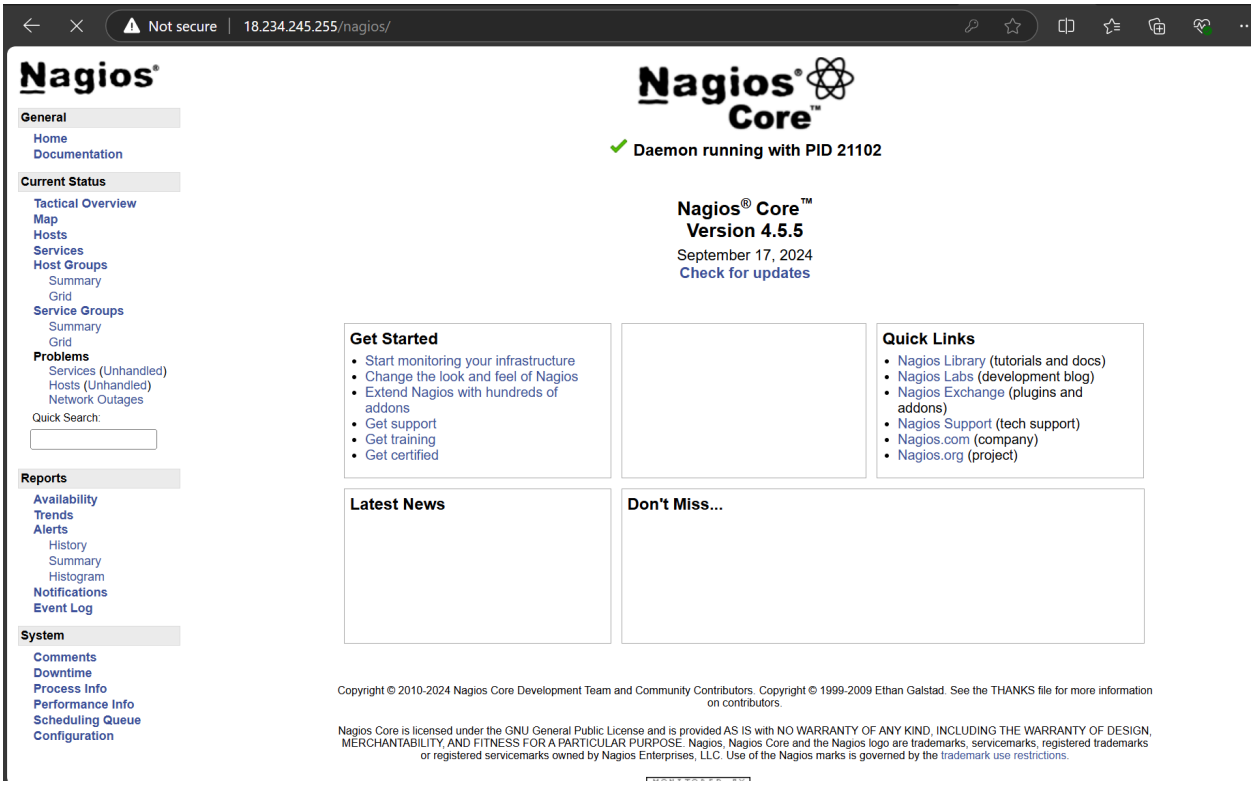
Step 24: In the address bar, enter ‘http://<ipv4 address>/nagios’.





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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 faced some issues with the configuration command, which were fixed with the right directory and the sudo yum install openssl-devel' command.
- 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