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.

Theory:

Nagios is an event monitoring system that offers monitoring and alerting services for servers, switches, applications and services. It alerts users when things go wrong and alerts them a second time when the problem has been resolved.

Extensively monitor critical components, applications, and systems with our own add-ons and thousands of third-party add-ons for comprehensive coverage.

Ensure optimal server performance for all your monitoring endeavors with the Nagios Core 4 monitoring engine, which utilizes high-efficiency processes for scalability and effectiveness.

Some key features of Nagios Core:

Visibility:

Enhance user access to relevant information with a centralized view of the monitoring data and third-party insights that are most critical to you.

Customizability:

Give users and team members the flexibility to tailor layout, design, and preferences on a per-user basis with a customizable GUI.

Multi-Tenant Capabilities and Ease of Use:

Simplify administration with advanced user management to efficiently manage user accounts and ensure clients only see the infrastructure components they're authorized for.

Nagios NRPE: (Nagios Remote Plugin Executor) is an agent used by Nagios XI for communicating with remote hosts. It allows you to run Nagios plugins on remote machines, enabling the monitoring of remote machine metrics such as disk usage, CPU load, and more.

Nagios Plugins are external programs or scripts that run from the command line to check the status of hosts and services on a network. They are an essential part of the Nagios monitoring system, as they provide the necessary information for Nagios Core to determine the current status of monitored resources.

STEPS to install Nagios Core:

1. Install dependencies

~$ sudo apt install build-essential apache2 php libapache2-mod-php php-gd libgd-dev unzip automake

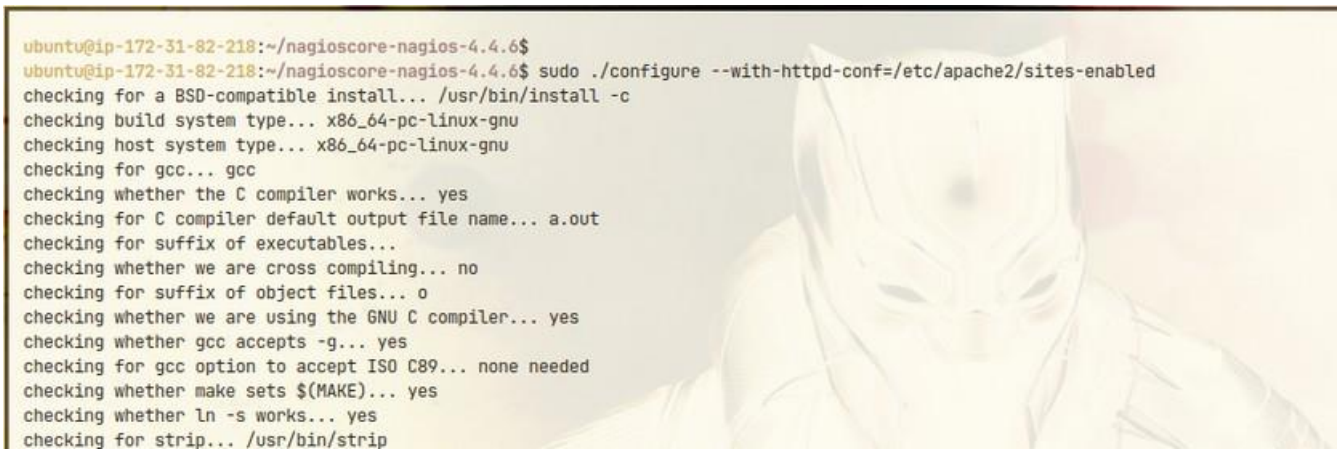
2. Download the latest version archive file.

~$ wget https://github.com/NagiosEnterprises/nagioscore/archive/nagios-4.4.6.tar.gz

~$ tar xzf nagios-4.4.6.tar.gz

~$ cd nagioscore-nagios-4.4.6/

3. Configure it.



4. Start Compilation.

~$ sudo make all

```
ubuntu@ip-172-31-82-218:~/nagioscore-nagios-4.4.6$ sudo make all
cd ./base && make
make[1]: Entering directory '/home/ubuntu/nagioscore-nagios-4.4.6/base'
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o nagios.o nagios.c
nagios.c: In function 'main':
nagios.c:611:25: warning: ignoring return value of 'asprintf' declared with attribute 'warn_unused_result' [-Wunused-result]
  611 |                         asprintf(&mac->x[MACRO_PROCESSSTARTTIME], "%llu", (unsigned long long)program_start);
      |                         ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
nagios.c:841:25: warning: ignoring return value of 'asprintf' declared with attribute 'warn_unused_result' [-Wunused-result]
  841 |                         asprintf(&mac->x[MACRO_EVENTSTARTTIME], "%llu", (unsigned long long)event_start);
      |                         ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
nagios.c: In function 'nagios_core_worker':
nagios.c:176:17: warning: ignoring return value of 'read' declared with attribute 'warn_unused_result' [-Wunused-result]
  176 |                 read(sd, response + 3, sizeof(response) - 4);
      |                 ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
nagios.c: In function 'test_path_access':
nagios.c:122:17: warning: ignoring return value of 'asprintf' declared with attribute 'warn_unused_result' [-Wunused-result]
  122 |                 asprintf(&path, "%s/%s", p, program);
      |                 ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o broker.o broker.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o nebmods.o nebmods.c
```

5. Add user of nagios

~$ sudo useradd nagios

~$ sudo usermod -a -G nagios www-data

6. Make install

~$ sudo make install

```
ubuntu@ip-172-31-82-218:~/nagioscore-nagios-4.4.6$
ubuntu@ip-172-31-82-218:~/nagioscore-nagios-4.4.6$ sudo make install
cd ./base && make install
make[1]: Entering directory '/home/ubuntu/nagioscore-nagios-4.4.6/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/ubuntu/nagioscore-nagios-4.4.6/base'
cd ./cgi && make install
make[1]: Entering directory '/home/ubuntu/nagioscore-nagios-4.4.6/cgi'
make install-basic
make[2]: Entering directory '/home/ubuntu/nagioscore-nagios-4.4.6/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/ubuntu/nagioscore-nagios-4.4.6/cgi'
make[1]: Leaving directory '/home/ubuntu/nagioscore-nagios-4.4.6/cgi'
cd ./html && make install
```

7. compile other required modules

~$ sudo make install-daemoninit install-commandmode install-config install-webconf

```
ubuntu@ip-172-31-82-218:~/nagioscore-nagios-4.4.6$
ubuntu@ip-172-31-82-218:~/nagioscore-nagios-4.4.6$ sudo make install-daemoninit install-commandmode install-config install-webconf
/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
Created symlink /etc/systemd/system/multi-user.target.wants/nagios.service → /lib/systemd/system/nagios.service.

*** Init script installed ***

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

*** External command directory configured ***

/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 ***
```

STEPS to install Nagios Plugin:

1. Now compile and install Nagios Plugins

~$ wget https://github.com/nagios-plugins/nagios-plugins/archive/release-2.3.3.tar.gz
~$ tar xzf release-2.3.3.tar.gz
~$ cd nagios-plugins-release-2.3.3/

2. Setup, Configure, compile and install.

~$ sudo ./tools/setup

```
ubuntu@ip-172-31-82-218:~/nagios-plugins-release-2.3.3$ sudo ./tools/setup
Found GNU Make at /usr/bin/gmake ... good.
configure.ac:46: installing 'build-aux/compile'
configure.ac:12: installing 'build-aux/config.guess'
configure.ac:12: installing 'build-aux/config.sub'
configure.ac:9: installing 'build-aux/install-sh'
configure.ac:9: installing 'build-aux/missing'
Makefile.am: installing './INSTALL'
gl/Makefile.am: installing 'build-aux/depcomp'
parallel-tests: installing 'build-aux/test-driver'
configure.ac:47: warning: The macro `AC_GNU_SOURCE' is obsolete.
configure.ac:47: You should run autoupdate.
./lib/autoconf/specific.m4:312: AC_GNU_SOURCE is expanded from...
gl/m4/gnulib-comp.m4:34: gl_EARLY is expanded from...
configure.ac:47: the top level
configure.ac:47: warning: The macro `AC_HELP_STRING' is obsolete.
configure.ac:47: You should run autoupdate.
./lib/autoconf/general.m4:204: AC_HELP_STRING is expanded from...
```

~$ sudo ./configure

```
ubuntu@ip-172-31-82-218:~/nagios-plugins-release-2.3.3$ sudo ./configure
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a race-free mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether make supports nested variables... yes
checking whether to enable maintainer-specific portions of Makefiles... yes
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
```

~$ sudo make

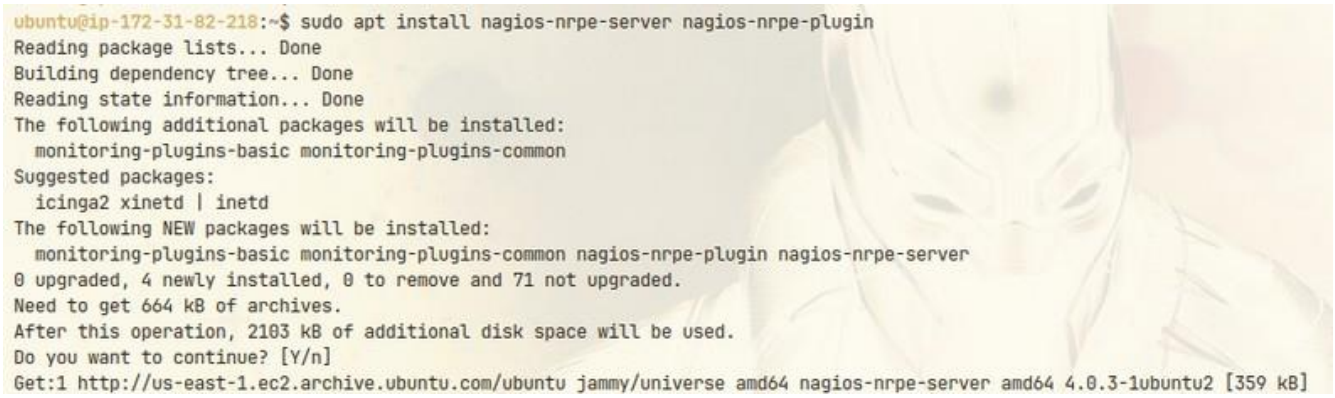
```
ubuntu@ip-172-31-82-218:~/nagios-plugins-release-2.3.3$ sudo make
make  all-recursive
make[1]: Entering directory '/home/ubuntu/nagios-plugins-release-2.3.3'
Making all in gl
make[2]: Entering directory '/home/ubuntu/nagios-plugins-release-2.3.3/gl'
rm -f alloca.h-t alloca.h && \
{ echo '/* DO NOT EDIT! GENERATED AUTOMATICALLY! */'; \
  cat ./alloca.in.h; \
} > alloca.h-t && \
mv -f alloca.h-t alloca.h
rm -f c++defs.h-t c++defs.h && \
sed -n -e '/_GL_CXXDEFS/,$p' \
  < ../build-aux/snippet/c++defs.h \
  > c++defs.h-t && \
mv c++defs.h-t c++defs.h
rm -f warn-on-use.h-t warn-on-use.h && \
sed -n -e '/^.ifndef/,$p' \
  < ../build-aux/snippet/warn-on-use.h \
  > warn-on-use.h-t && \
```

~$ sudo make install

```
ubuntu@ip-172-31-82-218:~/nagios-plugins-release-2.3.3$ sudo make install
Making install in gl
make[1]: Entering directory '/home/ubuntu/nagios-plugins-release-2.3.3/gl'
make  install-recursive
make[2]: Entering directory '/home/ubuntu/nagios-plugins-release-2.3.3/gl'
make[3]: Entering directory '/home/ubuntu/nagios-plugins-release-2.3.3/gl'
make[4]: Entering directory '/home/ubuntu/nagios-plugins-release-2.3.3/gl'
if test yes = no; then \
  case 'linux-gnu' in \
    darwin[56]*) \
      need_charset_alias=true ;; \
    darwin* | cygwin* | mingw* | pw32* | cegcc*) \
      need_charset_alias=false ;; \
    *) \
      need_charset_alias=true ;; \
  esac ; \
else \
  need_charset_alias=false ; \
```

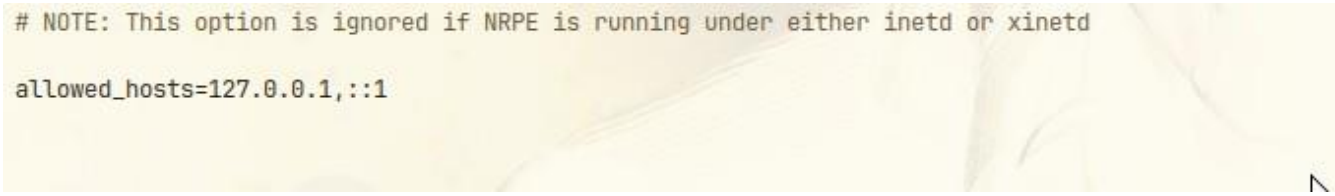
Now install NRPE

~$ sudo apt install nagios-nrpe-server nagios-nrpe-plugin



Now, it's time to configure.

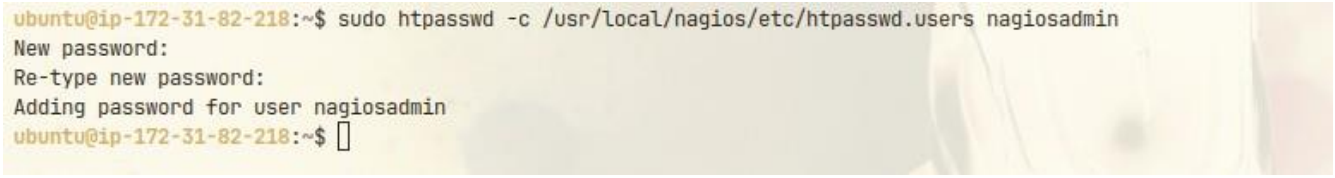
~$ sudo nano /etc/nagios/nrpe.cfg



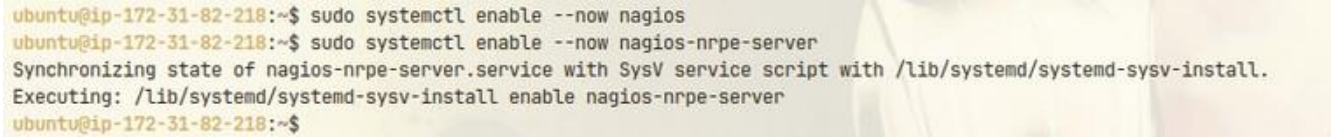
Updated it with your Nagios server IP.

Setup apache password.

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



Enable & Start Nagios Service.
~$ sudo systemctl enable /-now nagios
~$ sudo systemctl enable /-now nagios-nrpe-server



You can now access it on your server's IP at '/nagios'.
Enter your username & password.

And, After logging in you will the home page of Nagios.

Conclusion: Thus, we have successfully Understood Continuous monitoring and Installation and configuration of Nagios Core, Nagios Plugins and NRPE (Nagios Remote Plugin Executor) on Linux Machine.