



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

(NBA Accredited)



Semester: V

Academic Year: 2022-23

Class / Branch: TE IT

Subject: Advanced Devops Lab (ADL)

Name of Instructor: Prof. Manjusha K.

Name of Student: Soham Dalvi

Student ID: 21104010

EXPERIMENT NO. 09

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

Theory:

1 - Pre-requisite

First requirement is to install Apache and PHP first. Use the following commands to complete it. And use commands to install required packages for Nagios.

```
manjusha@apsit:~$ sudo apt-get update
manjusha@apsit:~$ sudo apt-get install wget build-essential unzip openssl
libssl-dev
manjusha@apsit:~$ sudo apt-get install apache2 php libapache2-mod-php php-gd
libgd-dev
```

2 – Create Nagios User

Create a new user account for Nagios in your system and assign a password.

```
manjusha@apsit:~$ sudo adduser nagios
```

Now create a group for Nagios setup “nagcmd” and add nagios user to this group. Also, add nagios user in the Apache group.

```
manjusha@apsit:~$ sudo groupadd nagcmd
manjusha@apsit:~$ sudo usermod -a -G nagcmd nagios
manjusha@apsit:~$ sudo usermod -a -G nagcmd www-data
```

Step 3 – Install Nagios Core Service

After installing required dependencies and adding user accounts and Nagios core installation. Download latest Nagios core service from the official site.

```
manjusha@apsit:~$ cd /opt/
```



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

(NBA Accredited)



```
manjusha@apsit:~$sudo wget
https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.3.tar.gz
manjusha@apsit:~$sudo tar xzf nagios-4.4.3.tar.gz
```

After extracting navigate to nagios source directory and install using make command.

```
manjusha@apsit:~$cd nagios-4.4.3
```

```
manjusha@apsit:~$sudo ./configure --with-command-group=nagcmd
manjusha@apsit:~$sudo make all
manjusha@apsit:~$sudo make install
manjusha@apsit:~$sudo make install-init
manjusha@apsit:~$sudo make install-daemoninit
manjusha@apsit:~$sudo make install-config
manjusha@apsit:~$sudo make install-commandmode
manjusha@apsit:~$sudo make install-exfoliation
```

Now copy event handlers scripts under libexec directory. These binaries provides multiple events triggers for your Nagios web interface.

```
manjusha@apsit:~$sudo cp -R contrib/eventhandlers/ /usr/local/nagios/libexec/
```

```
manjusha@apsit:~$sudo chown -R nagios:nagios
/usr/local/nagios/libexec/eventhandlers
```

Step 4 – Setup Apache with Authentication

Now create an Apache configuration file for your Nagios server as below:

```
manjusha@apsit:~$sudo nano /etc/apache2/conf-available/nagios.conf
```

Add below lines to nagios.conf file.

```
ScriptAlias /nagios/cgi-bin "/usr/local/nagios/sbin"
```

```
<Directory "/usr/local/nagios/sbin">
```

```
Options ExecCGI
AllowOverride None
Order allow,deny
Allow from all
AuthName "Restricted Area"
AuthType Basic
AuthUserFile /usr/local/nagios/etc/htpasswd.users
Require valid-user
```

```
</Directory>
```

```
Alias /nagios "/usr/local/nagios/share"
```



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

(NBA Accredited)



```
<Directory "/usr/local/nagios/share">
  Options None
  AllowOverride None
  Order allow,deny
  Allow from all
  AuthName "Restricted Area"
  AuthType Basic
  AuthUserFile /usr/local/nagios/etc/htpasswd.users
  Require valid-user
</Directory>
```

To setup apache authentication for user **nagiosadmin**

```
manjusha@apsit:~$sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users
nagiosadmin
```

Enable Apache configuration and restart Apache service to make the new settings take effect.cd

```
manjusha@apsit:~$sudo a2enconf nagios
manjusha@apsit:~$sudo a2enmod cgi rewrite
manjusha@apsit:~$sudo service apache2 restart
```

Step 5 – Installing Nagios Plugins

After installing and configuring Nagios core service, Download latest nagios-plugins source and install using following commands.

```
manjusha@apsit:~$cd /opt
manjusha@apsit:~$sudo wget http://www.nagios-plugins.org/download/nagios-
plugins-2.2.1.tar.gz
manjusha@apsit:~$sudo tar xzf nagios-plugins-2.2.1.tar.gznagios
manjusha@apsit:~$cd nagios-plugins-2.2.1
```

Now compile and install Nagios plugins

```
manjusha@apsit:~$sudo ./configure --with-nagios-user=nagios --with-nagios-
group=nagios --with-openssl
manjusha@apsit:~$sudo make
manjusha@apsit:~$sudo make install
```

Step 6 – Verify Settings

Use the Nagios commands to verify the Nagios installation and configuration file. After successfully verify start the Nagios core service.

```
manjusha@apsit:~$/usr/local/nagios/bin/nagios -v
/usr/local/nagios/etc/nagios.cfg
manjusha@apsit:~$ sudo service nagios start
```



Also configure Nagios to auto start on system boot.

Step 7 – Access Nagios Web Interface

Access your nagios setup by access nagios server using hostname or ip address followed by /nagios.

<http://127.0.0.1/nagios/>

Prompting for Apache Authentication Password –

username: nagiosadmin

Password : 123456 (which you enter while configuration)

Nagios After login screen –

We have successfully installed and configured Nagios Monitoring Server core service in our system now we need to install NRPE on all remote Linux systems to monitor with Nagios.



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

(NBA Accredited)



OUTPUT:

```
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:~$ sudo apt-get update
[sudo] password for apsit:
Hit:1 https://download.docker.com/linux/ubuntu focal InRelease
Get:2 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Hit:3 http://ppa.launchpad.net/swi-prolog/stable/ubuntu bionic InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu bionic InRelease
Get:5 http://in.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:6 http://security.ubuntu.com/ubuntu bionic-security/main amd64 DEP-11 Metadata [77.1 kB]
Get:7 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 DEP-11 Metadata [62.5 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu bionic-backports InRelease [83.3 kB]
Get:9 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 DEP-11 Metadata [2,464 B]
Get:10 http://in.archive.ubuntu.com/ubuntu bionic-updates/main amd64 DEP-11 Metadata [297 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 DEP-11 Metadata [304 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 DEP-11 Metadata [2,468 B]
Get:13 http://in.archive.ubuntu.com/ubuntu bionic-backports/main amd64 DEP-11 Metadata [8,112 B]
Get:14 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 DEP-11 Metadata [10.0 kB]
Fetched 1,024 kB in 7s (146 kB/s)
Reading package lists... Done
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:~$ sudo apt-get install wget build-essential unzip openssl libssl-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package libssl
E: Unable to locate package dev
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:~$ sudo apt-get install wget build-essential unzip openssl libssl-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
wget is already the newest version (1.19.4-1ubuntu2.2).
wget set to manually installed.
The following packages were automatically installed and are no longer required:
  gir1.2-goa-1.0 gir1.2-snapd-1
```

```
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:~$ sudo apt-get install apache2 php libapache2-mod-php php-gd libgd-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  gir1.2-goa-1.0 gir1.2-snapd-1
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapache2-mod-php7.2 libapr1
  libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libexpat1 libexpat1-dev
  libfontconfig1-dev libfreetype6 libfreetype6-dev libjpeg-dev libjpeg8-dev liblua5.2-0
  liblzma-dev liblzma5 libpng-dev libpng-tools libtiff-dev libtiff5
  libtiff5-dev libtiffxx5 libvpx-dev libxpm-dev libxpm4 php-common php7.2
  php7.2-cli php7.2-common php7.2-gd php7.2-json php7.2-openssl
  php7.2-readline pkg-config zlib1g zlib1g-dev
```



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

(NBA Accredited)



```
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt$ cd ..
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt$ clear

apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt$ cd /opt/
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt$ sudo wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.3.tar.gz
[sudo] password for apsit:
--2023-10-13 15:20:21-- https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.3.tar.gz
Resolving assets.nagios.com (assets.nagios.com)... 45.79.49.120, 2600:3c00::f03c:92ff:fe7f:45ce
Connecting to assets.nagios.com (assets.nagios.com)|45.79.49.120|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11302228 (11M) [application/x-gzip]
Saving to: 'nagios-4.4.3.tar.gz.1'

nagios-4.4.3.tar.gz.1      100%[=====] 10.78M  1.84MB/s   in 12s

2023-10-13 15:20:37 (932 KB/s) - 'nagios-4.4.3.tar.gz.1' saved [11302228/11302228]

apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt$ sudo tar xzf nagios-4.4.3.tar.gz
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt$ cd nagios-4.4.3
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt/nagios-4.4.3$ sudo ./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
```

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/apache2/sites-available
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):
```

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

```
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt/nagios-4.4.3$ sudo make all
cd ./base && make
make[1]: Entering directory '/opt/nagios-4.4.3/base'
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o nagios.o nagios.c
nagios.c: In function 'main':
nagios.c:611:4: warning: ignoring return value of 'asprintf', declared with attribute warn_unused_result [-Wunused-result]
   asprintf(&mac->x[MACRO_PROCESSSTARTTIME], "%llu", (unsigned long long)program_start);
   ^~~~~~
nagios.c:841:4: warning: ignoring return value of 'asprintf', declared with attribute warn_unused_result [-Wunused-result]
   asprintf(&mac->x[MACRO_EVENTSTARTTIME], "%llu", (unsigned long long)event_start);
   ^~~~~~
```

```
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt/nagios-4.4.3$ sudo make install-init
/usr/bin/install -c -m 755 -d -o root -g root /lib/systemd/system
/usr/bin/install -c -m 755 -o root -g root startup/default-service /lib/systemd/system/nagios.service
apsit@apsit-HP-ProDesk-600-G4-PCI-MT:/opt/nagios-4.4.3$ sudo make install-daemoninit
/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 ***
```



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

(NBA Accredited)



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