

# Triển Khai Hệ Thống Giám Sát NAGIOS



## I. Mô hình

- 1 máy CentOS 7 cài đặt Nagios (192.168.80.100)
- 1 máy Ubuntu Server (192.168.80.101)

## II. Triển khai

- ❖ Cài đặt Nagios trên CentOS 7 giám sát hoạt động 1 web site

```
huy@localhost:/etc/sysconfig
File Edit View Search Terminal Help

# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#   enforcing - SELinux security policy is enforced.
#   permissive - SELinux prints warnings instead of enforcing.
#   disabled - No SELinux policy is loaded.
SELINUX=disabled
# SELINUXTYPE= can take one of three values:
#   targeted - Targeted processes are protected,
#   minimum - Modification of targeted policy. Only selected processes are pro
protected.
#   mls - Multi Level Security protection.
SELINUXTYPE=targeted

~
~
~
~
~
~
~
-- INSERT --
7,17 All
```

Hình 1: Vô hiệu hóa Selinux

```
huy@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# sestatus  
SELinux status: disabled  
[root@localhost ~]# S
```

*Hình 2: Selinux đã bị vô hiệu hóa*

```
huy@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# firewall-cmd --state  
running
```

*Hình 3: Kiểm tra Firewall*

```
[root@localhost ~]# firewall-cmd --permanent --add-service=http  
success  
[root@localhost ~]# firewall-cmd --permanent --add-service=https  
success  
[root@localhost ~]#
```

*Hình 4: Cho phép http và https*

```
huy@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# yum install httpd  
Loaded plugins: fastestmirror, langpacks  
Loading mirror speeds from cached hostfile  
* base: mirrors.vhost.vn  
* extras: mirrors.vhost.vn  
* updates: mirrors.nhanhoa.com  
Resolving Dependencies  
--> Running transaction check  
---> Package httpd.x86_64 0:2.4.6-98.el7.centos.6 will be installed  
--> Processing Dependency: httpd-tools = 2.4.6-98.el7.centos.6 for package: httpd
```

*Hình 5: Cài đặt Apache*

```
[root@localhost ~]# systemctl enable httpd  
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.  
[root@localhost ~]#
```

*Hình 6: Enable Apache*

```

[root@localhost ~]# php -v
PHP 7.4.33 (cli) (built: Feb 14 2023 09:31:03) ( NTS )
Copyright (c) The PHP Group
Zend Engine v3.4.0, Copyright (c) Zend Technologies
[root@localhost ~]#

```

*Hình 7: Cài đặt PHP và PHP-FPM*

```

huy@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# systemctl start php-fpm
[root@localhost ~]# systemctl enable php-fpm
Created symlink from /etc/systemd/system/multi-user.target.wants/php-fpm.service
to /usr/lib/systemd/system/php-fpm.service.
[root@localhost ~]# systemctl status php-fpm
● php-fpm.service - The PHP FastCGI Process Manager
   Loaded: loaded (/usr/lib/systemd/system/php-fpm.service; enabled; vendor pres
  et: disabled)
   Active: active (running) since Mon 2023-03-27 11:45:50 PDT; 2min 24s ago
     Main PID: 10455 (php-fpm)
    Status: "Processes active: 0, idle: 5, Requests: 0, slow: 0, Traffic: 0req/se
c"
   CGroup: /system.slice/php-fpm.service
           └─10455 php-fpm: master process (/etc/php-fpm.conf)
             └─10459 php-fpm: pool www
               └─10460 php-fpm: pool www
                 └─10461 php-fpm: pool www
                   └─10462 php-fpm: pool www
                     └─10463 php-fpm: pool www

Mar 27 11:45:50 localhost.localdomain systemd[1]: Starting The PHP FastCGI Pr...
Mar 27 11:45:50 localhost.localdomain systemd[1]: Started The PHP FastCGI Pro...
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost ~]#

```

*Hình 8: Start và Enable PHP*

```

huy@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# yum install gcc glibc glibc-common make gettext automake aut
oconf wget openssl-devel net-snmp net-snmp-utils epel-release perl-Net-SNMP
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
s * base: mirrors.vhost.vn
 * epel: download.nus.edu.sg
 * extras: mirrors.vhost.vn
 * remi-php74: mirrors.thzhost.com
 * remi-safe: mirrors.thzhost.com
 * updates: mirrors.nhanhoa.com
Package gcc-4.8.5-44.el7.x86_64 already installed and latest version
Package glibc-2.17-326.el7_9.x86_64 already installed and latest version

```

*Hình 9: Cài đặt một số thư viện cần thiết*

```

huy@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# useradd nagios
[root@localhost ~]# groupadd nagcmd

```

*Hình 10: Thêm User và Group*

```

[root@localhost ~]# usermod -G nagcmd nagios
[root@localhost ~]# usermod -G nagcmd apache

```

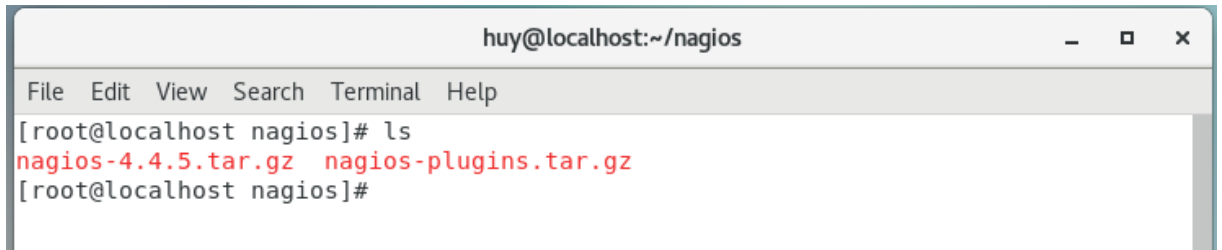
*Hình 11: Thêm User vào Group*

```
[root@localhost ~]# mkdir ~/nagios
```

*Hình 12: Tạo thư mục Nagios*

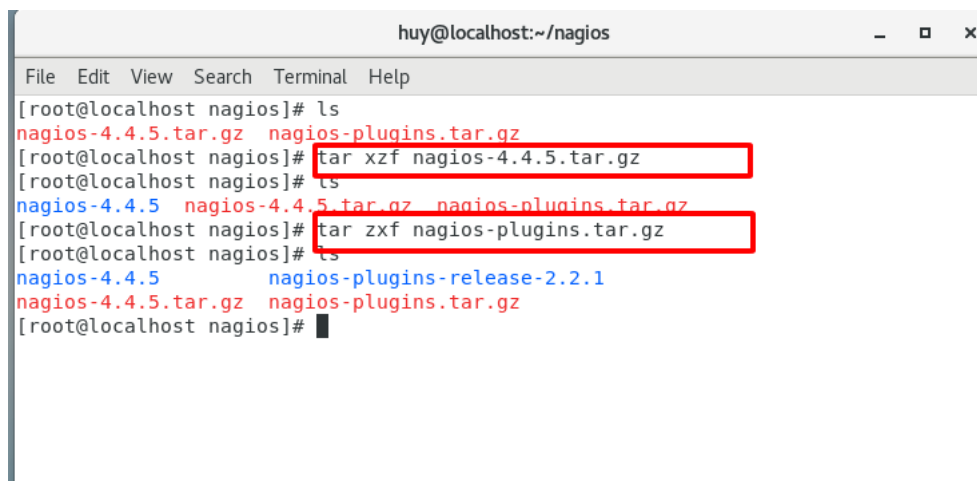
```
wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.5.tar.gz
```

```
wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.5.tar.gz
```



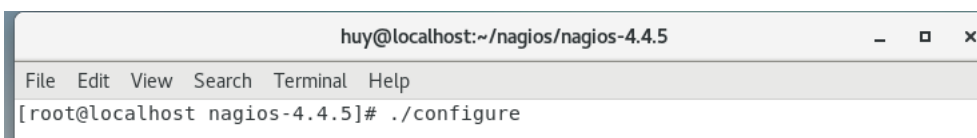
```
huy@localhost:~/nagios
File Edit View Search Terminal Help
[root@localhost nagios]# ls
nagios-4.4.5.tar.gz  nagios-plugins.tar.gz
[root@localhost nagios]#
```

*Hình 13: Tải Nagios và Plugins*



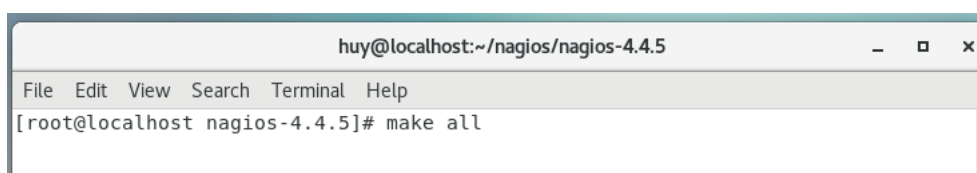
```
huy@localhost:~/nagios
File Edit View Search Terminal Help
[root@localhost nagios]# ls
nagios-4.4.5.tar.gz  nagios-plugins.tar.gz
[root@localhost nagios]# tar xzf nagios-4.4.5.tar.gz
[root@localhost nagios]# ls
nagios-4.4.5  nagios-4.4.5.tar.gz  nagios-plugins.tar.gz
[root@localhost nagios]# tar xzf nagios-plugins.tar.gz
[root@localhost nagios]# ls
nagios-4.4.5  nagios-plugins-release-2.2.1
nagios-4.4.5.tar.gz  nagios-plugins.tar.gz
[root@localhost nagios]#
```

*Hình 14: Giải nén 2 file vừa tải*



```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# ./configure
```

*Hình 15: Lệnh ./configure*



```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# make all
```

*Hình 16: Lệnh make all*

```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# make install
```

Hình 17: Lệnh make install

```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# make install-init
```

Hình 18: Lệnh make install-init

```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# make install-daemoninit
/bin/install -c -m 755 -d -o root -g root /lib/systemd/system
/bin/install -c -m 755 -o root -g root startup/default-service /lib/systemd/system/nagios.service
Created symlink from /etc/systemd/system/multi-user.target.wants/nagios.service
to /usr/lib/systemd/system/nagios.service.

*** Init script installed ***

[root@localhost nagios-4.4.5]#
```

Hình 19: Lệnh make install-daemoninit

```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# make install-config
/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc
/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc/objects
/bin/install -c -b -m 664 -o nagios -g nagios sample-config/nagios.cfg /usr/local/nagios/etc/nagios.cfg
/bin/install -c -b -m 664 -o nagios -g nagios sample-config/cgi.cfg /usr/local/nagios/etc/cgi.cfg
/bin/install -c -b -m 660 -o nagios -g nagios sample-config/resource.cfg /usr/local/nagios/etc/resource.cfg
```

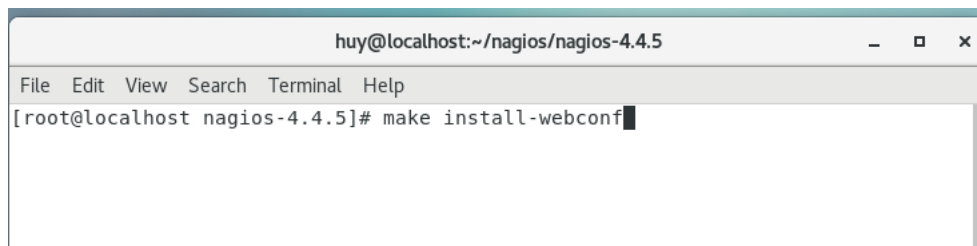
Hình 21: Lệnh make install-config

```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# make install-commandmode
/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 ***

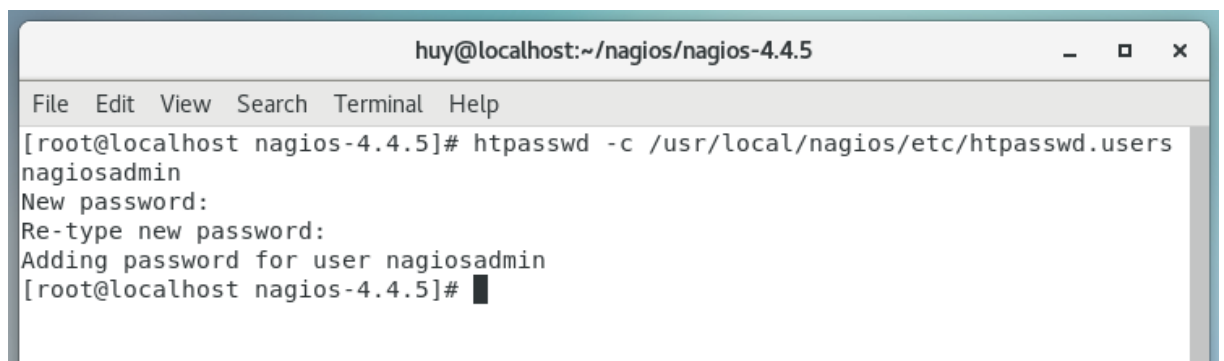
[root@localhost nagios-4.4.5]#
```

Hình 22: Lệnh make install-commandmode



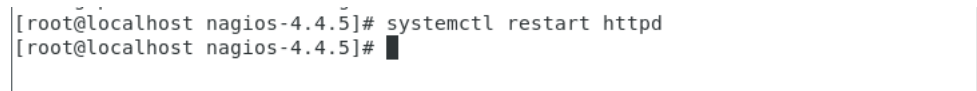
```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# make install-webconf
```

*Hình 23: Lệnh make install-webconf*



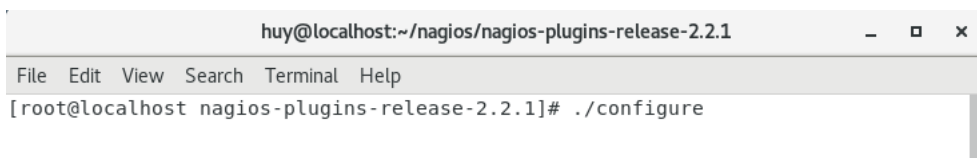
```
huy@localhost:~/nagios/nagios-4.4.5
File Edit View Search Terminal Help
[root@localhost nagios-4.4.5]# htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
[root@localhost nagios-4.4.5]#
```

*Hình 24: Tạo user để đăng nhập vào web quản lý của Nagios*



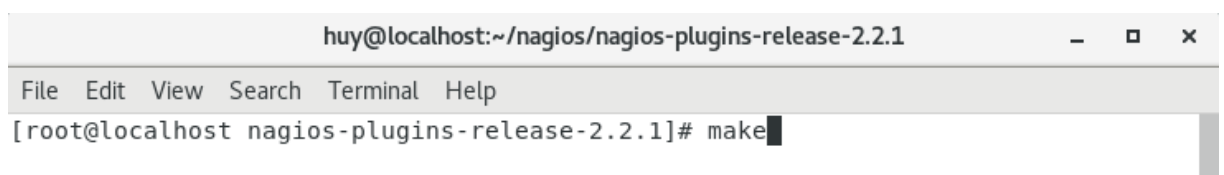
```
[root@localhost nagios-4.4.5]# systemctl restart httpd
[root@localhost nagios-4.4.5]#
```

*Hình 25: Restart dịch vụ httpd*



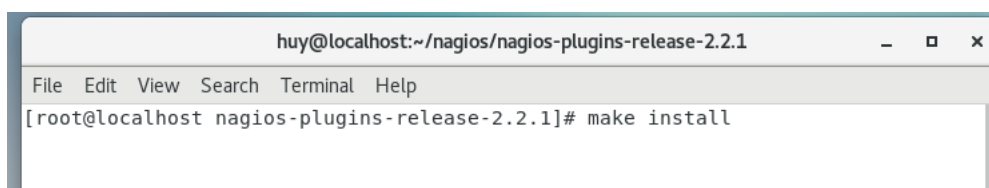
```
huy@localhost:~/nagios/nagios-plugins-release-2.2.1
File Edit View Search Terminal Help
[root@localhost nagios-plugins-release-2.2.1]# ./configure
```

*Hình 26: Chạy file cấu hình để cài plugin nagios*



```
huy@localhost:~/nagios/nagios-plugins-release-2.2.1
File Edit View Search Terminal Help
[root@localhost nagios-plugins-release-2.2.1]# make
```

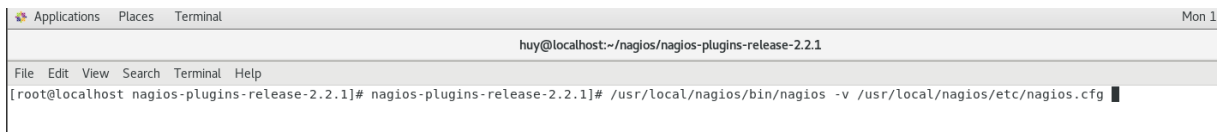
*Hình 27: Lệnh make*



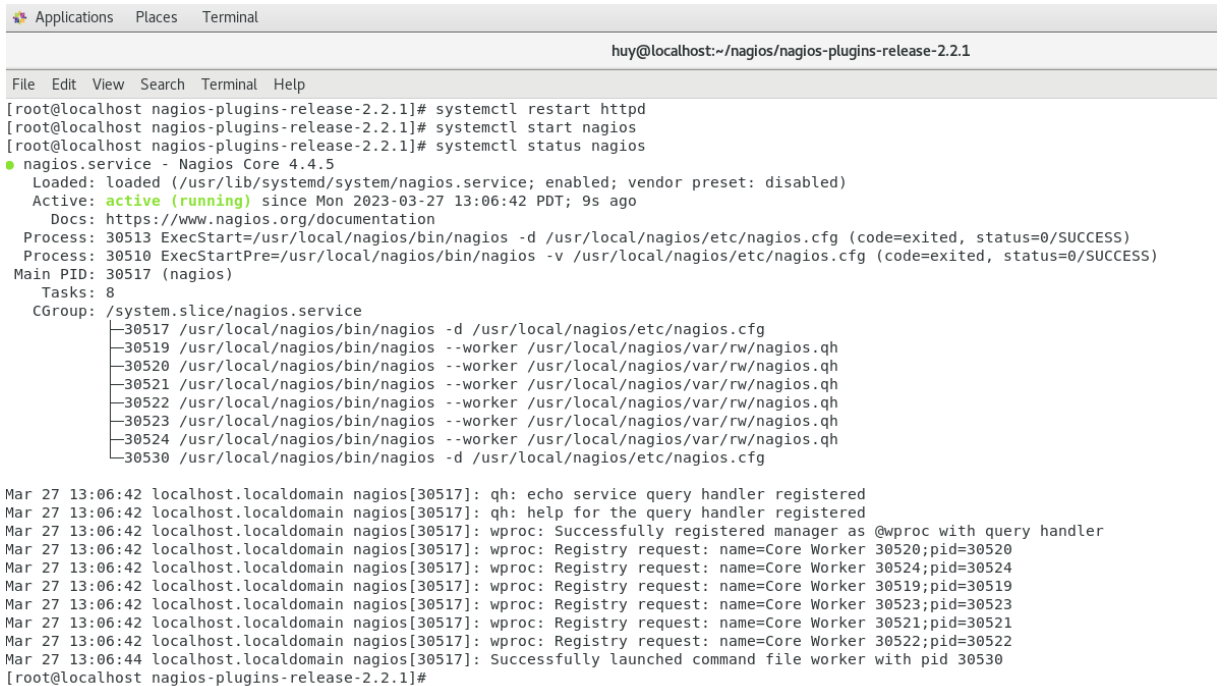
```
huy@localhost:~/nagios/nagios-plugins-release-2.2.1
File Edit View Search Terminal Help
[root@localhost nagios-plugins-release-2.2.1]# make install
```

*Hình 28: Lệnh make install*

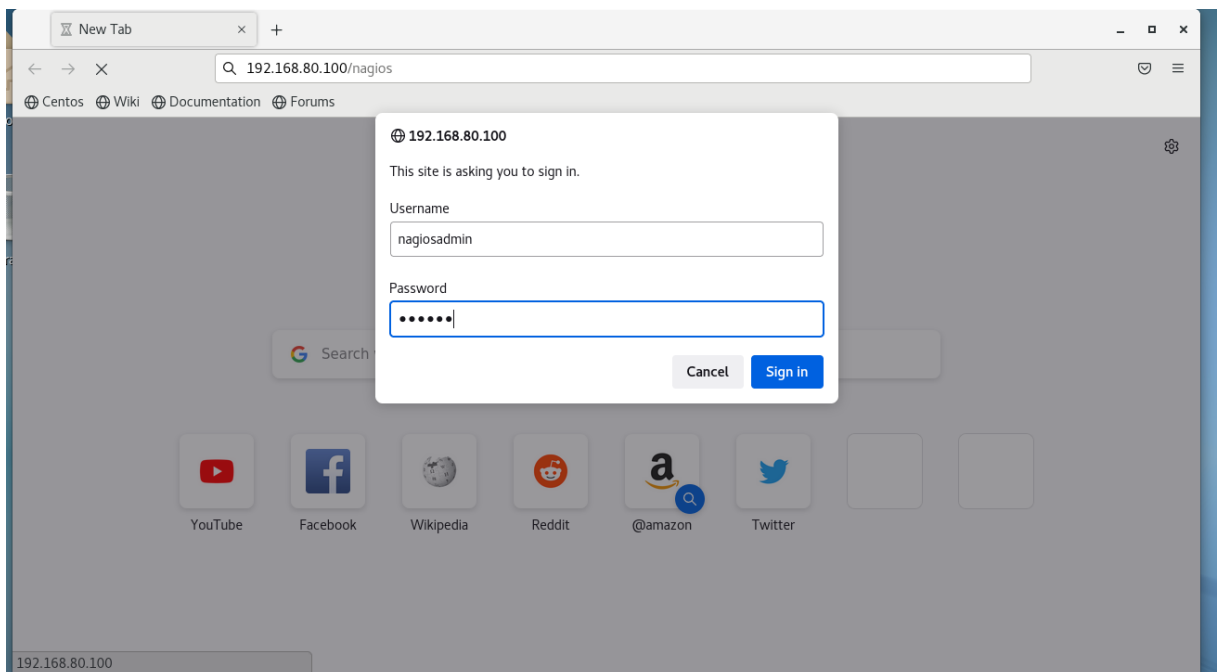
Hình 29: Chạy boot



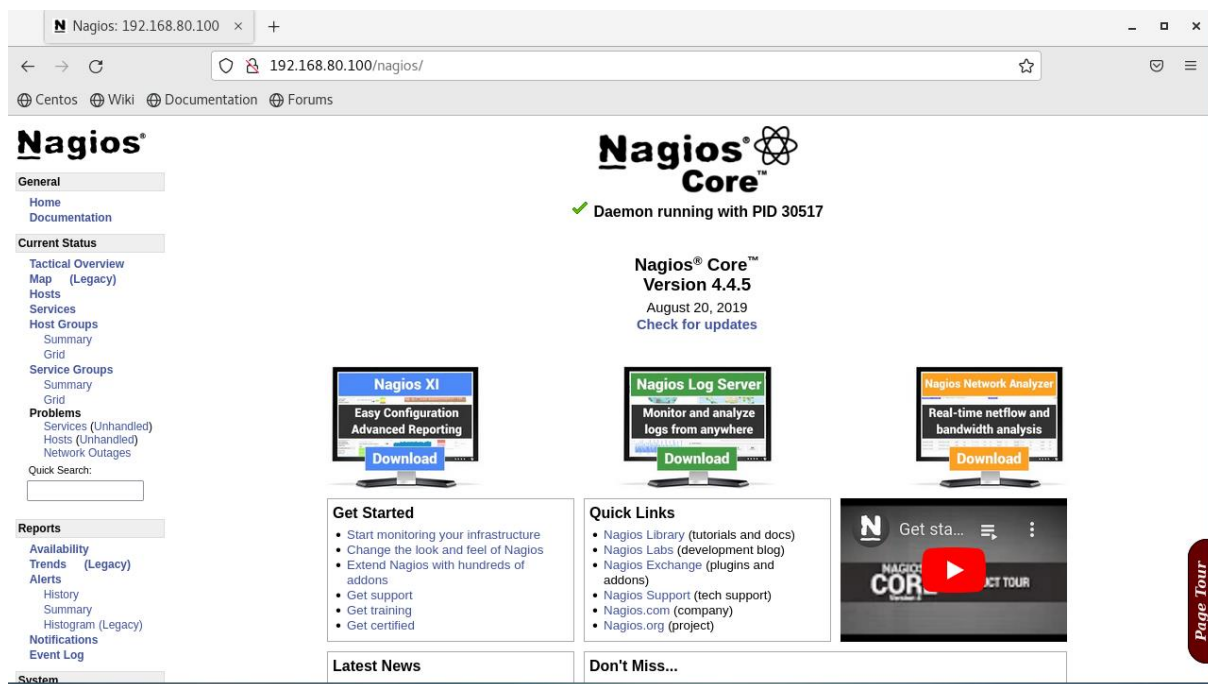
Hình 30: Chạy dịch vụ nagios và kiểm tra đã hoạt động



Hình 31: Start Nagios và kiểm tra hoạt động



Hình 32: Đăng nhập vào Nagios



Hình 33: Giao diện chính của Nagios

```

huy@localhost:/usr/local/nagios/etc/objects
File Edit View Search Terminal Help

#
# 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.

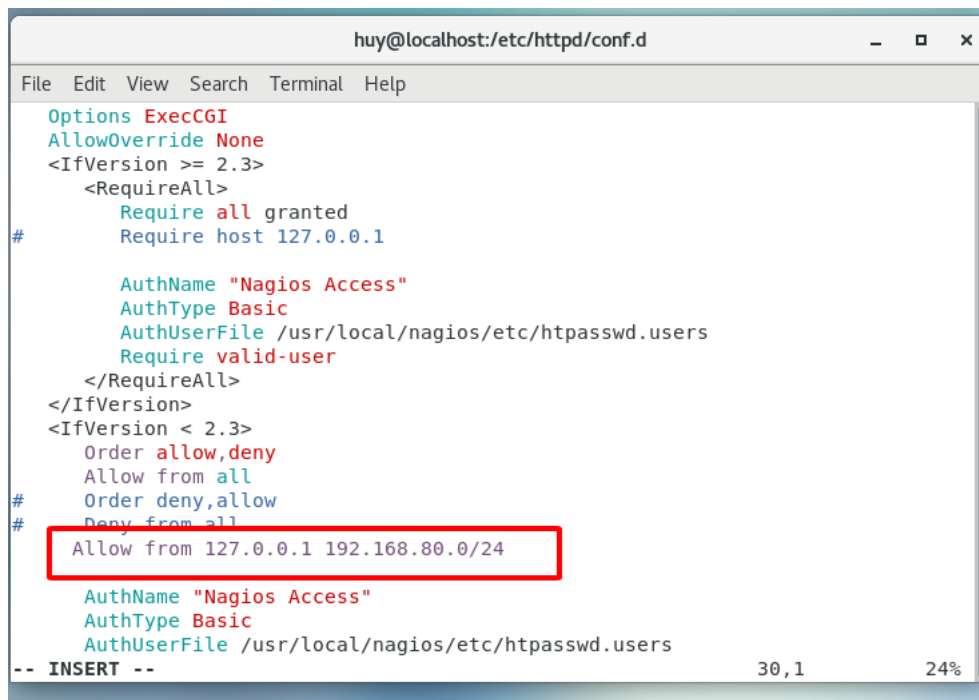
define contact {
    contact_name      nagiosadmin          ; Short name of user
    use               generic-contact      ; Inherit default values fro
m generic-contact template (defined above)
    alias            Nagios Admin          ; Full name of user
    email            nqhuy20042001@gmail.com ; <<***** CHANGE THIS TO YOU
R EMAIL ADDRESS *****
}

#####
#
-- INSERT --                                     32,52      56%

```

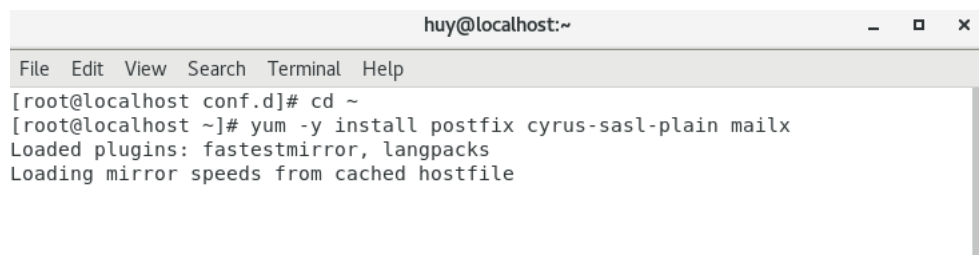
Hình 34: Cấu hình file contacts.cfg đổi mail thông báo





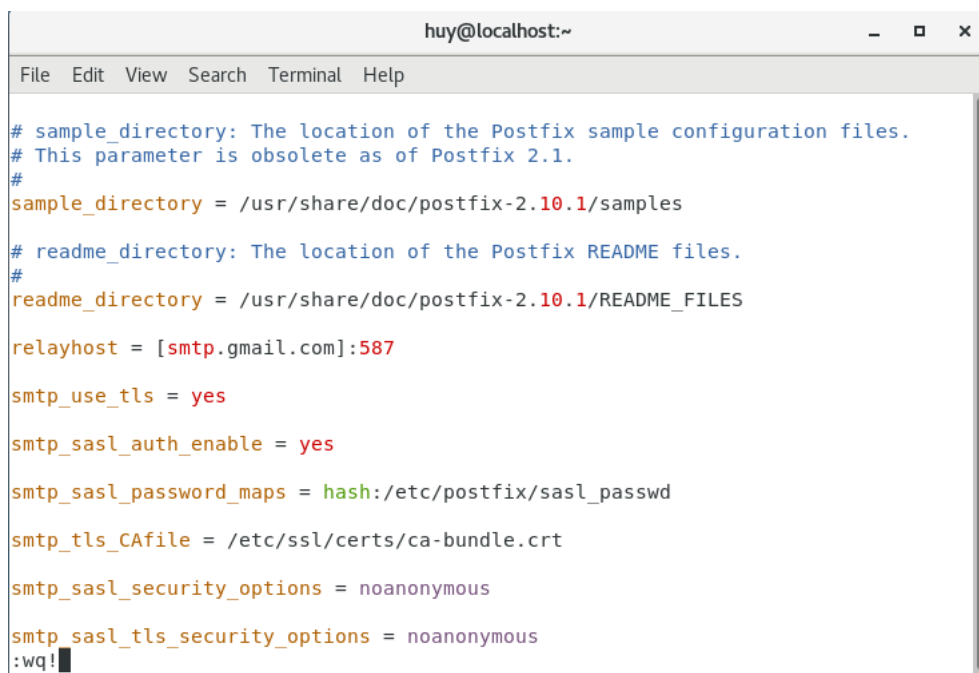
```
huy@localhost:/etc/httpd/conf.d
File Edit View Search Terminal Help
Options ExecCGI
AllowOverride None
<IfVersion >= 2.3>
    <RequireAll>
        Require all granted
        Require host 127.0.0.1
#
    AuthName "Nagios Access"
    AuthType Basic
    AuthUserFile /usr/local/nagios/etc/htpasswd.users
    Require valid-user
    </RequireAll>
</IfVersion>
<IfVersion < 2.3>
    Order allow,deny
    Allow from all
#
    Order deny,allow
#
    Allow from 127.0.0.1 192.168.80.0/24
    AuthName "Nagios Access"
    AuthType Basic
    AuthUserFile /usr/local/nagios/etc/htpasswd.users
-- INSERT --
30,1 24%
```

Hình 35: Cấu hình lớp mạng trong file *nrpe.conf*



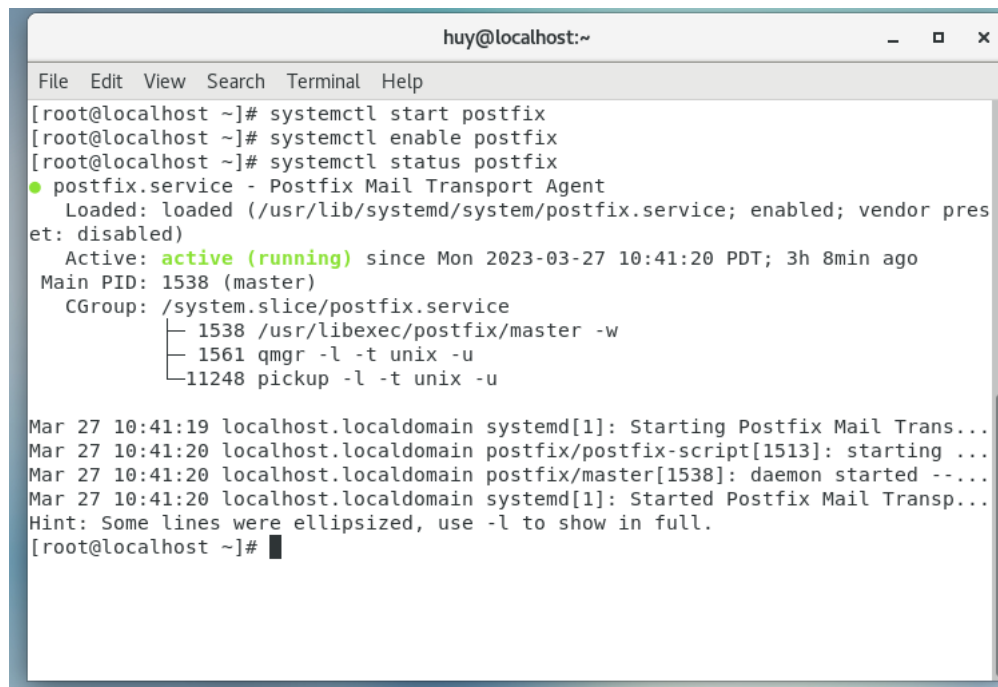
```
huy@localhost:~
File Edit View Search Terminal Help
[root@localhost conf.d]# cd ~
[root@localhost ~]# yum -y install postfix cyrus-sasl-plain mailx
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
```

Hình 36: Cài đặt dịch vụ postfix



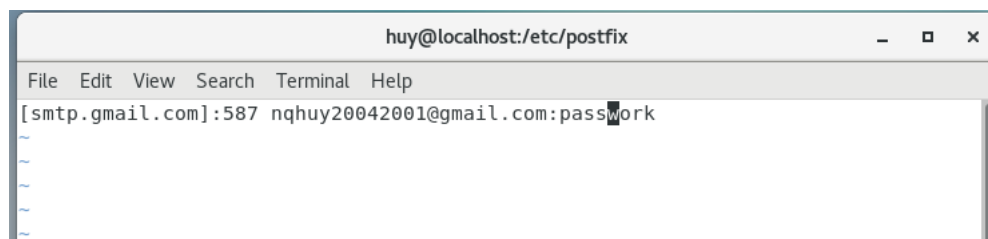
```
huy@localhost:~
File Edit View Search Terminal Help
# sample_directory: The location of the Postfix sample configuration files.
# This parameter is obsolete as of Postfix 2.1.
#
sample_directory = /usr/share/doc/postfix-2.10.1/samples
# readme_directory: The location of the Postfix README files.
#
readme_directory = /usr/share/doc/postfix-2.10.1/README_FILES
relayhost = [smtp.gmail.com]:587
smtp_use_tls = yes
smtp_sasl_auth_enable = yes
smtp_sasl_password_maps = hash:/etc/postfix/sasl_passwd
smtp_tls_CAfile = /etc/ssl/certs/ca-bundle.crt
smtp_sasl_security_options = noanonymous
smtp_sasl_tls_security_options = noanonymous
:wq!
```

*Hình 37: : Cấu hình thêm vào file main.cf*



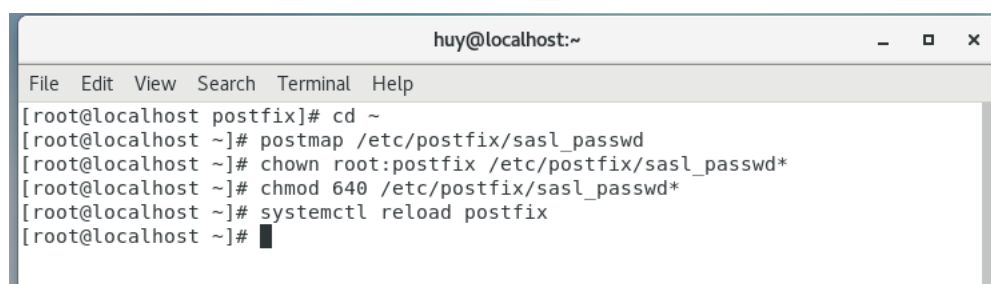
```
huy@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# systemctl start postfix  
[root@localhost ~]# systemctl enable postfix  
[root@localhost ~]# systemctl status postfix  
● postfix.service - Postfix Mail Transport Agent  
   Loaded: loaded (/usr/lib/systemd/system/postfix.service; enabled; vendor preset: disabled)  
   Active: active (running) since Mon 2023-03-27 10:41:20 PDT; 3h 8min ago  
   Main PID: 1538 (master)  
   CGroup: /system.slice/postfix.service  
           └─ 1538 /usr/libexec/postfix/master -w  
             └─ 1561 qmgr -l -t unix -u  
               └─ 11248 pickup -l -t unix -u  
  
Mar 27 10:41:19 localhost.localdomain systemd[1]: Starting Postfix Mail Trans...  
Mar 27 10:41:20 localhost.localdomain postfix/postfix-script[1513]: starting ...  
Mar 27 10:41:20 localhost.localdomain postfix/master[1538]: daemon started --...  
Mar 27 10:41:20 localhost.localdomain systemd[1]: Started Postfix Mail Transp...  
Hint: Some lines were ellipsized, use -l to show in full.  
[root@localhost ~]#
```

*Hình 38: Restart và enable postfix*



```
huy@localhost:/etc/postfix  
File Edit View Search Terminal Help  
[smtp.gmail.com]:587 nqhuy20042001@gmail.com:password  
~  
~  
~  
~
```

*Hình 39: Tạo file sasl\_passwd và thêm mail và password để gửi mail*



```
huy@localhost:~  
File Edit View Search Terminal Help  
[root@localhost postfix]# cd ~  
[root@localhost ~]# postmap /etc/postfix/sasl_passwd  
[root@localhost ~]# chown root:postfix /etc/postfix/sasl_passwd*  
[root@localhost ~]# chmod 640 /etc/postfix/sasl_passwd*  
[root@localhost ~]# systemctl reload postfix  
[root@localhost ~]#
```

*Hình 40: Phân quyền cho file sasl\_passwd và reload dịch vụ postfix*

← Mật khẩu ứng dụng

Mật khẩu ứng dụng của bạn

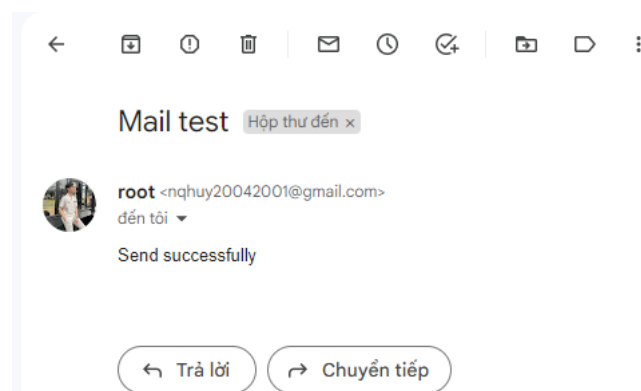
Tên	Đã tạo	Được sử dụng lần cuối
Nagios	04:22	04:25

Chọn ứng dụng và thiết bị bạn muốn tạo mật khẩu ứng dụng.

Chọn ứng dụng ▼ Chọn thiết bị ▼

TẠO

Hình 41: Tạo mật khẩu ứng dụng và nhập vào file `/etc/postfix/sasl_passwd`



Hình 42: Dịch vụ postfix đã hoạt động

```
huy@localhost:~/nagios
File Edit View Search Terminal Help
[root@localhost nagios]# ls
linux-nrpe-agent.tar.gz nagios-4.4.5.tar.gz nagios-plugins.tar.gz
nagios-4.4.5 nagios-plugins-release-2.2.1
[root@localhost nagios]# tar xzf linux-nrpe-agent.tar.gz
```

Hình 43: Cài đặt NRPE

```
huy@localhost:~/nagios/linux-nrpe-agent
File Edit View Search Terminal Help
[root@localhost nagios]# ls
linux-nrpe-agent      nagios-4.4.5      nagios-plugins-release-2.2.1
linux-nrpe-agent.tar.gz nagios-4.4.5.tar.gz nagios-plugins.tar.gz
[root@localhost nagios]# cd linux-nrpe-agent/
[root@localhost linux-nrpe-agent]# ./fullinstall
=====
Nagios Linux Agent Installer
=====

This script will install the Nagios Linux Agent by executing all necessary
sub-scripts.

IMPORTANT: This script should only be used on a clean installed system:

    RedHat Enterprise, CentOS, Fedora, Cloud Linux or Oracle
    OpenSUSE or SUSE Enterprise
    Ubuntu or Debian

Do NOT use this on a system running any other distro or that
does not allow additional package installation.

Do you want to continue? [Y/n]
```

Hình 44: Chạy file cấu hình nrpe

```
}
define command {
    command_name    check_nrpe
    command_line     $USER1$/check_nrpe -H $HOSTADDRESS$ $ARG1$
}
}
```

Hình 45: Thêm cấu hình vào /usr/local/nagios/etc/objects/commands.cfg

```
Applications Places Terminal
huy@localhost:~
File Edit View Search Terminal Help
[root@localhost objects]# cd ~
[root@localhost ~]# yum install openssl-devel -y
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
* base: mirrors.vhost.vn
* epel: download.nus.edu.sg
* extras: mirrors.vhost.vn
* remi-php74: mirrors.thzhost.com
* remi-safe: mirrors.thzhost.com
* updates: mirrors.nhanhoa.com
Package 1:openssl-devel-1.0.2k-26.el7_9.x86_64 already installed and latest version
Nothing to do
[root@localhost ~]#
```

Hình 46: Cài đặt openssl-devel

```
root@huy: /home/huy
root@huy:/home/huy# apt install autoconf automake gcc libc6 libmccrypt-dev unzip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
libc6 is already the newest version (2.35-0ubuntu3.1).
libc6 set to manually installed.
The following packages were automatically installed and are no longer required:
chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver
```

Hình 47: Trên máy Ubuntu cài các gói cần thiết

```
root@huy: /home/huy
root@huy:/home/huy# apt-file search libssl | grep libssl-dev
libssl-dev: /usr/lib/x86_64-linux-gnu/libssl.a
libssl-dev: /usr/lib/x86_64-linux-gnu/libssl.so
libssl-dev: /usr/lib/x86_64-linux-gnu/pkgconfig/libssl.pc
libssl-dev: /usr/share/doc/libssl-dev/changelog.Debian.gz
libssl-dev: /usr/share/doc/libssl-dev/changelog.gz
libssl-dev: /usr/share/doc/libssl-dev/copyright
libssl-doc: /usr/share/doc/libssl-dev/demos/README.txt
libssl-doc: /usr/share/doc/libssl-dev/demos/bio/Makefile
libssl-doc: /usr/share/doc/libssl-dev/demos/bio/README.txt
libssl-doc: /usr/share/doc/libssl-dev/demos/bio/accept.cnf
libssl-doc: /usr/share/doc/libssl-dev/demos/bio/client.accept.cnf
```

Hình 48: Cài libssl-dev

```
root@huy: /home/huy
root@huy:/home/huy# sudo apt-get install openssl libssl-dev -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
libssl-dev is already the newest version (3.0.2-0ubuntu1.8).
The following packages were automatically installed and are no longer required:
chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver
intel-media-va-driver libaacs0 libaom3 libass9 libavcodec58 libavformat58
libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0 libchromaprint1
libcodec2-1.0 libdavid5 libflite1 libgme0 libgsm1
libgstreamer-plugins-bad1.0-0 libigdgmm12 liblilv-0-0 libllvm15 libmfx1
libmysofa1 libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc55 librabbitmq4
librubberband2 libserd-0-0 libshine3 libsnappy1v5 libsord-0-0 libsratom-0-0
libstr1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0
libva-drm2 libva-wayland2 libva-x11-2 libva2 libvdpau1 libvidstab1.1
libvorbis1.0 libvorbisenc4 libxine2 libxine2-gst libxine2-libxine2 libxine2-libxine2
```

Hình 49: Cài openssl-devel

```
root@huy: /home/huy
root@huy:/home/huy# useradd nagios
root@huy:/home/huy#
```

Hình 50: Thêm user nagios

```
root@huy:/home/huy# ls
Desktop Music nrpe-3.2.1.tar.gz snap
Documents nagios-plugins-2.1.2 Pictures Templates
Downloads nagios-plugins-2.1.2.tar.gz Public Videos
root@huy:/home/huy#
```

Hình 51: Giải nén và chạy file cấu hình plugins nrpe

```
root@huy:/home/huy# make all
```

*Hình 52:Lệnh make all*

```
root@ubuntu:/home/huy/nrpe-3.2.1# make install-init
/usr/bin/install -c -m 644 startup/default-service /lib/systemd/system/nrpe.service

root@ubuntu:/home/huy/nrpe-3.2.1#
root@ubuntu:/home/huy/nrpe-3.2.1#
```

*Hình 53: Lệnh make install-init*

```
root@huy:/home/huy/nagios-plugins-2.1.2# usermod -a -G nagios nagios
root@huy:/home/huy/nagios-plugins-2.1.2# chown nagios.nagios /usr/local/nagios
root@huy:/home/huy/nagios-plugins-2.1.2# chown -R nagios.nagios /usr/local/nagios/libexec
root@huy:/home/huy/nagios-plugins-2.1.2#
```

*Hình 54:thêm user vào group và cấp quyền sử dụng tập lưu NRPE cho user nagios và group nagios*

```
root@huy:/home/huy/nagios-plugins-2.1.2# apt install xinetd -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 liblvm13
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  xinetd
0 upgraded, 1 newly installed, 0 to remove and 1 not upgraded.
```

*Hình 55 : Cài đặt xinetd*

```
root@huy:/home/huy# ls
Desktop  Music  nrpe-3.2.1.tar.gz  snap
Documents  nagios-plugins-2.1.2  Pictures  Templates
Downloads  nagios-plugins-2.1.2.tar.gz  Public  Videos
root@huy:/home/huy#
```

*Hình 56: Cài đặt npre*

```
root@huy: /home/huy/nrpe-3.2.1
config.status: creating startup/solaris-inetd.xml
config.status: creating startup/tmpfile.conf
config.status: creating startup/upstart-init
config.status: creating startup/rh-upstart-init
config.status: creating include/common.h
config.status: creating include/config.h

*** Configuration summary for nrpe 3.2.1 2017-09-01 ***:

General Options:
-----
NRPE port:      5666
NRPE user:      nagios
NRPE group:     nagios
Nagios user:    nagios
Nagios group:   nagios

Review the options above for accuracy.  If they look okay,
type 'make all' to compile the NRPE daemon and client
or type 'make' to get a list of make options.

root@huy:/home/huy/nrpe-3.2.1#
```

Hình 57: Lệnh ./configure

```
root@huy: /home/huy/nrpe-3.2.1
NRPE user:      nagios
NRPE group:     nagios
Nagios user:    nagios
Nagios group:   nagios

Review the options above for accuracy.  If they look okay,
type 'make all' to compile the NRPE daemon and client
or type 'make' to get a list of make options.

root@huy:/home/huy/nrpe-3.2.1# make all
cd ./src/; make
make[1]: Entering directory '/home/huy/nrpe-3.2.1/src'
gcc -g -O2 -I/usr/include/openssl -DHAVE_CONFIG_H -I ../include -I ../include
-o nrpe ./nrpe.c ./utils.c ./acl.c -L/usr/lib/x86_64-linux-gnu -lssl -lcrypto -
lnsl
./nrpe.c: In function 'init_ssl':
./nrpe.c:285:9: warning: 'ENGINE_load_builtin_engines' is deprecated: Since Open
SSL 3.0 [-Wdeprecated-declarations]
  285 |         ENGINE_load_builtin_engines();
      |         ^
In file included from ../include/common.h:36,
                 from ./nrpe.c:38:
/usr/include/openssl/engine.h:358:28: note: declared here
```

Hình 58: Lệnh make all

```
root@huy: /home/huy/nrpe-3.2.1
root@huy:/home/huy/nrpe-3.2.1# make install
cd ./src/; make install
make[1]: Entering directory '/home/huy/nrpe-3.2.1/src'
make install-plugin
make[2]: Entering directory '/home/huy/nrpe-3.2.1/src'
/usr/bin/install -c -m 755 -d /usr/local/nagios/bin
/usr/bin/install -c -m 755 ../uninstall /usr/local/nagios/bin/nrpe-uninstall
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/libexec
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/libexec
/usr/bin/install -c -m 775 -o nagios -g nagios check_nrpe /usr/local/nagios/libe
xec
/usr/bin/install: cannot stat 'check_nrpe': No such file or directory
make[2]: *** [Makefile:60: install-plugin] Error 1
make[2]: Leaving directory '/home/huy/nrpe-3.2.1/src'
make[1]: *** [Makefile:54: install] Error 2
make[1]: Leaving directory '/home/huy/nrpe-3.2.1/src'
make: *** [Makefile:89: install] Error 2
root@huy:/home/huy/nrpe-3.2.1#
```

Hình 59: Lệnh make install

```
root@huy:/home/huy/nrpe-3.2.1# make install-plugin
cd ./src/; make install-plugin
make[1]: Entering directory '/home/huy/nrpe-3.2.1/src'
/usr/bin/install -c -m 755 -d /usr/local/nagios/bin
/usr/bin/install -c -m 755 ../uninstall /usr/local/nagios/bin/nrpe-uninstall
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/libexec
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/libexec
/usr/bin/install -c -m 775 -o nagios -g nagios check_nrpe /usr/local/nagios/libe
xec
/usr/bin/install: cannot stat 'check_nrpe': No such file or directory
make[1]: *** [Makefile:60: install-plugin] Error 1
make[1]: Leaving directory '/home/huy/nrpe-3.2.1/src'
make: *** [Makefile:83: install-plugin] Error 2
root@huy:/home/huy/nrpe-3.2.1#
```

Hình 60: Lệnh make install-plugins

```
root@huy:/home/huy/nrpe-3.2.1# make install-config
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc
/usr/bin/install -c -m 644 -o nagios -g nagios sample-config/nrpe.cfg /usr/local
/nagios/etc
root@huy:/home/huy/nrpe-3.2.1#
```

Hình 61: Lệnh make install-config



```
root@huy: /home/huy/nrpe-3.2.1
root@huy:/home/huy/nrpe-3.2.1# make install-init
/usr/bin/install -c -m 644 startup/default-service /lib/systemd/system/nrpe.serv
ice
root@huy:/home/huy/nrpe-3.2.1# make install-inetd
/usr/bin/install -c -m 644 startup/default-xinetd /etc/xinetd.d/nrpe
***** MAKE SURE 'nrpe 5666/tcp' IS IN YOUR /etc/services FILE
root@huy:/home/huy/nrpe-3.2.1#
```

Hình 62: install-init

```
root@huy: /home/huy/nrpe-3.2.1
root@huy:/home/huy/nrpe-3.2.1# make install-init
/usr/bin/install -c -m 644 startup/default-service /lib/systemd/system/nrpe.serv
ice
root@huy:/home/huy/nrpe-3.2.1# make install-inetd
/usr/bin/install -c -m 644 startup/default-xinetd /etc/xinetd.d/nrpe
***** MAKE SURE 'nrpe 5666/tcp' IS IN YOUR /etc/services FILE
root@huy:/home/huy/nrpe-3.2.1#
```

Hình 63: Lệnh install-inetd

```
root@huy: /home/huy/nrpe-3.2.1
# (i.e. 192.168.1.0/24) are also supported. Hostname wildcards are not currently
# supported.
#
# Note: The daemon only does rudimentary checking of the client's IP
# address. I would highly recommend adding entries in your /etc/hosts.allow
# file to allow only the specified host to connect to the port
# you are running this daemon on.
#
# NOTE: This option is ignored if NRPE is running under either inetd or xinetd

allowed_hosts=127.0.0.1,::1,192.168.80.100
server_address=0.0.0.0

# COMMAND ARGUMENT PROCESSING
# This option determines whether or not the NRPE daemon will allow clients
# to specify arguments to commands that are executed. This option only works
# if the daemon was configured with the --enable-command-args configure script
# option.
#
# *** ENABLING THIS OPTION IS A SECURITY RISK! ***
# Read the SECURITY file for information on some of the security implications
"/usr/local/nagios/etc/nrpe.cfg" 362L, 12501B          107,22          28%
```

Hình 64: Cấu hình file nrpe.cfg

```
root@huy:/home/huy/nrpe-3.2.1# ufw status
Status: inactive
root@huy:/home/huy/nrpe-3.2.1# ufw enable
Firewall is active and enabled on system startup
root@huy:/home/huy/nrpe-3.2.1# ufw status
Status: active
root@huy:/home/huy/nrpe-3.2.1#
```

*Hình 65: Kích hoạt firewall ufw*

```
root@huy:/home/huy/nrpe-3.2.1# ufw allow 5666/tcp
Rule added
Rule added (v6)
root@huy:/home/huy/nrpe-3.2.1#
```

*Hình 66: Cho phép port 5666*

```
huy@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# /usr/local/nagios/libexec/check_nrpe -H 127.0.0.1
NRPE v4.1.0
[root@localhost ~]# /usr/local/nagios/libexec/check_nrpe -H 192.168.80.101
NRPE v4.1.0
[root@localhost ~]#
```

*Hình 67: Kiểm tra cấu hình NRPE*

```
huy@localhost:~
File Edit View Search Terminal Help

# OBJECT CONFIGURATION FILE(S)
# These are the object configuration files in which you define hosts,
# host groups, contacts, contact groups, services, etc.
# You can split your object definitions across several config files
# if you wish (as shown below), or keep them all in a single config file.

# You can specify individual object config files as shown below:
cfg_file=/usr/local/nagios/etc/objects/commands.cfg
cfg_file=/usr/local/nagios/etc/objects/contacts.cfg
cfg_file=/usr/local/nagios/etc/objects/timeperiods.cfg
cfg_file=/usr/local/nagios/etc/objects/templates.cfg

cfg_file=/usr/local/nagios/etc/objects/n19dcat037_ubuntu.cfg

# Definitions for monitoring the local (Linux) host
cfg_file=/usr/local/nagios/etc/objects/localhost.cfg
# Definitions for monitoring a Windows machine
#cfg_file=/usr/local/nagios/etc/objects/windows.cfg

# Definitions for monitoring a router/switch

34,60 1%
```

*Hình 68: Cấu hình thêm cho file nagios.cfg*

```
huy@localhost:~  
File Edit View Search Terminal Help  
define service{  
    use                service-test  
    host_name          n19dcat037_ubuntu  
    service_description CPU Load1  
    check_command       check_nrpe!check_load  
}  
  
define service{  
    use                generic-service  
    host_name          n19dcat037_ubuntu  
    service_description disk load1  
    check_command       check_nrpe!check_hda1  
    contact_groups      admins  
}  
  
define service{  
    use                service-test  
    host_name          n19dcat037_ubuntu  
    service_description Users  
    check_command       check_nrpe!check_users  
}
```

58,0-1 92%

Hình 69: Cấu hình file N19dcat037\_ubuntu

```
root@huy: ~  
root@huy:~# df -l  
Filesystem      1K-blocks    Used Available Use% Mounted on  
tmpfs            398216      2112    396104    1% /run  
/dev/sda3       40453376 14641308  23724952   39% /  
tmpfs            1991064        0    1991064    0% /dev/shm  
tmpfs             5120         4        5116    1% /run/lock  
/dev/sda2       524252      6216    518036    2% /boot/efi  
tmpfs            398212      100    398112    1% /run/user/1000  
/dev/sr1        3737140  3737140        0 100% /media/huy/Ubuntu 22.04.1 LTS a  
md64  
/dev/sr0        129778    129778        0 100% /media/huy/CDROM  
root@huy:~#
```

Hình 70: Check ổ đĩa (ở đây là sda3)

```
root@huy: ~  
# directory. Also note that you will have to modify the definitions below  
# to match the argument format the plugins expect. Remember, these are  
# examples only!  
  
# The following examples use hardcoded command arguments...  
  
command[check_users]=/usr/local/nagios/libexec/check_users -w 5 -c 10  
command[check_load]=/usr/local/nagios/libexec/check_load -w 15,10,5 -c 30,,  
25,20  
command[check_sda3]=/usr/local/nagios/libexec/check_disk -w 20% -c 10% -p  
/dev/sda3  
command[check_zombie_procs]=/usr/local/nagios/libexec/check_procs -w 5 -c  
10 -s Z  
command[check_total_procs]=/usr/local/nagios/libexec/check_procs -w 150 -cc  
200  
  
# The following examples allow user-supplied arguments and can  
# only be used if the NRPE daemon was compiled with support for  
201,83 95%
```

Hình 71: Chỉnh sửa file cấu hình nrpe.cf

```
root@huy: ~# systemctl restart nrpe  
root@huy: ~# systemctl status nrpe  
● nrpe.service - Nagios Remote Plugin Executor  
   Loaded: loaded (/lib/systemd/system/nrpe.service; enabled; vendor preset:   
   Active: active (running) since Wed 2023-03-29 23:40:32 +07; 9s ago  
     Docs: http://www.nagios.org/documentation  
    Main PID: 4220 (nrpe)  
      Tasks: 1 (limit: 4573)  
     Memory: 1.5M  
        CPU: 17ms  
    CGroup: /system.slice/nrpe.service  
            └─4220 /usr/local/nagios/bin/nrpe -c /usr/local/nagios/etc/nrpe.cf  
  
Thg 3 29 23:40:32 huy systemd[1]: Started Nagios Remote Plugin Executor.  
Thg 3 29 23:40:32 huy nrpe[4220]: Starting up daemon  
Thg 3 29 23:40:32 huy nrpe[4220]: Server listening on 0.0.0.0 port 5666.  
Thg 3 29 23:40:32 huy nrpe[4220]: Server listening on :: port 5666.  
Thg 3 29 23:40:32 huy nrpe[4220]: Warning: Daemon is configured to accept comma  
Thg 3 29 23:40:32 huy nrpe[4220]: Listening for connections on port 5666  
Thg 3 29 23:40:32 huy nrpe[4220]: Allowing connections from: 127.0.0.1,192.168.  
  
root@huy: ~#
```

Hình 72: Kiểm tra và khởi động lại dịch vụ nrpe trên ubuntu

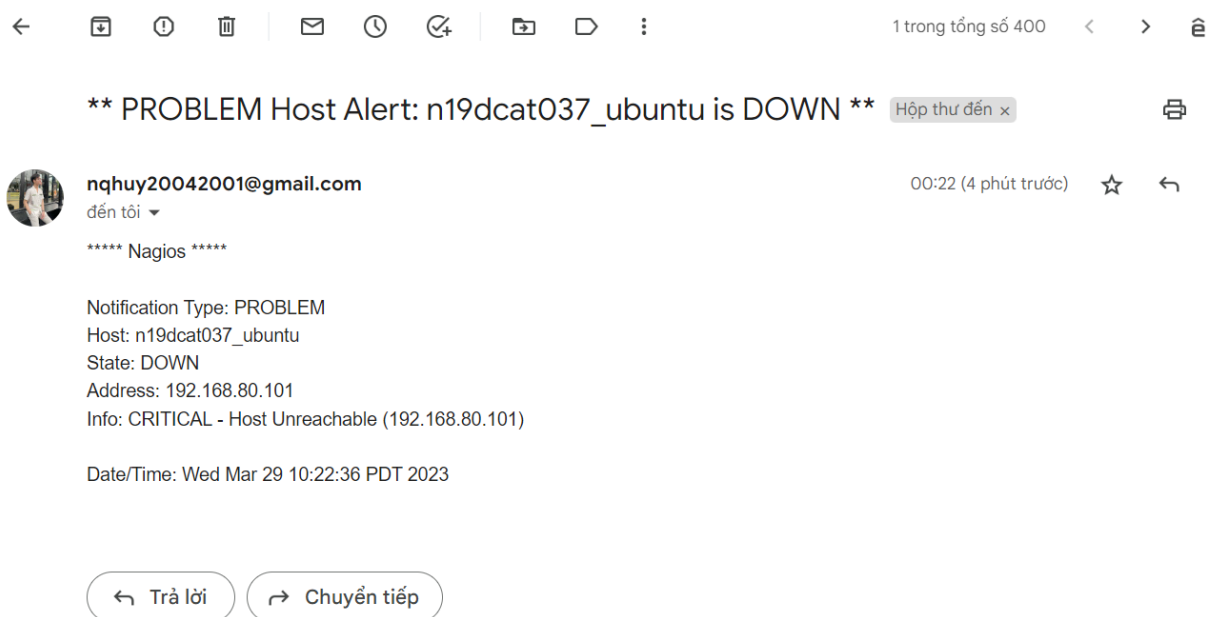
```
huy@localhost:~  
File Edit View Search Terminal Help  
Things look okay - No serious problems were detected during the pre-flight check  
[root@localhost ~]# clear  
  
[root@localhost ~]# systemctl restart nagios  
[root@localhost ~]# systemctl status nagios  
● nagios.service - Nagios Core 4.4.5  
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor prese  
t: disabled)  
   Active: active (running) since Wed 2023-03-29 09:47:50 PDT; 10s ago  
     Docs: https://www.nagios.org/documentation  
   Process: 4022 ExecStopPost=/bin/rm -f /usr/local/nagios/var/rw/nagios.cmd (cod  
e=exited, status=0/SUCCESS)  
   Process: 4013 ExecStop=/bin/kill -s TERM ${MAINPID} (code=exited, status=0/SUC  
CESS)  
   Process: 4110 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/  
nagios.cfg (code=exited, status=0/SUCCESS)  
   Process: 4107 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/e  
tc/nagios.cfg (code=exited, status=0/SUCCESS)  
 Main PID: 4112 (nagios)  
    Tasks: 8  
   CGroup: /system.slice/nagios.service  
           └─4112 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagio...  
             └─4113 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var...  
             └─4114 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var...
```

Hình 73: Restart và kiểm tra dịch vụ nagios có hoạt động

The screenshot shows the Nagios web interface in a Firefox browser. The address bar displays '192.168.80.100/nagios/'. The interface includes a sidebar with navigation links such as 'General', 'Current Status', 'Problems', 'Reports', and 'System'. The main content area displays 'Current Network Status' with a last update of 'Wed Mar 29 09:51:18 PDT 2023'. It also shows 'Host Status Totals' and 'Service Status Totals'. A table titled 'Service Status Details For All Hosts' lists various services and their statuses. The table has columns for Host, Service, Status, Last Check, Duration, Attempt, and Status Information. The services listed include Current Load, Current Users, HTTP, PING, Root Partition, SSH, Swap Usage, Total Processes, CPU Load1, Users, and disk load1. The status of these services is indicated by colored boxes: green for OK, yellow for WARNING, and red for CRITICAL. The table shows that most services are in an OK state, with some warnings for HTTP and SSH.

Host	Service	Status	Last Check	Duration	Attempt	Status Information
localhost	Current Load	OK	03-29-2023 09:48:45	1d 20h 43m 59s	1/4	OK - load average: 0.38, 0.10, 0.07
localhost	Current Users	OK	03-29-2023 09:49:41	1d 20h 43m 21s	1/4	USERS OK - 2 users currently logged in
localhost	HTTP	WARNING	03-29-2023 09:50:36	1d 20h 39m 44s	4/4	HTTP WARNING: HTTP/1.1 403 Forbidden - 5179 bytes in 0.004 second response time
localhost	PING	OK	03-29-2023 09:39:08	1d 20h 42m 6s	1/4	PING OK - Packet loss = 0%, RTT = 0.09 ms
localhost	Root Partition	OK	03-29-2023 09:39:43	1d 20h 41m 29s	1/4	DISK OK - free space: / 33378 MB (86.49% inode=99%):
localhost	SSH	OK	03-29-2023 09:40:21	1d 20h 40m 51s	1/4	SSH OK - OpenSSH_7.4 (protocol 2.0)
localhost	Swap Usage	OK	03-29-2023 09:49:13	1d 20h 40m 14s	1/4	SWAP OK - 100% free (2043 MB out of 2048 MB)
localhost	Total Processes	OK	03-29-2023 09:50:08	1d 20h 38m 36s	1/4	PROCS OK: 73 processes with STATE = RSZDT
n19dca037_ubuntu	CPU Load1	OK	03-29-2023 09:50:50	0d 0h 3m 28s+	1/3	NRPE v4.1.0
n19dca037_ubuntu	Users	OK	03-29-2023 09:50:50	0d 0h 3m 28s+	1/3	NRPE v4.1.0
n19dca037_ubuntu	disk load1	PENDING	N/A	0d 0h 3m 28s+	1/3	Service check scheduled for Wed Mar 29 09:52:55 PDT 2023

Hình 74: Dịch vụ nrpe giám sát ubuntu đã thành công



*Hình 75: Khi máy client Down thì mail cảnh báo sẽ được gửi ngay cho quản trị viên*