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Declaration

I certify that this report does not incorporate without acknowledgement, any material previously submitted for a degree or diploma in any university, and to the best of my knowledge and belief it does not contain any material previously published or written by another person, except where due reference is made in text.

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1 Nagios Monitoring Setup with CentOS 7 Server and Fedora Client/s.

Step 1: Install Apache and PHP Packages

install **Apache**, **PHP**, and some libraries like **gcc**, **glibc**, **glibc-common**, and **GD** libraries and their development libraries before installing **Nagios** with the source. And to do so, we can use the [yum package installer](#).

```
[root@mlb-dcl-centos7 ~]# yum install -y httpd httpd-tools php gcc glibc glibc-common gd gd-devel make net-snmp
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: centos.excelllmedia.net
 * extras: centos.excelllmedia.net
 * updates: centos.excelllmedia.net
Package httpd-2.4.6-99.el7.centos.1.x86_64 already installed and latest version
Package httpd-tools-2.4.6-99.el7.centos.1.x86_64 already installed and latest version
Package 1:make-3.82-24.el7.x86_64 already installed and latest version
Resolving Dependencies
--> Running transaction check
--> Package gcc.x86_64 0:4.8.5-44.el7 will be installed
--> Processing Dependency: cpp = 4.8.5-44.el7 for package: gcc-4.8.5-44.el7.x86_64
--> Processing Dependency: glibc-devel >= 2.2.90-12 for package: gcc-4.8.5-44.el7.x86_64
--> Package gd.x86_64 0:2.0.35-26.el7 will be updated
--> Package gd.x86_64 0:2.0.35-27.el7_9 will be an update
--> Package gd-devel.x86_64 0:2.0.35-27.el7_9 will be installed
--> Processing Dependency: libpng-devel for package: gd-devel-2.0.35-27.el7_9.x86_64
--> Processing Dependency: libjpeg-devel for package: gd-devel-2.0.35-27.el7_9.x86_64
--> Processing Dependency: libxml2-devel for package: gd-devel-2.0.35-27.el7_9.x86_64
--> Processing Dependency: freetype-devel for package: gd-devel-2.0.35-27.el7_9.x86_64
--> Processing Dependency: fontconfig-devel for package: gd-devel-2.0.35-27.el7_9.x86_64
--> Package glibc.x86_64 0:2.17-317.el7 will be updated
--> Package glibc.x86_64 0:2.17-326.el7_9 will be an update
--> Package glibc-common.x86_64 0:2.17-317.el7 will be updated
--> Package glibc-common.x86_64 0:2.17-326.el7_9 will be an update
--> Package net-snmp.x86_64 1:5.7.2-49.el7_9.4 will be installed
--> Processing Dependency: net-snmp-libs = 1:5.7.2-49.el7_9.4 for package: 1:net-snmp-5.7.2-49.el7_9.4.x86_64
--> Processing Dependency: net-snmp-agent-libs = 1:5.7.2-49.el7_9.4 for package: 1:net-snmp-5.7.2-49.el7_9.4.x86_64
--> Processing Dependency: libnetsnmptrapd.so.31()(64bit) for package: 1:net-snmp-5.7.2-49.el7_9.4.x86_64
--> Processing Dependency: libnetsnmplibs.so.31()(64bit) for package: 1:net-snmp-5.7.2-49.el7_9.4.x86_64
--> Processing Dependency: libnetsnmpagent.so.31()(64bit) for package: 1:net-snmp-5.7.2-49.el7_9.4.x86_64
--> Package php.x86_64 0:5.4.16-48.el7 will be installed
--> Processing Dependency: php-common(x86-64) = 5.4.16-48.el7 for package: php-5.4.16-48.el7.x86_64
--> Processing Dependency: php-cli(x86-64) = 5.4.16-48.el7 for package: php-5.4.16-48.el7.x86_64
--> Running transaction check
--> Package cpx.x86_64 0:4.8.5-44.el7 will be installed
--> Package fontconfig-devel.x86_64 0:4.3.13-3.el7 will be installed
```

figure1. 1 Download Apache and PHP Packages

```
Applications Places Terminal Tue 6:01 PM
it22231628@mlb-dcl-centos7:/home/it22231628
File Edit View Search Terminal Help
Verifying : php-common-5.4.16-48.el7.x86_64 23/43
Verifying : freetype-devel-2.8-14.el7_9.1.x86_64 24/43
Verifying : gd-2.0.35-27.el7_9.x86_64 25/43
Verifying : libXpm-devel-3.5.12-2.el7_9.x86_64 26/43
Verifying : glibc-common-2.17-326.el7_9.x86_64 27/43
Verifying : libuuid-2.23.2-65.el7_9.x86_64 28/43
Verifying : glibc-devel-2.17-326.el7_9.x86_64 29/43
Verifying : libzip-0.10.1-8.el7.x86_64 30/43
Verifying : freetype-2.8-14.el7_9.1.x86_64 31/43
Verifying : libuuid-2.23.2-65.el7.x86_64 32/43
Verifying : glibc-2.17-317.el7.x86_64 33/43
Verifying : glibc-common-2.17-317.el7.x86_64 34/43
Verifying : expat-2.1.0-12.el7.x86_64 35/43
Verifying : freetype-2.8-14.el7.x86_64 36/43
Verifying : 1:net-snmp-libs-5.7.2-49.el7.x86_64 37/43
Verifying : libXpm-3.5.12-1.el7.x86_64 38/43
Verifying : libblkid-2.23.2-65.el7.x86_64 39/43
Verifying : gd-2.0.35-26.el7.x86_64 40/43
Verifying : libsmartcols-2.23.2-65.el7.x86_64 41/43
Verifying : util-linux-2.23.2-65.el7.x86_64 42/43
Verifying : libmount-2.23.2-65.el7.x86_64 43/43

Installed:
gcc.x86_64 0:4.8.5-44.el7          gd-devel.x86_64 0:2.0.35-27.el7_9      net-snmp.x86_64 1:5.7.2-49.el7_9.4      php.x86_64 0:5.4.16-48.el7
Dependency Installed:
expat-devel.x86_64 0:2.1.0-15.el7_9      fontconfig-devel.x86_64 0:2.13.0-4.3.el7
freetype-devel.x86_64 0:2.8-14.el7_9.1      glibc-devel.x86_64 0:2.17-326.el7_9
kernel-headers.x86_64 0:3.16.0-1160.114.2.el7      glibc-headers.x86_64 0:2.17-326.el7_9
libpng-devel.x86_64 2:1.5.13-8.el7      libjpeg-turbo-devel.x86_64 0:1.2.90-8.el7
net-snmp-agent-libs.x86_64 1:5.7.2-49.el7_9.4      libzip.x86_64 0:0.10.1-8.el7
                                         php-common.x86_64 0:5.4.16-48.el7

Updated:
gd.x86_64 0:2.0.35-27.el7_9          glibc.x86_64 0:2.17-326.el7_9      glibc-common.x86_64 0:2.17-326.el7_9
                                         libXpm.x86_64 0:3.5.12-2.el7_9      libblkid.x86_64 0:2.23.2-65.el7_9.1
                                         libsmartcols.x86_64 0:2.23.2-65.el7_9.1      libuuid.x86_64 0:2.23.2-65.el7_9.1
                                         net-snmp-libs.x86_64 1:5.7.2-49.el7_9.4
                                         util-linux.x86_64 0:2.23.2-65.el7_9.1

Dependency Updated:
expat.x86_64 0:2.1.0-15.el7_9      freetype.x86_64 0:2.8-14.el7_9.1      libXpm.x86_64 0:3.5.12-2.el7_9      libblkid.x86_64 0:2.23.2-65.el7_9.1
libmount.x86_64 0:2.23.2-65.el7_9.1      libsmartcols.x86_64 0:2.23.2-65.el7_9.1      libuuid.x86_64 0:2.23.2-65.el7_9.1      net-snmp-libs.x86_64 1:5.7.2-49.el7_9.4
util-linux.x86_64 0:2.23.2-65.el7_9.1

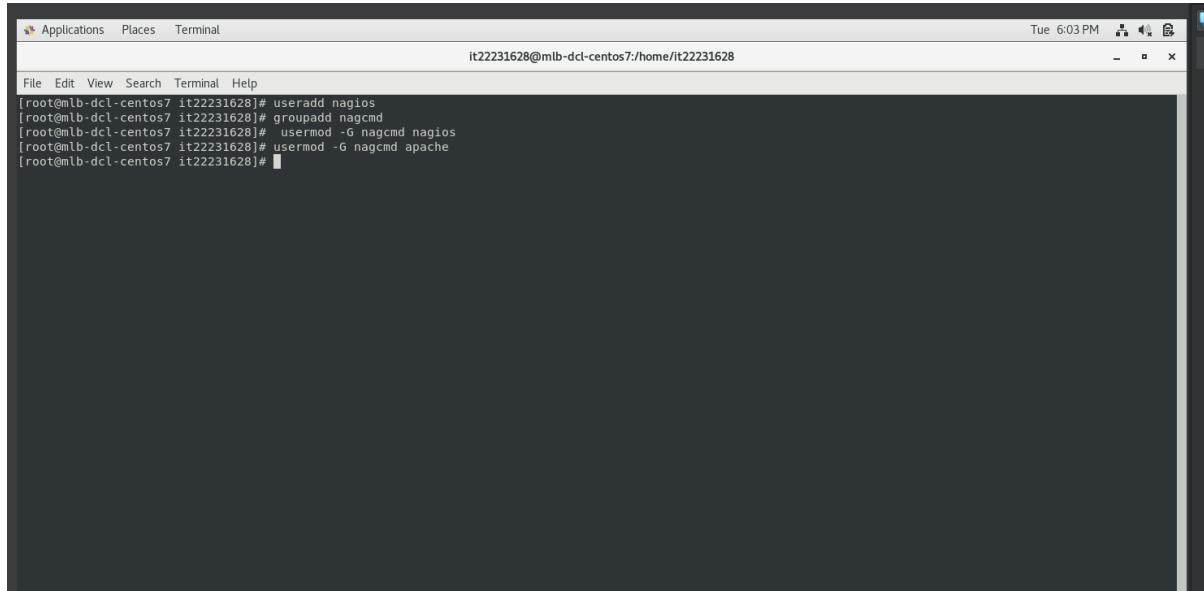
Complete!
[root@mlb-dcl-centos7 ~]#
```

figure1, 2:download complete

Step 2: Create Nagios User and Group

Create a new **nagios** user using the [useradd command](#) and **nagcmd** group account and set a **password**.

Next, add both the nagios user and the apache user to the nagcmd group using the [usermod command](#).



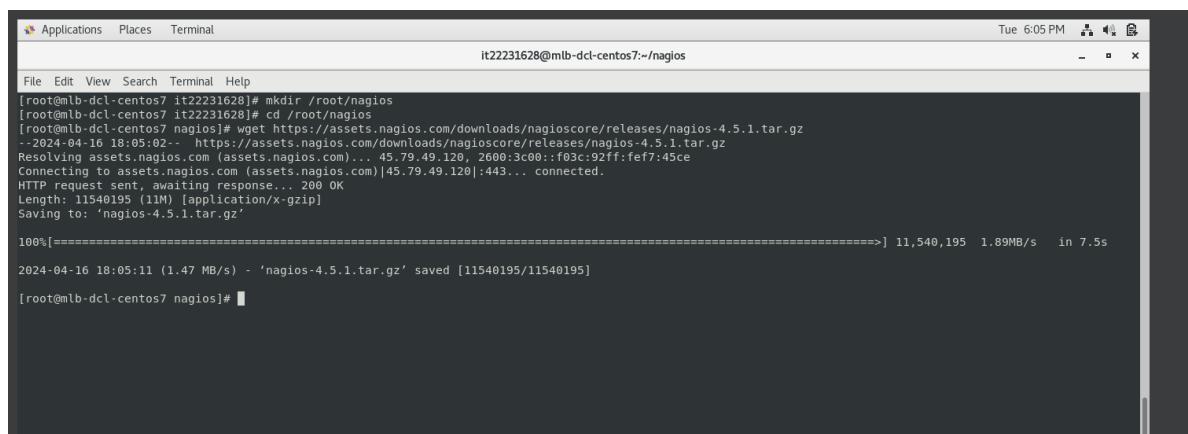
```
it22231628@mlb-dcl-centos7:~$ useradd nagios
[root@mlb-dcl-centos7 ~]# groupadd nagcmd
[root@mlb-dcl-centos7 ~]# usermod -G nagcmd nagios
[root@mlb-dcl-centos7 ~]# usermod -G nagcmd apache
[root@mlb-dcl-centos7 ~]#
```

figure1. 3: Create Nagios User and Group

Step 3: Download Nagios Core and Nagios Plugin

Create a directory for your **Nagios** installation and all its future downdloads.

Now download the latest Nagios and Nagios Plugin packages with the Wget command.



```
it22231628@mlb-dcl-centos7:~$ mkdir /root/nagios
[root@mlb-dcl-centos7 ~]# cd /root/nagios
[root@mlb-dcl-centos7 nagios]# wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.1.tar.gz
--2024-04-16 18:05:02-- https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.1.tar.gz
Resolving assets.nagios.com (assets.nagios.com)... 45.79.49.120, 2600:3c00::f03c:92ff:fe7:45ce
Connecting to assets.nagios.com (assets.nagios.com)|45.79.49.120|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11540195 (11M) [application/x-gzip]
Saving to: 'nagios-4.5.1.tar.gz'

100%[=====] 11,540,195  1.89MB/s   in 7.5s

2024-04-16 18:05:11 (1.47 MB/s) - 'nagios-4.5.1.tar.gz' saved [11540195/11540195]
[root@mlb-dcl-centos7 nagios]#
```

figure1. 4: Download Nagios Core and Nagios Plugin

A screenshot of a Linux terminal window titled "it22231628@mlb-dcl-centos7:~/nagios". The terminal shows the following command sequence:

```
[root@mlb-dcl-centos7 nagios]# mkdir /root/nagios
[root@mlb-dcl-centos7 nagios]# cd /root/nagios
[root@mlb-dcl-centos7 nagios]# wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.1.tar.gz
--2024-04-16 18:05:02-- https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.5.1.tar.gz
Resolving assets.nagios.com (assets.nagios.com)... 45.79.49.120, 2600:3c00::f03c:92ff:feff:45ce
Connecting to assets.nagios.com (assets.nagios.com)|45.79.49.120|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11540195 (11M) [application/x-gzip]
Saving to: 'nagios-4.5.1.tar.gz'

100%[=====] 11,540,195  1.89MB/s   in 7.5s

2024-04-16 18:05:11 (1.47 MB/s) - 'nagios-4.5.1.tar.gz' saved [11540195/11540195]

[root@mlb-dcl-centos7 nagios]# wget https://nagios-plugins.org/download/nagios-plugins-2.4.9.tar.gz
--2024-04-16 18:06:34-- https://nagios-plugins.org/download/nagios-plugins-2.4.9.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: 2754403 (2.6M) [application/x-gzip]
Saving to: 'nagios-plugins-2.4.9.tar.gz'

100%[=====] 2,754,403  616KB/s   in 4.4s

2024-04-16 18:06:41 (616 KB/s) - 'nagios-plugins-2.4.9.tar.gz' saved [2754403/2754403]

[root@mlb-dcl-centos7 nagios]#
```

figure1. 5:Download completed

Step 4: Extract Nagios Core and Nagios Plugins.

extract downloaded packages with the [tar command](#) as follows.

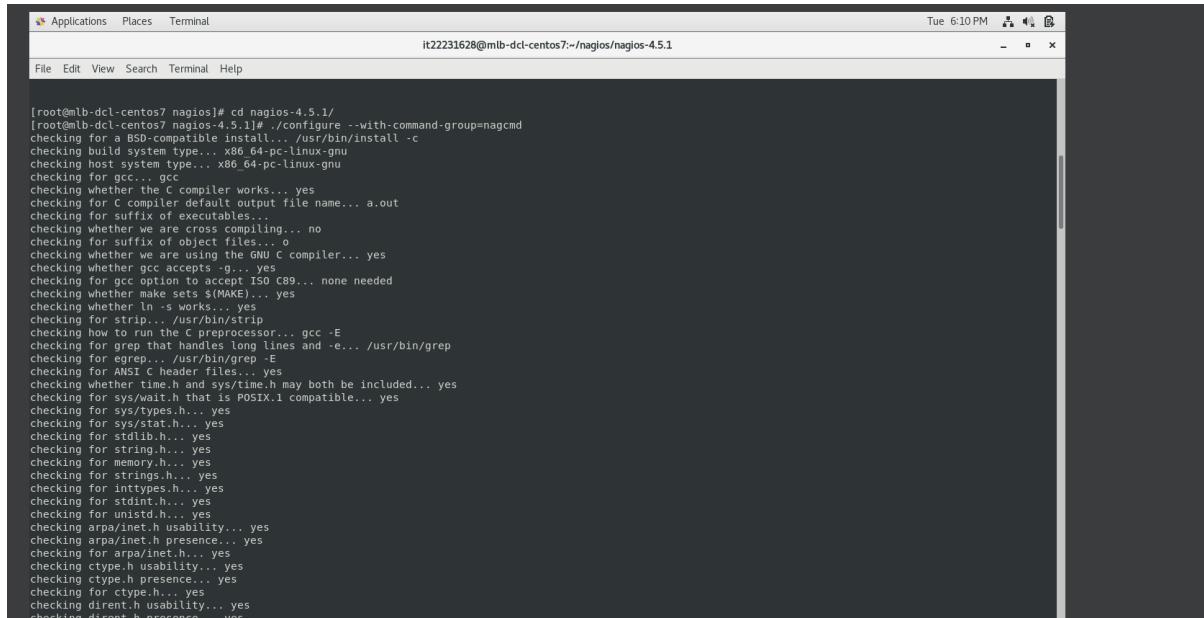
A screenshot of a Linux terminal window titled "it22231628@mlb-dcl-centos7:~/nagios". The terminal shows the following command sequence:

```
[root@mlb-dcl-centos7 nagios]# tar -xf nagios-4.5.1.tar.gz
[root@mlb-dcl-centos7 nagios]# tar -xf nagios-plugins-2.4.9.tar.gz
[root@mlb-dcl-centos7 nagios]# ls -l
total 13972
drwxrwxr-x. 21 root root    4096 Feb 28 21:29 nagios-4.5.1
-rw-r--r--.  1 root root 11540195 Feb 28 21:39 nagios-4.5.1.tar.gz
drwxr-xr-x. 15 root root    4096 Mar 19 03:10 nagios-plugins-2.4.9
-rw-r--r--.  1 root root  2754403 Mar 21 20:26 nagios_plugins-2.4.9.tar.gz
[root@mlb-dcl-centos7 nagios]#
```

figure1. 6:Extract Nagios Core and Nagios Plugins.

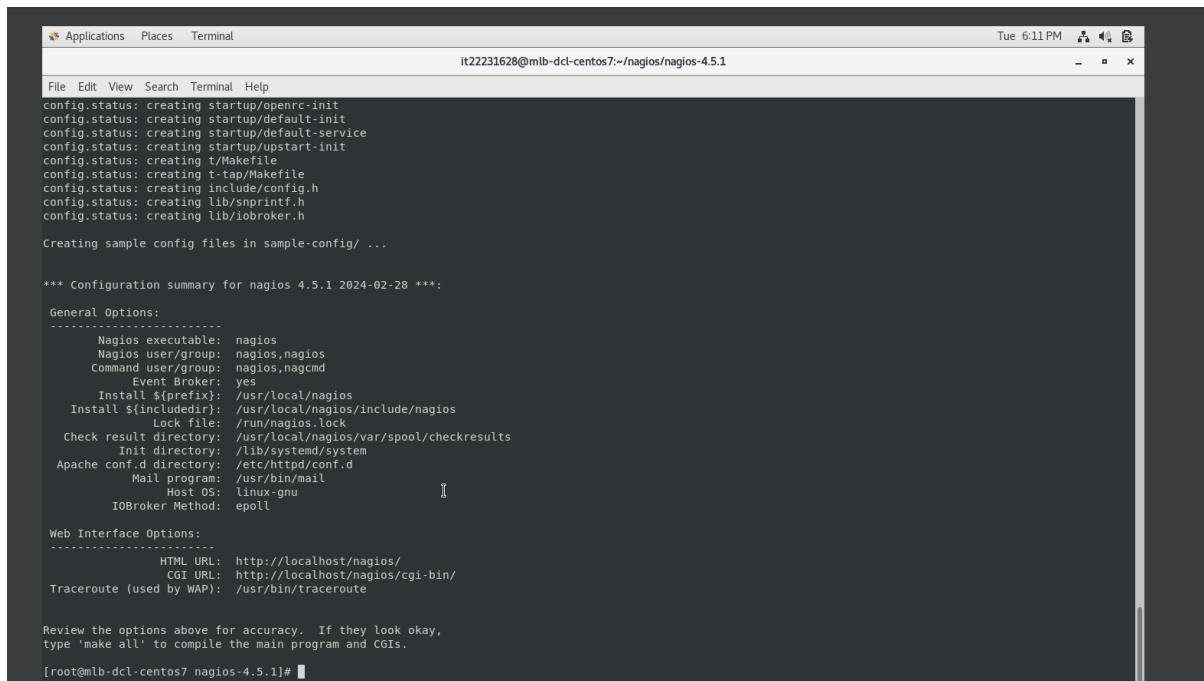
Step 5: Installing and Configuring Nagios Core

configure **Nagios Core** and to do so we need to go to the **Nagios** directory and run configure file if everything goes fine, it will show the output in the end as sample output.



```
[root@mlb-dcl-centos7 nagios]# cd nagios-4.5.1/
[root@mlb-dcl-centos7 nagios-4.5.1]# ./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
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
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether make sets $MAKE... yes
checking whether 'rn' > works...
checking for strip... /usr/bin/strip
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for ANSI C header files... yes
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for stdarg.h... yes
checking for stdint.h... yes
checking for stdatomic.h... yes
checking arpa/inet.h usability... yes
checking arpa/inet.h presence... yes
checking ctype.h usability... yes
checking ctype.h presence... yes
checking ctype.h presence... yes
checking dirent.h usability... yes
checking dirent.h presence... yes
```

figure1. 7: Installing and Configuring Nagios Core



```
[root@mlb-dcl-centos7 nagios-4.5.1]# ./configure --with-command-group=nagcmd
config.status: creating startup/openrc-init
config.status: creating startup/default-init
config.status: creating startup/default-service
config.status: creating startup/upstart-init
config.status: creating t/Makefile
config.status: creating t-tap/Makefile
config.status: creating include/config.h
config.status: creating lib/snprintf.h
config.status: creating lib/jobroker.h

Creating sample config files in sample-config/ ...

*** Configuration summary for nagios 4.5.1 2024-02-28 ***:

General Options:
-----
    Nagios executable: nagios
    Nagios user/group: nagios,nagios
    Command user/group: nagios,nagcmd
    Event Broker: yes
    Install ${prefix}: /usr/local/nagios
    Install ${prefix}/include: /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
        Mail program: /usr/bin/mail
        Host OS: linux-gnu
    IOBroker Method: epoll

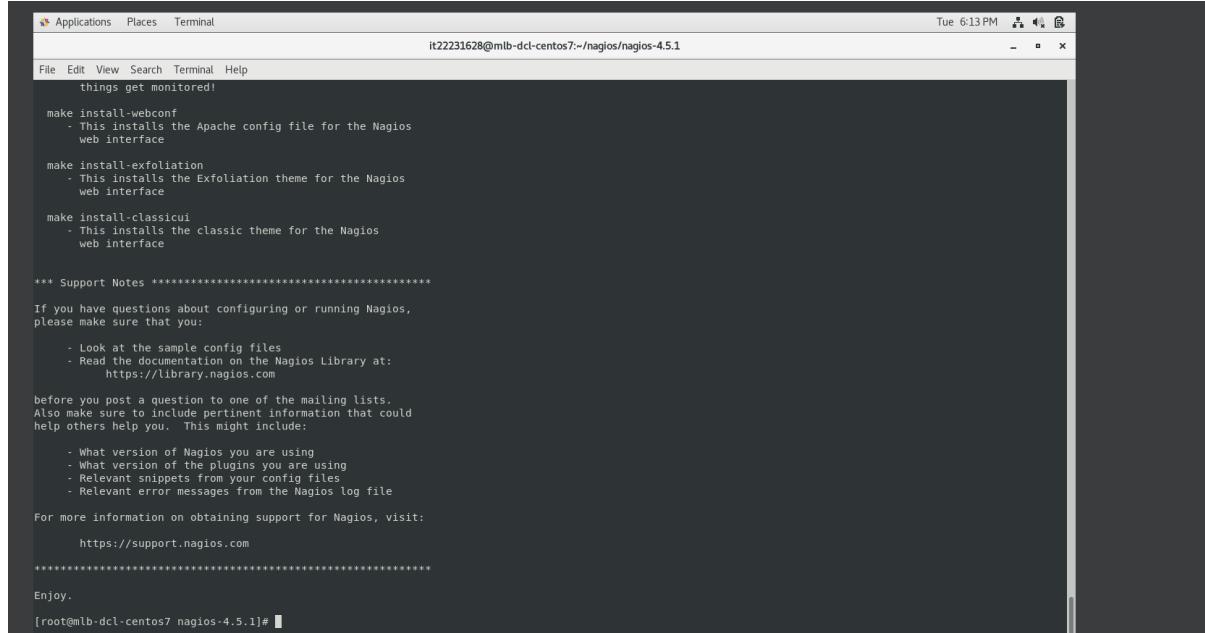
Web Interface Options:
-----
    HTML URL: http://localhost/nagios/
    CGI URL: http://localhost/nagios/cgi-bin/
Traceroute (used by WAP): /usr/bin/traceroute

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

[root@mlb-dcl-centos7 nagios-4.5.1]#
```

figure1. 8:complete the : Installing and Configuring Nagios Core

After configuring, we need to **compile** and **install** all the binaries with the **make all** and **make install** commands, it will install all the needed libraries in your machine and we can proceed further.



```

Applications Places Terminal
File Edit View Search Terminal Help
it22231628@mlb-dcl-centos7:~/nagios/nagios-4.5.1
Tue 6:13 PM - + x
File Edit View Search Terminal Help
      things get monitored!
make install-webconf
  - This installs the Apache config file for the Nagios
    web interface

make install-exfoliation
  - This installs the Exfoliation theme for the Nagios
    web interface

make install-classicui
  - This installs the classic theme for the Nagios
    web interface

*** Support Notes ****
If you have questions about configuring or running Nagios,
please make sure that you:
  - Look at the sample config files
  - Read the documentation on the Nagios Library at:
    https://library.nagios.com

before you post a question to one of the mailing lists.
Also make sure to include pertinent information that could
help others help you. This might include:
  - What version of Nagios you are using
  - What version of the plugins you are using
  - Relevant snippets from your config files
  - Relevant error messages from the Nagios log file

For more information on obtaining support for Nagios, visit:
  https://support.nagios.com

*****
Enjoy.

[root@mlb-dcl-centos7 nagios-4.5.1]#

```

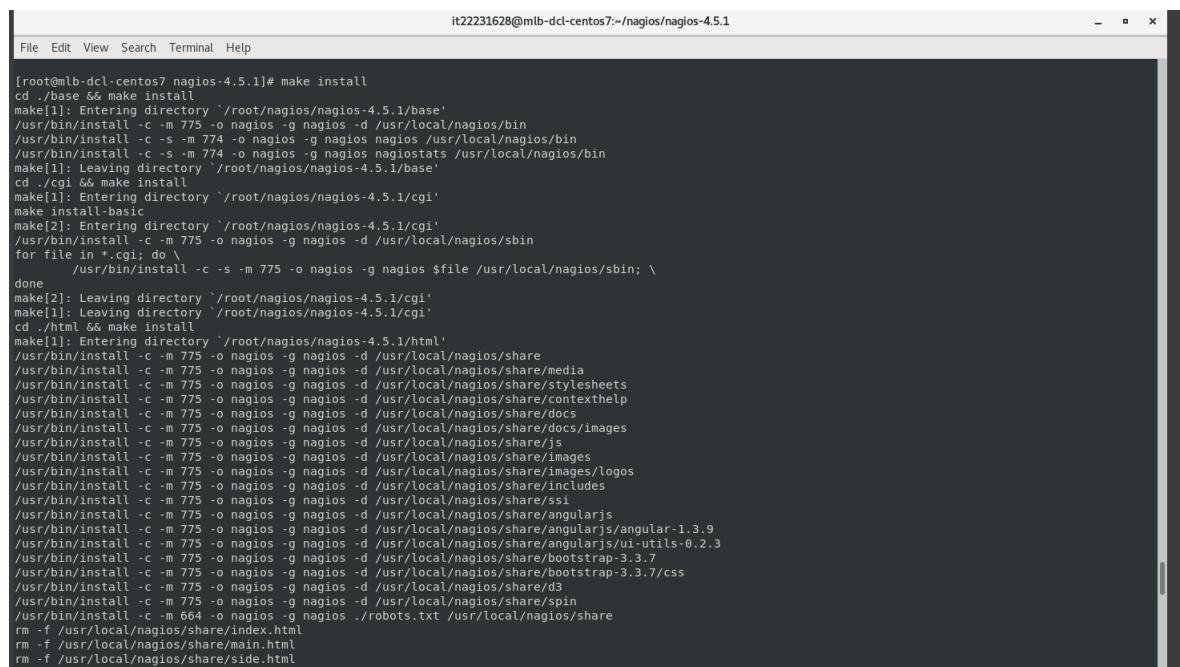
figure1. 9;make all and make install commands

install the **init scripts** for Nagios.

To make Nagios work from the command line we need to install **command-mode**.

Next, install sample Nagios files, please run the following command.

2inl Nagios



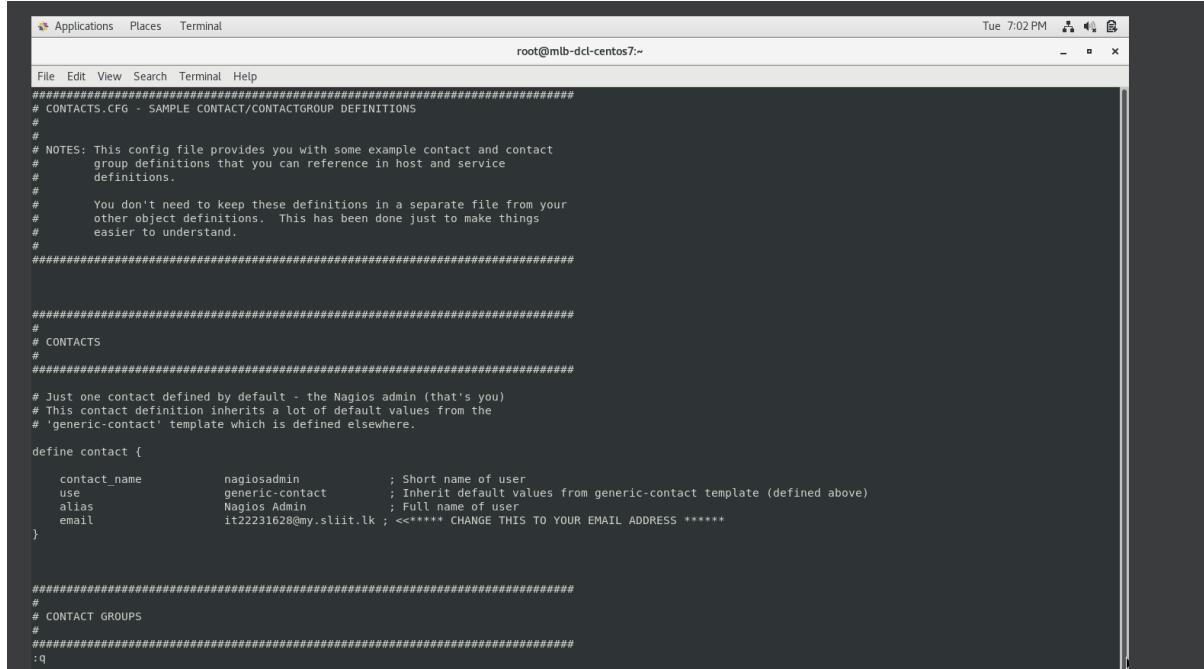
```

it22231628@mlb-dcl-centos7:~/nagios/nagios-4.5.1
File Edit View Search Terminal Help
[root@mlb-dcl-centos7 nagios-4.5.1]# make install
cd ./base && make install
make[1]: Entering directory `/root/nagios/nagios-4.5.1/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 nagiosstats /usr/local/nagios/bin
make[1]: Leaving directory `/root/nagios/nagios-4.5.1/base'
cd ./cgi && make install
make[1]: Entering directory `/root/nagios/nagios-4.5.1/cgi'
make install-basic
make[2]: Entering directory `/root/nagios/nagios-4.5.1/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 `/root/nagios/nagios-4.5.1/cgi'
make[1]: Leaving directory `/root/nagios/nagios-4.5.1/cgi'
cd ./html && make install
make[1]: Entering directory `/root/nagios/nagios-4.5.1/html'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/media
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/stylesheets
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/contexthelp
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/docs
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/docs/images
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/jsp
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/images
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/images/logos
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/includes
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/ssi
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/angularjs
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/angularjs/angular-1.3.9
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/angularjs/ui-utils-0.2.3
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/bootstrap-3.3.7
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/bootstrap-3.3.7/css
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/d3
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/share/spin
/usr/bin/install -c -m 664 -o nagios -g nagios ./robots.txt /usr/local/nagios/share
rm -f /usr/local/nagios/share/index.html
rm -f /usr/local/nagios/share/main.html
rm -f /usr/local/nagios/share/side.html

```

figure1. 10:install the init scripts for Nagios.

Step 6: Customizing Nagios Configuration

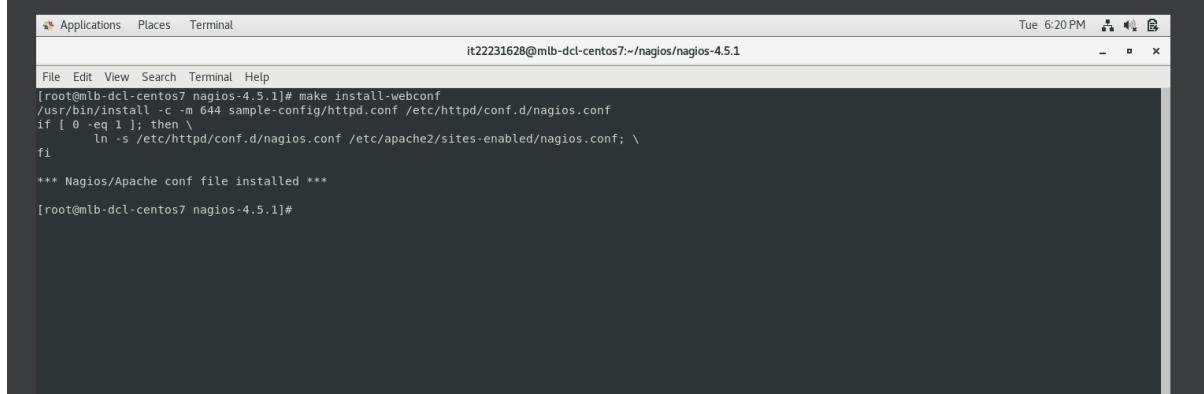


```
# Applications Places Terminal
root@mlb-dcl-centos7:~#
File Edit View Search Terminal Help
#####
# CONTACTS.CFG - SAMPLE CONTACT/CONTACTGROUP DEFINITIONS
#
#
# NOTES: This config file provides you with some example contact and contact
# group definitions that you can reference in host and service
# definitions.
#
# You don't need to keep these definitions in a separate file from your
# other object definitions. This has been done just to make things
# easier to understand.
#
#####
#
# 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 from generic-contact template (defined above)
    alias             Nagios Admin         ; Full name of user
    email             it22231628@my.sliit.lk ; <>***** CHANGE THIS TO YOUR EMAIL ADDRESS *****
}

#####
#
# CONTACT GROUPS
#
#####
:q
```

figure1. 11:Customizing Nagios Configuration

Step 7: Install and Configure the Web Interface for Nagios



```
# Applications Places Terminal
it22231628@mlb-dcl-centos7:~/nagios/nagios-4.5.1
File Edit View Search Terminal Help
Tue 6:20 PM
[root@mlb-dcl-centos7 nagios-4.5.1]# make install-webconf
/usr/bin/install -c -m 644 sample-config/httdp.conf /etc/httpd/conf.d/nagios.conf
if [ 0 -eq 1 ]; then \
    ln -s /etc/httdp/conf.d/nagios.conf /etc/apache2/sites-enabled/nagios.conf; \
fi
*** Nagios/Apache conf file installed ***
[root@mlb-dcl-centos7 nagios-4.5.1]#
```

figure1. 12: Install and Configure the Web Interface for Nagios

we will be creating a password for “**nagiosadmin**”. After executing this command



```
# Applications Places Terminal
it22231628@mlb-dcl-centos7:~/nagios/nagios-4.5.1
File Edit View Search Terminal Help
Tue 6:21 PM
[root@mlb-dcl-centos7 nagios-4.5.1]# htpasswd -s -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
[root@mlb-dcl-centos7 nagios-4.5.1]#
```

figure1. 13;creating a password for “nagiosadmin”

Restart Apache to make the new settings take effect.

The screenshot shows a terminal window with the following command history:

```
[root@mlb-dcl-centos7 it22231628]# firewall-cmd --zone=public --permanent --add-service=http
success
[root@mlb-dcl-centos7 it22231628]# firewall-cmd --zone=public --permanent --add-service=https
success
[root@mlb-dcl-centos7 it22231628]# firewall-cmd --reload
success
[root@mlb-dcl-centos7 it22231628]# # systemctl enable httpd
[root@mlb-dcl-centos7 it22231628]# systemctl status httpd
● httpd.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
    Active: inactive (dead)
      Docs: man:httpd(8)
             man:apachectl(8)
[root@mlb-dcl-centos7 it22231628]# systemctl start httpd
[root@mlb-dcl-centos7 it22231628]# systemctl status httpd
● httpd.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
  Active: active (running) since Tue 2024-04-16 17:50:05 +0530; 1s ago
    Docs: man:httpd(8)
           man:apachectl(8)
  Main PID: 5408 (httpd)
    Status: "Processing requests..."
     Tasks: 6
    CGroup: /system.slice/httpd.service
            └─5408 /usr/sbin/httpd -DFOREGROUND
                ├─5416 /usr/sbin/httpd -DFOREGROUND
                ├─5417 /usr/sbin/httpd -DFOREGROUND
                ├─5418 /usr/sbin/httpd -DFOREGROUND
                ├─5419 /usr/sbin/httpd -DFOREGROUND
                ├─5420 /usr/sbin/httpd -DFOREGROUND
Apr 16 17:50:05 mlb-dcl-centos7.csal.k systemd[1]: Starting The Apache HTTP Server...
Apr 16 17:50:05 mlb-dcl-centos7.csal.k systemd[1]: Started The Apache HTTP Server.
[root@mlb-dcl-centos7 it22231628]#
```

figure1. 14;Restart Apache to make the new settings take effect.

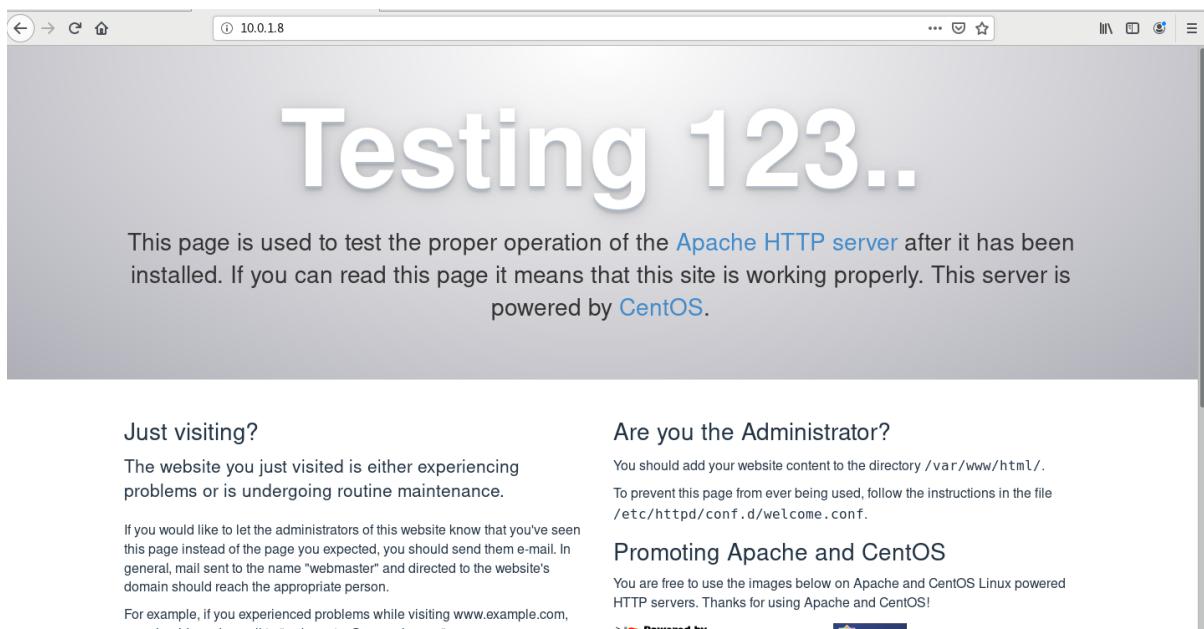
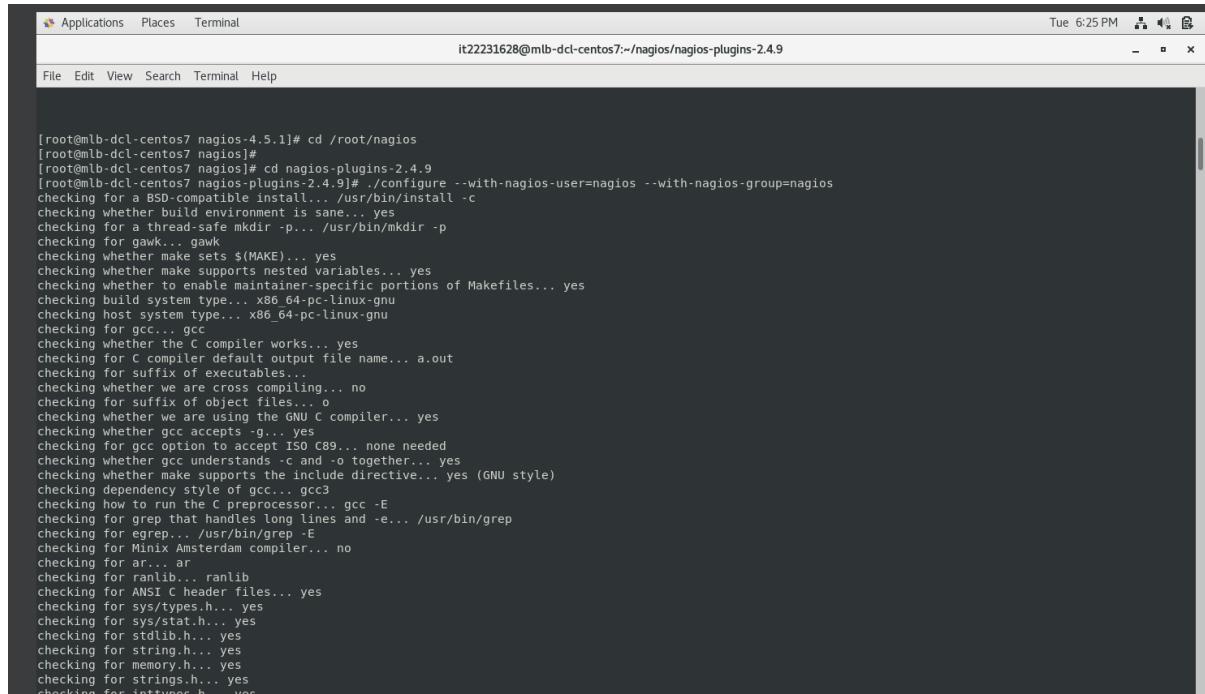


figure1. 15:test the httpd services

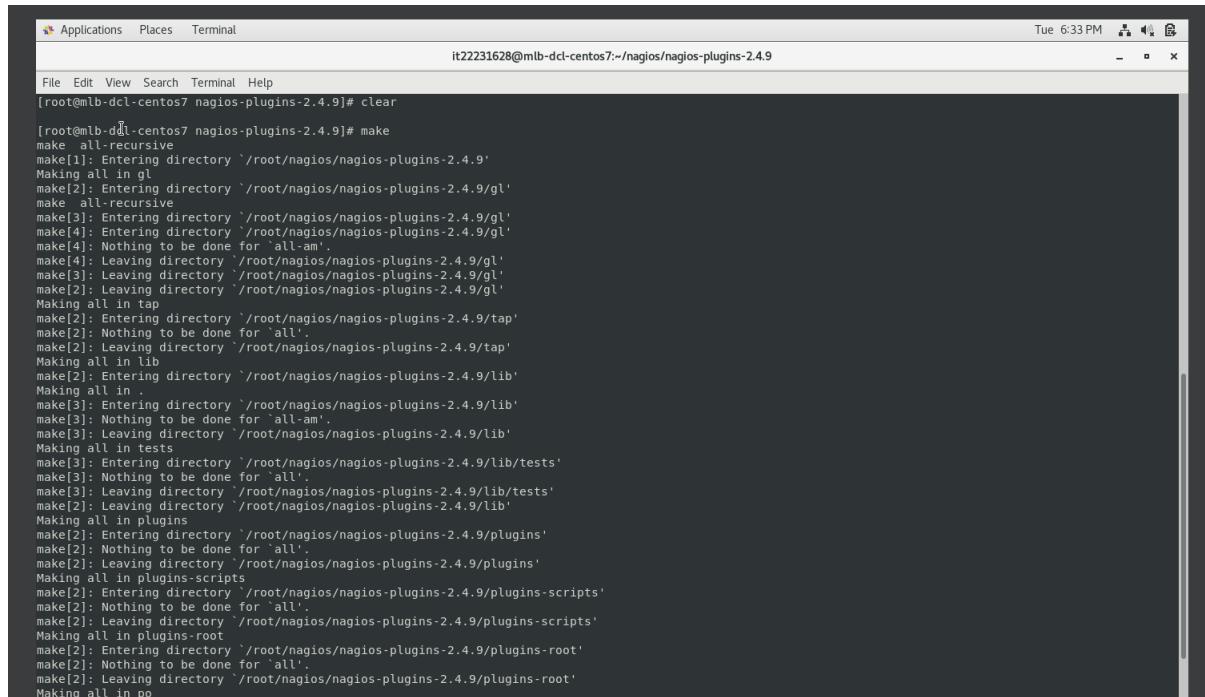
Step 8: Compile and Install Nagios Plugin



A screenshot of a terminal window titled "it22231628@mlb-dcl-centos7:/nagios/nagios-plugins-2.4.9". The window shows the configuration process for the Nagios plugin source code. The terminal output includes several "checking" statements and configuration options like --with-nagios-user=nagios and --with-nagios-group=nagios.

```
[root@mlb-dcl-centos7 nagios-4.5.1]# cd /root/nagios
[root@mlb-dcl-centos7 nagios]#
[root@mlb-dcl-centos7 nagios]# cd nagios-plugins-2.4.9
[root@mlb-dcl-centos7 nagios-plugins-2.4.9]# ./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
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
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether gcc understands -c and -o together... yes
checking whether make supports the include directive... yes (GNU style)
checking dependency style of gcc... gcc3
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -E... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for Minix Amsterdam compiler... no
checking for ar...
checking for ranlib...
checking for ANSI C header files... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for strings.h... yes
checking for inttypes.h... yes
```

figure1. 16:: Compile and Install Nagios Plugin



A screenshot of a terminal window titled "it22231628@mlb-dcl-centos7:/nagios/nagios-plugins-2.4.9". The window shows the execution of the "make" command to compile the Nagios plugin files. The terminal output shows the "make" process entering various subdirectories and performing builds.

```
[root@mlb-dcl-centos7 nagios-plugins-2.4.9]# clear
[root@mlb-dcl-centos7 nagios-plugins-2.4.9]# make
make all-recursive
make[1]: Entering directory '/root/nagios/nagios-plugins-2.4.9'
Making all in gl
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[3]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[4]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[4]: Nothing to be done for `all-am'.
make[4]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[3]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
Making all in tap
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/tap'
make[2]: Nothing to be done for `all'.
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/tap'
Making all in lib
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/lib'
make[3]: Entering directory '/root/nagios/nagios-plugins-2.4.9/lib'
make[3]: Nothing to be done for `all-am'.
make[3]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/lib'
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/lib'
Making all in tests
make[3]: Entering directory '/root/nagios/nagios-plugins-2.4.9/lib/tests'
make[3]: Nothing to be done for `all'.
make[3]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/lib/tests'
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/lib'
Making all in plugins
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/plugins'
make[2]: Nothing to be done for `all'.
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/plugins'
Making all in plugins-scripts
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/plugins-scripts'
make[2]: Nothing to be done for `all'.
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/plugins-scripts'
Making all in plugins-root
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/plugins-root'
make[2]: Nothing to be done for `all'.
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/plugins-root'
Making all in po
```

figure1. 17:make command for install the file

```

[root@mlb-dcl-centos7 nagios-plugins-2.4.9]# clear
[root@mlb-dcl-centos7 nagios-plugins-2.4.9]# make install
Making install in gl
make[1]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make  install-recursive
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[3]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[4]: Entering directory '/root/nagios/nagios-plugins-2.4.9/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 ; \
fi ; \
if $need_charset_alias; then \
/bsh/sh ../build-aux/mkinstalldirs /usr/local/nagios/lib ; \
fi ; \
if test -f /usr/local/nagios/lib/charset.alias; then \
  sed -f ref-add.sed /usr/local/nagios/lib/charset.alias > /usr/local/nagios/lib/charset.tmp ; \
/usr/bin/install -c -m 644 /usr/local/nagios/lib/charset.tmp /usr/local/nagios/lib/charset.alias ; \
rm -f /usr/local/nagios/lib/charset.tmp ; \
else \
  if $need_charset_alias; then \
    sed -f ref-add.sed charset.alias > /usr/local/nagios/lib/charset.tmp ; \
    /usr/bin/install -c -o nagios -g nagios -m 644 /usr/local/nagios/lib/charset.tmp /usr/local/nagios/lib/charset.alias ; \
    rm -f /usr/local/nagios/lib/charset.tmp ; \
  fi ; \
fi
make[4]: Nothing to be done for 'install-data-am'.
make[4]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[3]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[1]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
Making install in tap
make[1]: Entering directory '/root/nagios/nagios-plugins-2.4.9/tap'

```

figure1. 18:make install

Step 9: Verify Nagios Configuration Files

Now we are all done with the **Nagios configuration** and it's time to verify it to do so please insert the following command. If everything goes smoothly it will show up similar to the below output.

```

[root@mlb-dcl-centos7 nagios-plugins-2.4.9]# /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg
Nagios Core 4.5.1
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2024-02-28
License: GPL

Website: https://www.nagios.org
Reading configuration data...
  Read main config file okay...
  Read object config files okay...

Running pre-flight check on configuration data...

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 timperiods
Checking global event handlers...
Checking obsessive compulsive processor commands...
Checking misc settings...

Total Warnings: 0
Total Errors: 0

Things look okay - No serious problems were detected during the pre-flight check
[root@mlb-dcl-centos7 nagios-plugins-2.4.9]#

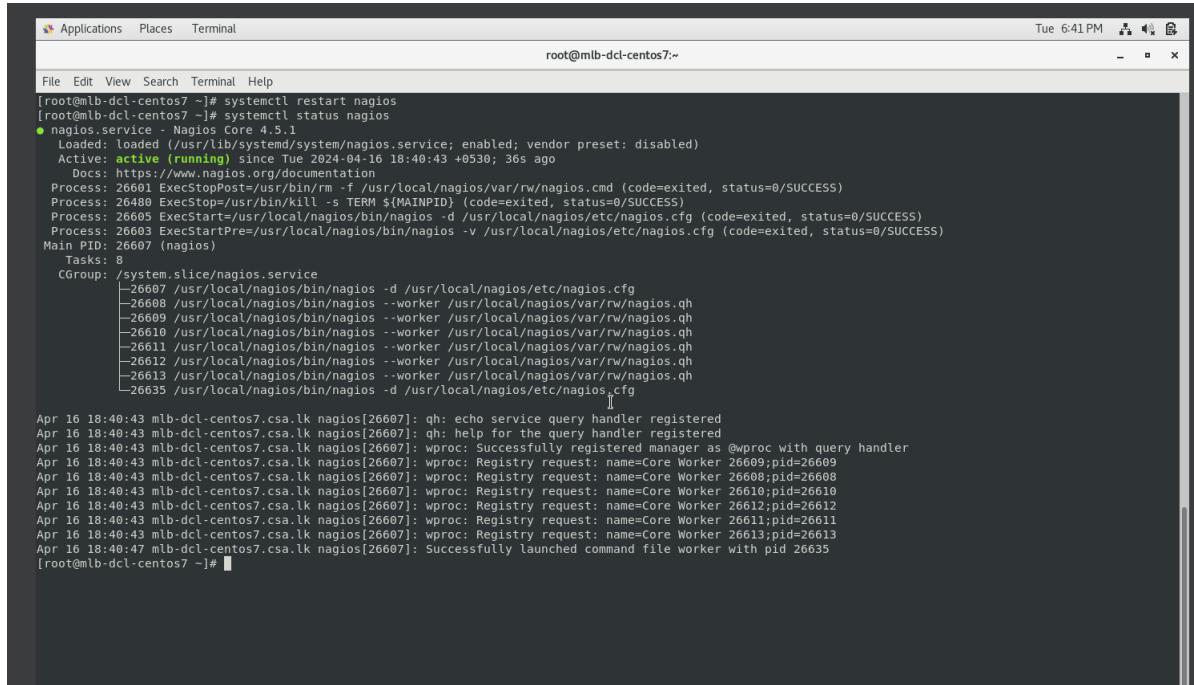
```

figure1. 19;Verify Nagios Configuration Files

Step 10: Add Nagios Services to System Startup

To make **Nagios** work across reboots, we need to enable **nagios** and **httpd** at the system startup using the [systemctl command](#).

Next, restart **Nagios** to make the new settings take effect.



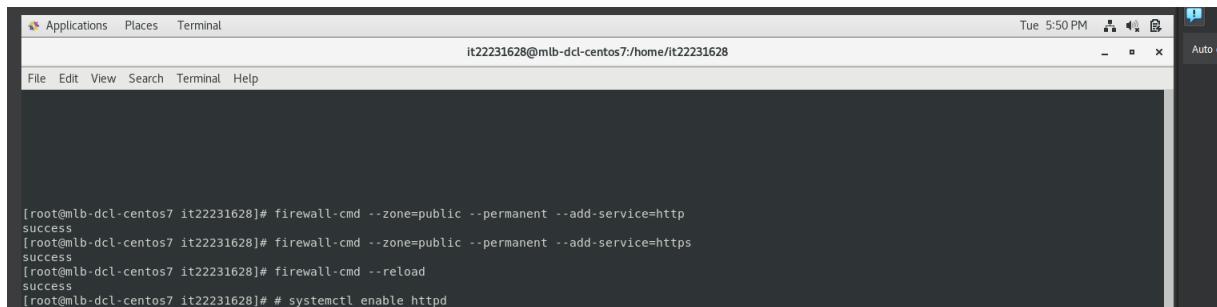
```
[root@mlb-dcl-centos7 ~]# systemctl restart nagios
[root@mlb-dcl-centos7 ~]# systemctl status nagios
● nagios.service - Nagios Core 4.5.1
  Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor preset: disabled)
  Active: active (running) since Tue 2024-04-16 18:40:43 +0530; 36s ago
    Docs: https://www.nagios.org/documentation
  Process: 26601 ExecStopPost=/usr/bin/rm -f /usr/local/nagios/var/rw/nagios.cmd (code=exited, status=0/SUCCESS)
  Process: 26488 ExecStop=/usr/bin/kill -s TERM ${MAINPID} (code=exited, status=0/SUCCESS)
  Process: 26605 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
  Process: 26603 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
 Main PID: 26607 (nagios)
   Tasks: 8
  CGroup: /system.slice/nagios.service
          └─26607 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
              ├─26608 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.gh
              ├─26609 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.gh
              ├─26610 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.gh
              ├─26611 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.gh
              ├─26612 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.gh
              ├─26613 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.gh
              └─26635 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: gh: echo service query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: gh: help for the query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Successfully registered manager as @wproc with query handler
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26609;pid=26609
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26608;pid=26608
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26610;pid=26610
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26612;pid=26612
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26611;pid=26611
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26613;pid=26613
Apr 16 18:40:47 mlb-dcl-centos7.csa.lk nagios[26607]: Successfully launched command file worker with pid 26635
[root@mlb-dcl-centos7 ~]#
```

figure1. 20: Add Nagios Services to System Startup

Step 11: Allow Nagios Web in Firewall

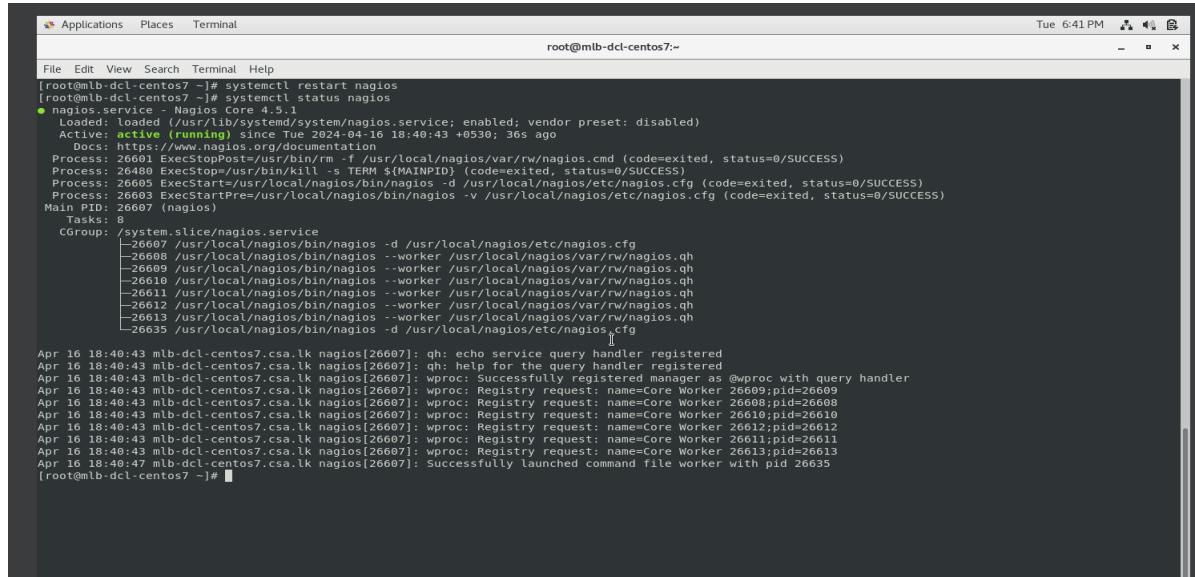
To access the Nagios web interface, you need to open the Apache ports by running the following commands:



```
[root@mlb-dcl-centos7 it22231628]# firewall-cmd --zone=public --permanent --add-service=http
success
[root@mlb-dcl-centos7 it22231628]# firewall-cmd --zone=public --permanent --add-service=https
success
[root@mlb-dcl-centos7 it22231628]# firewall-cmd --reload
success
[root@mlb-dcl-centos7 it22231628]# # systemctl enable httpd
```

figure1. 21: Allow Nagios Web in Firewall

restart the nagios service



```
[root@mlb-dcl-centos7 ~]# systemctl restart nagios
[root@mlb-dcl-centos7 ~]# systemctl status nagios
● nagios.service - Nagios Core
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor preset: disabled)
     Active: active (running) since Tue 2024-04-16 18:40:43 +0530; 36s ago
       Docs: https://www.nagios.org/documentation
   Process: 26480 ExecStopPost=/usr/bin/rm -f /usr/local/nagios/var/rw/nagios.cmd (code=exited, status=0/SUCCESS)
   Process: 26488 ExecStop=/usr/bin/kill -s TERM ${MAINPID} (code=exited, status=0/SUCCESS)
   Process: 26609 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Process: 26603 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
 Main PID: 26607 (nagios)
 Tasks: 8
  CGroup: /system.slice/nagios.service
          └─26607 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
              ├─26608 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26609 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26610 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26611 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26612 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26613 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              └─26635 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: qh: echo service query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: qh: help for the query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Successfully registered manager as @wProc with query handler
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26608;pid=26608
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26610;pid=26610
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26612;pid=26612
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26611;pid=26611
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26613;pid=26613
Apr 16 18:40:47 mlb-dcl-centos7.csa.lk nagios[26607]: Successfully launched command file worker with pid 26635
[root@mlb-dcl-centos7 ~]#
```

figure1. 22:restart the nagios service

Step 12: Log in to the Nagios Web Interface

Your Nagios is ready to work, please open it in your browser with “**http://Your-server-IP-address/nagios**” or “**http://FQDN/nagios**” and Provide the username “**nagiosadmin**” and password.

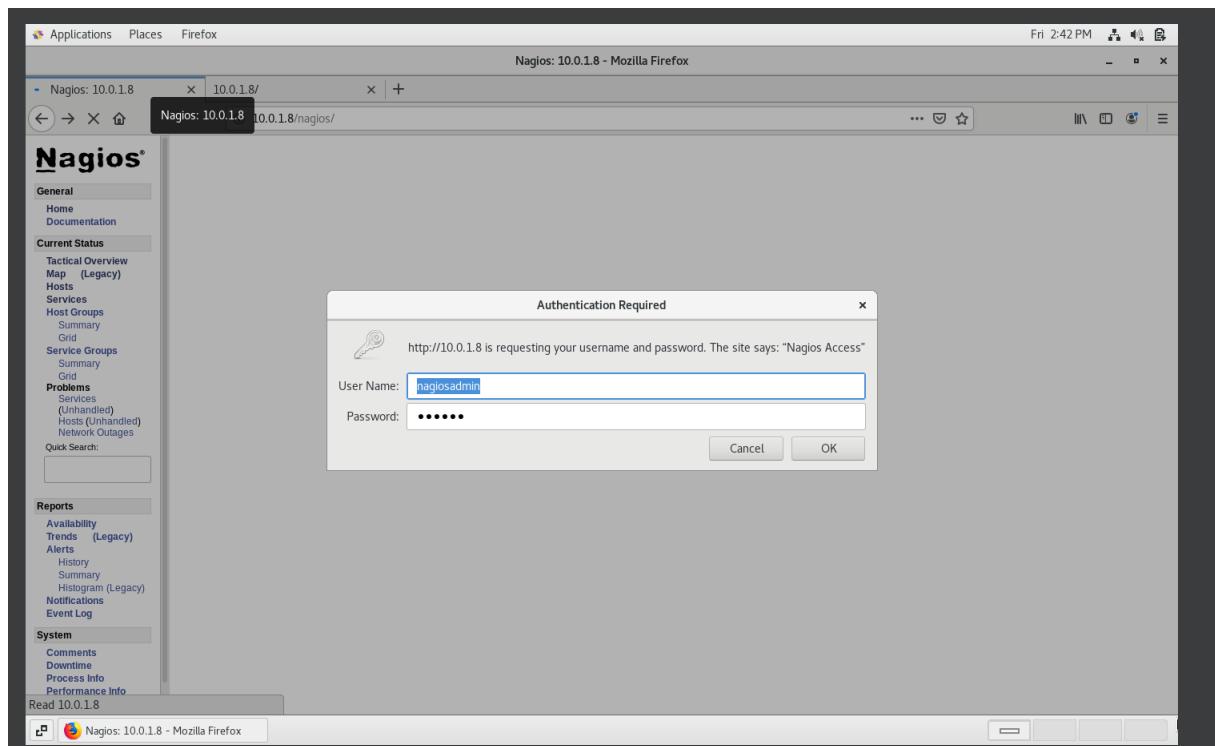


figure1. 23: Log in to the Nagios Web Interface

Nagios® Core™ Version 4.5.1

February 28, 2024

Check for updates

Get Started

- Start monitoring your infrastructure
- Change the look and feel of Nagios
- Extend Nagios with hundreds of thousands of scripts
- Get support
- Get training
- Get certified

Quick Links

- Nagios Library (tutorials and docs)
- Nagios Labs (development blog)
- Nagios Exchange (plugins and add-ons)
- Nagios Support (tech support)
- Nagios.com (company)
- Nagios.org (project)

Latest News

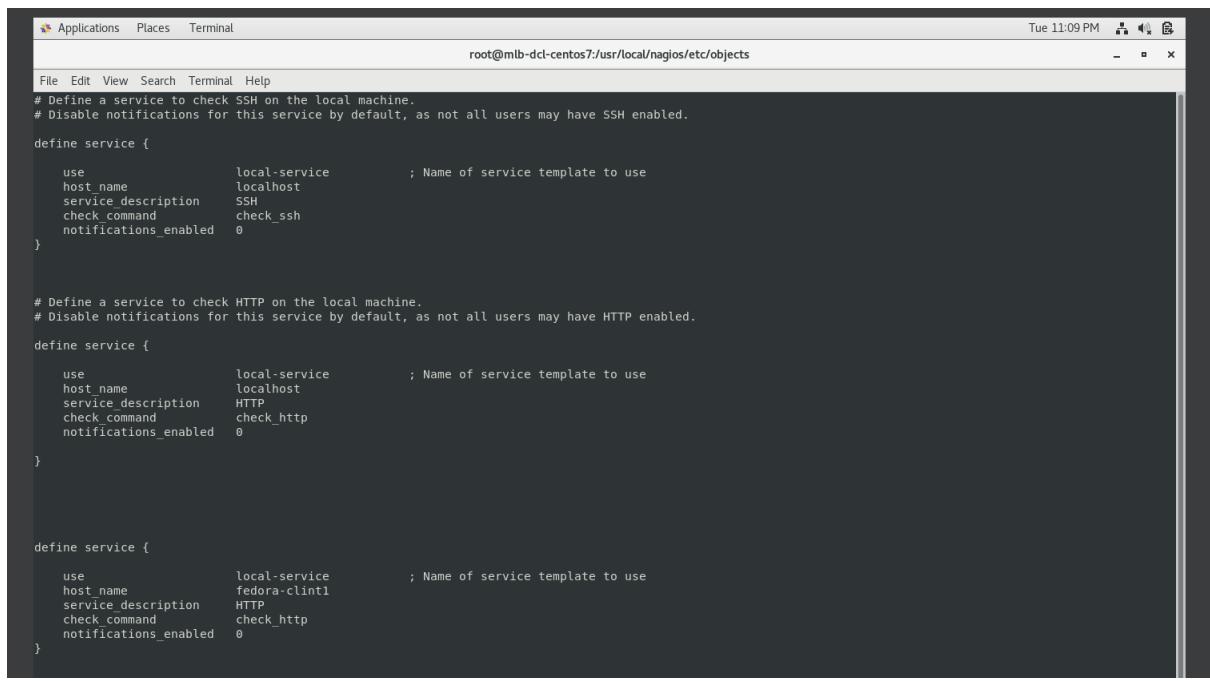
Don't Miss...

figure1. 24:home page of nagios

Host Status Totals		Service Status Totals	
Up	Down	Unreachable	Pending
1	0	0	0
All Problems	All Types		
0	1		

Service Status Details For All Hosts							
Host	Service	Status	Last Check	Duration	Attempt	Status Information	
localhost	Current Load	OK	04-16-2024 18:51:20	0d 0h 14m 45s	1/4	OK - load average: 0.04, 0.24, 0.33	
	Current Users	OK	04-16-2024 18:51:58	0d 0h 14m 7s	1/4	USERS OK - 2 users currently logged in	
	HTTP	WARNING	04-16-2024 18:55:35	0d 0h 10m 30s	4/4	HTTP WARNING: HTTP/1.1 403 Forbidden - 5179 bytes in 0.003 second response time	
	PING	OK	04-16-2024 18:53:13	0d 0h 12m 52s	1/4	PING OK - Packet loss = 0%, RTA = 0.09 ms	
	Root Partition	OK	04-16-2024 18:53:50	0d 0h 12m 15s	1/4	DISK OK - free space: /22044 MB (79.91% mode=99%):	
	SSH	OK	04-16-2024 18:54:28	0d 0h 11m 37s	1/4	SSH OK - OpenSSH_7.4 (protocol 2.0)	
	Swap Usage	OK	04-16-2024 18:55:05	0d 0h 11m 0s	1/4	SWAP OK - 95% free (1933 MB out of 2047 MB)	
	Total Processes	OK	04-16-2024 18:55:43	0d 0h 10m 22s	1/4	PROCS OK: 65 processes with STATE = RSZDT	

figure1. 25:this is local host services

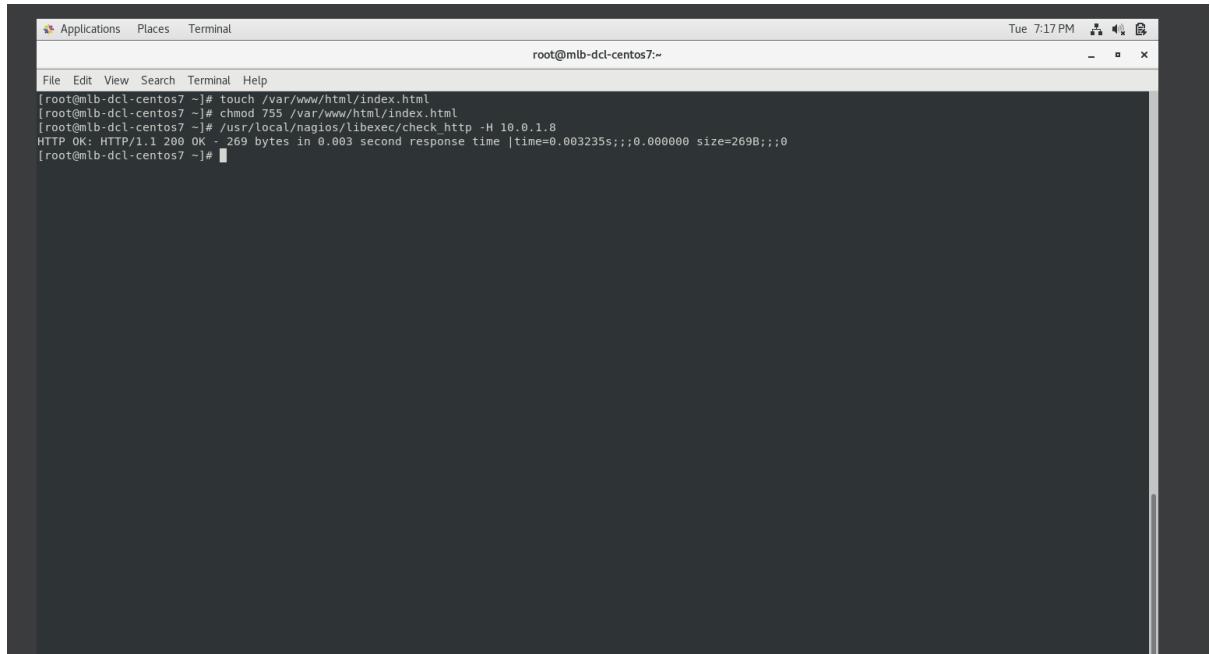


A screenshot of a terminal window titled "root@mlb-dcl-centos7:/usr/local/nagios/etc/objects". The window shows Nagios configuration files. The code defines three services: SSH, HTTP, and a third service using the fedora-clint1 template. The SSH service uses the local-service template, has a host name of localhost, a service description of SSH, a check command of check_ssh, and notifications disabled. The HTTP service also uses the local-service template, has a host name of localhost, a service description of HTTP, a check command of check_http, and notifications disabled. The third service uses the fedora-clint1 template, has a host name of fedora-clint1, a service description of HTTP, a check command of check_http, and notifications disabled.

```
# Define a service to check SSH on the local machine.  
# Disable notifications for this service by default, as not all users may have SSH enabled.  
  
define service {  
    use           local-service      ; Name of service template to use  
    host_name     localhost  
    service_description  SSH  
    check_command   check_ssh  
    notifications_enabled  0  
}  
  
  
# Define a service to check HTTP on the local machine.  
# Disable notifications for this service by default, as not all users may have HTTP enabled.  
  
define service {  
    use           local-service      ; Name of service template to use  
    host_name     localhost  
    service_description  HTTP  
    check_command   check_http  
    notifications_enabled  0  
}  
  
  
define service {  
    use           local-service      ; Name of service template to use  
    host_name     fedora-clint1  
    service_description  HTTP  
    check_command   check_http  
    notifications_enabled  0  
}
```

figure1. 26:for Correct the http warning

Correct the http warning

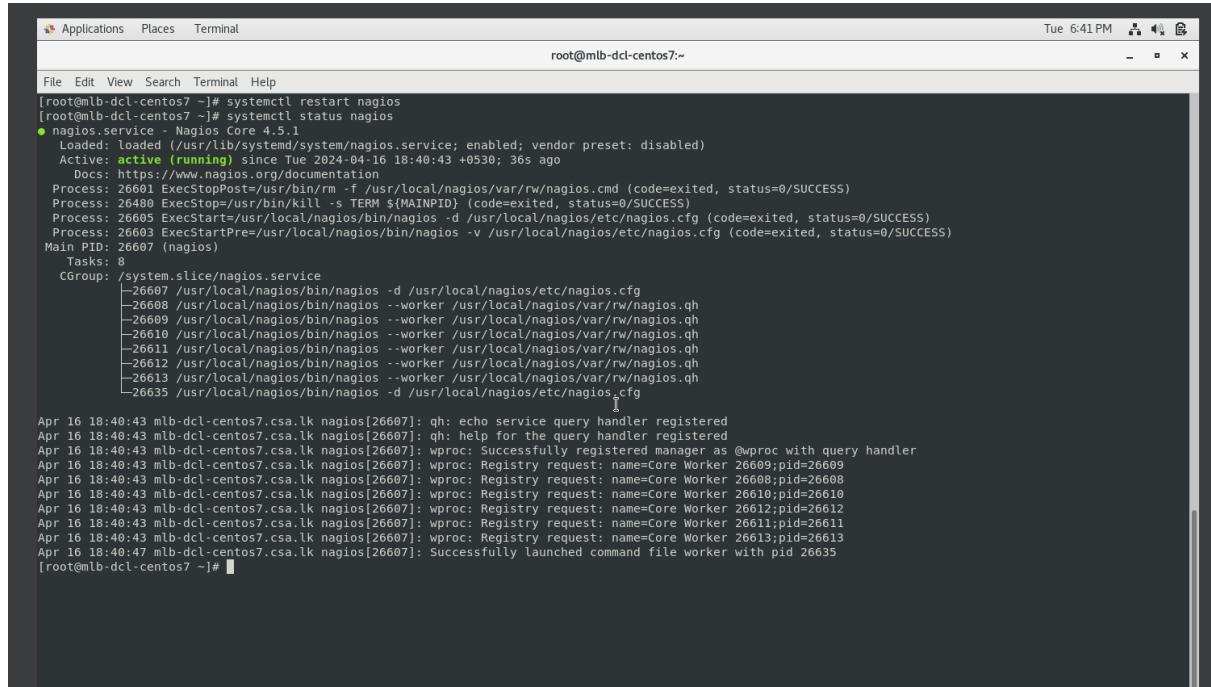


A screenshot of a terminal window titled "root@mlb-dcl-centos7:~". The user runs several commands: touch /var/www/html/index.html, chmod 755 /var/www/html/index.html, and /usr/local/nagios/libexec/check_http -H 10.0.1.8. The output shows the file was created, modified, and checked successfully, returning an OK status with a response time of 0.003 seconds and a size of 269 bytes.

```
[root@mlb-dcl-centos7 ~]# touch /var/www/html/index.html  
[root@mlb-dcl-centos7 ~]# chmod 755 /var/www/html/index.html  
[root@mlb-dcl-centos7 ~]# /usr/local/nagios/libexec/check_http -H 10.0.1.8  
HTTP OK: HTTP/1.1 200 OK - 269 bytes in 0.003 second response time |time=0.003235s;;;0.000000 size=269B;;;0  
[root@mlb-dcl-centos7 ~]#
```

figure1. 27:create the http files for Correct the http warning

Now restart the nagios service and see the service

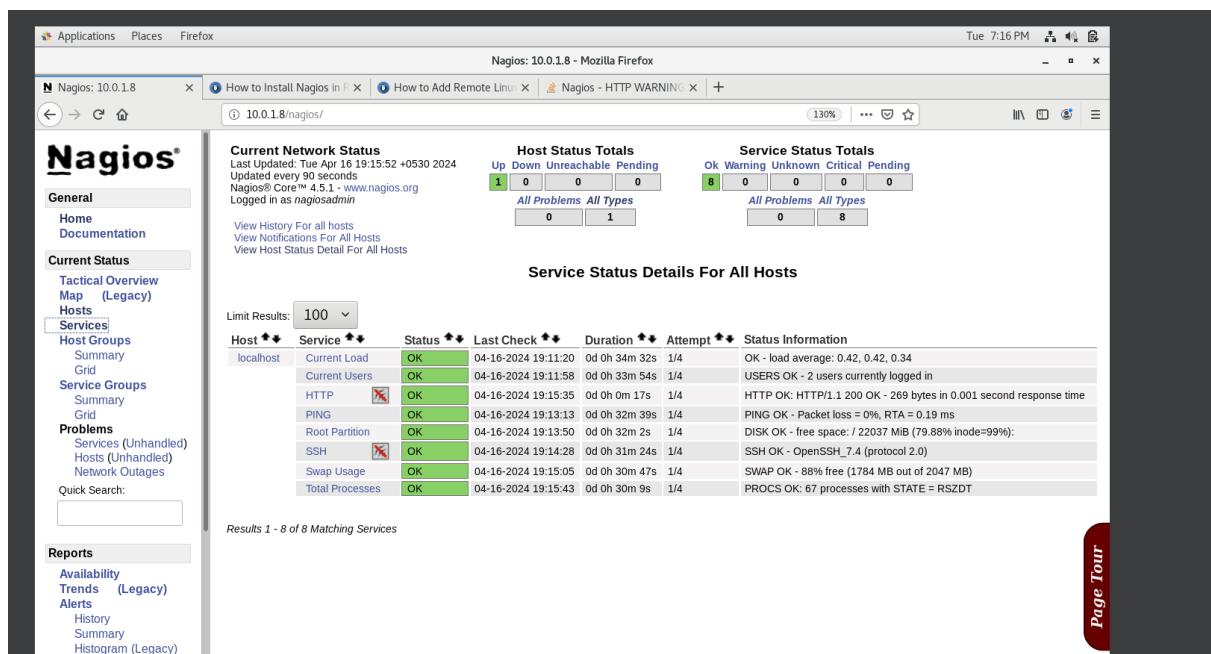


```
[root@mlb-dcl-centos7 ~]# systemctl restart nagios
[root@mlb-dcl-centos7 ~]# systemctl status nagios
● nagios.service - Nagios Core 4.5.1
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor preset: disabled)
     Active: active (running) since Tue 2024-04-16 18:40:43 +0530; 36s ago
       Docs: https://www.nagios.org/documentation
    Process: 26601 ExecStopPost=/usr/bin/rm -f /usr/local/nagios/var/rw/nagios.cmd (code=exited, status=0/SUCCESS)
   Process: 26480 ExecStop=/usr/bin/kill -s TERM $!MAINPID (code=exited, status=0/SUCCESS)
   Process: 26605 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Process: 26603 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
 Main PID: 26607 (nagios)
   Tasks: 8
  CGroup: /system.slice/nagios.service
          └─26607 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
              ├─26608 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26609 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26610 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26611 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26612 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              ├─26613 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              └─26635 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: qh: echo service query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: qh: help for the query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Successfully registered manager as @proc with query handler
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26609;pid=26609
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26608;pid=26608
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26610;pid=26610
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26612;pid=26612
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26611;pid=26611
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26613;pid=26613
Apr 16 18:40:47 mlb-dcl-centos7.csa.lk nagios[26607]: Successfully launched command file worker with pid 26635
[root@mlb-dcl-centos7 ~]#
```

figure1. 28:restart the service after create the http config file

See the nagios services after the changes



Nagios: 10.0.1.8 - Mozilla Firefox

Current Network Status
Last Updated: Tue Apr 16 19:15:52 +0530 2024
Updated every 90 seconds
Nagios® Core™ 4.5.1 - www.nagios.org
Logged in as nagiosadmin

Host Status Totals
Up Down Unreachable Pending
1 0 0 0 0

Service Status Totals
Ok Warning Unknown Critical Pending
8 0 0 0 0

Service Status Details For All Hosts

Host	Service	Status	Last Check	Duration	Attempt	Status Information
localhost	Current Load	OK	04-16-2024 19:11:20	00 Oh 34m 32s	1/4	OK - load average: 0.42, 0.42, 0.34
	Current Users	OK	04-16-2024 19:11:58	00 Oh 33m 54s	1/4	USERS OK - 2 users currently logged in
	HTTP	OK	04-16-2024 19:15:35	00 Oh 0m 17s	1/4	HTTP OK: HTTP/1.1 200 OK - 269 bytes in 0.001 second response time
	PING	OK	04-16-2024 19:13:13	00 Oh 32m 39s	1/4	PING OK - Packet loss = 0%, RTA = 0.19 ms
	Root Partition	OK	04-16-2024 19:13:50	00 Oh 32m 2s	1/4	DISK OK - free space: / 22037 MB (79.88% inode=99%).
	SSH	OK	04-16-2024 19:14:28	00 Oh 31m 24s	1/4	SSH OK - OpenSSH_7.4 (protocol 2.0)
	Swap Usage	OK	04-16-2024 19:15:05	00 Oh 30m 47s	1/4	SWAP OK - 88% free (1784 MB out of 2047 MB)
	Total Processes	OK	04-16-2024 19:15:43	00 Oh 30m 9s	1/4	PROCS OK: 67 processes with STATE = RSZDT

Results 1 - 8 of 8 Matching Services

figure1. 29:See the nagios services after the changes

Installation of NRPE Plugin in Nagios Server and Remote Linux Host

Installing Nagios Plugins and NRPE On Remote Linux Host

Step 1: Install Required Dependencies

We need to install required libraries like **gcc**, **glibc**, **glibc-common**, and **GD** and its development libraries using the [yum package manager](#).

```
Activities Terminal ▾ Tue 5:36 PM
it22231628@mlb-dcl-fedora/home/it22231628

File Edit View Search Terminal Help
bash: kill: (2922) - No such process
[root@mlb-dcl-fedora it22231628]# yum install -y gcc glibc glibc-common gd gd-devel make net-snmp openssl-devel tar wget
Fedora Modular 29 - x86_64 3.0 kB/s | 6.4 kB 00:02
Fedora Modular 29 - x86_64 - Updates 4.9 kB/s | 6.3 kB 00:01
Fedora 29 - x86_64 - Updates 3.6 kB/s | 6.4 kB 00:01
Fedora 29 - x86_64 3.9 kB/s | 6.5 kB 00:01
Package gcc-8.2.1-2.fc29.x86_64 is already installed.
Package glibc-2.28-9.fc29.x86_64 is already installed.
Package glibc-common-2.28-9.fc29.x86_64 is already installed.
Package gd-2.2.5-3.fc29.x86_64 is already installed.
Package tar-2:1.30-6.fc29.x86_64 is already installed.
Package wget-1.19.5-5.fc29.x86_64 is already installed.
Dependencies resolved.
=====
Package Arch Version Repository Size
=====
Installing:
net-snmp x86_64 1:5.8-10.fc29 updates 309 k
openssl x86_64 1:1.1.1-12.fc29 updates 2.2 M
gd-devel x86_64 2.2.5-3.fc29 fedora 49 k
make x86_64 1:4.2.1-10.fc29 fedora 487 k
Upgrading:
net-snmp-libs x86_64 1:5.8-10.fc29 updates 771 k
openssl-libs x86_64 1:1.1.1-12.fc29 updates 638 k
openssl-devel-libs x86_64 1:1.1.1-12.fc29 updates 1.4 M
perl-Errno x86_64 1:2.9-435.fc29 updates 23 k
perl-Interpreter x86_64 4:5.28.2-435.fc29 updates 6.4 M
perl-libs x86_64 4:5.28.2-435.fc29 updates 1.6 M
Installing dependencies:
lm_sensors-libs x86_64 3.5.0-2.fc29 fedora 41 k
mariadb-connector-c x86_64 3.1.5-1.fc29 updates 196 k
mariadb-connector-c-config noarch 3.1.5-1.fc29 updates 11 k
net-snmp-agent-libs x86_64 1:5.8-10.fc29 updates 692 k
bzip2-devel x86_64 1:0.6-28.fc29 fedora 215 k
expat-devel x86_64 2.4.1-1.fc29 fedora 49 k
fontconfig-devel x86_64 1:3.1.1-1.fc29 fedora 127 k
freetype-devel x86_64 2.10.2-1.fc29 fedora 441 k
libX11-devel x86_64 1:1.6.5-1.fc29 fedora 974 k
libXau-devel x86_64 1.0.8-14.fc29 fedora 14 k
libXpm-devel x86_64 3.5.12-1.fc29 fedora 7 k
libXegl-devel x86_64 2.1.6.34-5.fc29 fedora 103 k
libppm-devel x86_64 2.1.6.34-5.fc29 fedora 310 k
libtiff-devel x86_64 4.0.9-11.fc29 fedora 496 k
libuuid-devel x86_64 2.32.1-1.fc29 fedora 29 k
libwebp-devel x86_64 1.0.0-2.fc29 fedora 34 k
```

figure1. 30:install required libraries like gcc, glibc, glibc-common, and GD

Step 2: Create Nagios UserCreate a new nagios user account and set a password.

```
Activities Terminal ▾ Tue 5:38 PM
it22231628@mlb-dcl-fedora:/home/it22231628 x

File Edit View Search Terminal Help
Verifying : libpng-devel-2:1.6.34-6.fc29.x86_64 16/35
Verifying : libtiff-devel-4.0.9-11.fc29.x86_64 17/35
Verifying : libuid-devel-2.32.1-1.fc29.x86_64 18/35
Verifying : libwebp-devel-1.0.0-2.fc29.x86_64 19/35
Verifying : libxcb-devel-1.13.1-1.fc29.x86_64 20/35
Verifying : make-1:4.2.1-10.fc29.x86_64 21/35
Verifying : xorg-x11proto-devel-2018.4-2.fc29.noarch 22/35
Verifying : zlib-devel-1.2.11-14.fc29.x86_64 23/35
Verifying : net-snmp-libs-1.5.8-10.fc29.x86_64 24/35
Verifying : net-snmp-libs-1.5.8-1.fc29.x86_64 25/35
Verifying : openssl-1.1.1.1d-2.fc29.x86_64 26/35
Verifying : openssl-1:1.1.1.1-3.fc29.x86_64 27/35
Verifying : openssl-libs-1:1.1.1.1d-2.fc29.x86_64 28/35
Verifying : openssl-libs-1:1.1.1.1-3.fc29.x86_64 29/35
Verifying : perl-Errno-1.29-435.fc29.x86_64 30/35
Verifying : perl-Errno-1.29-423.fc29.x86_64 31/35
Verifying : perl-interpreter-4:5.28.2-435.fc29.x86_64 32/35
Verifying : perl-interpreter-4:5.28.0-423.fc29.x86_64 33/35
Verifying : perl-libs-4:5.28.2-435.fc29.x86_64 34/35
Verifying : perl-libs-4:5.28.0-423.fc29.x86_64 35/35

Upgraded:
net-snmp-libs-1:5.8-10.fc29.x86_64      openssl-1:1.1.1d-2.fc29.x86_64      openssl-libs-1:1.1.1d-2.fc29.x86_64      perl-Errno-1.29-435.fc29.x86_64
perl-interpreter-4:5.28.2-435.fc29.x86_64  perl-libs-4:5.28.2-435.fc29.x86_64

Installed:
net-snmp-1:5.8-10.fc29.x86_64
make-1:4.2.1-10.fc29.x86_64
mariadb-connector-c-config-3.1.5-1.fc29.noarch
expat-devel-2.2.6-1.fc29.x86_64
libpix11-devel-1.6.6-1.fc29.x86_64
libjpeg-turbo-devel-2.0.0-1.fc29.x86_64
libuid-devel-2.32.1-1.fc29.x86_64
xorg-x11proto-devel-2018.4-2.fc29.noarch

Incomplete:
openssl-devel-1:1.1.1d-2.fc29.x86_64
lm_sensors-3.5.0-2.fc29.x86_64
net-snmp-agent-libs-1:5.8-10.fc29.x86_64
fontconfig-devel-2.13.1-1.fc29.x86_64
liblau-devel-1.0.8-14.fc29.x86_64
libpng-devel-2:1.6.34-6.fc29.x86_64
libwebp-devel-1:0.0-2.fc29.x86_64
zlib-devel-1.2.11-14.fc29.x86_64

gd-devel-2.2.5-3.fc29.x86_64
mariadb-connector-c-3.1.5-1.fc29.x86_64
bzzip-devel-1.0.6-28.fc29.x86_64
freetype-devel-2.9.1-1.2.fc29.x86_64
libXpm-devel-3.5.12-8.fc29.x86_64
libtiff-devel-4.0.9-11.fc29.x86_64
libxcb-devel-1.13.1-1.fc29.x86_64

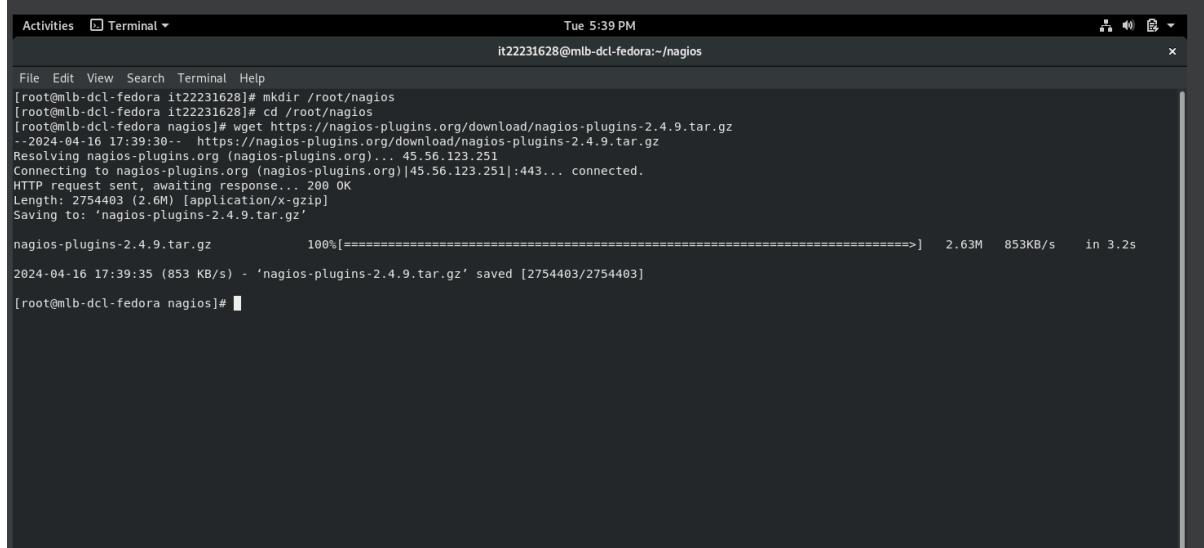
Complete!
[root@mlb-dcl-fedora it22231628]# useradd nagios
[root@mlb-dcl-fedora it22231628]# passwd nagios
Changing password for user nagios.
New password:
BAD PASSWORD: The password is a palindrome
Retype new password:
passwd: all authentication tokens updated successfully.
[root@mlb-dcl-fedora it22231628]#
```

figure1. 31:Create Nagios UserCreate a new nagios user account and set a password.

Step 3: Install the Nagios Plugins

Create a directory for nagios plugin installation and all its future downloads.

Now [download the latest Nagios Plugins](#) package with the [wget command](#).



```
Activities Terminal Tue 5:39 PM
it22231628@mlb-dcl-fedora:~/nagios

File Edit View Search Terminal Help
[root@mlb-dcl-fedora it22231628]# mkdir /root/nagios
[root@mlb-dcl-fedora it22231628]# cd /root/nagios
[root@mlb-dcl-fedora nagios]# wget https://nagios-plugins.org/download/nagios-plugins-2.4.9.tar.gz
--2024-04-16 17:39:30- Connecting to nagios-plugins.org (nagios-plugins.org)|45.56.123.251...
HTTP request sent, awaiting response... 200 OK
Length: 2754403 (2.6M) [application/x-gzip]
Saving to: 'nagios-plugins-2.4.9.tar.gz'

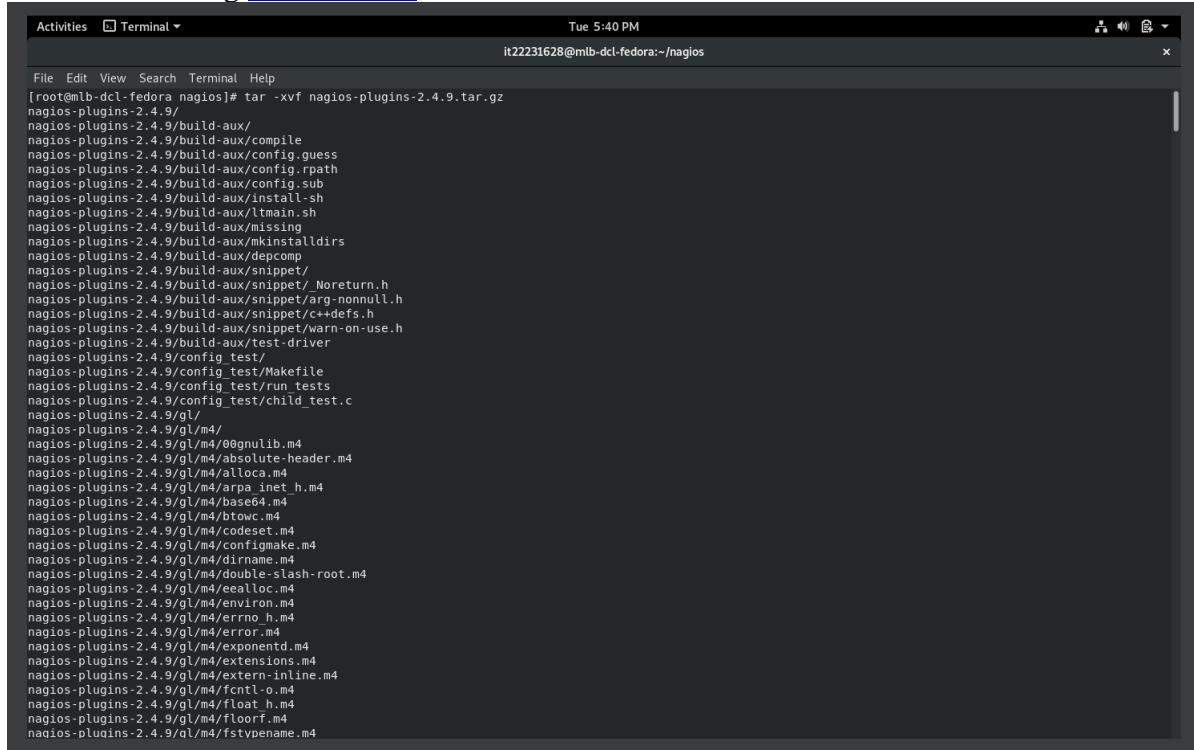
nagios-plugins-2.4.9.tar.gz      100%[=====] 2.63M  853KB/s   in 3.2s
2024-04-16 17:39:35 (853 KB/s) - 'nagios-plugins-2.4.9.tar.gz' saved [2754403/2754403]

[root@mlb-dcl-fedora nagios]#
```

figure1. 32:Install the Nagios Plugins

Step 4: Extract Nagios Plugins

Run the following [tar command](#) to extract the source code tarball



```
Activities Terminal Tue 5:40 PM
it22231628@mlb-dcl-fedora:~/nagios

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nagios]# tar -xvf nagios-plugins-2.4.9.tar.gz
nagios-plugins-2.4.9/
nagios-plugins-2.4.9/build-aux/
nagios-plugins-2.4.9/build-aux/compile
nagios-plugins-2.4.9/build-aux/config.guess
nagios-plugins-2.4.9/build-aux/config.rpath
nagios-plugins-2.4.9/build-aux/config.sub
nagios-plugins-2.4.9/build-aux/install-sh
nagios-plugins-2.4.9/build-aux/lmain.sh
nagios-plugins-2.4.9/build-aux/missing
nagios-plugins-2.4.9/build-aux/mkinstalldirs
nagios-plugins-2.4.9/build-aux/dpcomp
nagios-plugins-2.4.9/build-aux/snippet/
nagios-plugins-2.4.9/build-aux/snippet/_Noreturn.h
nagios-plugins-2.4.9/build-aux/snippet/arg-nnonnull.h
nagios-plugins-2.4.9/build-aux/snippet/c++defs.h
nagios-plugins-2.4.9/build-aux/snippet/warn-on-use.h
nagios-plugins-2.4.9/build-aux/test-driver
nagios-plugins-2.4.9/config test/
nagios-plugins-2.4.9/config test/Makefile
nagios-plugins-2.4.9/config test/run_tests
nagios-plugins-2.4.9/config test/child_test.c
nagios-plugins-2.4.9/gl/
nagios-plugins-2.4.9/gl/m4/
nagios-plugins-2.4.9/gl/m4/00gnulib.m4
nagios-plugins-2.4.9/gl/m4/absolute-header.m4
nagios-plugins-2.4.9/gl/m4/alloca.m4
nagios-plugins-2.4.9/gl/m4/arpa_inet_h.m4
nagios-plugins-2.4.9/gl/m4/base64.m4
nagios-plugins-2.4.9/gl/m4/btowc.m4
nagios-plugins-2.4.9/gl/m4/codeset.m4
nagios-plugins-2.4.9/gl/m4/configmake.m4
nagios-plugins-2.4.9/gl/m4/dirname.m4
nagios-plugins-2.4.9/gl/m4/double-slash-root.m4
nagios-plugins-2.4.9/gl/m4/ealloc.m4
nagios-plugins-2.4.9/gl/m4/environ.m4
nagios-plugins-2.4.9/gl/m4/errno_h.m4
nagios-plugins-2.4.9/gl/m4/error.m4
nagios-plugins-2.4.9/gl/m4/exponentd.m4
nagios-plugins-2.4.9/gl/m4/extensions.m4
nagios-plugins-2.4.9/gl/m4/extern-inline.m4
nagios-plugins-2.4.9/gl/m4/fcntl_o.m4
nagios-plugins-2.4.9/gl/m4/float_h.m4
nagios-plugins-2.4.9/gl/m4/floorf.m4
nagios-plugins-2.4.9/gl/m4/fstypename.m4
```

figure1. 33:Extract Nagios Plugins

```

Activities Terminal ▾ Tue 5:41 PM
it22231628@mlb-dcl-fedora:~/nagios
File Edit View Search Terminal Help
nagios-plugins-2.4.9/plugins/scripts/check_oracle.sh
nagios-plugins-2.4.9/plugins/scripts/check_rpc.pl
nagios-plugins-2.4.9/plugins/scripts/check_sensors.sh
nagios-plugins-2.4.9/plugins/scripts/check_ifstatus.pl
nagios-plugins-2.4.9/plugins/scripts/check_ifoperstatus.pl
nagios-plugins-2.4.9/plugins/scripts/check_wave.pl
nagios-plugins-2.4.9/plugins/scripts/check_maild.pl
nagios-plugins-2.4.9/plugins/scripts/check_file_age.pl
nagios-plugins-2.4.9/plugins/scripts/check_ssl_validity.pl
nagios-plugins-2.4.9/plugins/scripts/t/
nagios-plugins-2.4.9/plugins/scripts/t/check_disk_smb.t
nagios-plugins-2.4.9/plugins/scripts/t/check_file_age.t
nagios-plugins-2.4.9/plugins/scripts/t/check_ifoperstatus.t
nagios-plugins-2.4.9/plugins/scripts/t/check_ifstatus.t
nagios-plugins-2.4.9/plugins/scripts/t/check_rpc.t
nagios-plugins-2.4.9/plugins/scripts/t/utils.t
nagios-plugins-2.4.9/plugins/root/
nagios-plugins-2.4.9/plugins/root/Makefile.am
nagios-plugins-2.4.9/plugins/root/Makefile.in
nagios-plugins-2.4.9/plugins/root/check_dhcp.c
nagios-plugins-2.4.9/plugins/root/check_icmp.c
nagios-plugins-2.4.9/plugins/root/pst3.c
nagios-plugins-2.4.9/plugins/root/t/
nagios-plugins-2.4.9/plugins/root/t/check_dhcp.t
nagios-plugins-2.4.9/plugins/root/t/check_icmp.t
nagios-plugins-2.4.9/po/
nagios-plugins-2.4.9/po/Makefile.in.in
nagios-plugins-2.4.9/po/remove_potdate.sin
nagios-plugins-2.4.9/po/Makewars
nagios-plugins-2.4.9/po/POTFILES.in
nagios-plugins-2.4.9/po/fr.po
nagios-plugins-2.4.9/po/de.po
nagios-plugins-2.4.9/po/fr.gmo
nagios-plugins-2.4.9/po/de.gmo
nagios-plugins-2.4.9/po/nagios-plugins.pot
nagios-plugins-2.4.9/po/stamp-po
nagios-plugins-2.4.9/po/ChangeLog
nagios-plugins-2.4.9/po/LINGUAS
nagios-plugins-2.4.9/release
[root@mlb-dcl-fedora nagios]# ls -l
total 2700
drwxr-xr-x. 15 root root 4096 Mar 19 03:10 nagios-plugins-2.4.9
-rw-r--r--. 1 root root 2754403 Mar 21 20:26 nagios-plugins-2.4.9.tar.gz
[root@mlb-dcl-fedora nagios]#

```

figure1. 34:list thr file for confirming

Step 5: Compile and Install Nagios Plugins

Next, compile and install nagios plugins using the following commands

```

Activities Terminal ▾ Tue 5:43 PM
it22231628@mlb-dcl-fedora:~/nagios/nagios-plugins-2.4.9
File Edit View Search Terminal Help
[root@mlb-dcl-fedora nagios]# cd nagios-plugins-2.4.9
[root@mlb-dcl-fedora nagios-plugins-2.4.9]# ./configure
checking for a BSB-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
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
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether gcc understands -c and -o together... yes
checking whether make supports the include directive... yes (GNU style)
checking dependency style of gcc... gcc3
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for Minix Amsterdam compiler... no
checking for ar... ar
checking for ranlib...
checking for ANSI C header files... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for strings.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
checking for unistd.h... no
checking minix/config.h usability... no
checking minix/config.h presence... no
checking for minix/config.h...
checking whether it is safe to define _EXTENSIONS_... yes
checking whether _XOPEN_SOURCE should be defined... no
checking for special C compiler options needed for large files... no

```

figure1. 35:Compile and Install Nagios Plugins

```
[root@mlb-dcl-fedora nagios-plugins-2.4.9]# make
make allrecursive
make[1]: Entering directory '/root/nagios/nagios-plugins-2.4.9'
Making all in gl
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/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 && \
mv warn-on-use.h-t warn-on-use.h
rm -f arg-nonnull.h-t arg-nonnull.h && \
sed -n -e '/_GL_ARG_NONNULL/,${p' \
< ../build-aux/snippet/arg-nonnull.h \
> arg-nonnull.h-t && \
mv arg-nonnull.h-t arg-nonnull.h
/usr/bin/mkdir -p arpa
rm -f arpa/inet.h-t arpa/inet.h && \
{ echo /* DO NOT EDIT! GENERATED AUTOMATICALLY! */; \
sed -e '$|@'GUARD_PREFIX'@|GL|g' \
-e '$|@'INCLUDE_NEXT'@|include_next|g' \
-e '$|@'PRAGMA_SYSTEM_HEADER'@|#pragma GCC system_header|g' \
-e '$|@'PRAGMA_COLUMNS'@|g' \
-e '$|@'HAVE_FEATURES_H'@|g' \
-e '$|@'NEXT_ARPA_INET_H'@|<arpa/inet.h>|g' \
-e '$|@'HAVE_ARPA_INET_H'@|g' \
-e '$|@'GNULIB_INET_NTOP'@|g' \
-e '$|@'GNULIB_INET_PTON'@|g' \
-e '$|@'HAVE_DECL_INET_NTOP'@|g' \
-e '$|@'HAVE_DECL_INET_PTON'@|g' \
-e '$|@'REPLACE_INET_NTOP'@|g' \
-e '$|@'REPLACE_INET_PTON'@|g' \
-e '/definitions of _GL_FUNCDECL_RPL/r c++defs.h' \
-e '/definition of _GL_ARG_NONNULL/r arg-nonnull.h' \
-e '/definition of _GL_WARN_ON_USE/r warn-on-use.h' \
< ../arpa/inet.h; \
}

```

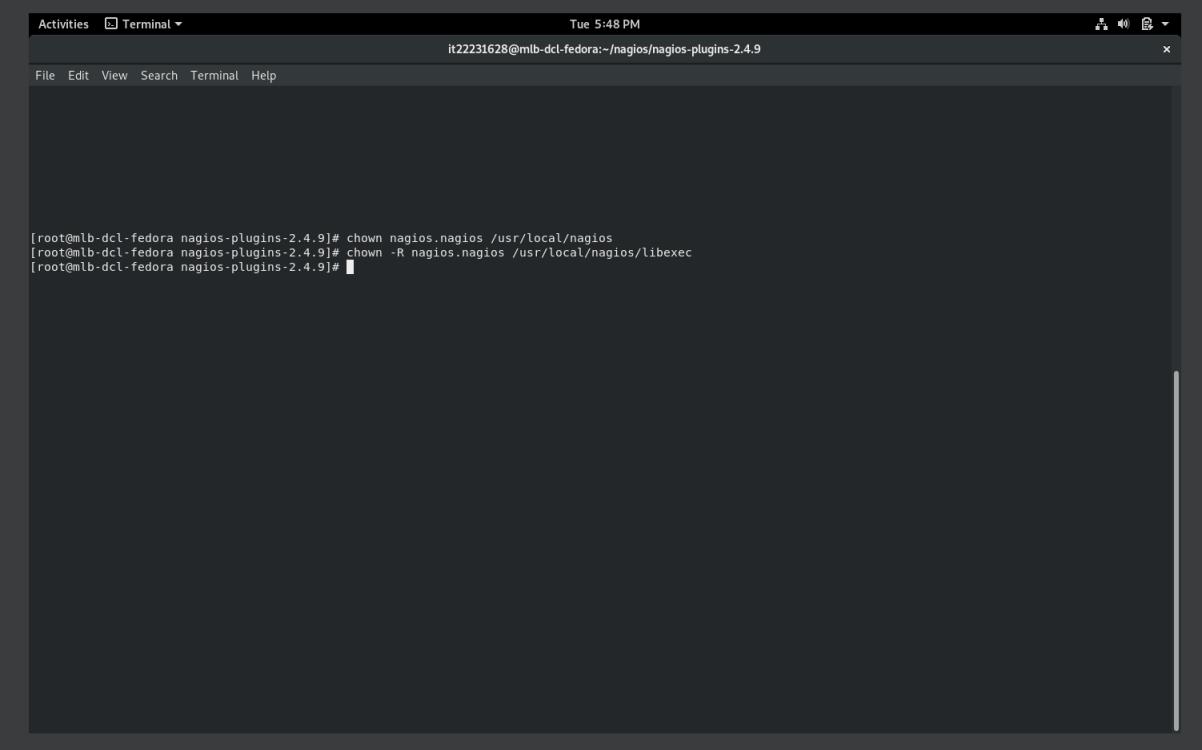
figure1. 36:make

```
[root@mlb-dcl-fedora nagios-plugins-2.4.9]# make install
Making install in gl
make[1]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make install-recursive
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[3]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[4]: Entering directory '/root/nagios/nagios-plugins-2.4.9/gl'
if test -z $hostos; then \
    case 'linux-darwin' 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 ; \
fi ; \
if $need_charset_alias; then \
    /bin/sh ../build-aux/mkinstalldirs /usr/local/nagios/lib ; \
fi ; \
if test -f /usr/local/nagios/lib/charset.alias; then \
    sed -f ref-add.sed /usr/local/nagios/lib/charset.alias > /usr/local/nagios/lib/charset.tmp ; \
    /usr/bin/install -c -m 644 /usr/local/nagios/lib/charset.tmp /usr/local/nagios/lib/charset.alias ; \
    rm -f /usr/local/nagios/lib/charset.tmp ; \
else \
    if $need_charset_alias; then \
        sed -f ref-add.sed charset.alias > /usr/local/nagios/lib/charset.tmp ; \
        /usr/bin/install -c -m 644 /usr/local/nagios/lib/charset.tmp /usr/local/nagios/lib/charset.alias ; \
        rm -f /usr/local/nagios/lib/charset.tmp ; \
    fi ; \
fi
make[4]: Nothing to be done for 'install-data-am'.
make[4]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[3]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
make[1]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/gl'
Making install in tap
make[1]: Entering directory '/root/nagios/nagios-plugins-2.4.9/tap'
make[2]: Entering directory '/root/nagios/nagios-plugins-2.4.9/tap'
make[2]: Nothing to be done for 'install-exec-am'.
make[2]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/tap'
make[1]: Leaving directory '/root/nagios/nagios-plugins-2.4.9/tap'
Making install in lib

```

figure1. 37:make install command

Set the permissions on the plugin directory using the [chown command](#).

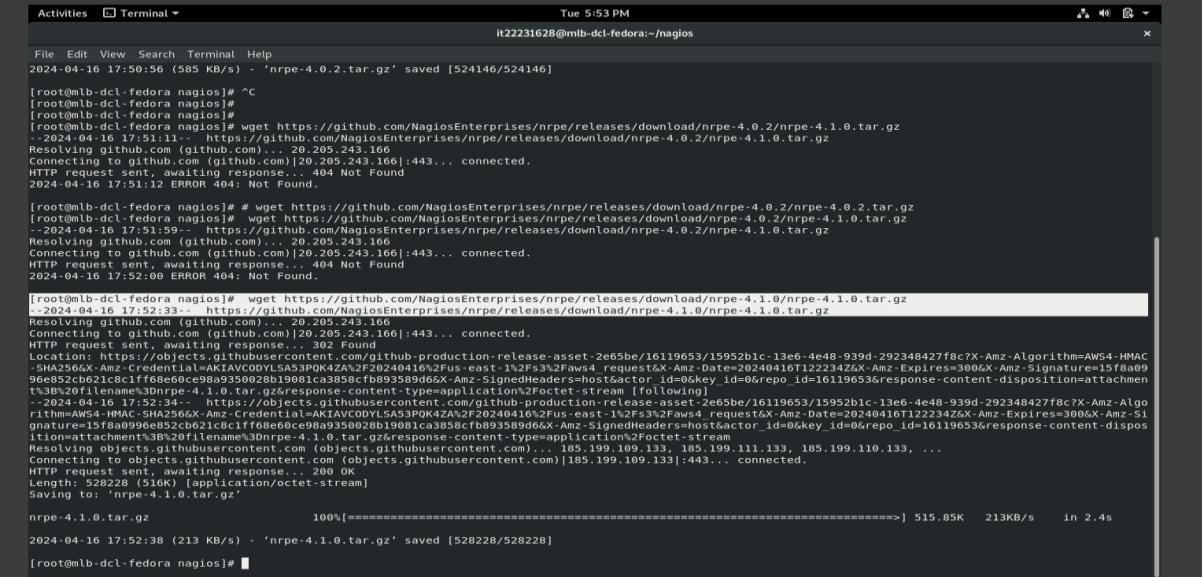


```
[root@mlb-dcl-fedora nagios-plugins-2.4.9]# chown nagios.nagios /usr/local/nagios
[root@mlb-dcl-fedora nagios-plugins-2.4.9]# chown -R nagios.nagios /usr/local/nagios/libexec
[root@mlb-dcl-fedora nagios-plugins-2.4.9]#
```

figure1. 38: Set the permissions on the plugin directory

Step 6: Installing NRPE Plugin

To install the nrpe plugin, first, [download the latest NRPE Plugin](#) or use the following [wget command](#).



```
Tue 5:53 PM
it22231628@mlb-dcl-fedora:~/nagios

File Edit View Search Terminal Help
2024-04-16 17:50:56 (585 KB/s) - 'nrpe-4.0.2.tar.gz' saved [524146/524146]

[root@mlb-dcl-fedora nagios]# ^C
[root@mlb-dcl-fedora nagios]# ^C
[root@mlb-dcl-fedora nagios]# wget https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-4.0.2/nrpe-4.1.0.tar.gz
--2024-04-16 17:51:11-- https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-4.0.2/nrpe-4.1.0.tar.gz
Resolving github.com (github.com)... 20.205.243.166
Connecting to github.com (github.com)|20.205.243.166|:443... connected.
HTTP request sent, awaiting response... 404 Not Found
2024-04-16 17:51:12 ERROR 404: Not Found.

[root@mlb-dcl-fedora nagios]# wget https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-4.0.2/nrpe-4.0.2.tar.gz
--2024-04-16 17:51:59-- https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-4.0.2/nrpe-4.1.0.tar.gz
Resolving github.com (github.com)... 20.205.243.166
Connecting to github.com (github.com)|20.205.243.166|:443... connected.
HTTP request sent, awaiting response... 404 Not Found
2024-04-16 17:52:00 ERROR 404: Not Found.

[root@mlb-dcl-fedora nagios]# wget https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-4.1.0/nrpe-4.1.0.tar.gz
Resolving github.com (github.com)... 20.205.243.166
Connecting to github.com (github.com)|20.205.243.166|:443... connected.
HTTP request sent, awaiting response... 202 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/16119653/15952b1c-13e6-4e48-939d-292348427f8c7X-Amz-Algorithm=AWS4-HMAC-SHA256-Amz-Credential=AKIAVCD0YLSA53PQK4Z4%2F20240416T12234ZGX-Amz-Expires=3006X-Amz-Signature=15f8a0943b52c021c8c1f608e60ce01cb3698cfc959939094d98key_id=0&repo_id=16119653&response-content-disposition=attachment%3Bfilename=30nrpe-4.1.0.tar.gz&response-content-type=application%2Foctet-stream [following]
--2024-04-16 17:52:14-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/16119653/15952b1c-13e6-4e48-939d-292348427f8c7X-Amz-Algoirthm=AWS4-HMAC-SHA256X-Amz-Credential=AKIAVCD0YLSA53PQK4Z4%2F20240416T12234ZGX-Amz-Expires=3006X-Amz-Signature=15f8a0996e852cb621c8cff1ff68eb0c98a93509028b19081ca3858cfbb93589d66X-Amz-SignedHeaders=host&actor_id=0&repo_id=16119653&response-content-disposition=attachment%3Bfilename=30nrpe-4.1.0.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 105.199.109.133, 105.199.111.133, 105.199.110.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|105.199.109.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 528228 (516K) [application/octet-stream]
Saving to: 'nrpe-4.1.0.tar.gz'

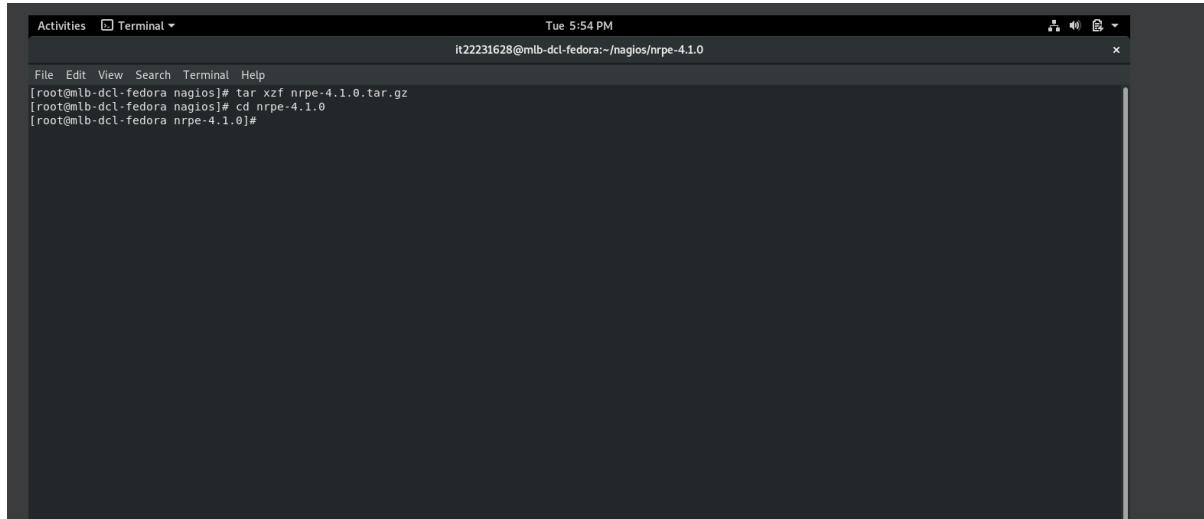
nrpe-4.1.0.tar.gz          100%[=====] 515.85K   213KB/s  in 2.4s

2024-04-16 17:52:38 (213 KB/s) - 'nrpe-4.1.0.tar.gz' saved [528228/528228]

[root@mlb-dcl-fedora nagios]#
```

figure1. 39: Installing NRPE Plugin

Unpack the NRPE source code.

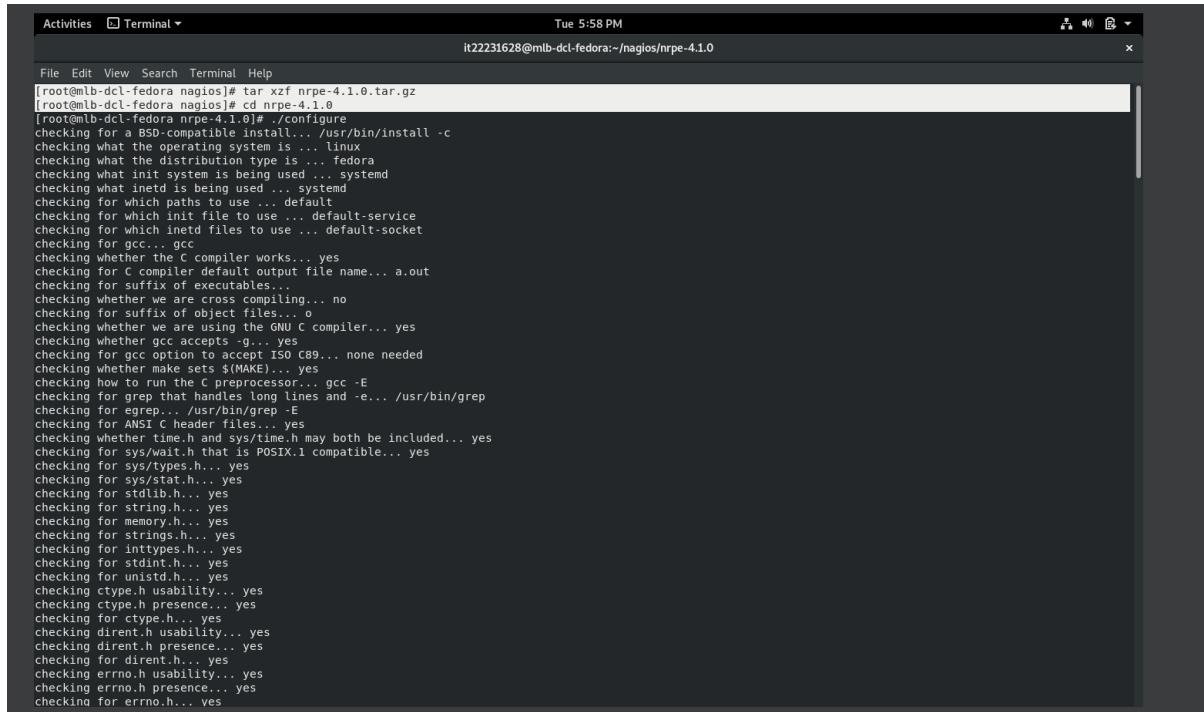


A screenshot of a terminal window titled "Terminal". The window shows the command "tar xzf nrpe-4.1.0.tar.gz" being run at the root prompt [root@mlb-dcl-fedora nagios]. The output of the command is displayed below the command line.

```
[root@mlb-dcl-fedora nagios]# tar xzf nrpe-4.1.0.tar.gz
[root@mlb-dcl-fedora nagios]# cd nrpe-4.1.0
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 40:Unpack the NRPE source code

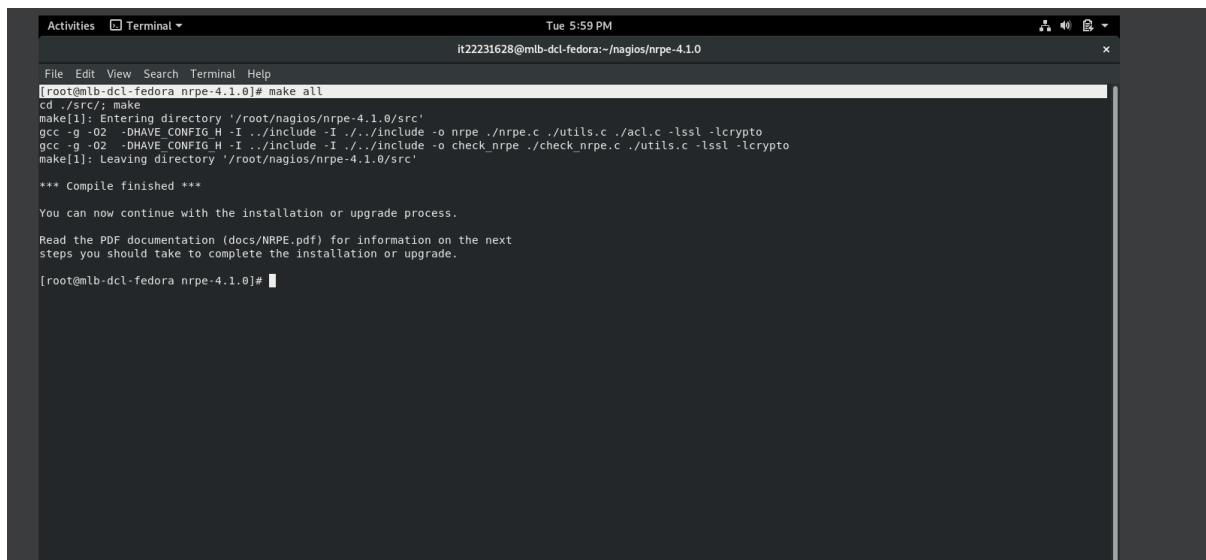
Compile and install the NRPE addon.



A screenshot of a terminal window titled "Terminal". The window shows the commands "tar xzf nrpe-4.1.0.tar.gz" and "cd nrpe-4.1.0" being run at the root prompt [root@mlb-dcl-fedora nagios]. It then shows the command "./configure" being run, followed by a long series of "checking" messages as the configure script runs through various system checks.

```
[root@mlb-dcl-fedora nagios]# tar xzf nrpe-4.1.0.tar.gz
[root@mlb-dcl-fedora nagios]# cd nrpe-4.1.0
[root@mlb-dcl-fedora nrpe-4.1.0]# ./configure
checking for a BSD-compatible install... /usr/bin/install -c
checking what the operating system is ... linux
checking what the distribution type is ... fedora
checking what init system is being used ... systemd
checking what inetd is being used ... systemd
checking for which path to use ... default
checking for which init file to use ... default-service
checking for which inetd files to use ... default-socket
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
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether make sets ${MAKE}... yes
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for ANSI C header files... yes
checking whether time.h and sys/time.h may both be included... yes
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for strings.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
checking for unistd.h... yes
checking ctype.h usability... yes
checking ctype.h presence... yes
checking dirent.h usability... yes
checking dirent.h presence... yes
checking errno.h usability... yes
checking errno.h presence... yes
checking for errno.h... yes
```

figure1. 41:Compile and install the NRPE



```
Activities Terminal Tue 5:59 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# make all
cd ./src/; make
make[1]: Entering directory '/root/nagios/nrpe-4.1.0/src'
gcc -g -O2 -DHAVE_CONFIG_H -I ../include -o nrpe ./nrpe.c ./utils.c ./acl.c -lssl -lcrypto
gcc -g -O2 -DHAVE_CONFIG_H -I ../include -o check_nrpe ./check_nrpe.c ./utils.c -lssl -lcrypto
make[1]: Leaving directory '/root/nagios/nrpe-4.1.0/src'

*** Compile finished ***

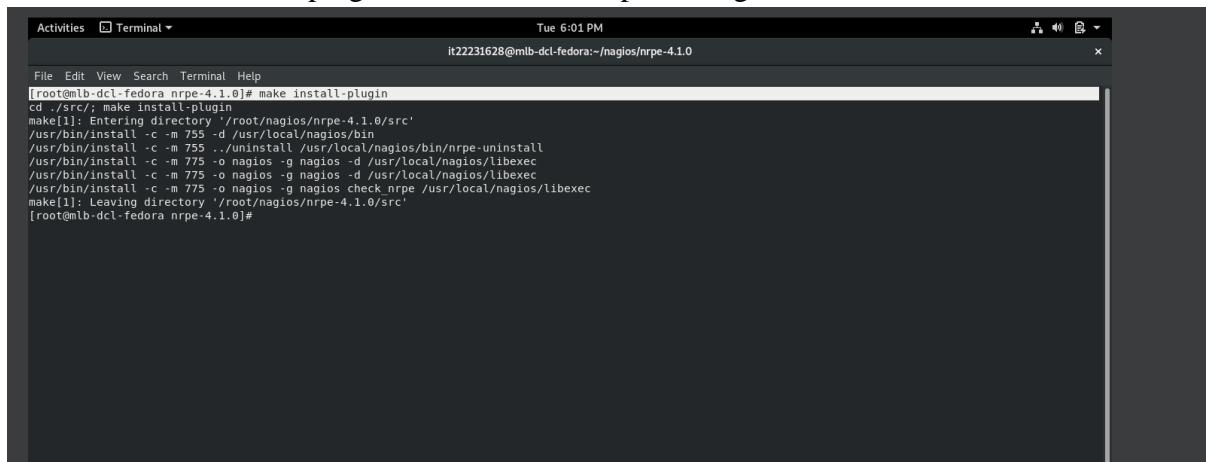
You can now continue with the installation or upgrade process.

Read the PDF documentation (docs/NRPE.pdf) for information on the next
steps you should take to complete the installation or upgrade.

[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 42:make

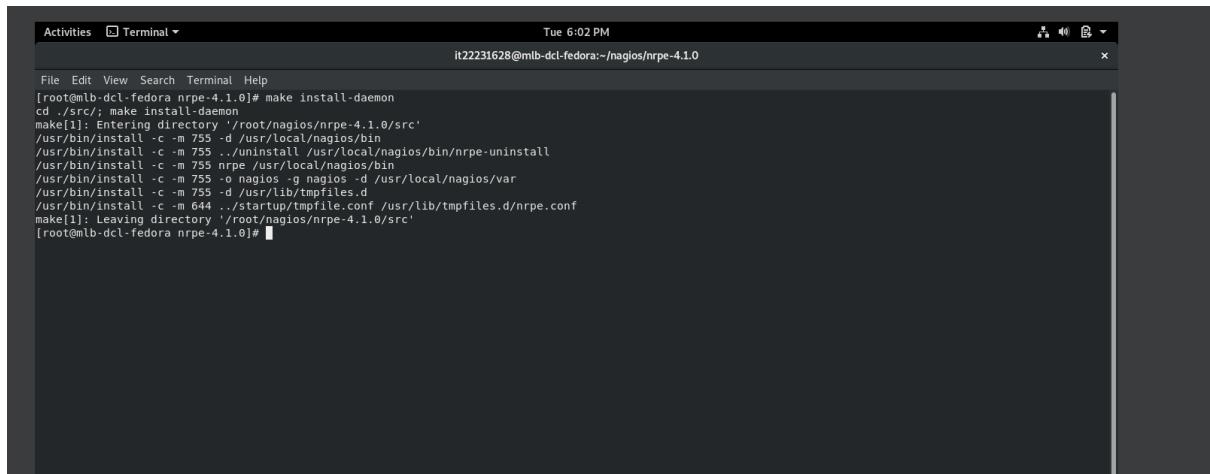
Next, install the NRPE plugin daemon, and sample config files.



```
Activities Terminal Tue 6:01 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# make install-plugin
cd ./src/; make install-plugin
make[1]: Entering directory '/root/nagios/nrpe-4.1.0/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/libexec
make[1]: Leaving directory '/root/nagios/nrpe-4.1.0/src'
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

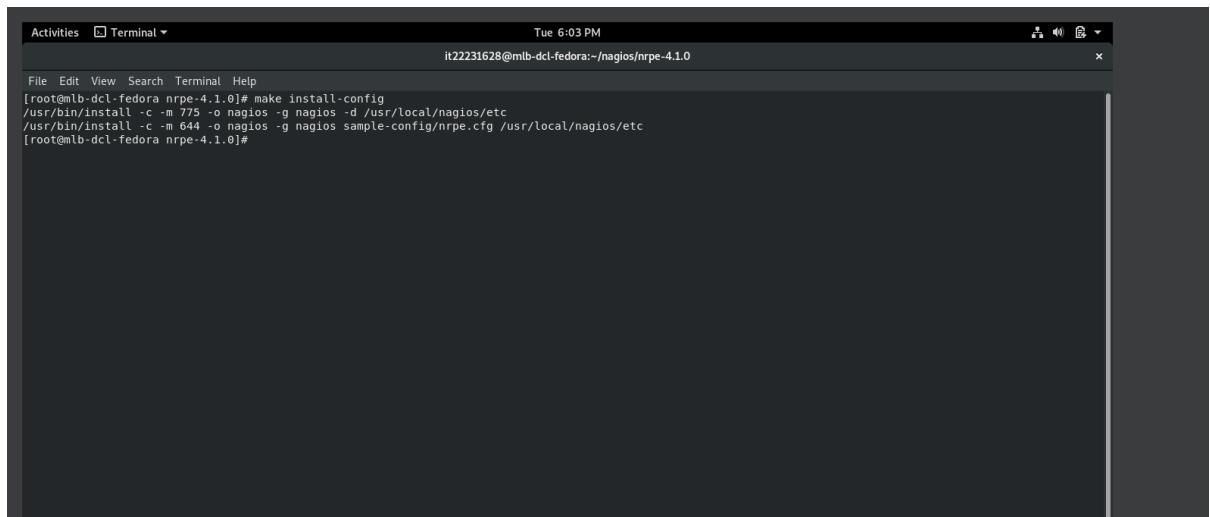
figure1. 43:, install the NRPE plugin daemon, and sample config files



```
Activities Terminal Tue 6:02 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# make install-daemon
[./src/] make install-daemon
make[1]: Entering directory '/root/nagios/nrpe-4.1.0/src'
/usr/bin/install -c -m 755 -d /usr/local/nagios/bin
/usr/bin/install -c -m 755 ..../minstall /usr/local/nagios/bin/nrpe-uninstall
/usr/bin/install -c -m 755 nrpe ./etc/local/nagios/bin
/usr/bin/install -c -m 755 -o nagios -g nagios -d /usr/local/nagios/var
/usr/bin/install -c -m 644 ./startup/tmpfile.conf /usr/lib/tmpfiles.d/nrpe.conf
make[1]: Leaving directory '/root/nagios/nrpe-4.1.0/src'
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 44:, install the NRPE plugin daemon

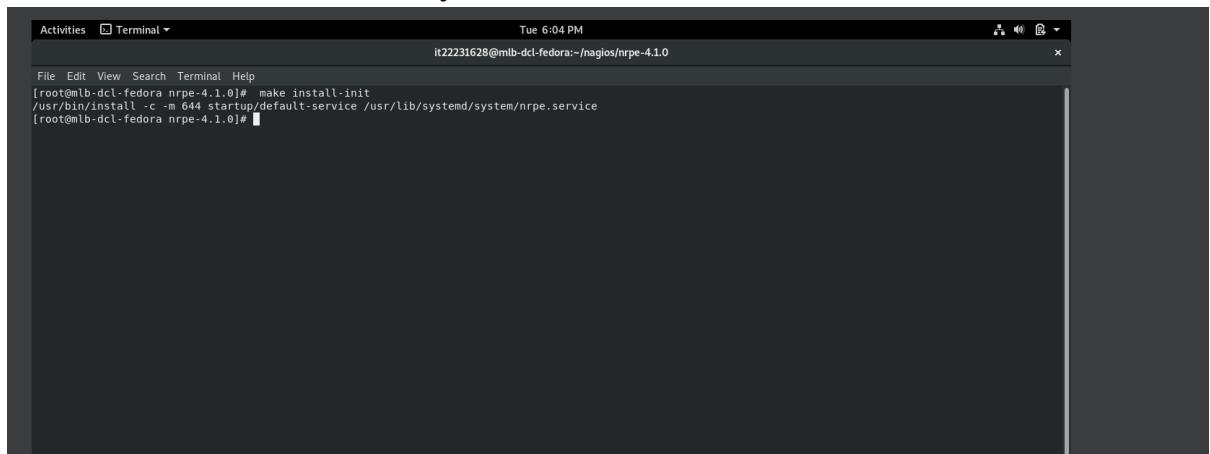


```
Activities Terminal Tue 6:03 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# 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@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 45:make install-config file

Install the **NRPE** daemon under **systemd** as a service.



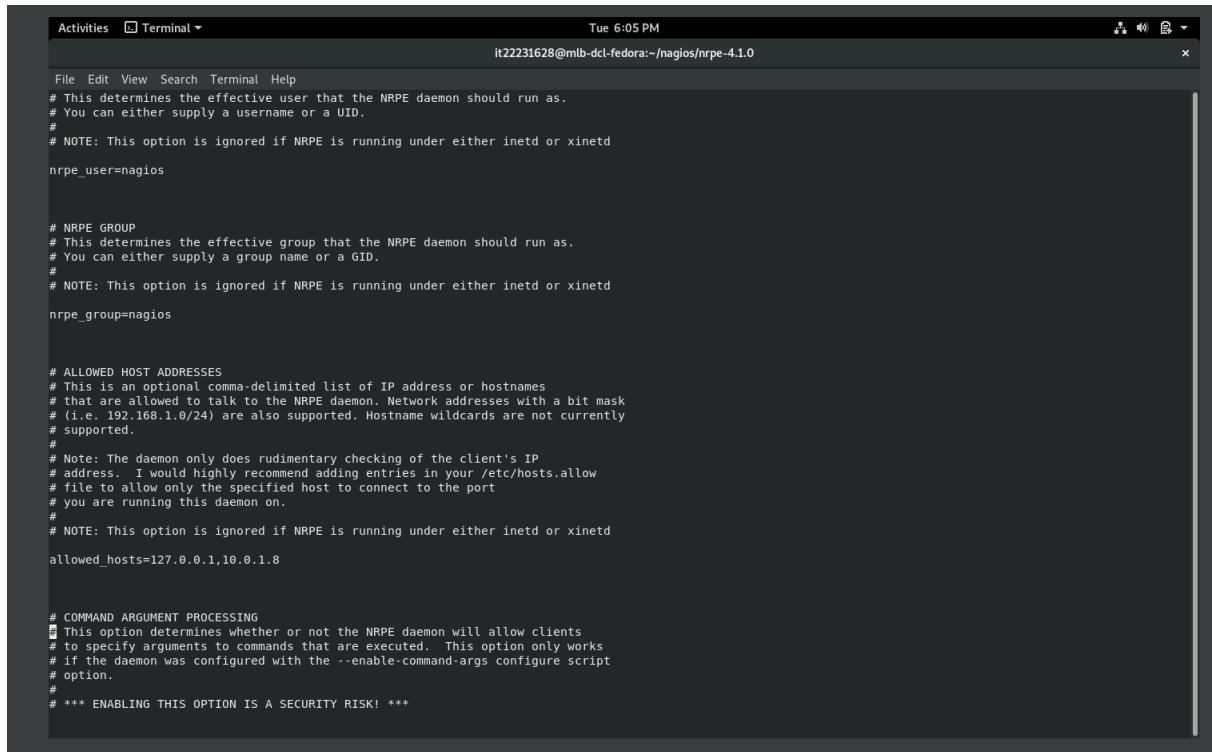
```
Activities Terminal Tue 6:04 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# make install-init
/usr/bin/install -c -m 644 startup/default-service /usr/lib/systemd/system/nrpe.service
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 46:Install the NRPE daemon under systemd as a service

Step 7: Configuring NRPE Plugin

Now open **/usr/local/nagios/etc/nrpe.cfg** file and add the **local host** and **IP address** of the **Nagios Monitoring Server**.



```
Activities Terminal Tue 6:05 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
# This determines the effective user that the NRPE daemon should run as.
# You can either supply a username or a UID.
#
# NOTE: This option is ignored if NRPE is running under either inetd or xinetd
nrpe_user=nagios

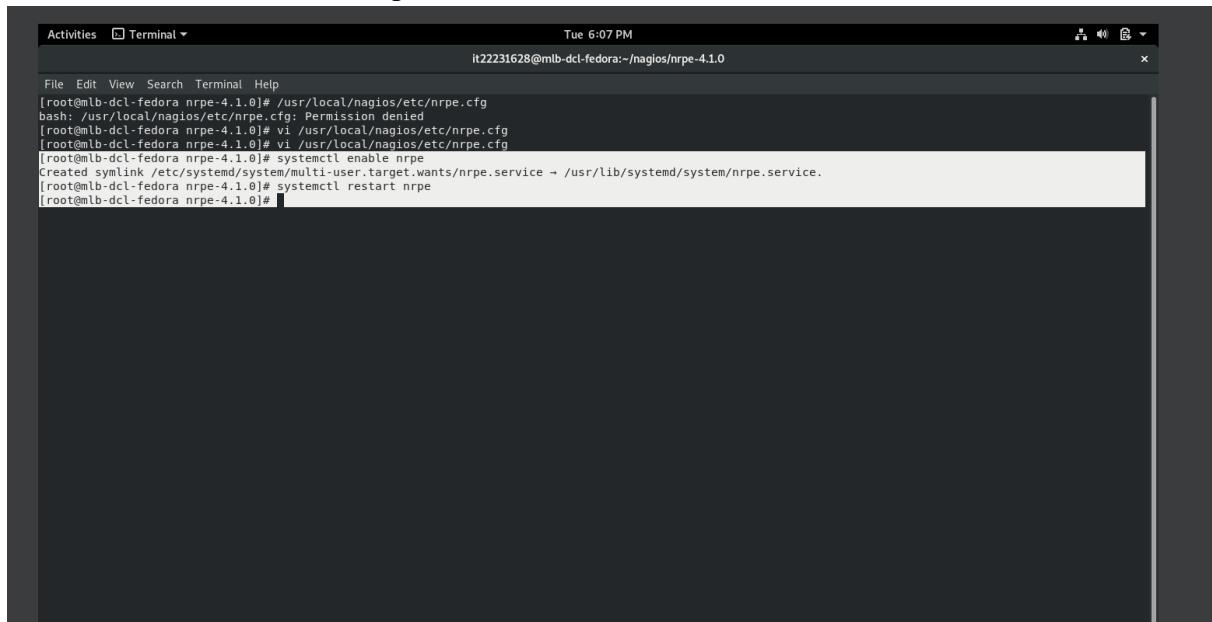
# NRPE GROUP
# This determines the effective group that the NRPE daemon should run as.
# You can either supply a group name or a GID.
#
# NOTE: This option is ignored if NRPE is running under either inetd or xinetd
nrpe_group=nagios

# ALLOWED HOST ADDRESSES
# This is an optional comma-delimited list of IP address or hostnames
# that are allowed to talk to the NRPE daemon. Network addresses with a bit mask
# (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=127.0.0.1,10.0.0.1.8

# 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
#
# *** ENABLING THIS OPTION IS A SECURITY RISK! ***
```

figure1. 47:/usr/local/nagios/etc/nrpe.cfg file and allow the sever ip

Next, enable and restart the nrpe service.



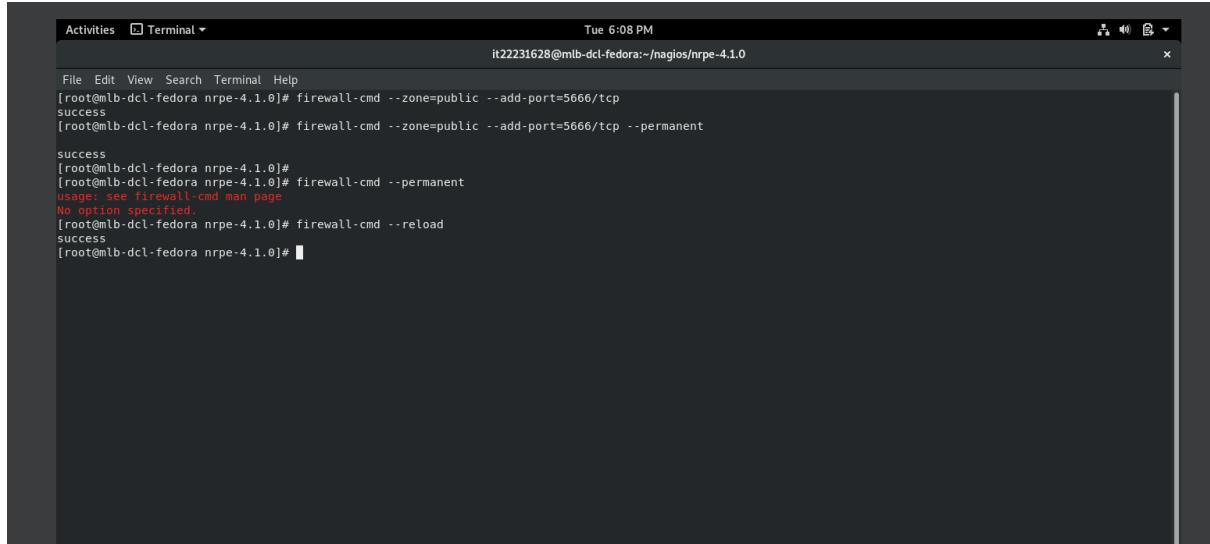
```
Activities Terminal Tue 6:07 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# /usr/local/nagios/etc/nrpe.cfg
bash: /usr/local/nagios/etc/nrpe.cfg: Permission denied
[root@mlb-dcl-fedora nrpe-4.1.0]# vi /usr/local/nagios/etc/nrpe.cfg
[root@mlb-dcl-fedora nrpe-4.1.0]# vi /usr/local/nagios/etc/nrpe.cfg
[root@mlb-dcl-fedora nrpe-4.1.0]# systemctl enable nrpe
Created symlink /etc/systemd/system/multi-user.target.wants/nrpe.service → /usr/lib/systemd/system/nrpe.service.
[root@mlb-dcl-fedora nrpe-4.1.0]# systemctl restart nrpe
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 48:enable and restart the nrpe service

Step 8: Open NRPE Port in Firewall

Make sure that the **Firewall** on the local machine will allow the **NRPE** daemon to be accessed from remote servers. To do this, run the following iptables command.



```
Activities Terminal ▾ Tue 6:08 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --zone=public --add-port=5666/tcp
success
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --zone=public --add-port=5666/tcp --permanent
success
[root@mlb-dcl-fedora nrpe-4.1.0]#
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --permanent
usage: see firewall-cmd man page
No option specified.
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --reload
success
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 49:: Open NRPE Port in Firewall

Step 9 Verify NRPE Daemon Locally

Run the following [netstat command](#) to verify the NRPE daemon working correctly under **systemd**.

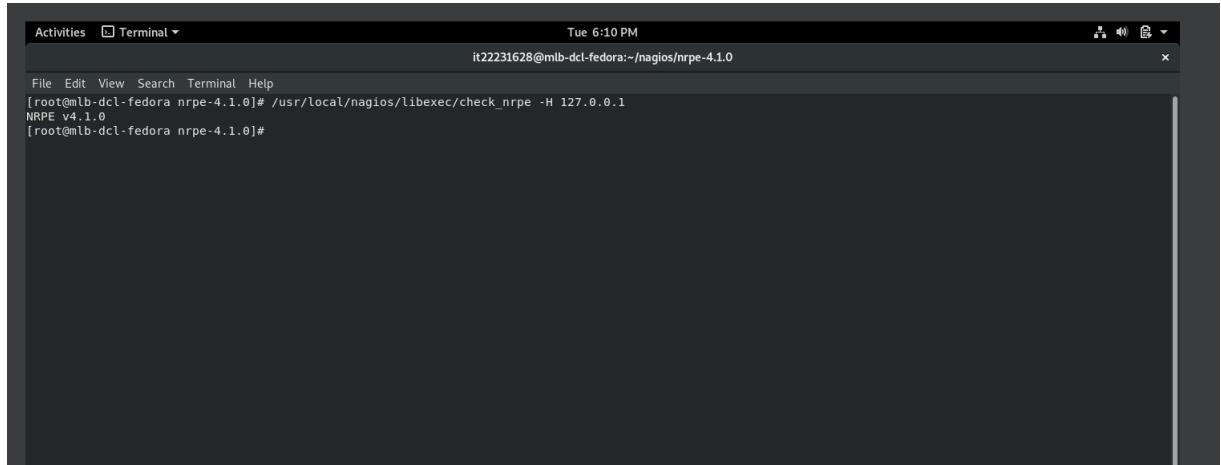


```
Activities Terminal ▾ Tue 6:09 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# netstat -at | grep nrpe
[root@mlb-dcl-fedora nrpe-4.1.0]# netstat -na | grep "5666"
tcp        0      0 0.0.0.0:5666          0.0.0.0:*
                                         LISTEN
tcp6       0      0 ::1:5666           ::*:+
                                         LISTEN
[root@mlb-dcl-fedora nrpe-4.1.0]#
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 50:Verify NRPE Daemon Locally

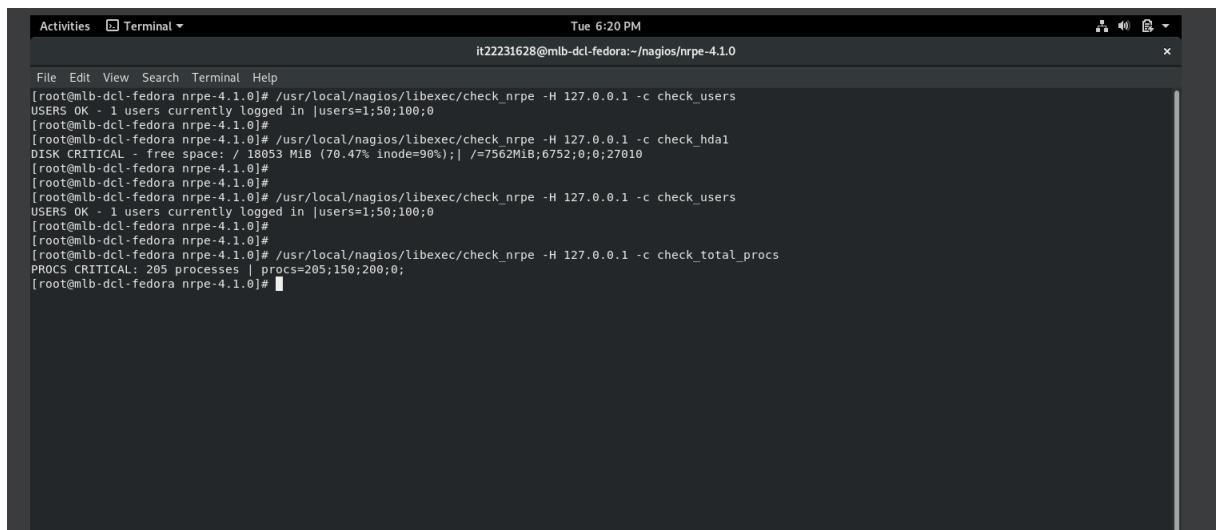
Next, verify the NRPE daemon is functioning properly by running the “**check_nrpe**” command that was installed earlier for testing purposes.



```
Activities Terminal ▾ Tue 6:10 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0
File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# /usr/local/nagios/libexec/check_nrpe -H 127.0.0.1
NRPE v4.1.0
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 51:, verify the NRPE daemon is functioning

Step 9: Customize NRPE Commands



```
Activities Terminal ▾ Tue 6:20 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0
File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# /usr/local/nagios/libexec/check_nrpe -H 127.0.0.1 -c check_users
USERS OK - 1 users currently logged in |users=1;50;100;0
[root@mlb-dcl-fedora nrpe-4.1.0]#
[root@mlb-dcl-fedora nrpe-4.1.0]# /usr/local/nagios/libexec/check_nrpe -H 127.0.0.1 -c check_hdal
DISK CRITICAL - free space: / 18053 MIB (70.47% inode=90%);| /=7562MIB;6752;0;0;27910
[root@mlb-dcl-fedora nrpe-4.1.0]#
[root@mlb-dcl-fedora nrpe-4.1.0]# /usr/local/nagios/libexec/check_nrpe -H 127.0.0.1 -c check_users
USERS OK - 1 users currently logged in |users=1;50;100;0
[root@mlb-dcl-fedora nrpe-4.1.0]#
[root@mlb-dcl-fedora nrpe-4.1.0]# /usr/local/nagios/libexec/check_nrpe -H 127.0.0.1 -c check_total_procs
PROCS CRITICAL: 205 processes | procs=205;150;200;0;
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 52:Customize NRPE Commands

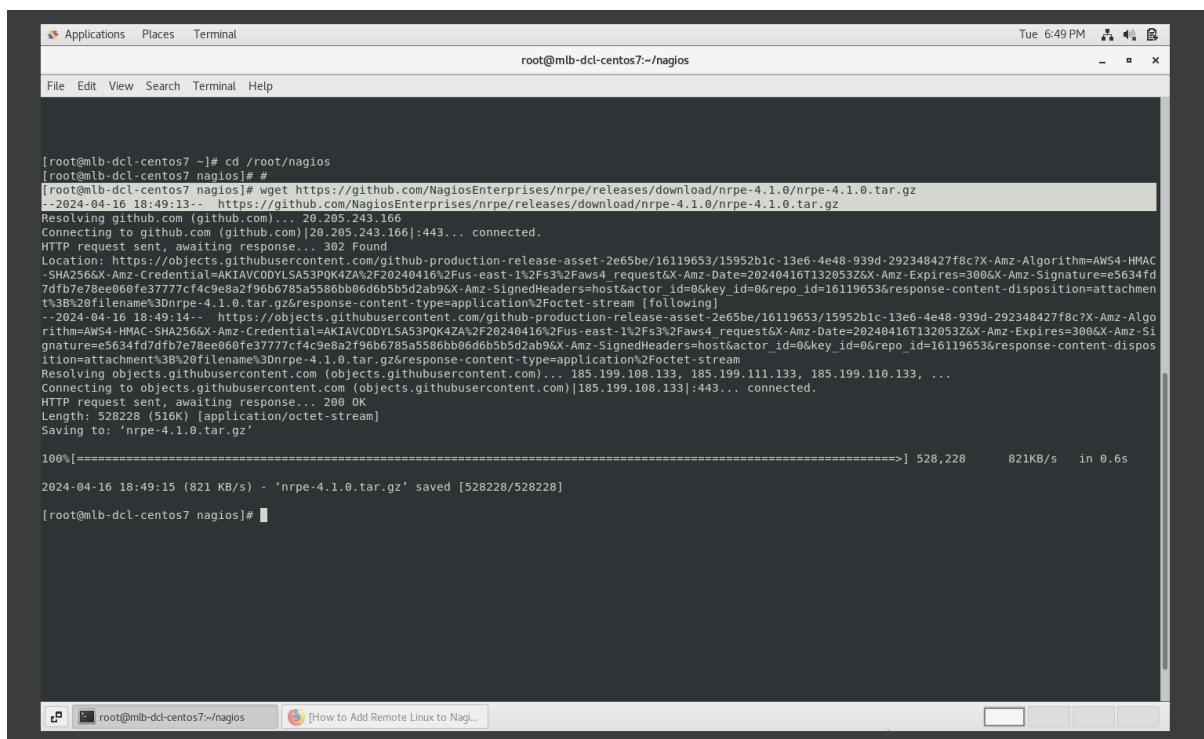
we can edit and add new command definitions by editing the NRPE config file. Finally, we’ve successfully installed and configured NRPE agent on the **Remote Linux Host**

Installing NRPE On Nagios Monitoring Server

Now login into your Nagios Monitoring Server. Here you will need to do the following things:

- Install the **check_nrpe** plugin.
- Create a **Nagios command definition** using the **check_nrpe** plugin.
- Create a **Nagios host** and **add service definitions** for monitoring the **remote Linux host**

Step 1: Install NRPE Plugin in Nagios



The screenshot shows a terminal window titled 'root@mlb-dcl-centos7:~/nagios'. The user is executing a wget command to download the NRPE plugin source code from GitHub. The output shows the progress of the download, including the URL, file name, and download speed (821KB/s). The terminal window has a standard Linux desktop interface with icons for Applications, Places, Terminal, and Help at the top, and a title bar with the date and time (Tue 6:49 PM).

```
[root@mlb-dcl-centos7 ~]# cd /root/nagios
[root@mlb-dcl-centos7 nagios]# 
[root@mlb-dcl-centos7 nagios]# wget https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-4.1.0/nrpe-4.1.0.tar.gz
--2024-04-16 18:49:13-- https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-4.1.0/nrpe-4.1.0.tar.gz
Resolving github.com (github.com)... 20.205.243.166
Connecting to github.com (github.com)|20.205.243.166|:443... connected.
HTTP request sent, awaiting response ... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/16119653/15952b1c-13e6-4e48-939d-292348427f8c?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAVCDYLSA53PK4ZA%2F20240416%2Faws4_request%2Fus-east-1%2F53%2Faws4_request&X-Amz-Date=20240416T132053Z&X-Amz-Expires=3000X-Amz-Signature=e5634fd7dfb7e78ee060fe3777cf4c9e8a2f96b6785a586bb6d6b5b5d2ab96X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=16119653&response-content-disposition=attachment;filename=nrpe-4.1.0.tar.gz&response-content-type=application/x-tar
HTTP request sent, awaiting response ... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/16119653/15952b1c-13e6-4e48-939d-292348427f8c?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAVCDYLSA53PK4ZA%2F20240416%2Faws4_request%2Fus-east-1%2F53%2Faws4_request&X-Amz-Date=20240416T132053Z&X-Amz-Expires=3000X-Amz-Signature=e5634fd7dfb7e78ee060fe3777cf4c9e8a2f96b6785a586bb6d6b5b5d2ab96X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=16119653&response-content-disposition=attachment;filename=nrpe-4.1.0.tar.gz&response-content-type=application/x-tar
HTTP request sent, awaiting response ... 200 OK
Length: 528228 (516K) [application/octet-stream]
Saving to: 'nrpe-4.1.0.tar.gz'

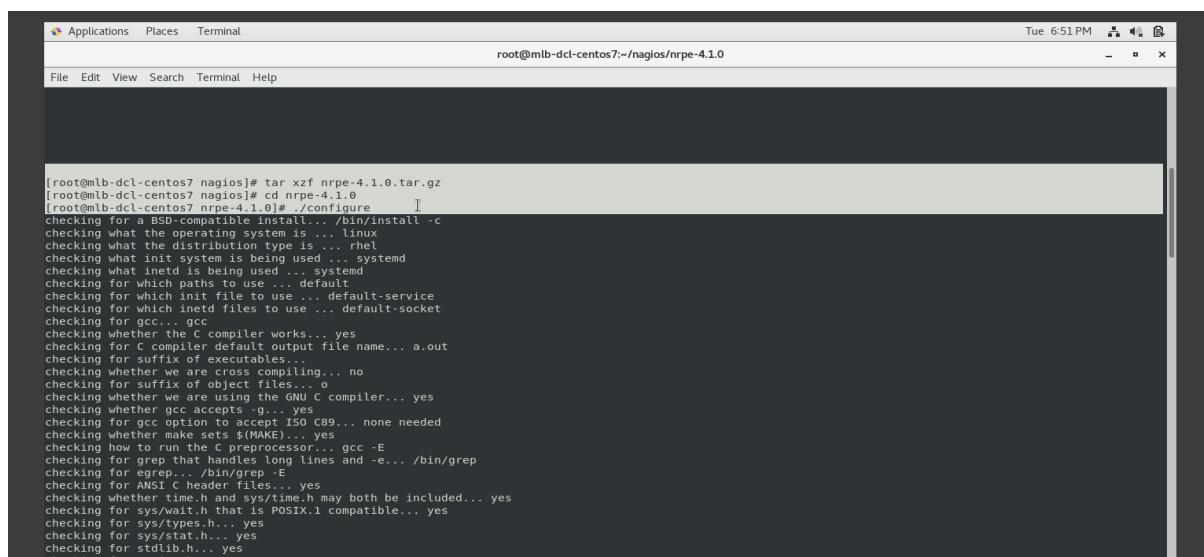
100%[=====] 528,228          821KB/s   in 0.6s

2024-04-16 18:49:15 (821 KB/s) - 'nrpe-4.1.0.tar.gz' saved [528228/528228]

[root@mlb-dcl-centos7 nagios]# 
```

figure1. 53:: Install NRPE Plugin in Nagios in fedora

Unpack the NRPE source code .

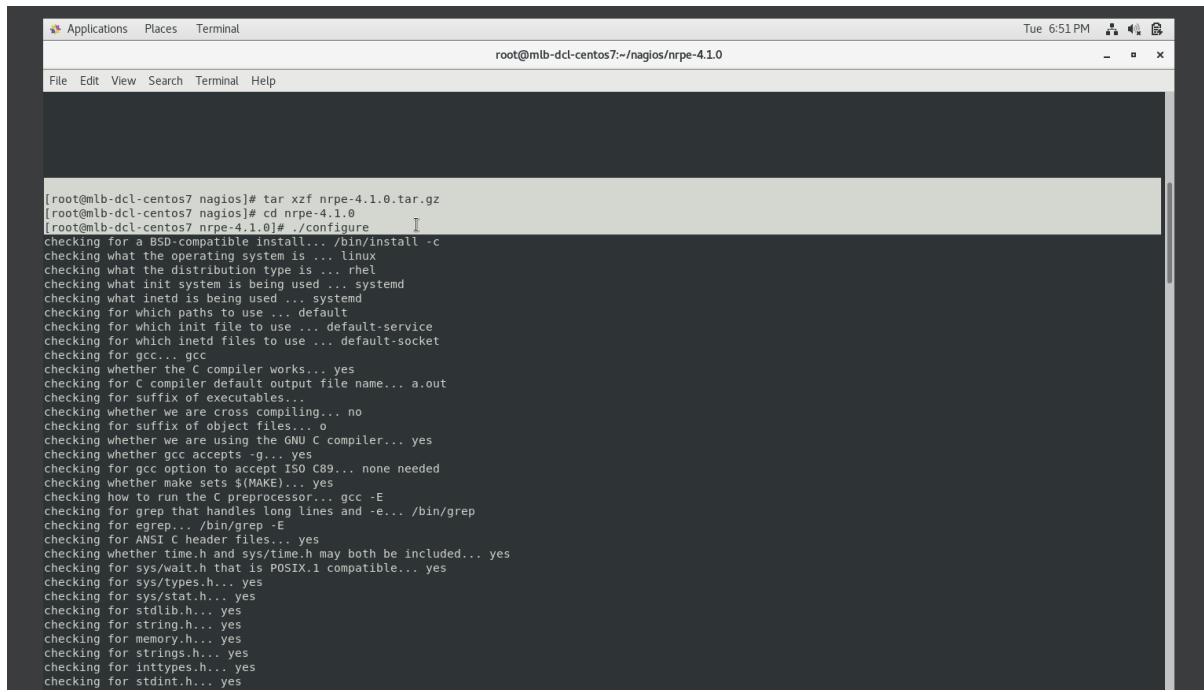


The screenshot shows a terminal window titled 'root@mlb-dcl-centos7:~/nagios/nrpe-4.1.0'. The user is executing a tar command to extract the NRPE source code. The terminal window has a standard Linux desktop interface with icons for Applications, Places, Terminal, and Help at the top, and a title bar with the date and time (Tue 6:51 PM).

```
[root@mlb-dcl-centos7 nagios]# tar xzf nrpe-4.1.0.tar.gz
[root@mlb-dcl-centos7 nagios]# cd nrpe-4.1.0
[root@mlb-dcl-centos7 nrpe-4.1.0]# ./configure
[...]
checking for a BSD-compatible install... ./bin/install -
checking what the operating system is... linux
checking what the distribution type is... rhel
checking what init system is being used... systemd
checking what kernel is being used... system
checking what shell to use... /bin/sh
checking for which init file to use... default-service
checking for which inetd files to use... default-socket
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
checking for suffix of object files... o
checking whether we are using GNU C compiler... yes
checking whether gcc accepts -O... yes
checking for gcc option to accept ISO C89... none needed
checking whether make sets ${MAKE}... yes
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -E... /bin/grep
checking for egrep... /bin/grep -E
checking for ANSI C header files... yes
checking whether time.h and sys/time.h may both be included... yes
checking for sys/types.h that is POSIX.1 compatible... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
```

figure1. 54:Unpack the NRPE source in fedora

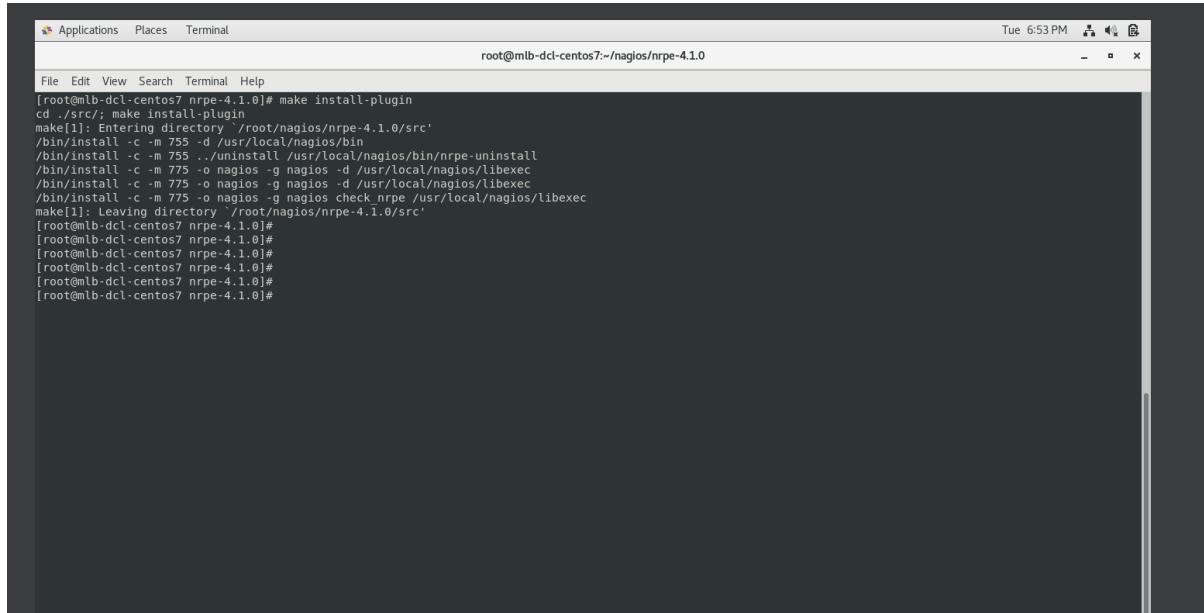
Compile and install the NRPE addon.



A screenshot of a terminal window titled "root@mlb-dcl-centos7:~/nagios/nrpe-4.1.0". The window shows the command line interface for compiling the NRPE addon. The user has run "tar xzf nrpe-4.1.0.tar.gz" and "cd nrpe-4.1.0", followed by "./configure". The configure script is performing various checks, such as checking for a BSD-compatible install, the operating system type (linux), the init system (systemd), and the C compiler (gcc). It also checks for suffixes of object files, whether we are using the GNU C compiler, and various header files like time.h, sys/types.h, and stdint.h.

```
[root@mlb-dcl-centos7 nagios]# tar xzf nrpe-4.1.0.tar.gz
[root@mlb-dcl-centos7 nagios]# cd nrpe-4.1.0
[root@mlb-dcl-centos7 nrpe-4.1.0]# ./configure
[...]
checking for a BSD-compatible install... /bin/install -c
checking what the operating system is ... linux
checking what the distribution type is ... rhel
checking what init system is being used ... systemd
checking what inetd is being used ... systemd
checking for which paths to use ... default
checking for which init file to use ... default-service
checking for which inetc files to use ... default-socket
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
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether make sets ${MAKE}... yes
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /bin/grep
checking for egrep... /bin/grep -E
checking for ANSI C header files... yes
checking whether time.h and sys/time.h may both be included... yes
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for strings.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
```

figure1. 55:Compile and install the NRPE addon in fedora



A screenshot of a terminal window titled "root@mlb-dcl-centos7:~/nagios/nrpe-4.1.0". The user has run "make install-plugins". The process involves navigating to the source directory, running "make install-plugin", and then performing several "bin/install" commands to copy files to the "/usr/local/nagios/bin" directory. The "make" command also runs "nrpe-uninstall" and "nrpe-check" scripts. Finally, the user exits the directory with "make[1]: Leaving directory '/root/nagios/nrpe-4.1.0/src'".

```
[root@mlb-dcl-centos7 nrpe-4.1.0]# make install-plugin
cd ./src; make install-plugin
make[1]: Entering directory '/root/nagios/nrpe-4.1.0/src'
/bin/install -o -m 755 -d /usr/local/nagios/bin
/bin/install -o -m 755 ..../uninstall /usr/local/nagios/bin/nrpe-uninstall
/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/libexec
/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/libexec
/bin/install -c -m 775 -o nagios -g nagios check_nrpe /usr/local/nagios/libexec
make[1]: Leaving directory '/root/nagios/nrpe-4.1.0/src'
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
```

figure1. 56:make install-plugins

```
[root@mlb-dcl-centos7 nrpe-4.1.0]# make install-plugin
cd ./src; make install-plugin
make[1]: Entering directory `/root/nagios/nrpe-4.1.0/src'
/bin/install -c -m 755 -d /usr/local/nagios/bin
/bin/install -c -m 755 -o nagios -g nagios -d /usr/local/nagios/libexec
/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/libexec
/bin/install -c -m 775 -o nagios -g nagios check_nrpe /usr/local/nagios/libexec
make[1]: Leaving directory `/root/nagios/nrpe-4.1.0/src'
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]# make install-daemon
cd ./src; make install-daemon
make[1]: Entering directory `/root/nagios/nrpe-4.1.0/src'
/bin/install -c -m 755 -d /usr/local/nagios/bin
/bin/install -c -m 755 .../uninstall /usr/local/nagios/bin/nrpe-uninstall
/bin/install -c -m 755 nrpe /usr/local/nagios/bin
/bin/install -c -m 644 .../startup/tmpfile.conf /usr/lib/tmpfiles.d/nrpe.conf
make[1]: Leaving directory `/root/nagios/nrpe-4.1.0/src'
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]#
[root@mlb-dcl-centos7 nrpe-4.1.0]# make install-init
/bin/install -c -m 644 startup/default-service /usr/lib/systemd/system/nrpe.service
[root@mlb-dcl-centos7 nrpe-4.1.0]#
```

figure1. 57:instal Daemon

Step 2: Verify NRPE Daemon Remotely

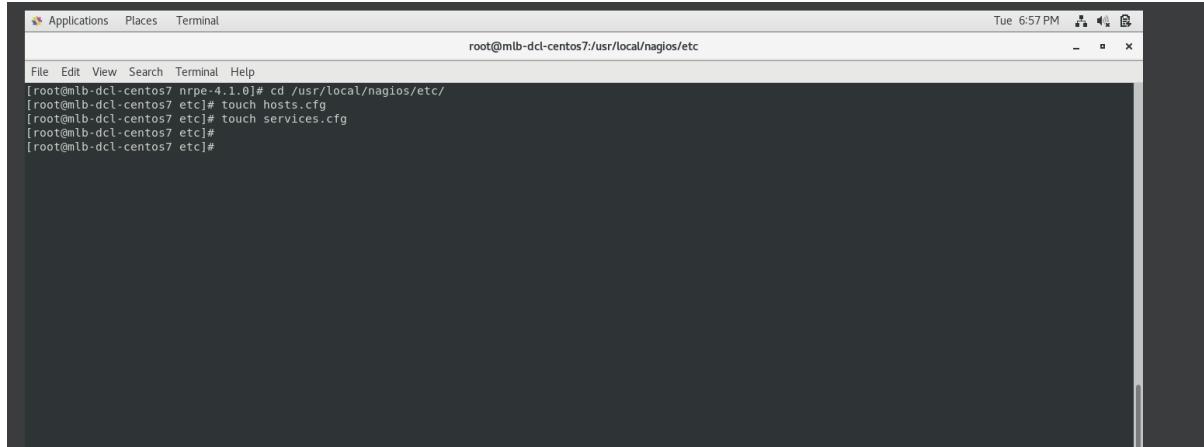
Make sure that the **check_nrpe** plugin can communicate with the **NRPE** daemon on the remote **Linux** host. Add the **IP address** in the command below with the IP address of your **Remote Linux** host.

```
[root@mlb-dcl-centos7 nrpe-4.1.0]# /usr/local/nagios/libexec/check_nrpe -H <remote_linux_ip_address>
-bash: syntax error near unexpected token `newline'
[root@mlb-dcl-centos7 nrpe-4.1.0]# /usr/local/nagios/libexec/check_nrpe -H 10.0.1.20
NRPE v4.1.0
[root@mlb-dcl-centos7 nrpe-4.1.0]#
```

figure1. 58:: Verify NRPE Daemon Remotely

Adding Remote Linux Host to Nagios Monitoring Server

Step 1: Creating Nagios Host and Services File



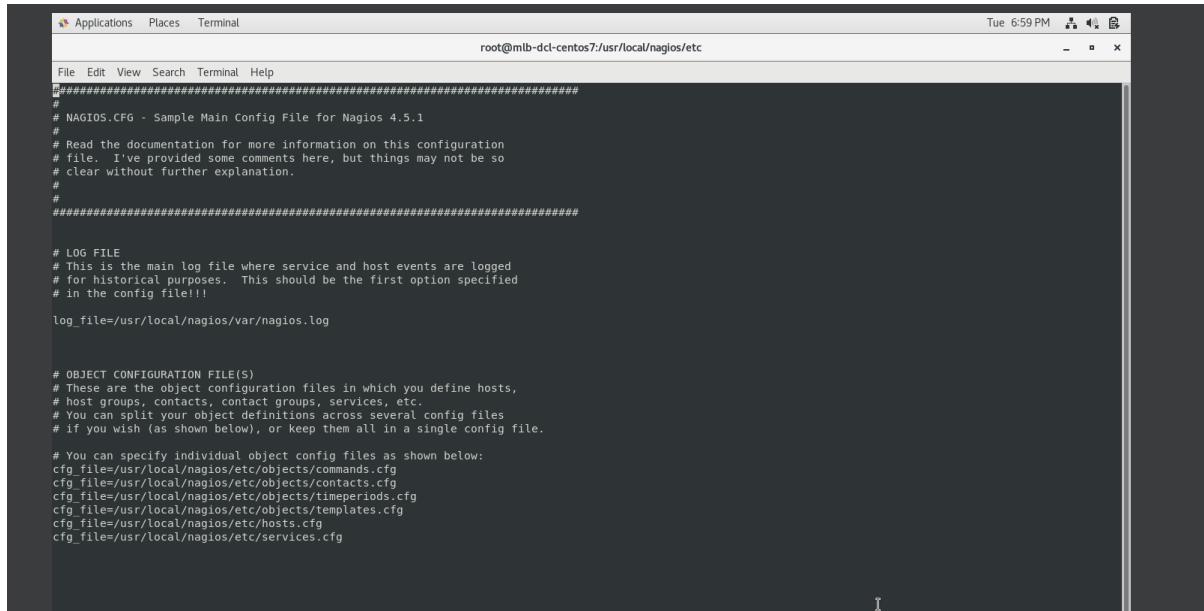
A screenshot of a terminal window titled "root@mlb-dcl-centos7:/usr/local/nagios/etc". The window shows the following command history:

```
[root@mlb-dcl-centos7 nrpe-4.1.0]# cd /usr/local/nagios/etc/
[root@mlb-dcl-centos7 etc]# touch hosts.cfg
[root@mlb-dcl-centos7 etc]# touch services.cfg
[root@mlb-dcl-centos7 etc]#
[root@mlb-dcl-centos7 etc]#
```

figure1. 59:Creating Nagios Host and Services File

Now add these two files to the main Nagios configuration file. Open the nagios.cfg file with any editor.

Now add the two newly created files as shown below.



A screenshot of a terminal window titled "root@mlb-dcl-centos7:/usr/local/nagios/etc". The window shows the main Nagios configuration file (nagios.cfg) with the following content:

```
######
# NAGIOS.CFG - Sample Main Config File for Nagios 4.5.1
#
# Read the documentation for more information on this configuration
# file. I've provided some comments here, but things may not be so
# clear without further explanation.
#
#####
# LOG FILE
# This is the main log file where service and host events are logged
# for historical purposes. This should be the first option specified
# in the config file!!!
log_file=/usr/local/nagios/var/nagios.log

# 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/timerperiods.cfg
cfg_file=/usr/local/nagios/etc/objects/templates.cfg
cfg_file=/usr/local/nagios/etc/hosts.cfg
cfg_file=/usr/local/nagios/etc/services.cfg
```

figure1. 60:add the two newly created files

Step 2: Configuring Nagios Host and Services File

open hosts.cfg file and add the default host template name and define remote hosts as shown below. Make sure to replace host_name, alias, and address with your remote host server details.

The screenshot shows a terminal window titled "root@mlb-dcl-centos7:/usr/local/nagios/etc". The window displays two configuration files: "hosts.cfg" and "hosts.d/00-default.conf".

```
File Edit View Search Terminal Help
## Default Linux Host Template ##
define host{
name          linux-box           ; Name of this template
use           generic-host        ; Inherit default values
check_period   24x7
check_interval 5
retry_interval 1
max_check_attempts 10
check_command  check-host-alive
notification_period 24x7
notification_interval 30
notification_options d,r
contact_groups admins
register      0                  ; DONT REGISTER THIS - ITS A TEMPLATE
}

## Default
define host{
use           generic-host        ; Inherit default values from a template
host_name     fedora-clintl      ; The name we're giving to this server
alias         CentOS 7            ; A longer name for the server
address       10.0.1.20          ; IP address of Remote Linux host
}

"/usr/local/nagios/etc/hosts.cfg" 23L, 1077C
```

figure1. 61:Configuring Nagios Host and Services File

Next open services.cfg file and add the following services to be monitored.

```
# vi /usr/local/nagios/etc/services.cfg
```

```
Applications Places Terminal Tue 7:09 PM root@mlb-dcl-centos7:/usr/local/nagios/etc
File Edit View Search Terminal Help

define service{
    use generic-service
    host_name fedora-clint1
    service_description CPU Load
    check_command check_nrpe[check_load
}

define service{
    use generic-service
    host_name fedora-clint1
    service_description Total Processes
    check_command check_nrpe[check_total_procs
}

define service{
    use generic-service
    host_name fedora-clint1
    service_description Current Users
    check_command check_nrpe[check_users
}

define service{
    use generic-service
    host_name fedora-clint1
    service_description SSH Monitoring
    check_command check_nrpe[check_ssh
}

-
```

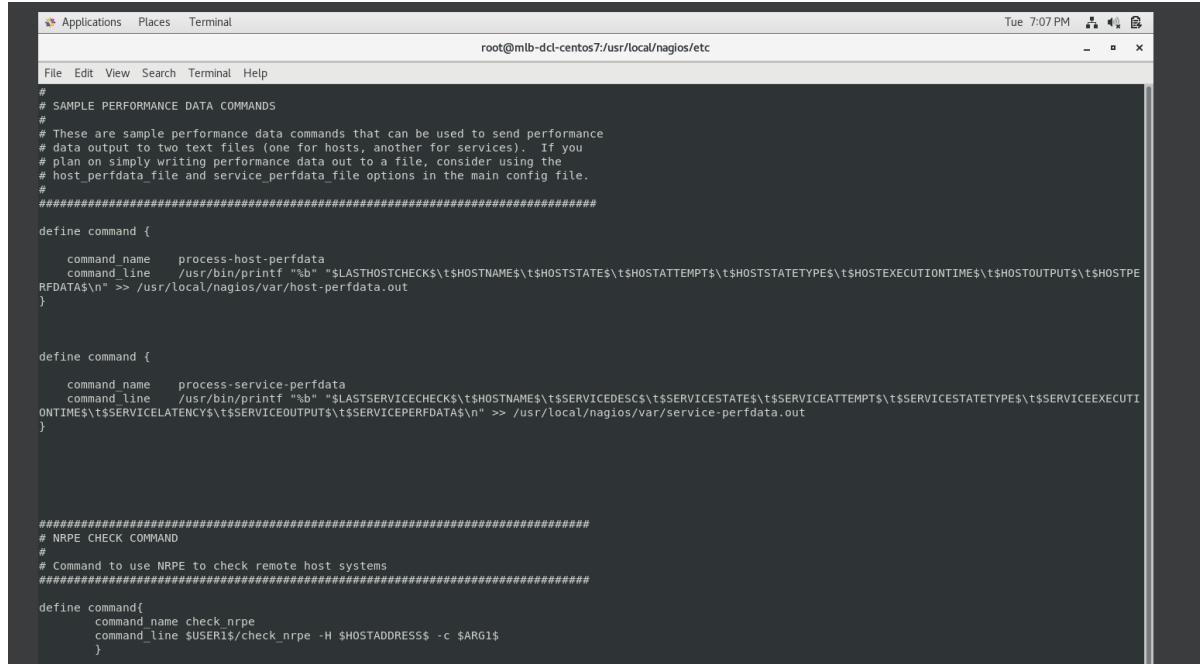
figure1. 62:add the following services to be monitored.

Step 3: Configuring NRPE Command Definition

Now NRPE command definition needs to be created in **commands.cfg** file.

```
# vi /usr/local/nagios/etc/objects/commands.cfg
```

Add the following NRPE command definition at the bottom of the file.



```
# Applications Places Terminal
root@mlb-dcl-centos7:/usr/local/nagios/etc
Tue 7:07 PM - x

File Edit View Search Terminal Help
# SAMPLE PERFORMANCE DATA COMMANDS
#
# These are sample performance data commands that can be used to send performance
# data output to two text files (one for hosts, another for services). If you
# plan on simply writing performance data out to a file, consider using the
# host_perfdata_file and service_perfdata_file options in the main config file.
#
#####
define command {
    command_name process-host-perfdata
    command_line /usr/bin/printf "%b" "$LASTHOSTCHECK\$t$HOSTNAME\$t$HOSTSTATE\$t$HOSTATTEMPT\$t$HOSTSTATETYPE\$t$HOSTEXECUTIONTIME\$t$HOSTOUTPUT\$t$HOSTPERFDATA\$n" >> /usr/local/nagios/var/host-perfdata.out
}

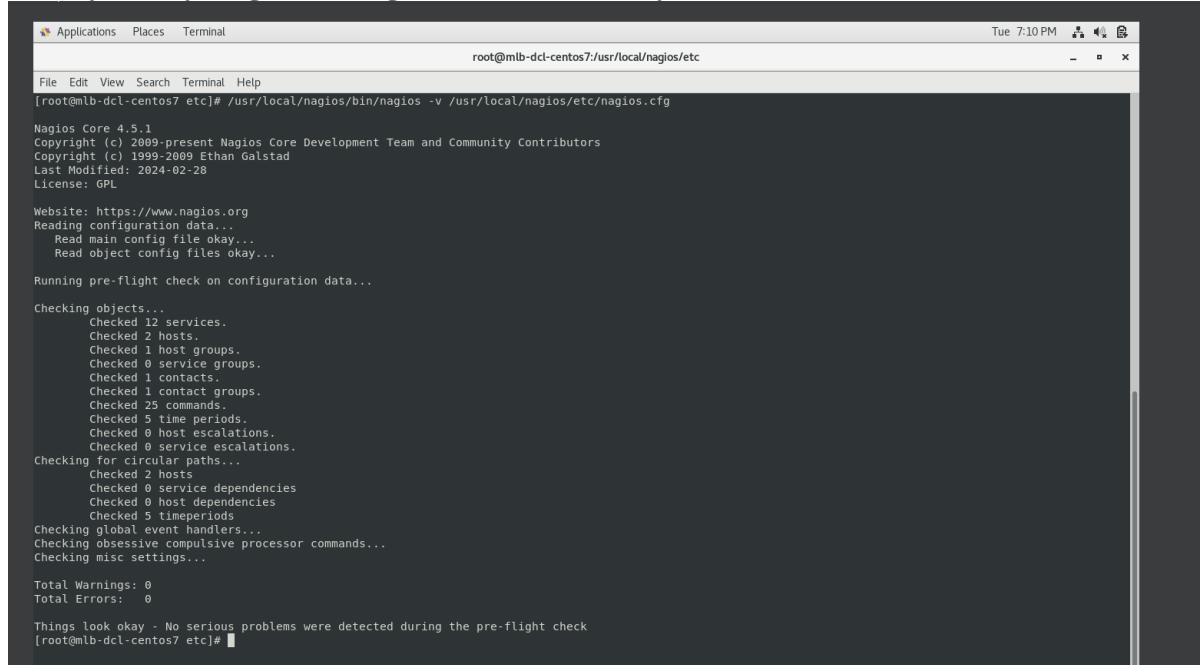
define command {
    command_name process-service-perfdata
    command_line /usr/bin/printf "%b" "$LASTSERVICECHECK\$t$HOSTNAME\$t$SERVICEDESC\$t$SERVICESTATE\$t$SERVICEATTEMPT\$t$SERVICESTATETYPE\$t$SERVICEEXECUTETIME\$t$SERVICELATENCY\$t$SERVICEOUTPUT\$t$SERVICEPERFDATA\$n" >> /usr/local/nagios/var/service-perfdata.out
}

#####
# NRPE CHECK COMMAND
#
# Command to use NRPE to check remote host systems
#####

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

figure1. 63:: Configuring NRPE Command Definition

Finally, verify Nagios Configuration files for any errors.



```
# Applications Places Terminal
root@mlb-dcl-centos7:/usr/local/nagios/etc
Tue 7:10 PM - x

File Edit View Search Terminal Help
[root@mlb-dcl-centos7 etc]# /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.5.1
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2024-02-28
License: GPL

Website: https://www.nagios.org
Reading configuration data...
  Read main config file okay...
  Read object config files okay...

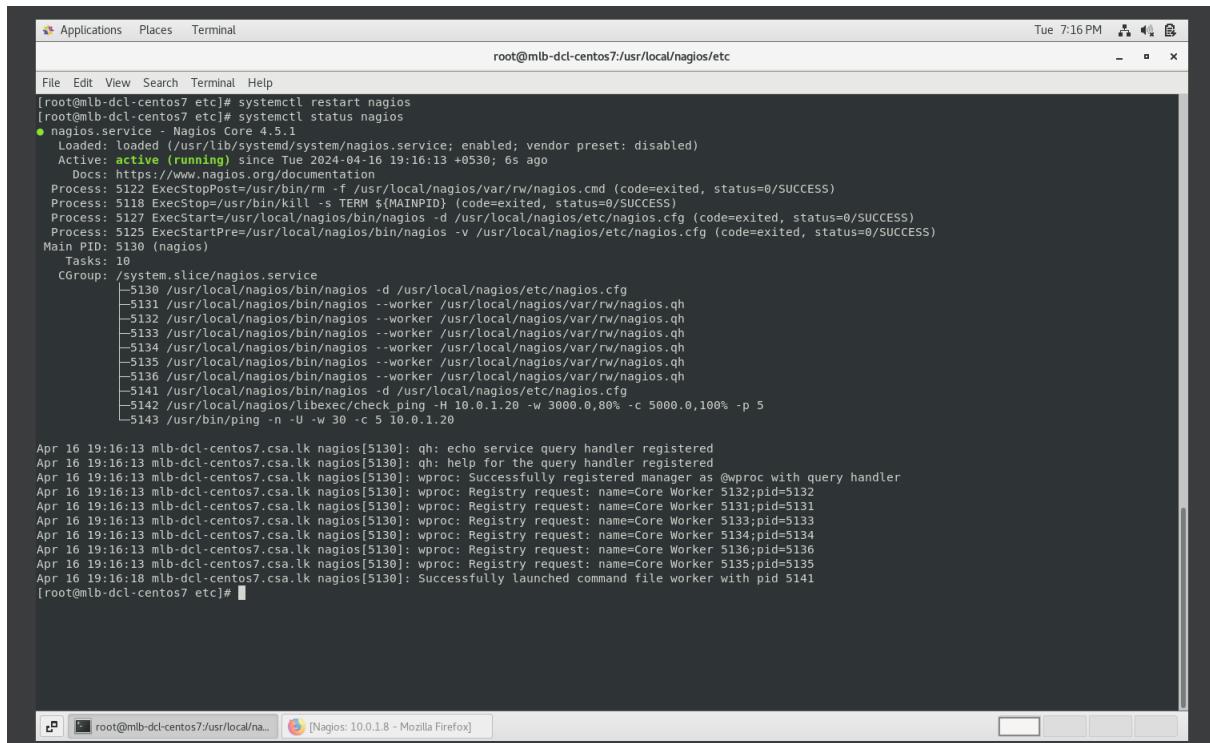
Running pre-flight check on configuration data...
Checking objects...
  Checked 12 services.
  Checked 2 hosts.
  Checked 1 host groups.
  Checked 8 service groups.
  Checked 1 contacts.
  Checked 1 contact groups.
  Checked 25 commands.
  Checked 5 time periods.
  Checked 0 host escalations.
  Checked 0 service escalations.
Checking for circular paths...
  Checked 2 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: 0

Things look okay - No serious problems were detected during the pre-flight check
[root@mlb-dcl-centos7 etc]#
```

figure1. 64:verify Nagios Configuration files for any errors

Finally, restart Nagios to apply recent configuration changes:



```
[root@mlb-dcl-centos7 etc]# systemctl restart nagios
[root@mlb-dcl-centos7 etc]# systemctl status nagios
● nagios.service - Nagios Core 4.5.1
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor preset: disabled)
     Active: active (running) since Tue 2024-04-16 19:16:13 +0530; 6s ago
       Docs: https://www.nagios.org/documentation
   Process: 5122 ExecStopPost=/usr/bin/rm -f /usr/local/nagios/var/rw/nagios.cmd (code=exited, status=0/SUCCESS)
   Process: 5118 ExecStop=/usr/bin/kill -s TERM ${MAINPID} (code=exited, status=0/SUCCESS)
   Process: 5127 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Process: 5125 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
 Main PID: 5130 (nagios)
   Tasks: 10
  CGroup: /system.slice/nagios.service
          ├─5130 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
          ├─5131 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─5132 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─5133 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─5134 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─5135 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─5136 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─5141 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
          └─5142 /usr/local/nagios/libexec/check_ping -n -U -w 30 -c 5 10.0.1.20
              ├─5143 /usr/bin/ping -n -U -w 30 -c 5 10.0.1.20

Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: qn: echo service query handler registered
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: qn: help for the query handler registered
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: wproc: Successfully registered manager as @wproc with query handler
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: wproc: Registry request: name=Core Worker 5132;pid=5132
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: wproc: Registry request: name=Core Worker 5131;pid=5131
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: wproc: Registry request: name=Core Worker 5133;pid=5133
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: wproc: Registry request: name=Core Worker 5134;pid=5134
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: wproc: Registry request: name=Core Worker 5136;pid=5136
Apr 16 19:16:13 mlb-dcl-centos7.csa.lk nagios[5130]: wproc: Registry request: name=Core Worker 5135;pid=5135
Apr 16 19:16:18 mlb-dcl-centos7.csa.lk nagios[5130]: Successfully launched command file worker with pid 5141
[root@mlb-dcl-centos7 etc]#
```

figure1. 65:restart Nagios to apply recent configuration changes

figure1. 66

Step 4: Monitoring Remote Linux in Nagios

Now go to the Nagios Monitoring Web interface at “<http://Your-server-IP-address/nagios>”

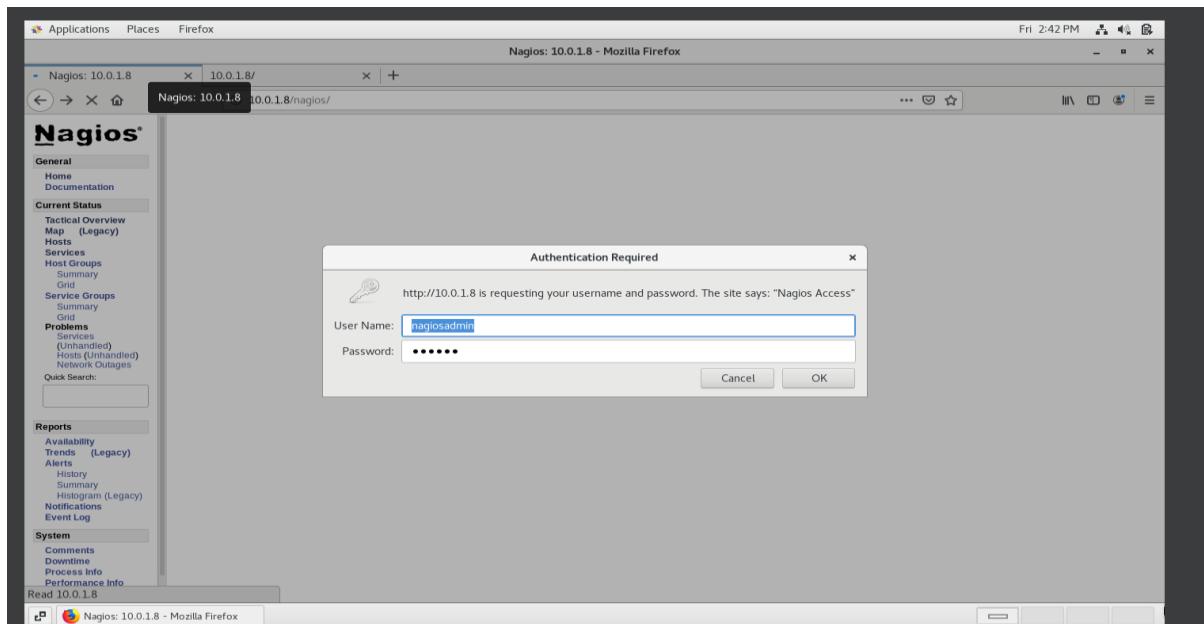


figure1. 66:go to the Nagios Monitoring Web interface

figure1. 67:check the host tab

figure1. 68:check the services tab

Implementing System Checks on Fedora Client

: Download plugin to check for CPU usage

Set ownership and permissions for plugin

Execute CPU usage plugin



The screenshot shows a terminal window titled "Terminal" with the command line interface. The terminal shows the following steps:

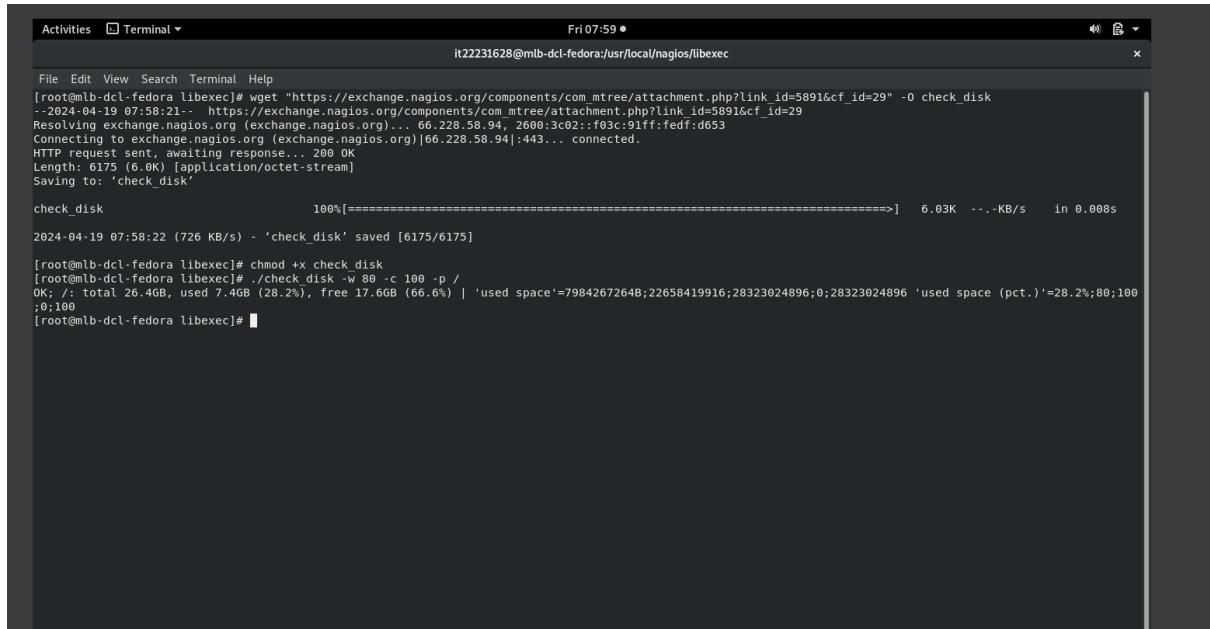
- [root@mlb-dcl-fedora libexec]# wget "https://exchange.nagios.org/components/com_mtree/attachment.php?link_id=3352&cf_id=24" -O check_cpu2
- 2024-04-17 13:37:16-- https://exchange.nagios.org/components/com_mtree/attachment.php?link_id=3352&cf_id=24
- Resolving exchange.nagios.org (exchange.nagios.org)... 66.228.58.94, 2600:3c02::f03c:91ff:fedf:d653
- Connecting to exchange.nagios.org (exchange.nagios.org)|66.228.58.94|:443... connected.
- HTTP request sent, awaiting response... 200 OK
- Length: 1753 (1.7K) [application/octet-stream]
- Saving to: 'check_cpu2'
- check_cpu2 100%[=====] 1.71K --.-KB/s in 0.004s
- 2024-04-17 13:37:18 (413 KB/s) - 'check_cpu2' saved [1753/1753]
- [root@mlb-dcl-fedora libexec]# chmod +x check_cpu2
- [root@mlb-dcl-fedora libexec]# ./check_cpu2 -w 80 -c 100
- expr: syntax error: missing argument after '-'
- OK - CPU used=% idle=% | 'CPU Usage'=%;80;100;
- [root@mlb-dcl-fedora libexec]# ./check_cpu2 -c 100 -w 80
- expr: syntax error: missing argument after '-'
- OK - CPU used=% idle=% | 'CPU Usage'=%;80;100;
- [root@mlb-dcl-fedora libexec]# vi /usr/local/nagios/etc/nrpe.cfg
- [root@mlb-dcl-fedora libexec]#

figure1. 69:download CUP usage plugin and install

: Download plugin to check for disk space

Set ownership and permissions for plugin

Execute disk space plugin



The screenshot shows a terminal window titled 'it22231628@mlb-dcl-fedora:/usr/local/nagios/libexec'. The terminal output is as follows:

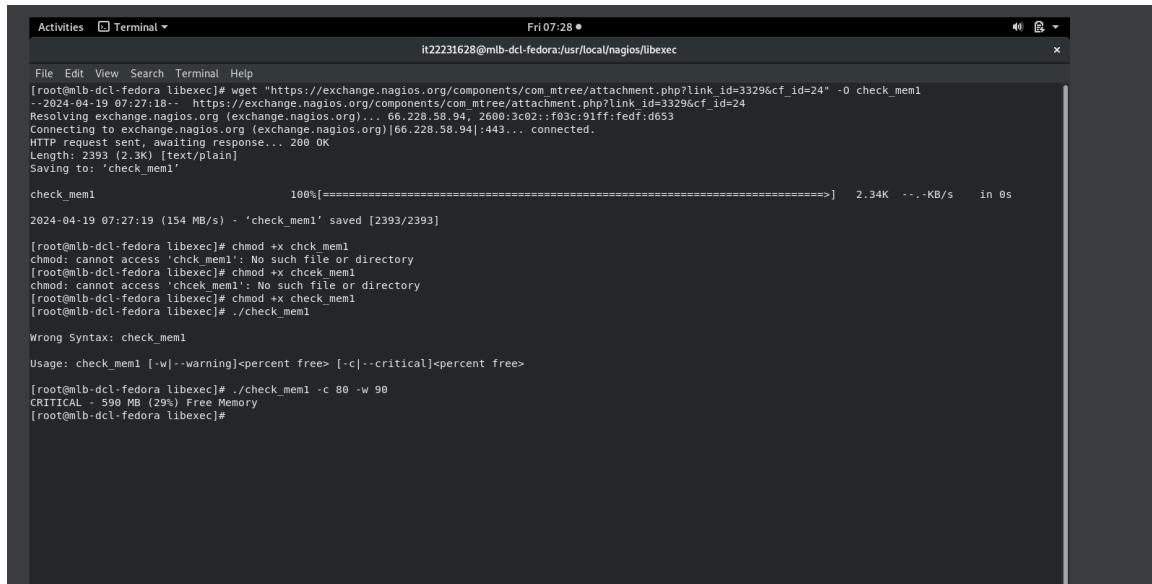
```
Fri 07:59 •  
it22231628@mlb-dcl-fedora:/usr/local/nagios/libexec  
  
File Edit View Search Terminal Help  
[root@mlb-dcl-fedora libexec]# wget "https://exchange.nagios.org/components/com_mtree/attachment.php?link_id=5891&cf_id=29" -O check_disk  
- 2024-04-19 07:58:21-- https://exchange.nagios.org/components/com_mtree/attachment.php?link_id=5891&cf_id=29  
Resolving exchange.nagios.org (exchange.nagios.org)... 66.228.58.94, 2600:3c02::f03c:91ff:fedf:d653  
Connecting to exchange.nagios.org (exchange.nagios.org)|66.228.58.94|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 6175 (6.0K) [application/octet-stream]  
Saving to: 'check_disk'  
  
check_disk 100%[=====] 6.03K --.-KB/s in 0.008s  
2024-04-19 07:58:22 (726 KB/s) - 'check_disk' saved [6175/6175]  
  
[root@mlb-dcl-fedora libexec]# chmod +x check_disk  
[root@mlb-dcl-fedora libexec]# ./check_disk -w 80 -c 100 -p /  
OK; /: total 26.4GB, used 7.4GB (28.2%), free 17.6GB (66.6%) | 'used space'=7984267264B;22658419916;28323024896;0;28323024896 'used space (pct.)'=28.2%;80;100  
;0;100  
[root@mlb-dcl-fedora libexec]#
```

figure1. 70:: Download plugin to check for disk space and install

: Download plugin to check for memory usange

Set ownership and permissions for plugin

Execute memory usange plugin

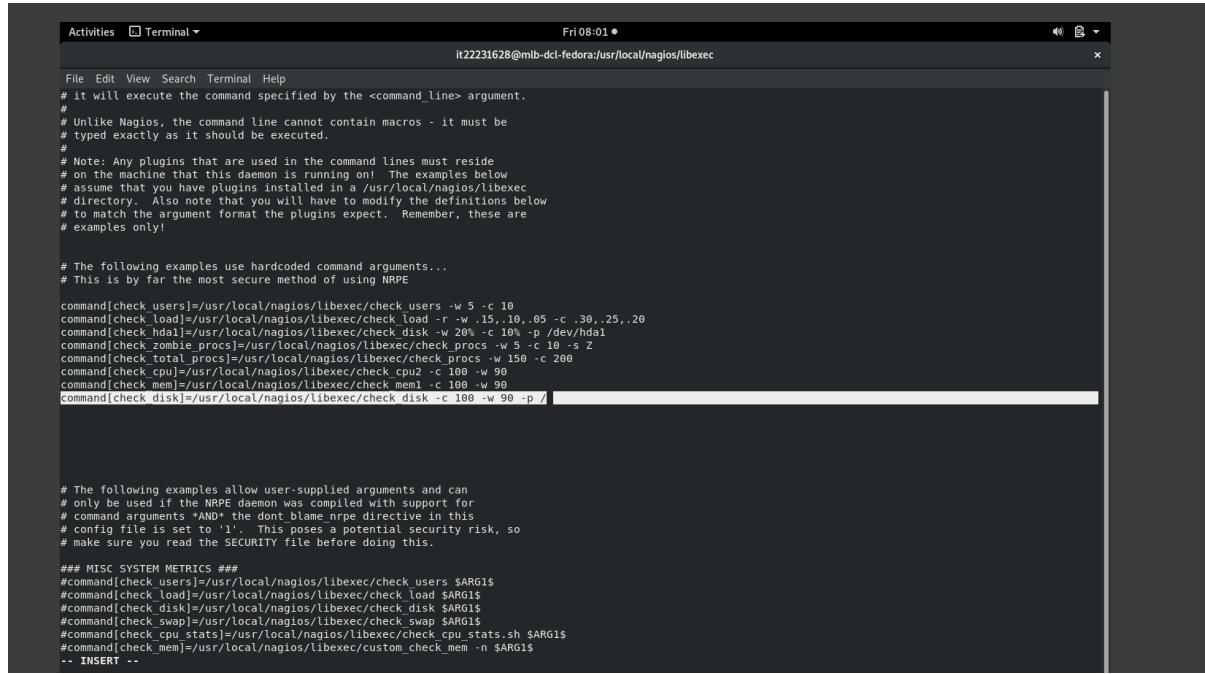


The screenshot shows a terminal window with the following session:

```
Activities Terminal Fri 07:28 *  
it22231628@mlb-dcl-fedora:~$ cd /usr/local/nagios/libexec  
File Edit View Search Terminal Help  
[root@mlb-dcl-fedora libexec]# wget "https://exchange.nagios.org/components/com_mtree/attachment.php?link_id=3329&cf_id=24" -O check_mem1  
--2024-04-19 07:27:18- https://exchange.nagios.org/components/com_mtree/attachment.php?link_id=3329&cf_id=24  
Resolving exchange.nagios.org (exchange.nagios.org)... 66.228.58.94, 2600:3c02::f03c:91ff:fedf:6653  
Connecting to exchange.nagios.org (exchange.nagios.org)|66.228.58.94|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 2393 (2.3K) [text/plain]  
Saving to: 'check_mem1'  
  
check_mem1 100%[=====] 2.34K ---.KB/s in 0s  
2024-04-19 07:27:19 (154 MB/s) - 'check_mem1' saved [2393/2393]  
  
[root@mlb-dcl-fedora libexec]# chmod +x check_mem1  
chmod: cannot access 'check_mem1': No such file or directory  
[root@mlb-dcl-fedora libexec]# chmod +x check_mem1  
chmod: cannot access 'check_mem1': No such file or directory  
[root@mlb-dcl-fedora libexec]# chmod +x check_mem1  
[root@mlb-dcl-fedora libexec]# ./check_mem1  
  
Wrong Syntax: check_mem1  
usage: check_mem1 [-w|-warning]<percent free> [-c|--critical]<percent free>  
[root@mlb-dcl-fedora libexec]# ./check_mem1 -c 80 -w 90  
CRITICAL - 590 MB (2%) Free Memory  
[root@mlb-dcl-fedora libexec]#
```

figure1. 71:Download plugin to check for memory usange

Define the new command in fedor nrpe.cfg file



```
Activities Terminal Fri 08:01 •
it22231628@mlb-dcl-fedora:/usr/local/nagios/libexec

File Edit View Search Terminal Help
# it will execute the command specified by the <command_line> argument.
# Unlike Nagios, the command line cannot contain macros - it must be
# typed exactly as it should be executed.
#
# Note: Any plugins that are used in the command lines must reside
# on the machine that this daemon is running on. The examples below
# assume that you have plugins installed in a /usr/local/nagios/libexec
# 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...
# This is by far the most secure method of using NRPE

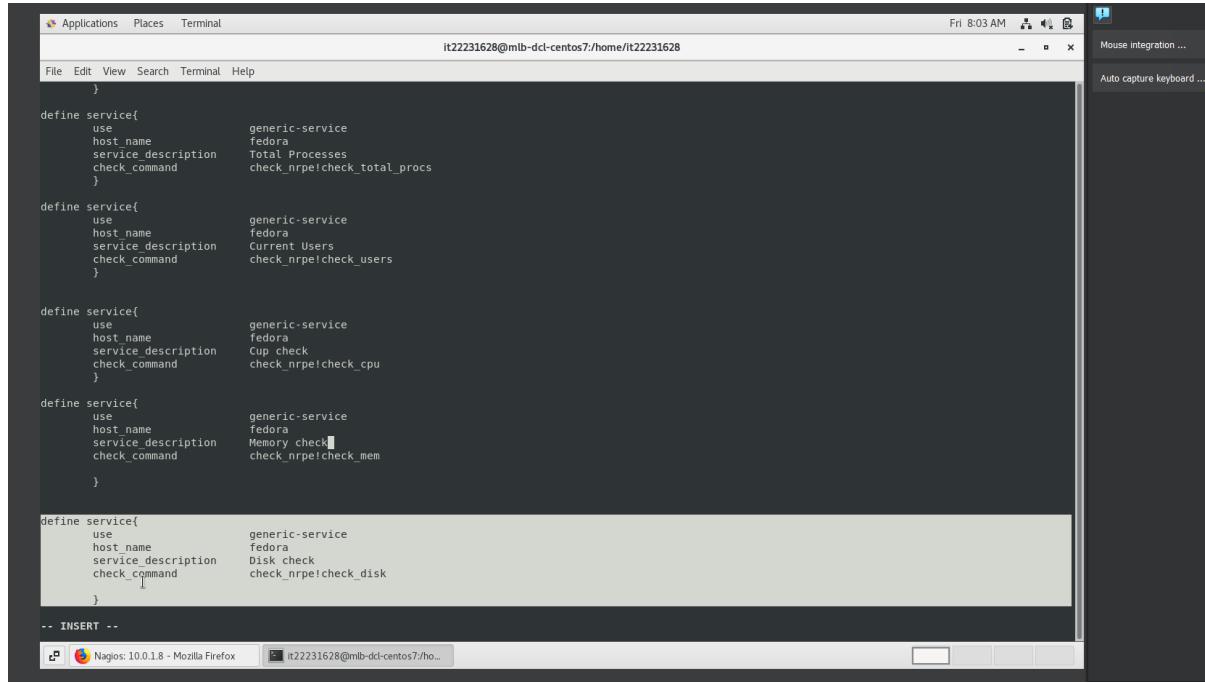
command[check_users]=/usr/local/nagios/libexec/check_users -w 5 -c 10
command[check_load]=/usr/local/nagios/libexec/check_load -w .15 -.10 -.05 -c .30 .25 .10
command[check_hdd]=/usr/local/nagios/libexec/check_disk -w 20% -c 10% -p /dev/hd1
command[check_zombie_procs]=/usr/local/nagios/libexec/check_procs -w 5 -c 10 -s Z
command[check_total_procs]=/usr/local/nagios/libexec/check_procs -w 150 -c 200
command[check_cpu]=/usr/local/nagios/libexec/check_cpu2 -c 100 -w 90
command[check_mem]=/usr/local/nagios/libexec/check_mem1 -c 100 -w 90
command[check_disk]=/usr/local/nagios/libexec/check_disk -c 100 -w 90 -p /

# The following examples allow user-supplied arguments and can
# only be used if the NRPE daemon was compiled with support for
# command arguments *AND* the dont_blame_nrpe directive in this
# config file is set to 1. This poses a potential security risk, so
# make sure you read the SECURITY file before doing this.

### MISC SYSTEM METRICS ###
#command[check_users]=/usr/local/nagios/libexec/check_users $ARG1$ # command[check_load]=/usr/local/nagios/libexec/check_load $ARG1$ # command[check_disk]=/usr/local/nagios/libexec/check_disk $ARG1$ # command[check_swap]=/usr/local/nagios/libexec/check_swap $ARG1$ # command[check_cpu_stats]=/usr/local/nagios/libexec/check_cpu_stats.sh $ARG1$ # command[check_mem]=/usr/local/nagios/libexec/custom_check_mem -n $ARG1$ -- INSERT --
```

figure1. 72:Define the new command in fedor nrpe.cfg file in fedora

Add new service in server(centos)



```
Applications Places Terminal Fri 8:03 AM
it22231628@mlb-dcl-centos7:/home/it22231628

File Edit View Search Terminal Help
}

define service{
    use          generic-service
    host_name   fedora
    service_description Total Processes
    check_command check_nrpe!check_total_procs
}

define service{
    use          generic-service
    host_name   fedora
    service_description Current Users
    check_command check_nrpe!check_users
}

define service{
    use          generic-service
    host_name   fedora
    service_description CPU Check
    check_command check_nrpe!check_cpu
}

define service{
    use          generic-service
    host_name   fedora
    service_description Memory check
    check_command check_nrpe!check_mem
}

define service{
    use          generic-service
    host_name   fedora
    service_description Disk check
    check_command check_nrpe!check_disk
}

-- INSERT --
```

figure1. 73:Add new service in server(centos)

We don't have any plugin for check the network connectivity so we need to modify the ping command to remote server clint in centos

So this is for check the network connectivity

```

Devices Help
Applications Places Terminal
it22231628@mlb-dcl-centos7:/home/it22231628 Fri 8:25 AM
File Edit View Search Terminal Help
#####
# SERVICE DEFINITIONS
#####
# Define a service to "ping" the local machine
define service {
    use           local-service      ; Name of service template to use
    host_name     localhost
    service_description PING
    check_command  check_ping!100.0,20%!500.0,60%
}

define service {
    use           local-service      ; Name of service template to use
    host_name     fedora
    service_description network connection
    check_command  check_ping!100.0,20%!500.0,60%
}

define service {
    use           local-service      ; Name of service template to use
    host_name     fedora
    service_description PING
    check_command  check_ping!100.0,20%!500.0,60%
}

# Define a service to check the disk space of the root partition
# on the local machine. Warning if < 20% free, critical if
# < 10% free space on partition.
define service {
-- INSERT --

```

figure1. 74:configure the ping services for monitoring the network connectivity for client

Swap usage services

```

Applications Places Terminal
root@mlb-dcl-centos7:/usr/local/nagios/etc/objects Tue 11:12 PM
File Edit View Search Terminal Help
service_description Current Load
check_command      check_local_load!5.0,4.0,3.0!10.0,6.0,4.0
}

# Define a service to check the swap usage the local machine.
# Critical if less than 10% of swap is free, warning if less than 20% is free
define service {
    use           local-service      ; Name of service template to use
    host_name     localhost
    service_description Swap Usage
    check_command  check_local_swap!20%!10%
}

define service {
    use           local-service      ; Name of service template to use
    host_name     fedora-clint1
    service_description Swap Usage
    check_command  check_local_swap!20%!10%
}

# Define a service to check SSH on the local machine.
# Disable notifications for this service by default, as not all users may have SSH enabled.
define service {
    use           local-service      ; Name of service template to use
    host_name     localhost
    service_description SSH
    check_command  check_ssh
-- INSERT --

```

figure1. 75:enablethe Swap usage services

Install the iptables in fedora (clint)

```
Activities Terminal ▾ Tue 7:25 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# yum install iptables-services
Last metadata expiration check: 0:52:44 ago on Tue 16 Apr 2024 06:32:14 PM +0530.
Dependencies resolved.
=====
Package           Arch      Version       Repository   Size
=====
Installing:
iptables-services x86_64  1.8.0-3.fc29   fedora        15 k
Transaction Summary
Install 1 Package

Total download size: 15 k
Installed size: 22 k
Is this ok [y/N]: y
Downloading Packages:
iptables-services-1.8.0-3.fc29.x86_64.rpm          8.1 kB/s | 15 kB   00:01
Total                                         4.9 kB/s | 15 KB   00:03
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :                                                               1/1
Installed: iptables-services-1.8.0-3.fc29.x86_64
Installing : iptables-services-1.8.0-3.fc29.x86_64          1/1
Running scriptlet: iptables-services-1.8.0-3.fc29.x86_64
Installed: iptables-services-1.8.0-3.fc29.x86_64
Verifying   : iptables-services-1.8.0-3.fc29.x86_64          1/1

Installed:
iptables-services-1.8.0-3.fc29.x86_64

Complete!
[root@mlb-dcl-fedora nrpe-4.1.0]#
```

figure1. 76:Install the iptables in fedora (clint)

Go to the iptables configuration file

```
Activities Terminal ▾ Tue 7:29 PM
it22231628@mlb-dcl-fedora:/etc/sysconfig

File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# cd /etc/sysconfig
[root@mlb-dcl-fedora sysconfig]# ls
anaconda      chronyd      ip6tables      kdump      modules      nftables.conf  rpcbind    selinux      sshd      zfs-fuse
atd          console      firewalld     ip6tables-config  kernel      network      qemu-ga      run-parts  sheepdog   virtlockd
authconfig   crond       iptables      libvirtd   network-scripts  radvd      samba      smpd      virtlogd
cbla        ebtables-config  htcacheclient  iptables-config  man-db      nfs      raid-check  saslauthd  snmptrapd  wpa_supplicant
[root@mlb-dcl-fedora sysconfig]# vi iptables
[root@mlb-dcl-fedora sysconfig]#
```

figure1. 77: Go to the iptables configuration file

Allow the ports in iptables

```
Activities Terminal Tue 7:28 PM
it22231628@mlb-dcl-fedora: /etc/sysconfig

File Edit View Search Terminal Help
# sample configuration for iptables service
# you can edit this manually or use system-config-firewall
# please do not ask us to add additional ports/services to this default configuration
#filter
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [0:0]
-A INPUT -m state --state RELATED,ESTABLISHED -j ACCEPT
-A INPUT -p icmp -m state --state NEW -m tcp --sport 22 -j ACCEPT
-A INPUT -p tcp -m state --state NEW -m tcp --dport 5666 -j ACCEPT
-A INPUT -p tcp -m state --state NEW -m tcp --dport 80 -j ACCEPT
-A INPUT -p tcp -m state --state NEW -m tcp --dport 443 -j ACCEPT

-A INPUT -j REJECT --reject-with icmp-host-prohibited
-A FORWARD -j REJECT --reject-with icmp-host-prohibited
COMMIT
~
```

figure1_78:Allow the ports in intables

figure1. 75

View the iptables



```
Tue 7:33 PM
it22231628@mlb-dcl-fedora:/etc/sysconfig

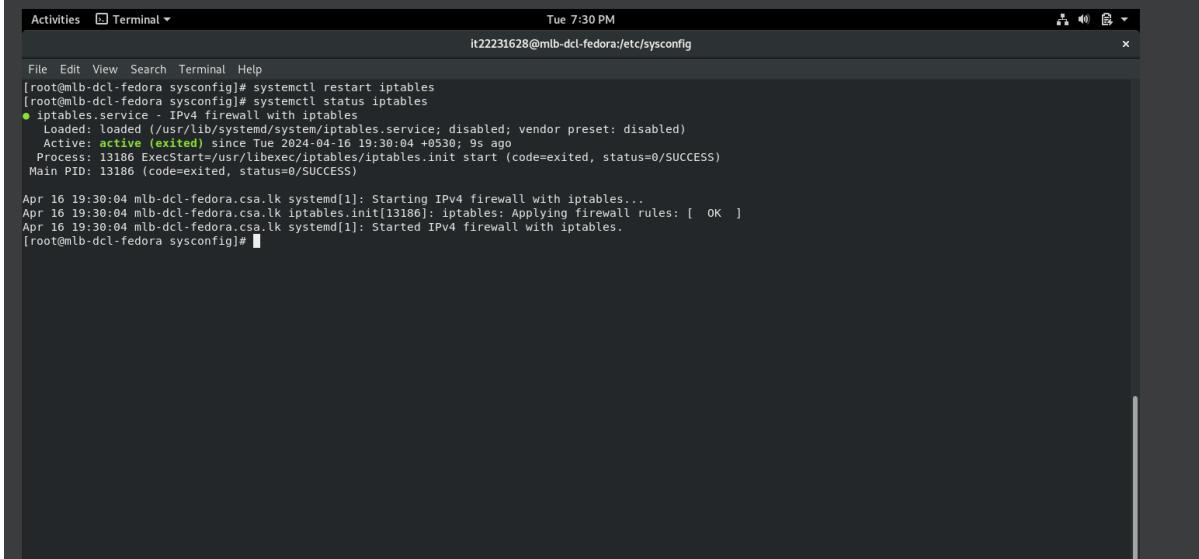
File Edit View Search Terminal Help
[root@mlb-dcl-fedora sysconfig]# iptables --list
Chain INPUT (policy ACCEPT)
target     prot opt source          destination
ACCEPT    all  --  anywhere        anywhere      state RELATED,ESTABLISHED
ACCEPT    icmp --  anywhere       anywhere
ACCEPT    all  --  anywhere       anywhere
ACCEPT    tcp  --  anywhere       anywhere      state NEW tcp dpt:ssh
ACCEPT    tcp  --  anywhere       anywhere      state NEW tcp dpt:5666
ACCEPT    tcp  --  anywhere       anywhere      state NEW tcp dpt:http
ACCEPT    tcp  --  anywhere       anywhere      state NEW tcp dpt:https
REJECT   all  --  anywhere       anywhere      reject-with icmp-host-prohibited

Chain FORWARD (policy ACCEPT)
target     prot opt source          destination
REJECT   all  --  anywhere       anywhere      reject-with icmp-host-prohibited

Chain OUTPUT (policy ACCEPT)
target     prot opt source          destination
[root@mlb-dcl-fedora sysconfig]#
```

figure1. 79:View the iptables

Restart the iptables services



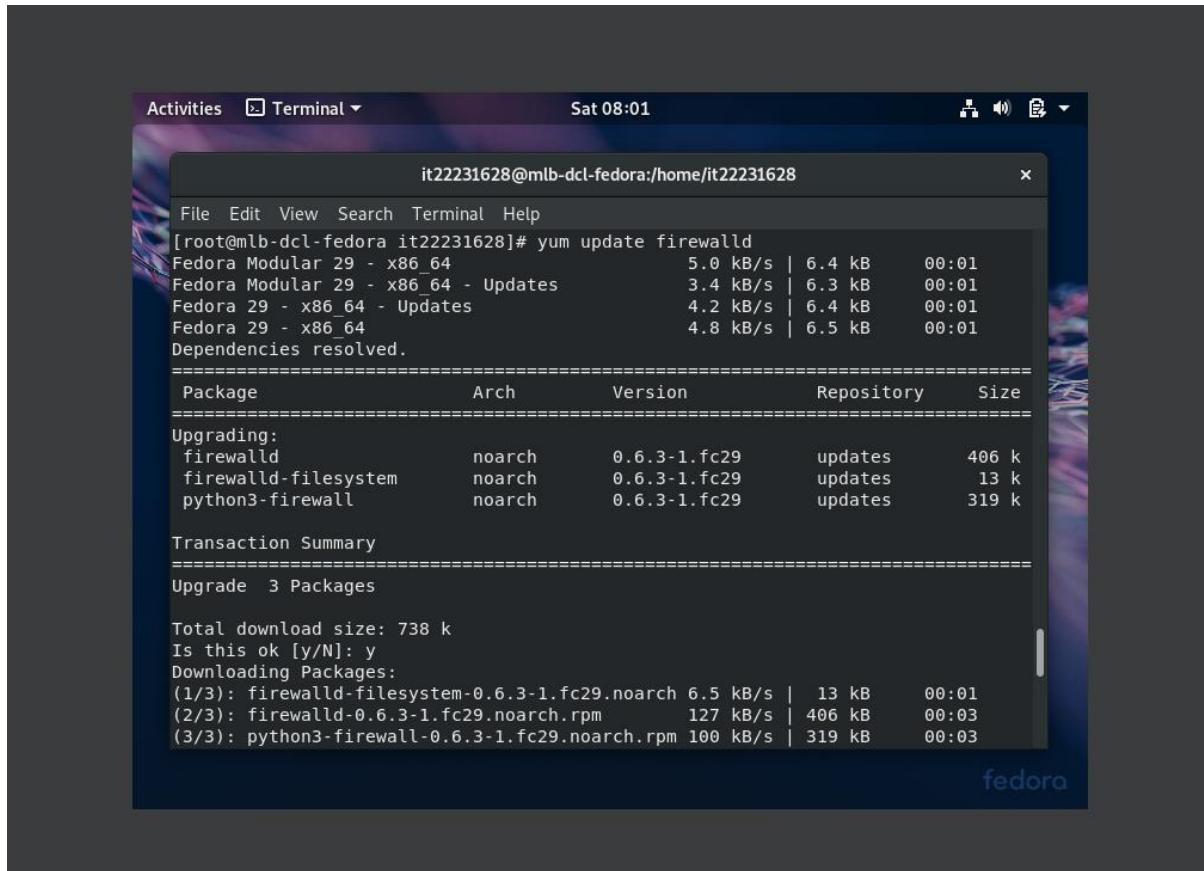
```
Tue 7:30 PM
it22231628@mlb-dcl-fedora:/etc/sysconfig

File Edit View Search Terminal Help
[root@mlb-dcl-fedora sysconfig]# systemctl restart iptables
[root@mlb-dcl-fedora sysconfig]# systemctl status iptables
● iptables.service - IPv4 firewall with iptables
  Loaded: loaded (/usr/lib/systemd/system/iptables.service; disabled; vendor preset: disabled)
  Active: active (exited) since Tue 2024-04-16 19:30:04 +0530; 9s ago
    Process: 13186 ExecStart=/usr/libexec/iptables/iptables.init start (code=exited, status=0/SUCCESS)
   Main PID: 13186 (code=exited, status=0/SUCCESS)

Apr 16 19:30:04 mlb-dcl-fedora.csa.tk systemd[1]: Starting IPv4 firewall with iptables...
Apr 16 19:30:04 mlb-dcl-fedora.csa.tk iptables.init[13186]: iptables: Applying firewall rules: [ OK ]
Apr 16 19:30:04 mlb-dcl-fedora.csa.tk systemd[1]: Started IPv4 firewall with iptables.
[root@mlb-dcl-fedora sysconfig]#
```

figure1. 80:Restart the iptables services

Enable the firewall in fedora client



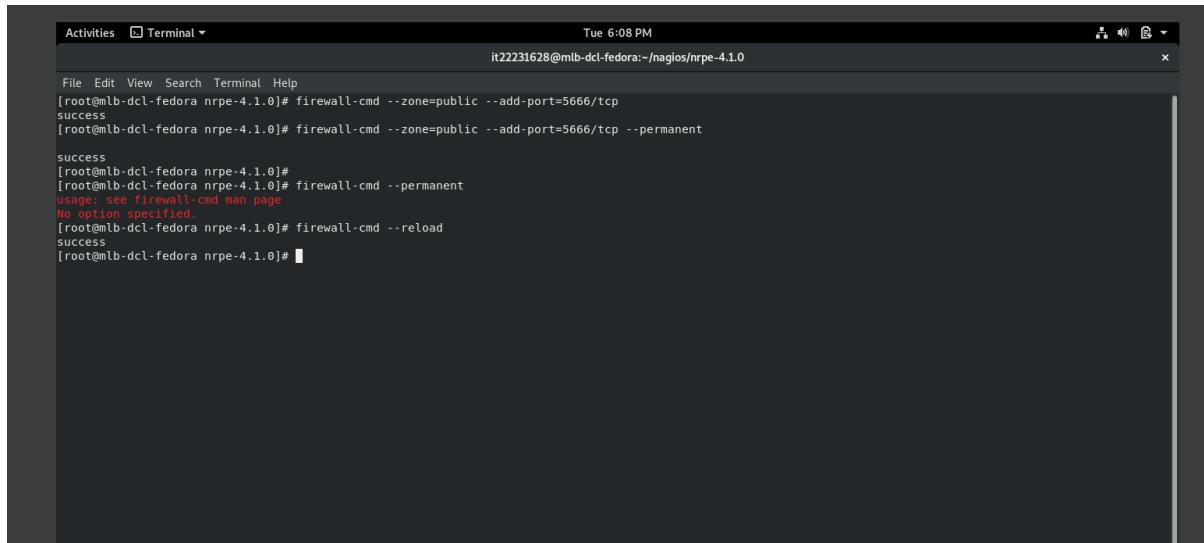
A screenshot of a Fedora desktop environment showing a terminal window. The terminal title is "it22231628@mlb-dcl-fedora:/home/it22231628". The command run is "yum update firewalld". The output shows the download and installation of firewalld and its dependencies. The transaction summary indicates an upgrade of 3 packages. The total download size is 738 k, and the user is prompted with "Is this ok [y/N]: y". The download and installation process is then shown in progress.

```
Activities Terminal ▾ Sat 08:01
it22231628@mlb-dcl-fedora:/home/it22231628
File Edit View Search Terminal Help
[root@mlb-dcl-fedora it22231628]# yum update firewalld
Fedora Modular 29 - x86_64           5.0 kB/s | 6.4 kB   00:01
Fedora Modular 29 - x86_64 - Updates 3.4 kB/s | 6.3 kB   00:01
Fedora 29 - x86_64 - Updates        4.2 kB/s | 6.4 kB   00:01
Fedora 29 - x86_64                4.8 kB/s | 6.5 kB   00:01
Dependencies resolved.
=====
Package          Arch      Version       Repository     Size
=====
Upgrading:
firewalld        noarch    0.6.3-1.fc29   updates       406 k
firewalld-filesystem noarch    0.6.3-1.fc29   updates       13 k
python3-firewall  noarch    0.6.3-1.fc29   updates      319 k
Transaction Summary
=====
Upgrade 3 Packages

Total download size: 738 k
Is this ok [y/N]: y
Downloading Packages:
(1/3): firewalld-filesystem-0.6.3-1.fc29.noarch 6.5 kB/s | 13 kB   00:01
(2/3): firewalld-0.6.3-1.fc29.noarch.rpm        127 kB/s | 406 kB  00:03
(3/3): python3-firewall-0.6.3-1.fc29.noarch.rpm 100 kB/s | 319 kB  00:03
fedora
```

figure1. 81:Enable the firewall in fedora client

Allow the ports and service on firewall



A screenshot of a terminal window showing the configuration of the firewall using the "firewall-cmd" command. The user adds port 5666/tcp to the public zone and makes it permanent. They then reload the firewall settings. The terminal session starts with "nrpe-4.1.0" and ends with a hash symbol "#".

```
Activities Terminal ▾ Tue 6:08 PM
it22231628@mlb-dcl-fedora:~/nagios/nrpe-4.1.0
File Edit View Search Terminal Help
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --zone=public --add-port=5666/tcp
success
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --zone=public --add-port=5666/tcp --permanent
success
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --permanent
usage: see firewall-cmd man page
No option specified.
[root@mlb-dcl-fedora nrpe-4.1.0]# firewall-cmd --reload
success
[root@mlb-dcl-fedora nrpe-4.1.0]# #
```

figure1. 82:Allow the ports and service on firewall

Check the firewall services

A screenshot of a Fedora desktop environment. At the top, there is a dark header bar with the text "Activities Terminal ▾" on the left, the date and time "Sat 07:57" in the center, and system icons on the right. Below the header is a terminal window titled "it22231628@mlb-dcl-fedora:/home/it22231628". The terminal window has a dark background and contains the following text:

```
public
  target: default
  icmp-block-inversion: no
  interfaces:
  sources:
  services: ssh mdns dhcpcv6-client
  ports: 5666/tcp 80/tcp 22/tcp 443/tcp
  protocols:
  masquerade: no
  forward-ports:
  source-ports:
  icmp-blocks:
  rich rules:

trusted
  target: ACCEPT
  icmp-block-inversion: no
  interfaces:
  sources:
  services:
  ports:
```

The desktop background is a dark blue with a subtle abstract pattern. A small "fedora" logo is visible in the bottom right corner of the desktop.

figure1. 83:Check the firewall services

Restart the firewall services

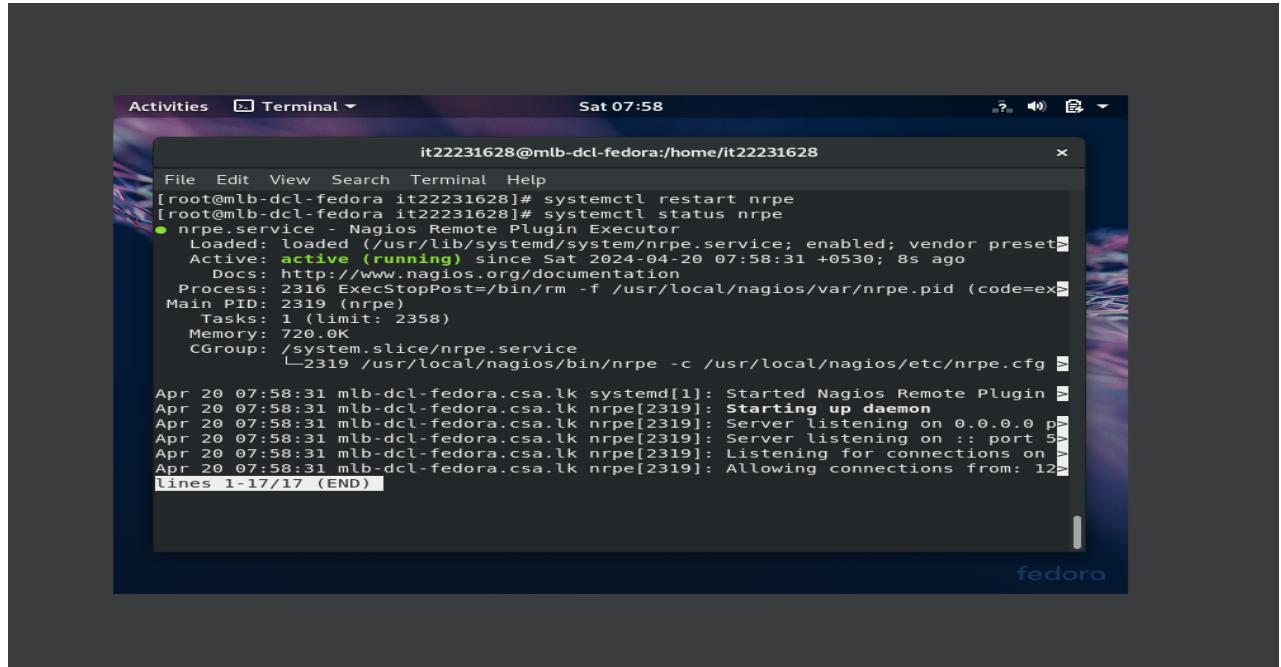
A screenshot of a Fedora desktop environment. The top bar shows "Activities" and "Terminal". The terminal window title is "it22231628@mlb-dcl-fedora:/home/it22231628". The terminal content shows the output of the command "systemctl status firewalld". The status output indicates that the firewalld service is active (running) since Fri 2024-04-19 20:36:25 +0530, 11h ago. It provides details about the main PID (742), tasks (2), memory usage (37.0M), and cgroup (/system.slice/firewalld.service). Below the status output, there are two log entries from the kernel log (dmesg) indicating the start of the firewalld service.

```
it22231628@mlb-dcl-fedora:~$ systemctl status firewalld
● firewalld.service - firewalld - dynamic firewall daemon
   Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; vendor p>
   Active: active (running) since Fri 2024-04-19 20:36:25 +0530; 11h ago
     Docs: man:firewalld(1)
 Main PID: 742 (firewalld)
    Tasks: 2 (limit: 2358)
   Memory: 37.0M
      CGroup: /system.slice/firewalld.service
              └─742 /usr/bin/python3 /usr/sbin/firewalld --nofork --nopid

Apr 19 20:36:23 mlb-dcl-fedora.cs.alk systemd[1]: Starting firewalld - dynamic >
Apr 19 20:36:25 mlb-dcl-fedora.cs.alk systemd[1]: Started firewalld - dynamic f>
lines 1-12/12 (END)
```

figure1. 84:Restart the firewall services

Restart the nrpe services



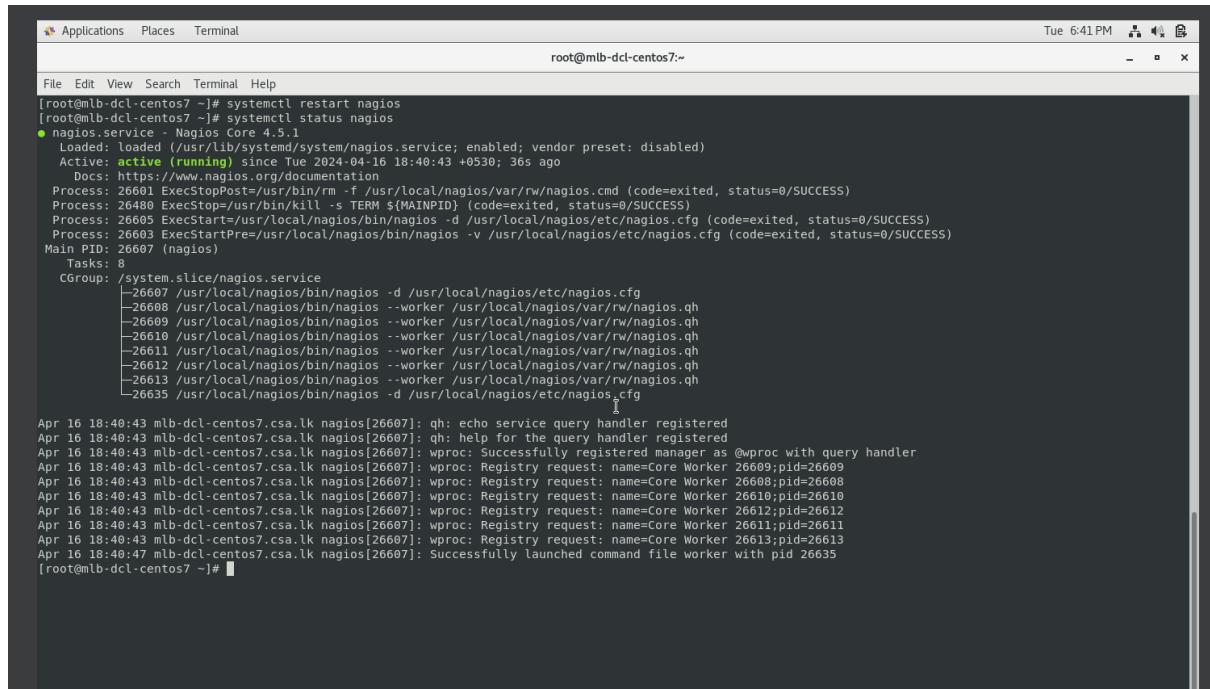
A screenshot of a Fedora terminal window titled "it22231628@mlb-dcl-fedora:/home/it22231628". The terminal shows the command "systemctl restart nrpe" being run, followed by the output of "systemctl status nrpe". The output indicates that the nrpe.service is active (running) and listening on port 5665. The terminal window has a dark blue background with a purple and blue abstract pattern at the top.

```
[root@mlb-dcl-fedora it22231628]# systemctl restart nrpe
[root@mlb-dcl-fedora it22231628]# systemctl status nrpe
● nrpe.service - Nagios Remote Plugin Executor
   Loaded: loaded (/usr/lib/systemd/system/nrpe.service; enabled; vendor preset: disabled)
   Active: active (running) since Sat 2024-04-20 07:58:31 +0530; 8s ago
     Docs: http://www.nagios.org/documentation
   Process: 2316 ExecStopPost=/bin/rm -f /usr/local/nagios/var/nrpe.pid (code=exited, status=0+)
   Main PID: 2319 (nrpe)
      Tasks: 1 (limit: 2358)
     Memory: 720.0K
        CPU: 0.000 CPU(s) used
       CGroup: /system.slice/nrpe.service
               └─2319 /usr/local/nagios/bin/nrpe -c /usr/local/nagios/etc/nrpe.cfg

Apr 20 07:58:31 mlb-dcl-fedora.csa.lk systemd[1]: Started Nagios Remote Plugin Executor
Apr 20 07:58:31 mlb-dcl-fedora.csa.lk nrpe[2319]: Starting up daemon
Apr 20 07:58:31 mlb-dcl-fedora.csa.lk nrpe[2319]: Server listening on 0.0.0.0 port 5665
Apr 20 07:58:31 mlb-dcl-fedora.csa.lk nrpe[2319]: Listening for connections on port 5665
Apr 20 07:58:31 mlb-dcl-fedora.csa.lk nrpe[2319]: Allowing connections from: 127.0.0.1
lines 1-17/17 (END)
```

figure1. 85:Restart the nrpe services

restart the nagios services



A screenshot of a CentOS terminal window titled "root@mlb-dcl-centos7:~". The terminal shows the command "systemctl restart nagios" being run, followed by the output of "systemctl status nagios". The output indicates that the nagios.service is active (running) and managing multiple workers. The terminal window has a dark blue background with a light blue and white abstract pattern at the top.

```
[root@mlb-dcl-centos7 ~]# systemctl restart nagios
[root@mlb-dcl-centos7 ~]# systemctl status nagios
● nagios.service - Nagios Core 4.5.1
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2024-04-16 18:40:43 +0530; 36s ago
     Docs: https://www.nagios.org/documentation
Process: 26601 ExecStopPost=/usr/bin/rm -f /usr/local/nagios/var/rw/nagios.cmd (code=exited, status=0/SUCCESS)
Process: 26480 ExecStop=/usr/bin/kill -s TERM ${MAINPID} (code=exited, status=0/SUCCESS)
Process: 26605 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
Process: 26603 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
Main PID: 26607 (nagios)
   Tasks: 8
  CGroup: /system.slice/nagios.service
          ├─26607 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
          ├─26608 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─26609 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─26610 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─26611 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─26612 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          ├─26613 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
          └─26635 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: qh: echo service query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: qh: help for the query handler registered
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Successfully registered manager as @wproc with query handler
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26609;pid=26609
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26608;pid=26608
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26610;pid=26610
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26612;pid=26612
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26611;pid=26611
Apr 16 18:40:43 mlb-dcl-centos7.csa.lk nagios[26607]: wproc: Registry request: name=Core Worker 26613;pid=26613
Apr 16 18:40:47 mlb-dcl-centos7.csa.lk nagios[26607]: Successfully launched command file worker with pid 26635
[root@mlb-dcl-centos7 ~]#
```

figure1. 86:restart the nagios services in centos

Login to the web using local host ip address

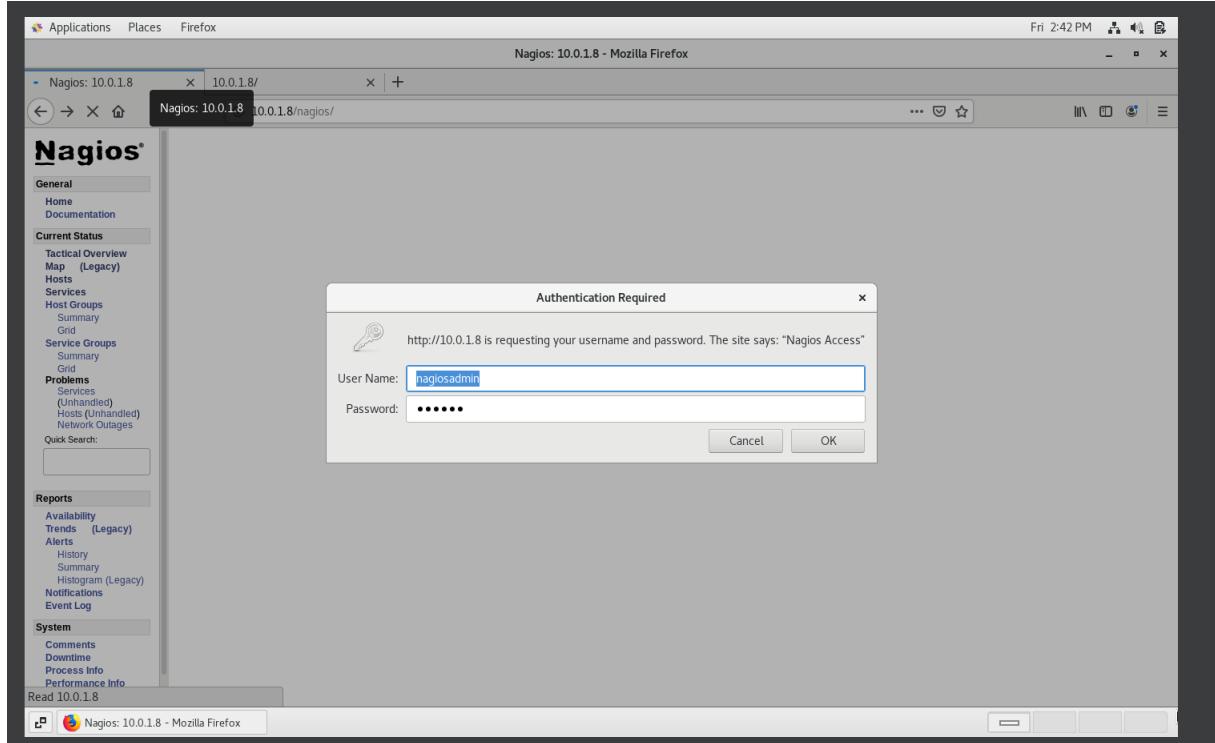


figure1. 87:Logint to the web using local host ip address

Opening view of services tab

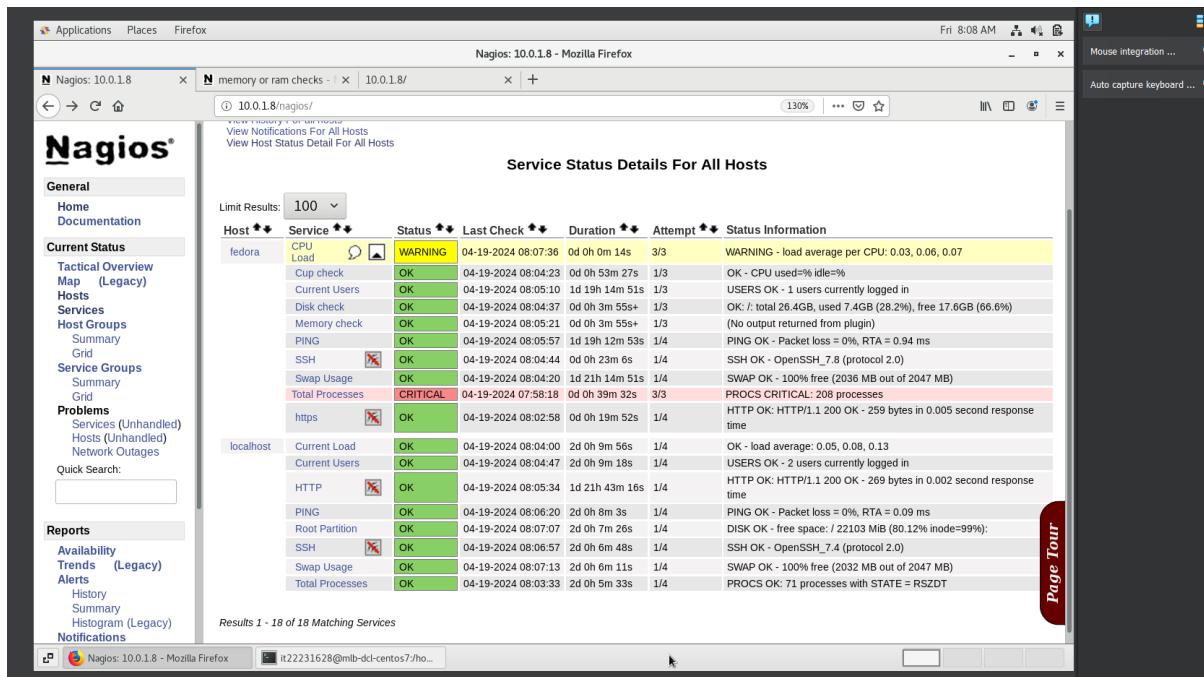


figure1. 88:Opening view of services tab

After the few minutes

The screenshot shows the Nagios 4.5.1 web interface running on Firefox. The main page displays service status details for all hosts. The interface includes a left sidebar with navigation links for General, Current Status, Reports, and System. The main content area shows a table of services grouped by host (fedora and localhost). The table columns include Host, Service, Status, Last Check, Duration, Attempt, and Status Information.

Host	Service	Status	Last Check	Duration	Attempt	Status Information
fedora	CPU Load	OK	04-19-2024 08:47:36	0d 0h 2m 6s	1/3	OK - load average per CPU: 0.07, 0.03, 0.06
	Cup check	OK	04-19-2024 08:44:23	0d 1h 35m 19s	1/3	OK - CPU used=>0 idle=%
	Current Users	OK	04-19-2024 08:45:10	1d 1h 56m 43s	1/3	USERS OK - 1 users currently logged in
	Disk check	OK	04-19-2024 08:44:37	0d 0h 45m 5s	1/3	OK : total 26.4GB, used 7.4GB (28.2%), free 17.6GB (66.6%)
	Memory check	OK	04-19-2024 08:45:21	0d 0h 44m 21s	1/3	(No output returned from plugin)
	PING	OK	04-19-2024 08:45:57	1d 1h 54m 45s	1/4	PING OK - Packet loss = 0%, RTA = 1.69 ms
	SSH	OK	04-19-2024 08:44:44	0d 1h 4m 58s	1/4	SSH OK - OpenSSH_7.8 (protocol 2.0)
	Swap Usage	OK	04-19-2024 08:49:20	1d 21h 56m 43s	1/4	SWAP OK - 99% free (2021 MB out of 2047 MB)
	Total Processes	OK	04-19-2024 08:46:00	0d 0h 13m 42s	1/3	PROCS OK: 209 processes
	https	OK	04-19-2024 08:47:58	0d 1h 1m 44s	1/4	HTTP OK: HTTP/1.1 200 OK - 259 bytes in 0.003 second response time
localhost	network connection	OK	04-19-2024 08:46:32	0d 0h 23m 10s	1/4	PING OK - Packet loss = 0%, RTA = 1.12 ms
	Current Load	OK	04-19-2024 08:47:00	0d 0h 2m 42s	1/4	OK - load average: 0.30, 0.26, 0.24
	Current Users	OK	04-19-2024 08:44:47	2d 0h 51m 10s	1/4	USERS OK - 2 users currently logged in
	HTTP	OK	04-19-2024 08:45:34	1d 22h 25m 8s	1/4	HTTP OK: HTTP/1.1 200 OK - 269 bytes in 0.001 second response time
	PING	OK	04-19-2024 08:46:20	2d 0h 49m 55s	1/4	PING OK - Packet loss = 0%, RTA = 0.06 ms
	Root Partition	OK	04-19-2024 08:47:07	2d 0h 49m 18s	1/4	DISK OK - free space: /22099 MB (80.11% inode=99%):
	SSH	OK	04-19-2024 08:46:57	2d 0h 48m 40s	1/4	SSH OK - OpenSSH_7.4 (protocol 2.0)
Swap Usage	OK	04-19-2024 08:47:13	2d 0h 48m 3s	1/4	SWAP OK - 99% free (2021 MB out of 2047 MB)	
Total Processes	OK	04-19-2024 08:48:33	2d 0h 47m 25s	1/4	PROCS OK: 74 processes with STATE = RSZDT	

figure1. 89:After the few minutes

2 DNS Caching Setup with CentOS Server and Fedora Clients

Step 1: Installing Bind DNS on RHEL 8

1. To install **bind** and its utilities on your server, run the following [cdnf command](#).

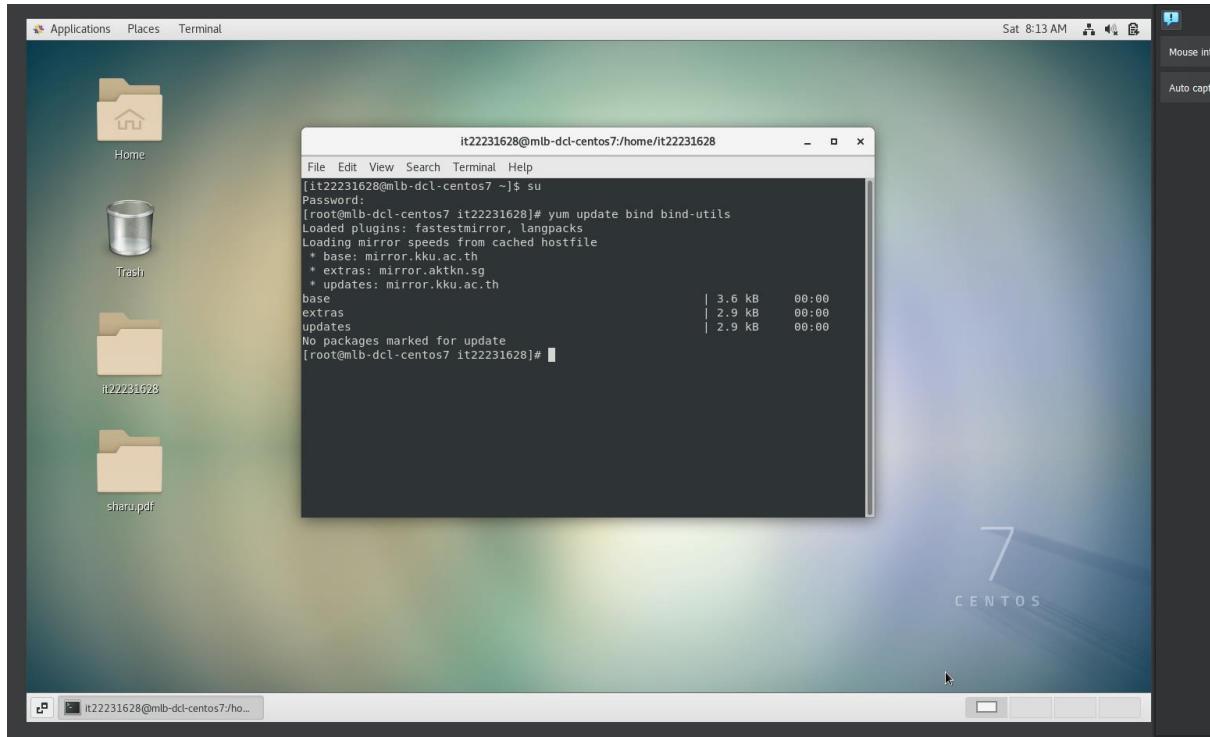


figure2. 1:To install bind and its utilities

Next, start the DNS service

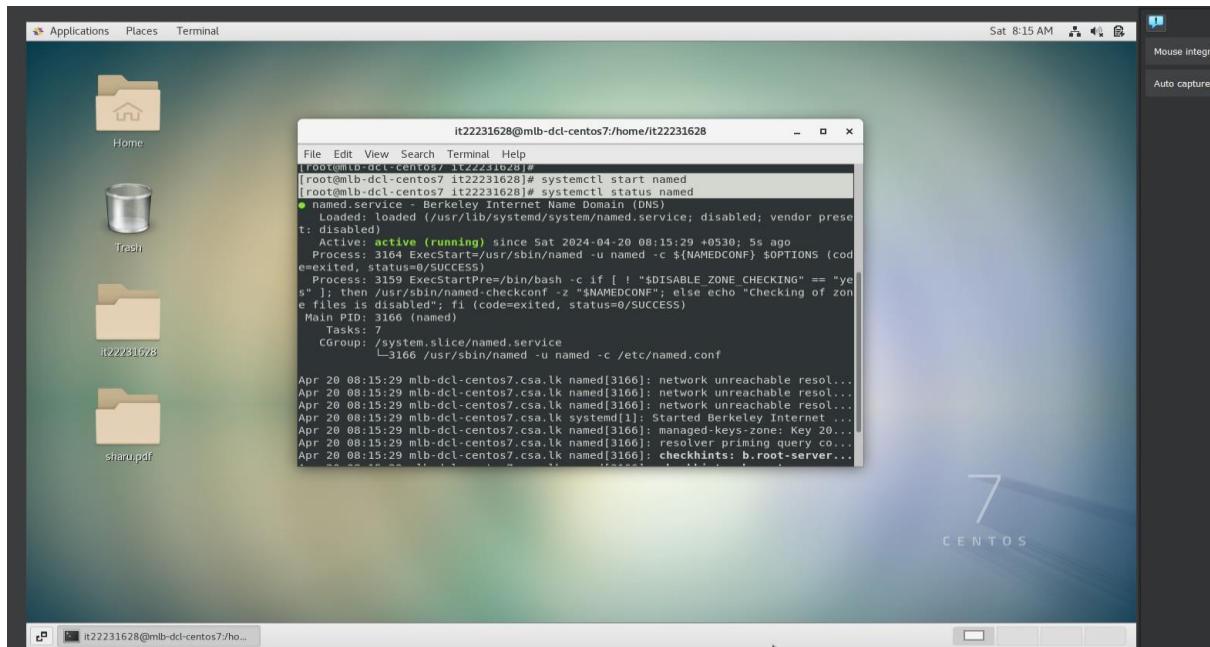


figure2. 2:start the DNS service

Step 2: Configuring BIND DNS

Now open **/etc/named.conf** configuration file for editing

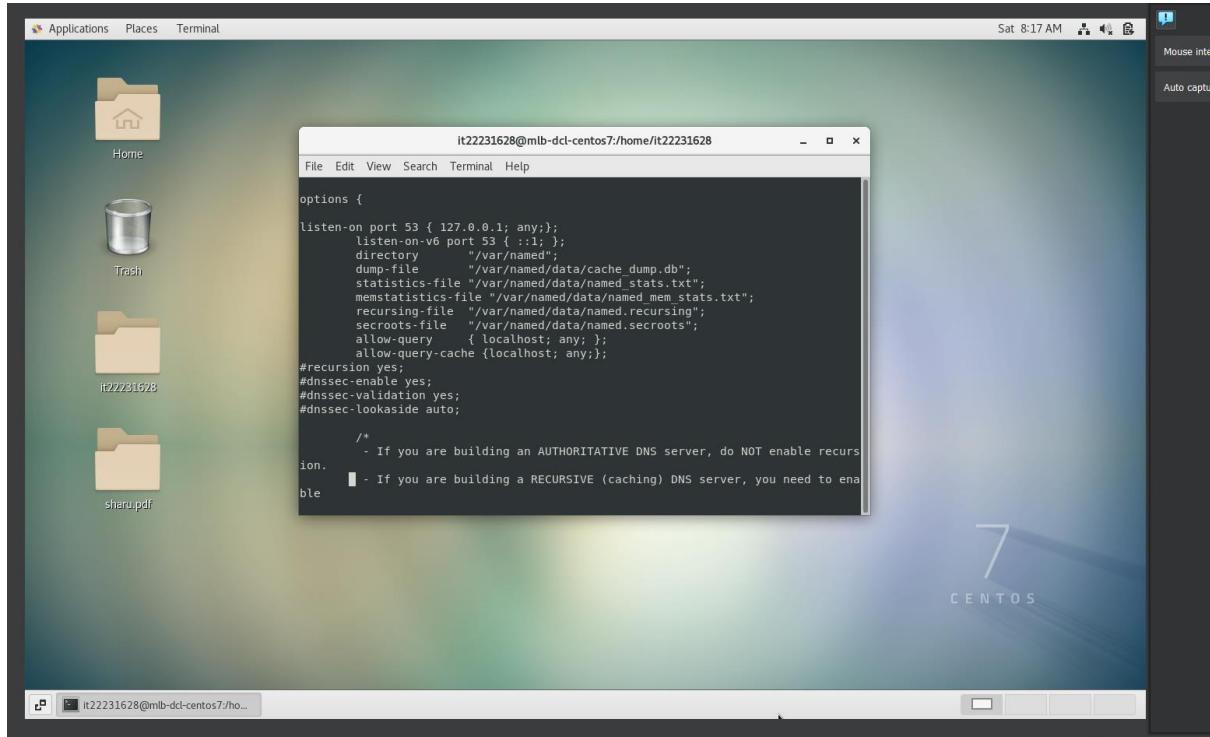


figure2. 3:open /etc/named.conf configuration file for editing

Step 3: Creating the Forward and Reverse DNS Zones

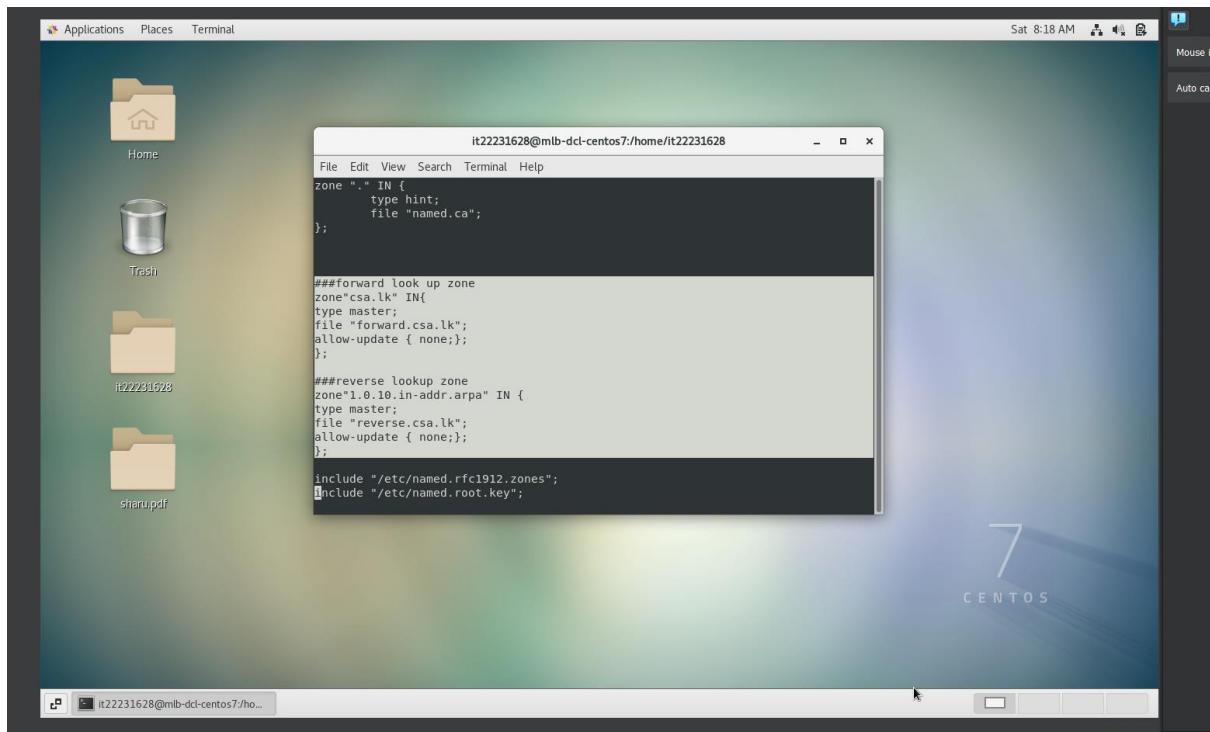


figure2. 4:Creating the Forward and Reverse DNS Zones

Figure2. 4

Step3:set the ip address

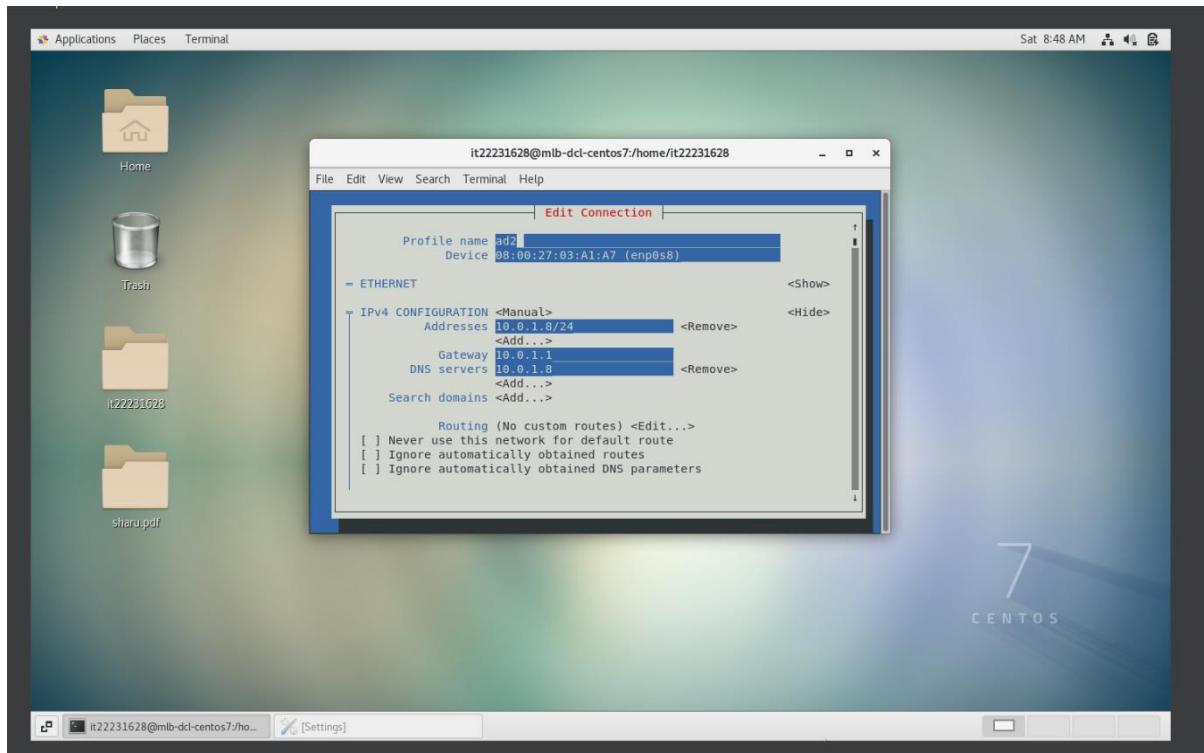


figure2. 5:set the ip address in server centos

Step4: restart the port

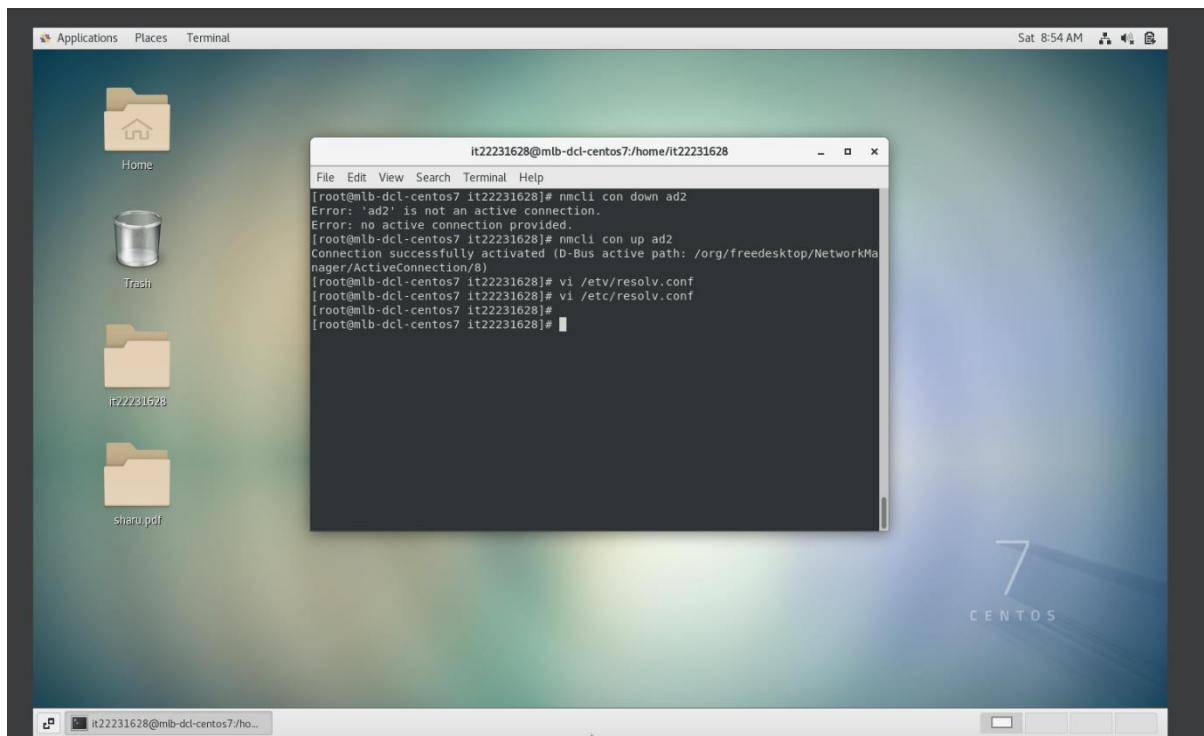


figure2. 6:restart the port

Step5: configure the resolv.conf file

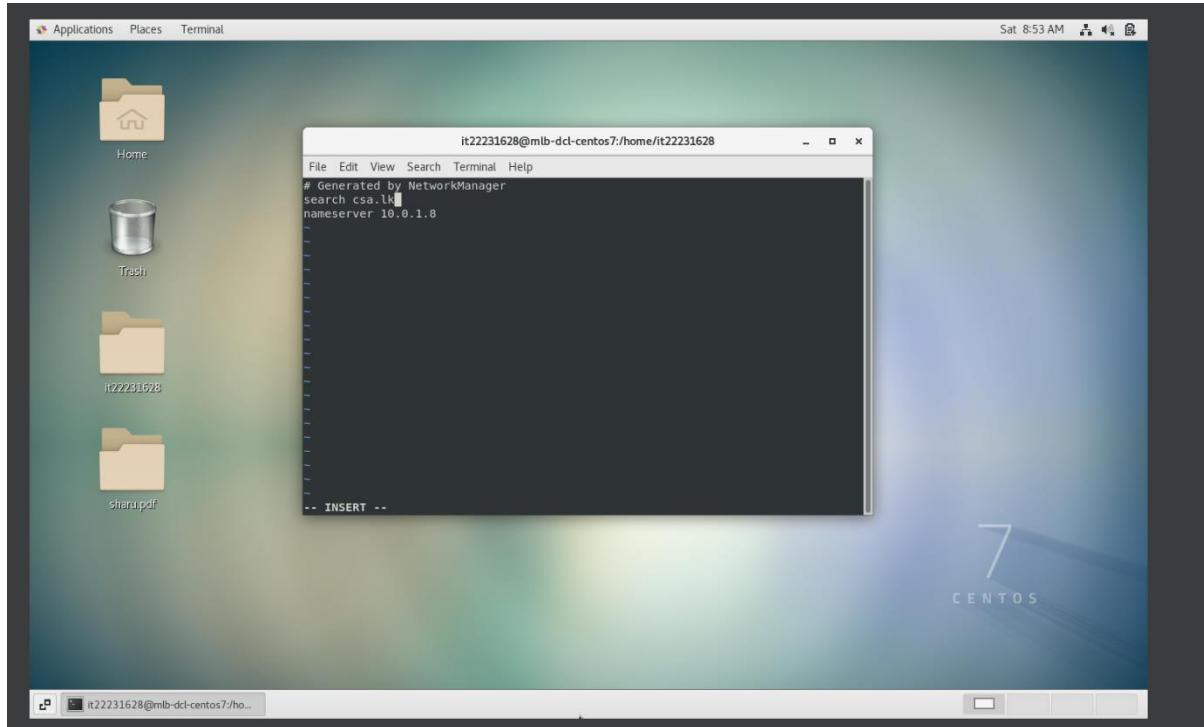


figure2. 7:: configure the resolv.conf file

Step6 : list the all ports

A screenshot of a CentOS 7 terminal window. The title bar says 'it22231628@mlb-dcl-centos7:/home/it22231628'. The terminal displays the output of the 'netstat -anp' command, which lists active network connections. The output includes columns for Local Address, Foreign Address, State, PID, and Program name. Some lines are highlighted in yellow. The full output is as follows:

```
[root@mlb-dcl-centos7 ~]# nmcli con down ad2
Error: 'ad2' is not an active connection.
Error: no active connection provided.
[root@mlb-dcl-centos7 ~]# nmcli con up ad2
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/8)
[root@mlb-dcl-centos7 ~]# vi /etc/resolv.conf
[root@mlb-dcl-centos7 ~]#
[root@mlb-dcl-centos7 ~]# netstat -anp
Active Internet connections (servers and established)
          Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
        tcp        0      0 0.0.0.0:111              0.0.0.0:*          LISTEN     745/rpcbind
        tcp        0      0 10.0.1.8:53              0.0.0.0:*          LISTEN     3166/named
        tcp        0      0 10.0.2.15:53             0.0.0.0:*          LISTEN     3166/named
        tcp        0      0 127.0.0.1:53              0.0.0.0:*          LISTEN     3166/named
        tcp        0      0 192.168.122.1:53            0.0.0.0:*          LISTEN     1663/dnsmasq
        tcp        0      0 0.0.0.0:22              0.0.0.0:*          LISTEN     1248/sshd
        tcp        0      0 127.0.0.1:631             0.0.0.0:*          LISTEN     1246/cupsd
        tcp        0      0 127.0.0.1:953             0.0.0.0:*          LISTEN     3166/named
        tcp        0      0 127.0.0.1:25              0.0.0.0:*          LISTEN     1633/master
        tcp        0      0 10.0.1.8:34236            10.0.1.20:5666        TIME_WAIT -
        tcp        0      0 10.0.1.8:34236            10.0.1.20:5666        TIME_WAIT -
        tcp6       0      0 :::111                :::*          LISTEN     745/rpcbind
        tcp6       0      0 :::80                 :::*          LISTEN     1259/htpd
        tcp6       0      0 ::1:53                :::*          LISTEN     3166/named
        tcp6       0      0 ::22                 :::*          LISTEN     1248/sshd
        tcp6       0      0 ::1:631               :::*          LISTEN     1246/cupsd
        tcp6       0      0 ::1:953               :::*          LISTEN     3166/named
        tcp6       0      0 ::1:125               :::*          LISTEN     1633/master
[root@mlb-dcl-centos7 ~]#
```

figure2. 8:list the all ports

Step6: ping to google.com first time

```

Applications Places Terminal
it22231628@mlb-dcl-centos7:/var/named/data
File Edit View Search Terminal Help
Trying "google.com"
;; ->HEADER=<> opcode: QUERY, status: NOERROR, id: 37370
;; flags: qr rd ra; QUERY: 1, ANSWER: 21, AUTHORITY: 0, ADDITIONAL: 8
;QUESTION SECTION:
:google.com. IN ANY
;ANSWER SECTION:
.google.com. 86400 IN CAA 0 issue "pki.goog"
.google.com. 60 IN SOA ns1.google.com. dns-admin.google.com. 626308993 900 900 1800 60
.google.com. 300 IN MX 10 smtp.google.com.
.google.com. 21600 IN TYPE65 \# 13 00010000010006026832026833
.google.com. 3600 IN TXT "google-site-verification=T9-DBe4R80X4v0M4U bd J9cp0JM0nikft0jAgjmsQ"
.google.com. 3600 IN TXT "globalsign-smime-dv=CDYX+XFHu2wml6/Gb8+59BsH31KzUr6c1l2BPvqKX8="
.google.com. 3600 IN TXT "docusign=05958488-4752-4ef2-95eb-aa7ba8a3bd0e"
.google.com. 3600 IN TXT "facebook-domain-verification=22rm551cu4k0ab0bxsw536tlds4h95"
.google.com. 3600 IN TXT "onetrust-domain-verification=d0led21f2fa4d8781cbc3ffb89cf4ef"
.google.com. 3600 IN TXT "v=spf1 include: spf.google.com ~all"
.google.com. 3600 IN TXT "MS-E4A6B89AB2B9670BCE15412F62916164C0B20BB"
.google.com. 3600 IN TXT "docusign=1ba6a754-49b1-4db5-8540-d2c12664b289"
.google.com. 3600 IN TXT "webexdomainverification.8VX6G=e66922db-e3e6-4a36-904e-a805c28087fa"
.google.com. 3600 IN TXT "google-site-verification=wD8N7i1JNTkezJ49svvW48f8_9xveREV4oB-0Hf5o"
.google.com. 3600 IN TXT "apple-domain-verification=30afIBcvSuDV2PLX"
.google.com. 300 IN AAAA 2404:6800:4009:81b::206e
.google.com. 300 IN A 142.259.76.206
.google.com. 172798 IN NS ns3.google.com.
.google.com. 172798 IN NS ns2.google.com.
.google.com. 172798 IN NS ns4.google.com.
.google.com. 172798 IN NS ns1.google.com.

;ADDITIONAL SECTION:
ns4.google.com. 172798 IN A 216.239.38.10
ns1.google.com. 172798 IN A 216.239.32.10
ns2.google.com. 172798 IN A 216.239.34.10
ns3.google.com. 172798 IN A 216.239.36.10
ns4.google.com. 172798 IN AAAA 2001:4860:4802:38::a
ns1.google.com. 172798 IN AAAA 2001:4860:4802:32::a
ns2.google.com. 172798 IN AAAA 2001:4860:4802:34::a
ns3.google.com. 172798 IN AAAA 2001:4860:4802:36::a

Received 1178 bytes from 10.0.1.8#53 in 1 ms
[root@mlb-dcl-centos7 it22231628]# host -a google.com
[  ] it22231628@mlb-dcl-centos7:/var/...

```

figure2. 9:ping to google.com first time

Step7: ping google.com second time

The the responscs time will be 0 .because its get the details form Caching DNS.in first time its took more than 0ms because first time caching DNS don't have any data about google,com

```

Applications Places Terminal
it22231628@mlb-dcl-centos7:/var/named/data
File Edit View Search Terminal Help
Trying "google.com"
;; ->HEADER=<> opcode: QUERY, status: NOERROR, id: 41027
;; flags: qr rd ra; QUERY: 1, ANSWER: 20, AUTHORITY: 0, ADDITIONAL: 8
;QUESTION SECTION:
:google.com. IN ANY
;ANSWER SECTION:
.google.com. 86216 IN CAA 0 issue "pki.goog"
.google.com. 116 IN MX 10 smtp.google.com.
.google.com. 21416 IN TYPE65 \# 13 00010000010006026832026833
.google.com. 3416 IN TXT "google-site-verification=wD8N7i1JNTkezJ49svvW48f8_9xveREV4oB-0Hf5o"
.google.com. 3416 IN TXT "onetrust-domain-verification=d0led21f2fa4d8781cbc3ffb89cf4ef"
.google.com. 3416 IN TXT "v=spf1 include: spf.google.com ~all"
.google.com. 3416 IN TXT "globalsign-smime-dv=CDYX+XFHu2wml6/Gb8+59BsH31KzUr6c1l2BPvqKX8="
.google.com. 3416 IN TXT "docusign=05958488-4752-4ef2-95eb-aa7ba8a3bd0e"
.google.com. 3416 IN TXT "facebook-domain-verification=22rm551cu4k0ab0bxsw536tlds4h95"
.google.com. 3416 IN TXT "apple-domain-verification=30afIBcvSuDV2PLX"
.google.com. 3416 IN TXT "MS-E4A6B89AB2B9670BCE15412F62916164C0B20BB"
.google.com. 3416 IN TXT "docusign=1ba6a754-49b1-4db5-8540-d2c12664b289"
.google.com. 3416 IN TXT "webexdomainverification.8VX6G=e66922db-e3e6-4a36-904e-a805c28087fa"
.google.com. 3416 IN TXT "google-site-verification=wD8N7i1JNTkezJ49svvW48f8_9xveREV4oB-0Hf5o"
.google.com. 116 IN AAAA 2404:6800:4009:81b::206e
.google.com. 116 IN A 142.259.76.206
.google.com. 172614 IN NS ns3.google.com.
.google.com. 172614 IN NS ns1.google.com.
.google.com. 172614 IN NS ns4.google.com.
.google.com. 172614 IN NS ns2.google.com.

;ADDITIONAL SECTION:
ns4.google.com. 172614 IN A 216.239.38.10
ns1.google.com. 172614 IN A 216.239.32.10
ns2.google.com. 172614 IN A 216.239.34.10
ns3.google.com. 172614 IN A 216.239.36.10
ns4.google.com. 172614 IN AAAA 2001:4860:4802:38::a
ns1.google.com. 172614 IN AAAA 2001:4860:4802:32::a
ns2.google.com. 172614 IN AAAA 2001:4860:4802:34::a
ns3.google.com. 172614 IN AAAA 2001:4860:4802:36::a

Received 1132 bytes from 10.0.1.8#53 in 0 ms
[root@mlb-dcl-centos7 it22231628]# host -a google.com
[  ] it22231628@mlb-dcl-centos7:/var/...

```

figure2. 10:ping google.com second time

Check the store data

figure2. 11:Check the store data

Step8: enable the firewall

Applications Places Terminal Sat 10:41 AM

```
it22231628@mlb-dcl-centos7:/var/named/data
File Edit View Search Terminal Help
icmp-blocks:
rich rules:

[root@mlb-dcl-centos7 data]# firewall-cmd --add-service=dns --zone=public --permanent
usage: see firewall-cmd man page
firewall-cmd: error: unrecognized arguments: --permanent
[root@mlb-dcl-centos7 data]# firewall-cmd --add-service=dns --zone=public --permanent
success
[root@mlb-dcl-centos7 data]# firewall-cmd --add-port=53/tcp --zone=public --permanent
success
[root@mlb-dcl-centos7 data]# firewall-cmd --add-port=53/tcp --zone=public --permanent
Warning: ALREADY_ENABLED: 53:tcp
success
[root@mlb-dcl-centos7 data]# firewall-cmd --reload
success
[root@mlb-dcl-centos7 data]# systemctl restart named
[root@mlb-dcl-centos7 data]# systemctl restart named
[root@mlb-dcl-centos7 data]# systemctl restart named
[root@mlb-dcl-centos7 data]# firewall-cmd --list-all-zones
block
  target: %REJECT%
  icmp-block-inversion: no
  interfaces:
  sources:
  services:
  ports:
  protocols:
  masquerade: no
  forward-ports:
  source-ports:
  icmp-blocks:
  rich rules:

dnz
  target: default
  icmp-block-inversion: no
  interfaces:
  sources:
  services: ssh
  ports:
  protocols:
```

figure2. 12: enable the firewall

In clint sever (fedora)

Step1: configure the DNS server ip

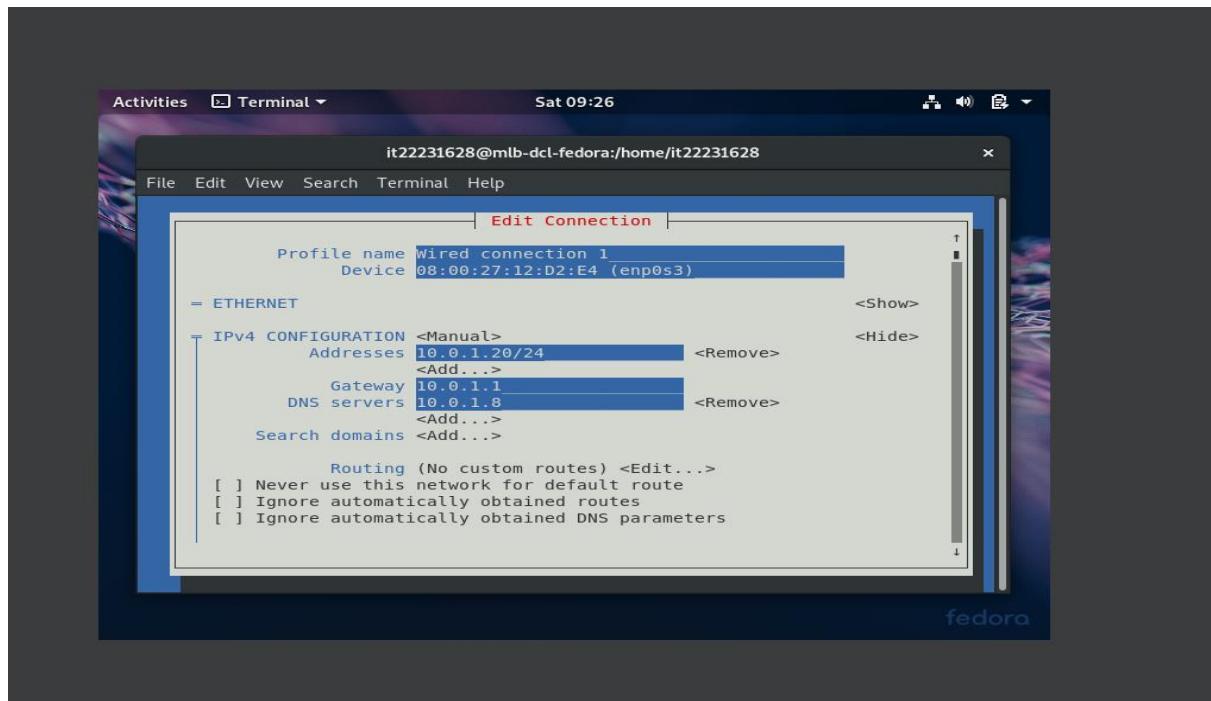


figure2. 13:configure the DNS server ip in fedor client

Step2: configure the resolv.conf file

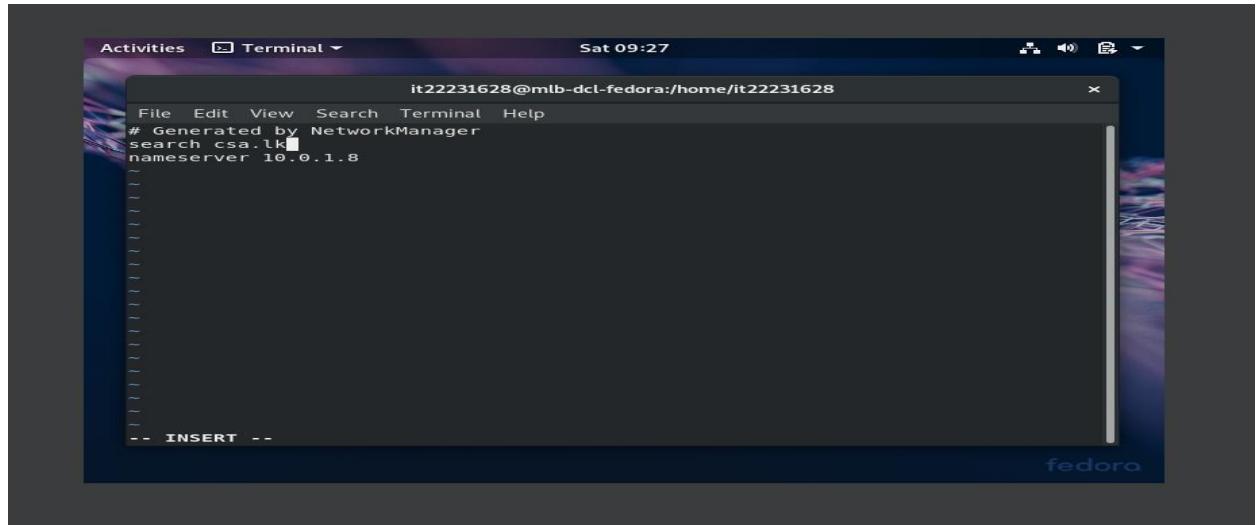
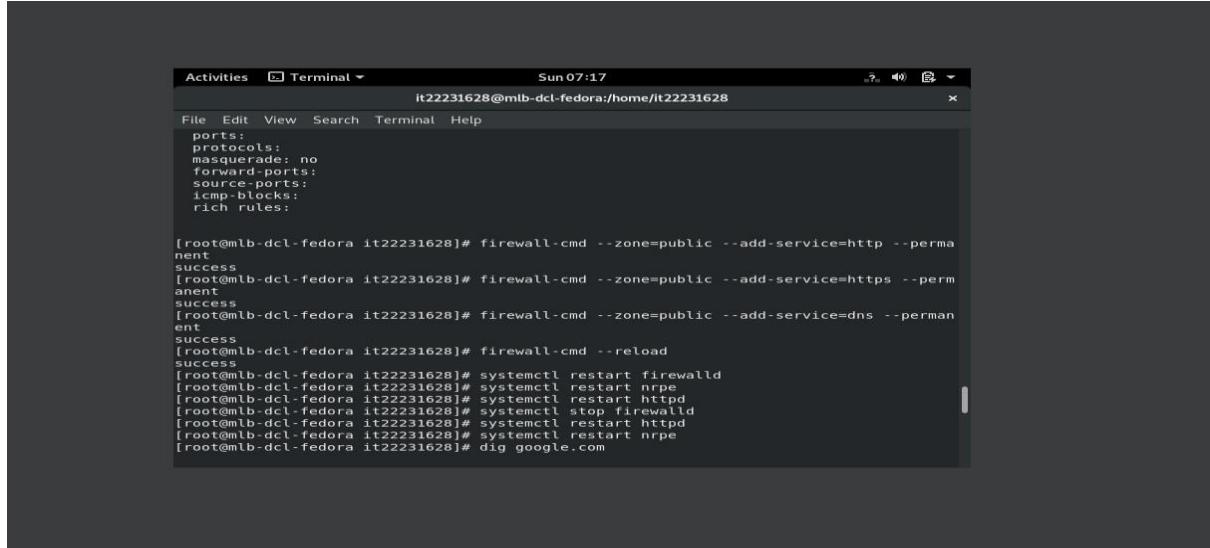


figure2. 14:configure the resolv.conf file

Step4: enable the firewall



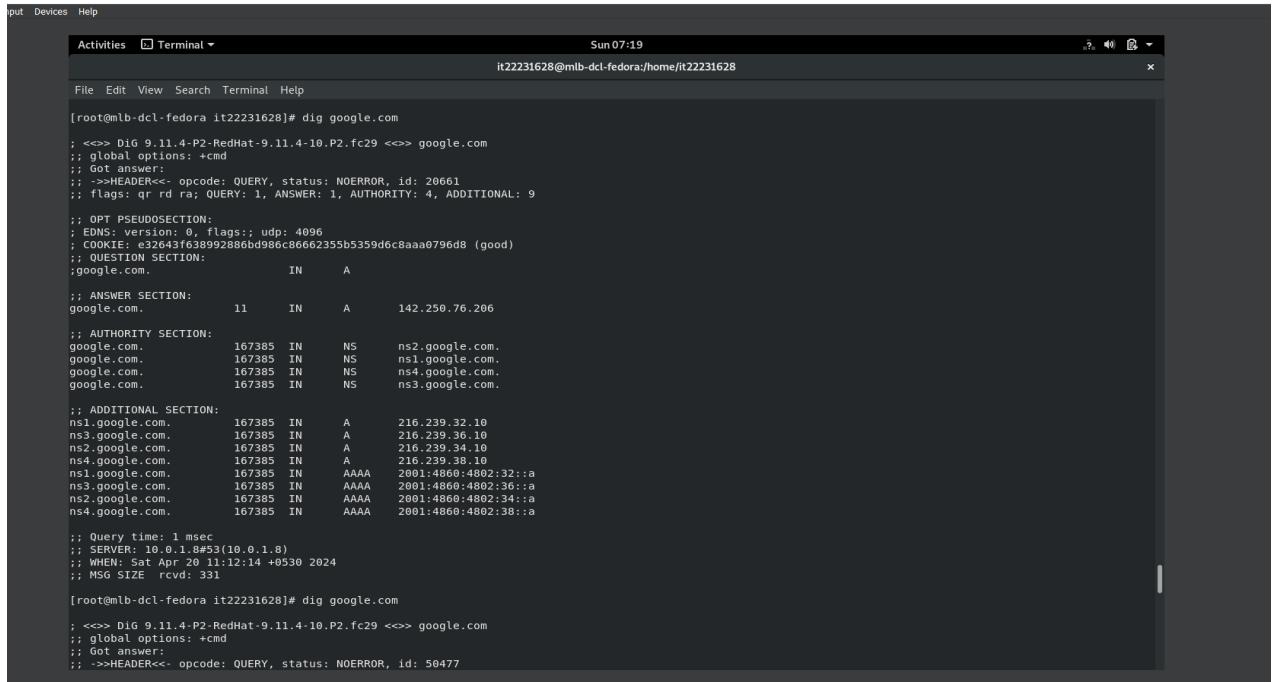
```
Activities Terminal Sun 07:17
it22231628@mlb-dcl-fedora:/home/it22231628
File Edit View Search Terminal Help
ports:
protocols:
masquerade: no
forward-ports:
source-ports:
icmp-blocks:
rich rules:

[root@mlb-dcl-fedora it22231628]# firewall-cmd --zone=public --add-service=http --permanent
success
[root@mlb-dcl-fedora it22231628]# firewall-cmd --zone=public --add-service=https --permanent
success
[root@mlb-dcl-fedora it22231628]# firewall-cmd --zone=public --add-service=dns --permanent
success
[root@mlb-dcl-fedora it22231628]# firewall-cmd --reload
success
[root@mlb-dcl-fedora it22231628]# systemctl restart firewalld
[root@mlb-dcl-fedora it22231628]# systemctl restart nrpe
[root@mlb-dcl-fedora it22231628]# systemctl restart httpd
[root@mlb-dcl-fedora it22231628]# systemctl stop firewalld
[root@mlb-dcl-fedora it22231628]# systemctl restart httpd
[root@mlb-dcl-fedora it22231628]# systemctl restart nrpe
[root@mlb-dcl-fedora it22231628]# dig google.com
```

figure2. 15:enable the firewall in fedora

Ping the google.com

Its will be get 1ms time for response because in get the details from cashing DNS server ,this server already have the details about google.com



```
Activities Terminal Sun 07:19
it22231628@mlb-dcl-fedora:/home/it22231628
File Edit View Search Terminal Help
[root@mlb-dcl-fedora it22231628]# dig google.com
; <>> DiG 9.11.4-P2-RedHat-9.11.4-10.P2.fc29 <>> google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<- opcode: QUERY, status: NOERROR, id: 20661
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 4, ADDITIONAL: 9
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags: udp: 4096
; COOKIE: e32643f638992886bd986c86662355b5359d6c8aaa0796d8 (good)
; QUESION SECTION:
.google.com.           IN      A
;; ANSWER SECTION:
google.com.          11     IN      A      142.250.76.206
;; AUTHORITY SECTION:
.google.com.        167385  IN      NS      ns2.google.com.
.google.com.        167385  IN      NS      ns1.google.com.
.google.com.        167385  IN      NS      ns4.google.com.
.google.com.        167385  IN      NS      ns3.google.com.
;; ADDITIONAL SECTION:
ns1.google.com.    167385  IN      A      216.239.32.10
ns3.google.com.    167385  IN      A      216.239.36.10
ns2.google.com.    167385  IN      A      216.239.34.10
ns4.google.com.    167385  IN      A      216.239.38.10
ns1.google.com.    167385  IN      AAAA   2001:4860:4802:32::a
ns3.google.com.    167385  IN      AAAA   2001:4860:4802:36::a
ns2.google.com.    167385  IN      AAAA   2001:4860:4802:34::a
ns4.google.com.    167385  IN      AAAA   2001:4860:4802:38::a
;; Query time: 1 msec
;; SERVER: 10.0.1.8#53(10.0.1.8)
;; WHEN: Sat Apr 20 11:12:14 +0530 2024
;; MSG SIZE rcvd: 331
[root@mlb-dcl-fedora it22231628]# dig google.com
; <>> DiG 9.11.4-P2-RedHat-9.11.4-10.P2.fc29 <>> google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<- opcode: QUERY, status: NOERROR, id: 50477
```

figure2. 16:Ping the google.com

Ping youtube.lk

Its take more time to get response because cashing DNS don't have the details about youtube.lk so client get details from isp DNS serves that is the reason but if we ping 2nd time cashing DNS store the data about YouTube.lk its will be give quick response



```
Activities Terminal Sun 07:20
it22231628@mlb-dcl-fedora:/home/it22231628
File Edit View Search Terminal Help
;; MSG SIZE rcvd: 331
[root@mlb-dcl-fedora it22231628]# dig youtube.lk
; <>> DiG 9.11.4-P2-RedHat-9.11.4-10.P2.fc29 <>> youtube.lk
; global options: +cmd
; Got answer:
; ->HEADER<- opcode: QUERY, status: NOERROR, id: 42307
; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 3, ADDITIONAL: 7
; OPT PSEUDOSECTION:
; EDNS: version: 0, flags: udp: 4096
; COOKIE: 78a87bf883934bb0173aced77662355db5806535694ebfaa5 (good)
; QUESTION SECTION:
youtube.lk.           IN      A
; ANSWER SECTION:
youtube.lk.          300     IN      A      142.250.70.110
; AUTHORITY SECTION:
youtube.lk.          43200   IN      NS      ns1.google.com.
youtube.lk.          43200   IN      NS      ns2.google.com.
youtube.lk.          43200   IN      NS      ns3.google.com.
; ADDITIONAL SECTION:
ns3.google.com.       167347   IN      A      216.239.36.10
ns2.google.com.       167347   IN      A      216.239.34.10
ns1.google.com.       167347   IN      A      216.239.32.10
ns3.google.com.       167347   IN      AAAA    2001:4860:4802:36::a
ns2.google.com.       167347   IN      AAAA    2001:4860:4802:34::a
ns1.google.com.       167347   IN      AAAA    2001:4860:4802:32::a
; Query time: 456 msec
; SERVER: 10.0.1.8#53(10.0.1.8)
; WHEN: Sat Apr 20 11:12:53 +0530 2024
; MSG SIZE rcvd: 279
[root@mlb-dcl-fedora it22231628]# dig youtube.lk
; <>> DiG 9.11.4-P2-RedHat-9.11.4-10.P2.fc29 <>> youtube.lk
; global options: +cmd
; Got answer:
; ->HEADER<- opcode: QUERY, status: NOERROR, id: 65078
; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 3, ADDITIONAL: 7
```

figure2. 17:Ping youtube.lk

References

1. <https://www.tecmint.com/install-nagios-in-linux/>
2. <https://www.tecmint.com/how-to-add-linux-host-to-nagios-monitoring-server/>
3. <https://www.linuxteck.com/how-to-setup-caching-dns-server-in-centos-rhel-7-6/>
4. <https://www.youtube.com/watch?v=dfJfhWMaXdE&t=229s>