

**IE2060**

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**Individual Assignment**

Submitted to

Sri Lanka Institute of Information Technology

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Bachelor of Science Special Honors Degree in Information Technology

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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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# Installation and Configuration of Nagios Core on CentOS Server

## Before installation, make sure that everything on the server is up to date by running the yum update command. This command will check repositories and notify you if anything needs to be updated.

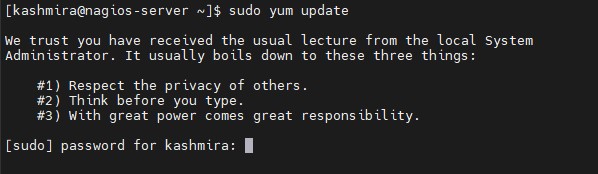


Figure 1 Update the CentOS system.

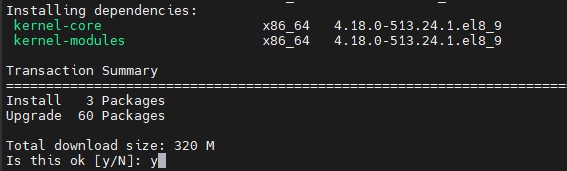


Figure 2 New packages installed, and packages upgraded.

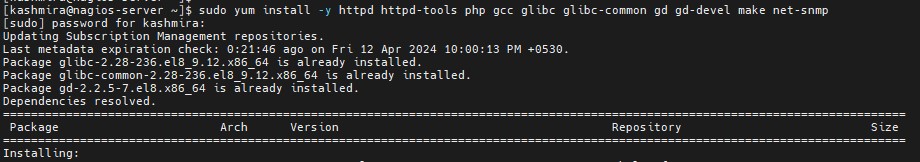


Figure 3 We need to install Apache, PHP and some libraries like gcc, glibc, glibc-common and GD libraries and its development libraries before installing Nagios 4.4.5 with the source.



Figure 4 Create a new nagios user using and group account and set a password

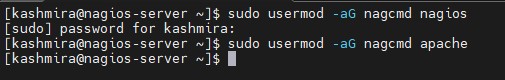


Figure 5 Next, add both the nagios user and the apache user to the nagcmd group

# Download Nagios Core and Nagios Plugin.

## 2.1 Nagios

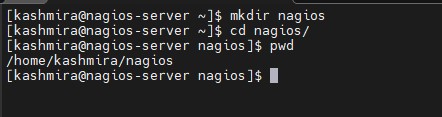


Figure 6 Create a directory for your Nagios installation and all its future downloads.



Figure 7 Now download latest Nagios Core 4.4.5 and Nagios plugins 2.2.1 packages

# Extract Nagios Core and its Plugins

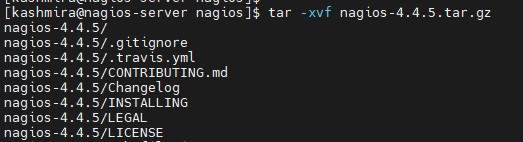


Figure 8 We need to extract downloaded packages with tar command as above

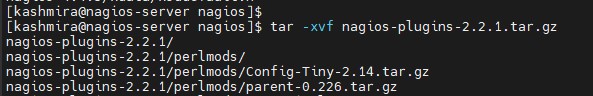


Figure 9 We need to extract downloaded packages with tar command as above, continued

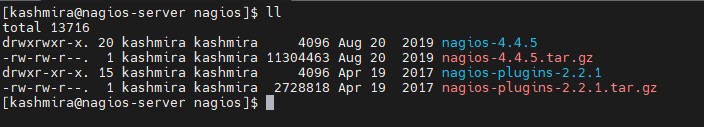


Figure 10 When you extract these tarballs with tar command, two new folders will appear in that directory

# Configure Nagios Core

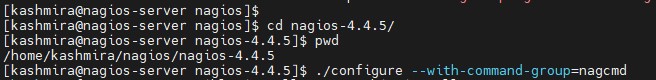


Figure 11 we will configure Nagios Core and to do so we need to go to Nagios directory and run configure file and if everything goes fine, it will show the output in the end as sample output above

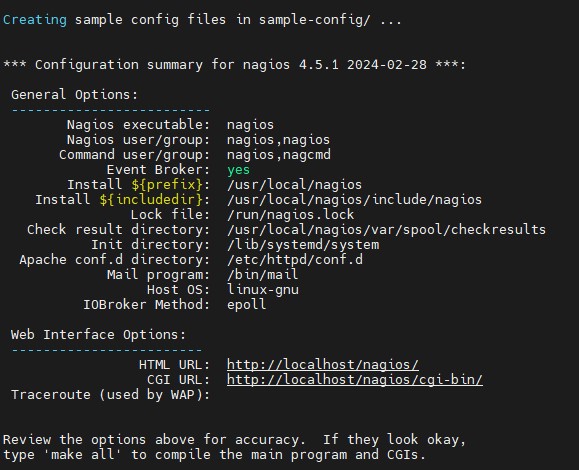


Figure 12 we will configure Nagios Core and to do so we need to go to Nagios directory and run configure file and if everything goes fine, it will show the output in the end as sample output above, continued

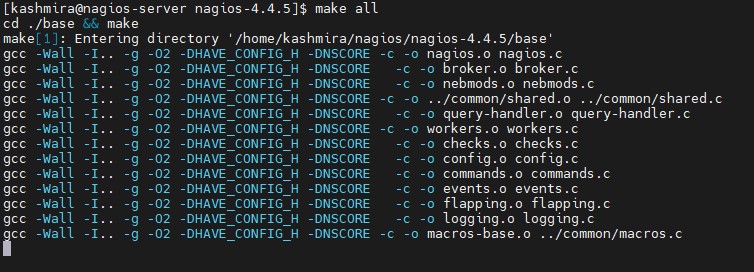


Figure 13 After configuring, we need to compile and install all the binaries with make all and make install command, it will install all the needed libraries in your machine and we can proceed further.

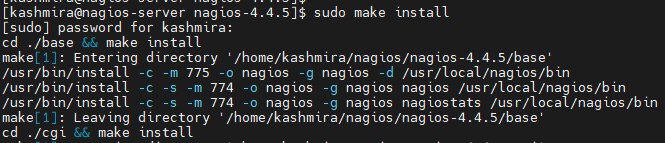


Figure 14 After configuring, we need to compile and install all the binaries with make all and make install command, it will install all the needed libraries in your machine and we can proceed further., continued

# The following command will install the init scripts for Nagios.



Figure 15To make Nagios work from command line we need to install command-mode.

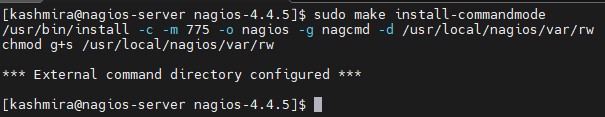


Figure 16 Next, install sample Nagios files, please run following command

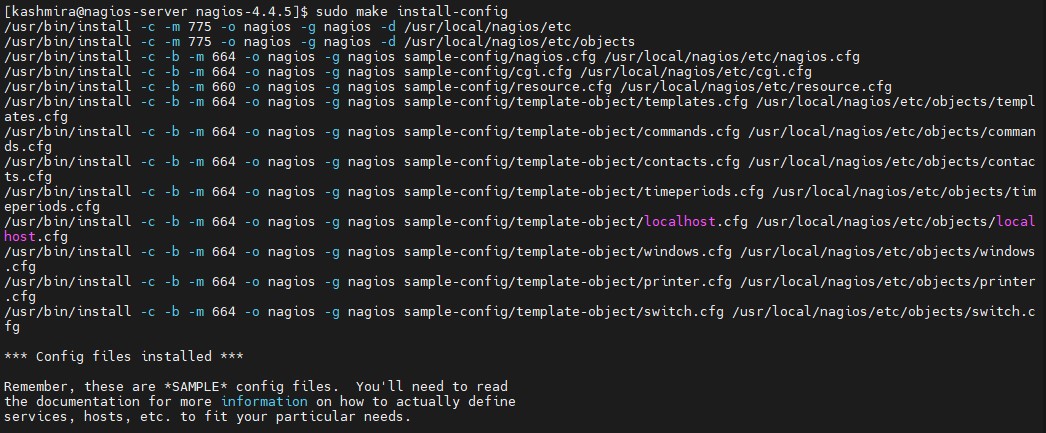


Figure 17 Next, install sample Nagios files, please run following command

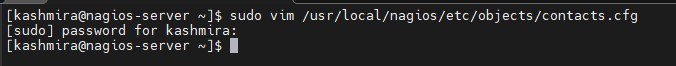


Figure 18 Customizing Nagios Configuration

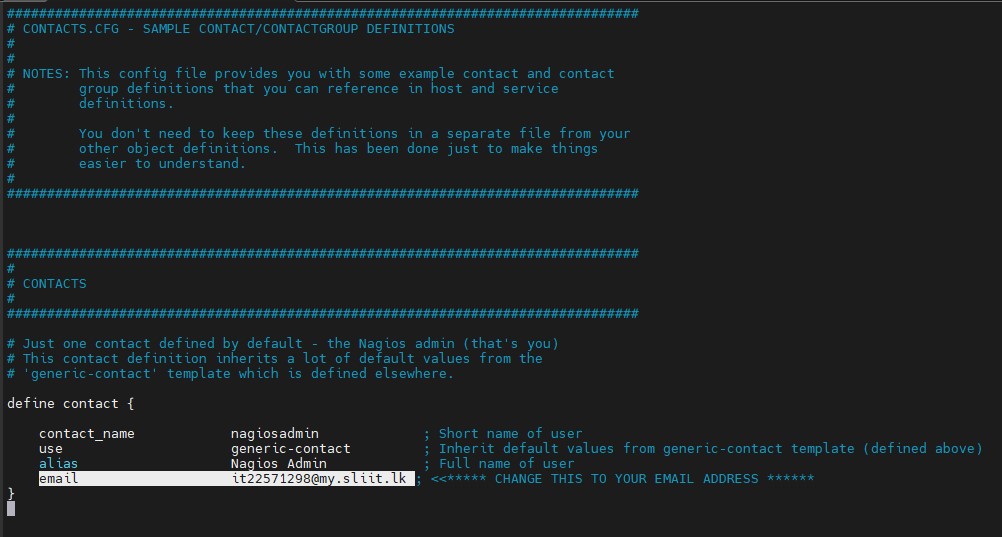


Figure 19 Open the “contacts.cfg” file with your choice of editor and set the email address associated with the nagiosadmin contact definition to receiving email alerts.

# Install and Configure Web Interface for Nagios

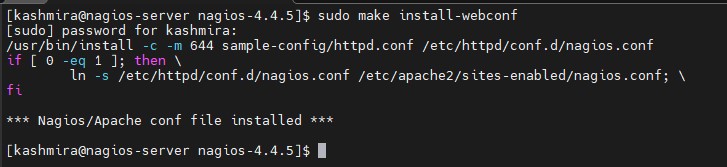


Figure 20 We are done with all configuration in the backend, now we will configure Web Interface For Nagios with the following command.

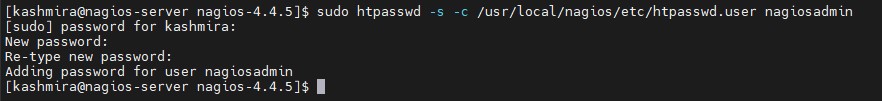


Figure 21 Then we will be creating a password for “nagiosadmin”. After executing this command, we need to provide a password twice (This password and user name will be used when you login in the Nagios Web interface.)

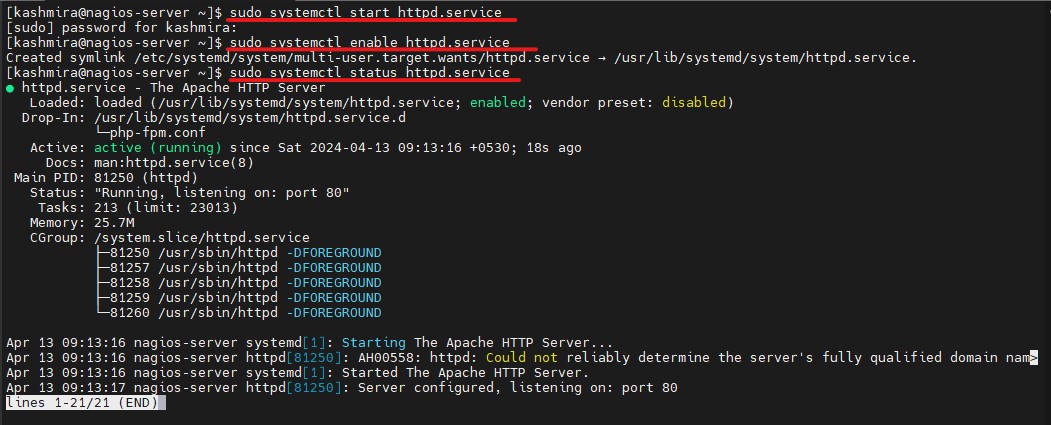


Figure 22 Now start and enable the Apache service

# Compile and Install Nagios Plugin



Figure 23 We have downloaded Nagios plugins in /root/nagios/nagios-plugins-2.2.1, change to the extracted directory.



Figure 24 Before building Nagios Plugins, we must configure it.



Figure 25 Then compile and Install Nagios Plugins

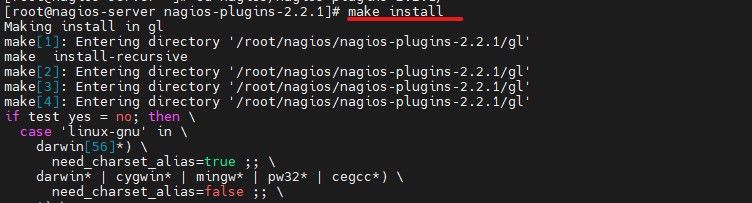


Figure 26 Then compile and Install Nagios Plugins,Continued

# Verify Nagios Configuration Files

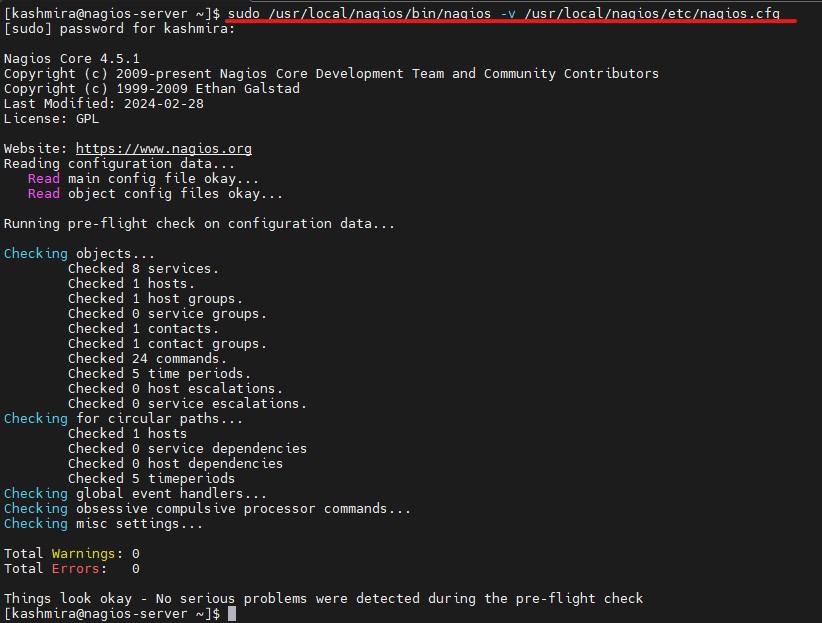


Figure 27 We've completed the Nagios configuration. Please enter the following command to Verify It. If everything is functioning properly, the output should resemble the example below.

# Add Nagios Services to System Startup

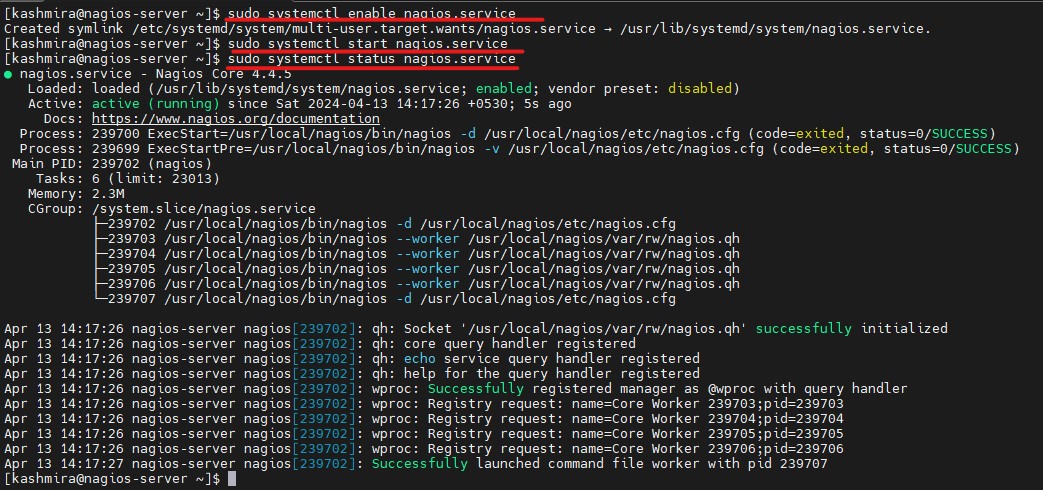


Figure 28 To make Nagios work across reboots, we need to add nagios and httpd with chkconfig and systemctl command.

# Adjusting the Firewall

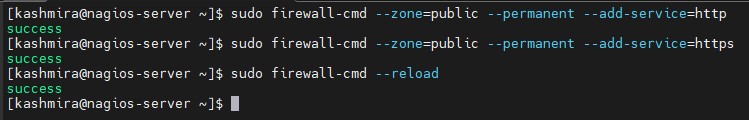


Figure 29 If Firewall service running on your server you need to open HTTP and HTTPS ports, 80 and 443 in firewall.

# Login to the Nagios Web Interface

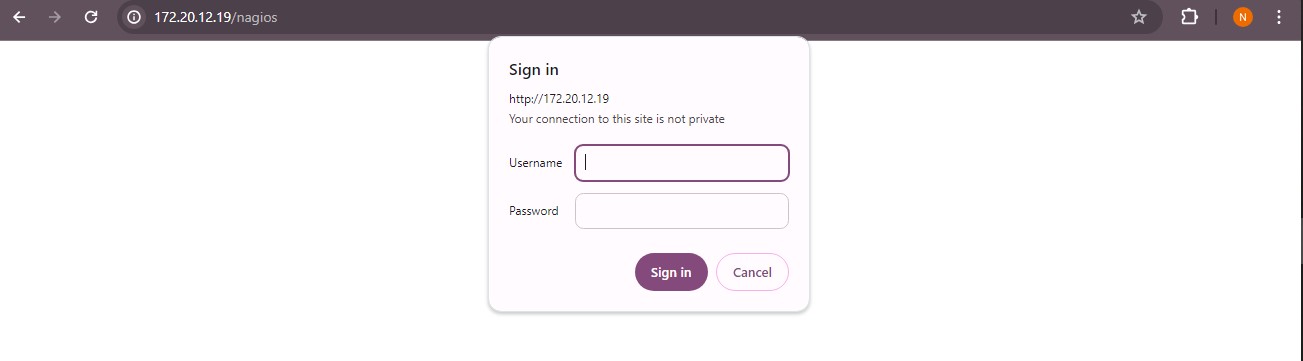


Figure 30 Nagios is prepared for operation. Access it through your web browser using either 'http://Your-server-IP-address/nagios' or 'http://FQDN/nagios', and then provide the username 'nagiosadmin' along with the password

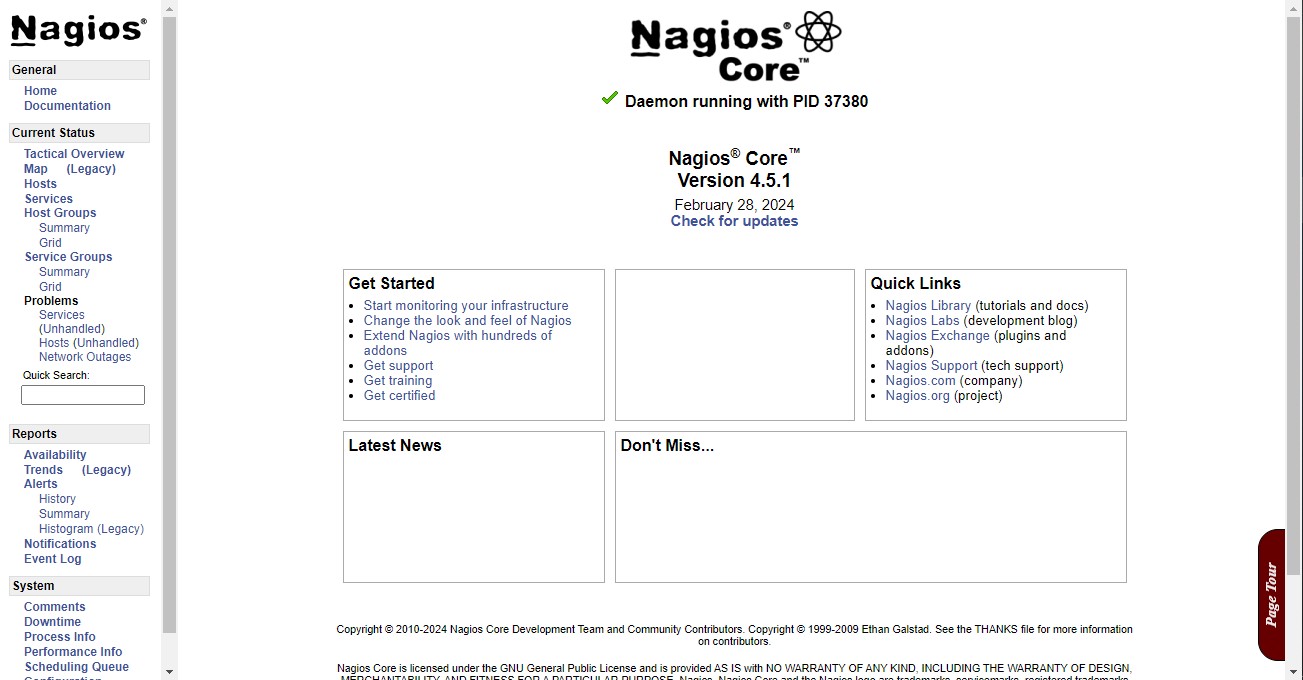


Figure 31 Nagios is prepared for operation. Access it through your web browser using either 'http://Your-server-IP-address/nagios' or 'http://FQDN/nagios', and then provide the username 'nagiosadmin' along with the password

# Enabling HTTPS connection for the Apache Web Server

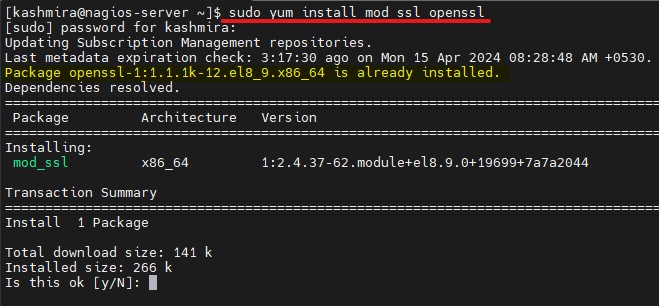


Figure 32 Install SSL in the Server

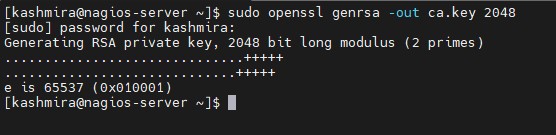


Figure 33 Create a private key for the website

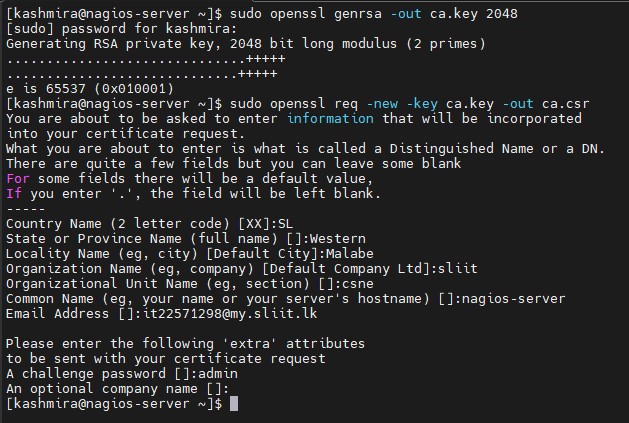


Figure 34 Create Signing Request for the Website

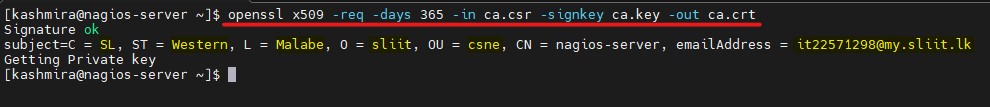


Figure 35 Create the self-signed certificate which is valid for 365 days

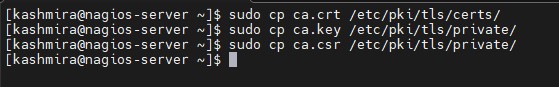


Figure 36 Copy all the necessary files to the relevant locations

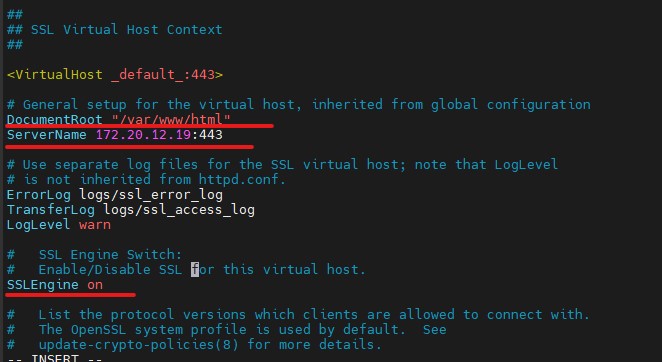


Figure 37 Set the Apache Web Server to use the created certificates by editing relevant lines in the ssl.conf file

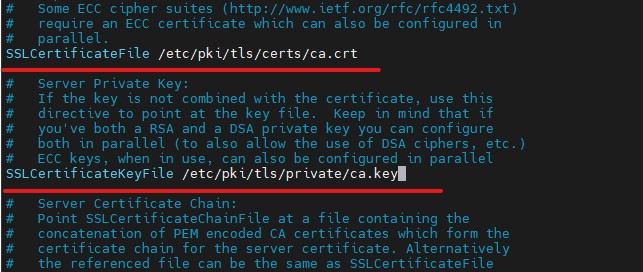


Figure 38 Set the Apache Web Server to use the created certificates by editing relevant lines in the ssl.conf file continued

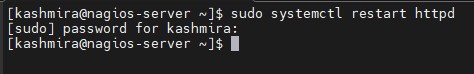


Figure 39 Restart the Apache Web Server to apply the changes

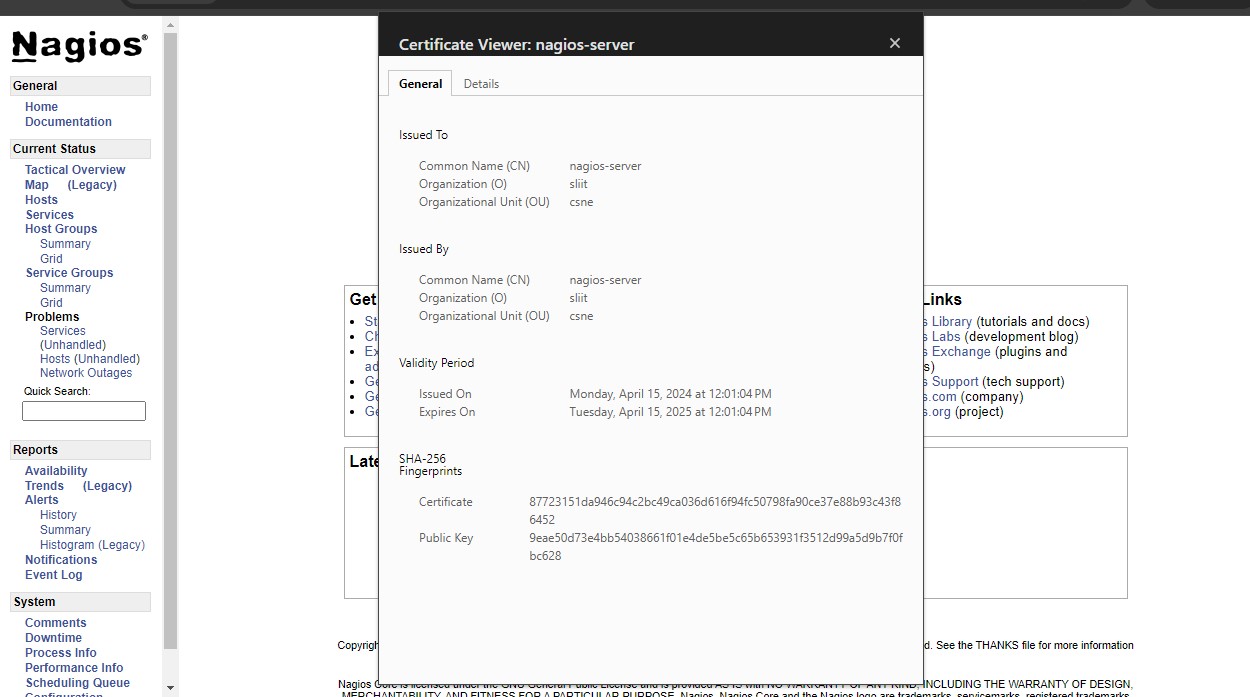


Figure 40 Verify It the SSL Certificate

# Installing Nagios Plugins and NRPE On Remote Linux Host

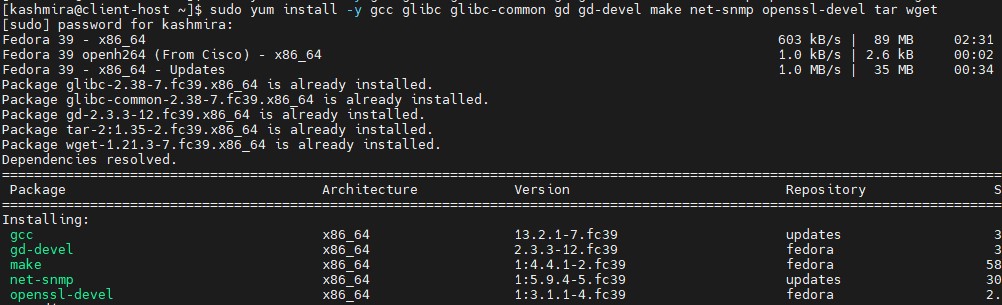


Figure 41 Install required libraries On Client Host



Figure 42 Create a new nagios user account and set a password.



Figure 43 Now download the latest Nagios Plugins package

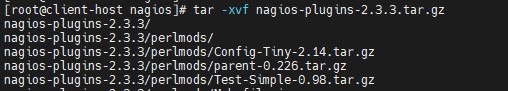


Figure 44 Extract Nagios Plugins

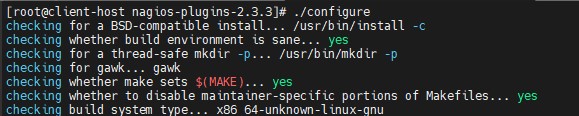


Figure 45 compile and install nagios plugins using the following commands

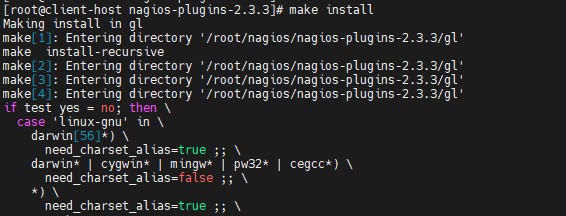


Figure 46 compile and install nagios plugins using the following commands continued

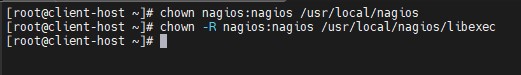


Figure 47 Set the permissions on the plugin directory

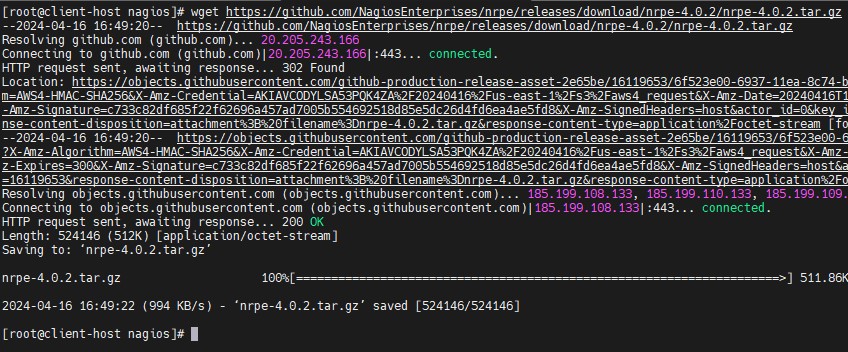


Figure 48 Install the nrpe plugin

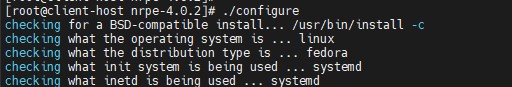


Figure 49 Install the nrpe plugin, continued

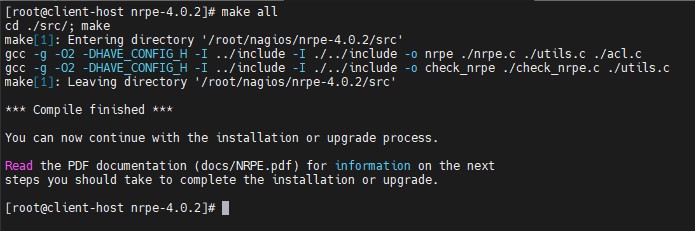


Figure 50 Install the nrpe plugin, continuing the process

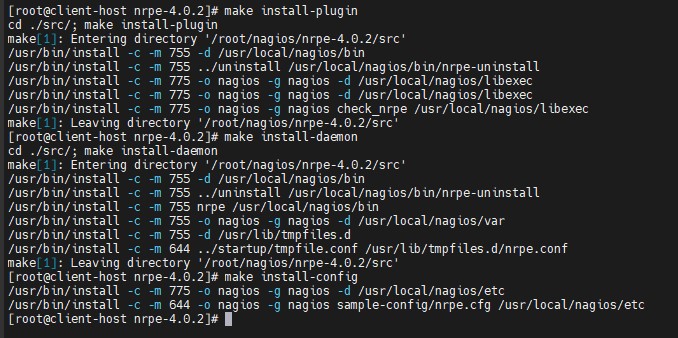


Figure 51 Install the NRPE plugin daemon, and sample config files



Figure 52 open /usr/local/nagios/etc/nrpe.cfg file and add the local host and IP address of the Nagios Monitoring Server

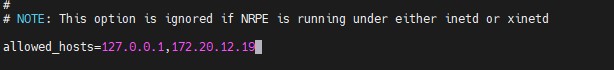


Figure 53 open /usr/local/nagios/etc/nrpe.cfg file and add the local host and IP address of the Nagios Monitoring Server, continued



Figure 54 enable and restart the nrpe service



Figure 55 verify the NRPE daemon is functioning properly by running

# Install NRPE Plugin in Nagios

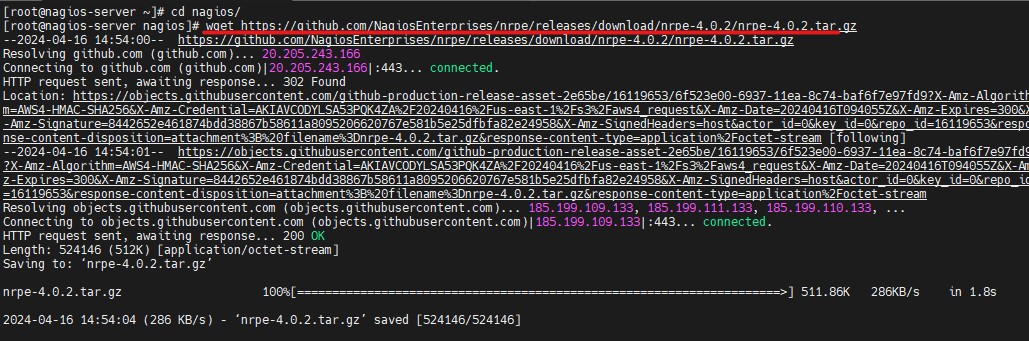


Figure 56 To install the nrpe plugin, first, download the latest NRPE Plugin or use the following wget command.

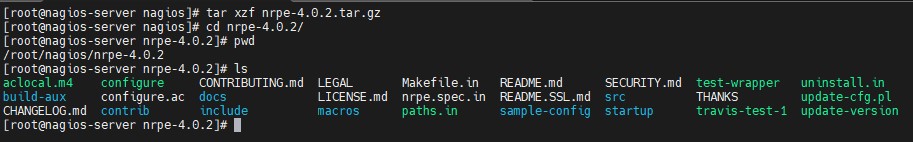


Figure 57 Unpack the NRPE source code tarball.

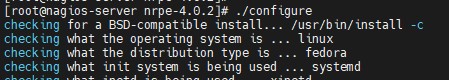


Figure 58 Compile and install the NRPE addon

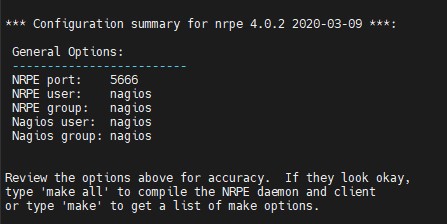


Figure 59 Compile and install the NRPE addon, continued

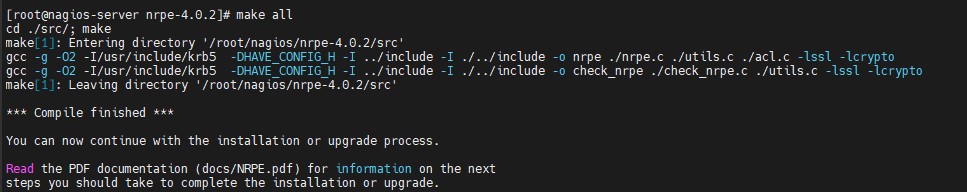


Figure 60 Compile and install the NRPE addon, continued further

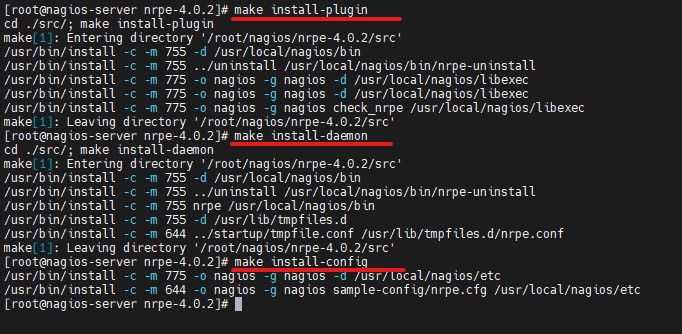


Figure 61 Next, install the NRPE plugin daemon, and sample config files.



Figure 62 Install the NRPE daemon under systemd as a service.

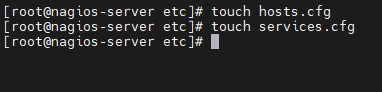


Figure 63 Creating Nagios Host and Services File

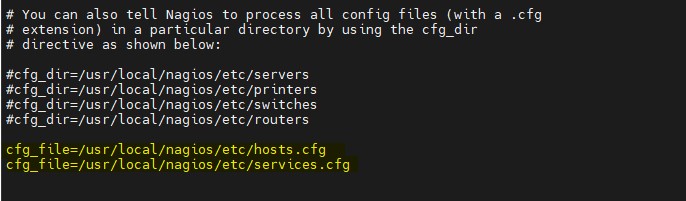


Figure 64 Now add these two files to the main Nagios configuration file. Open the nagios.cfg file with any editor.

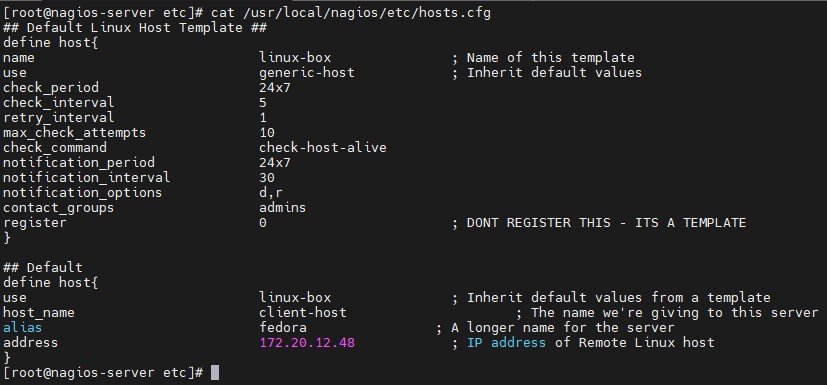


Figure 65 Configuring Nagios Host and Services File

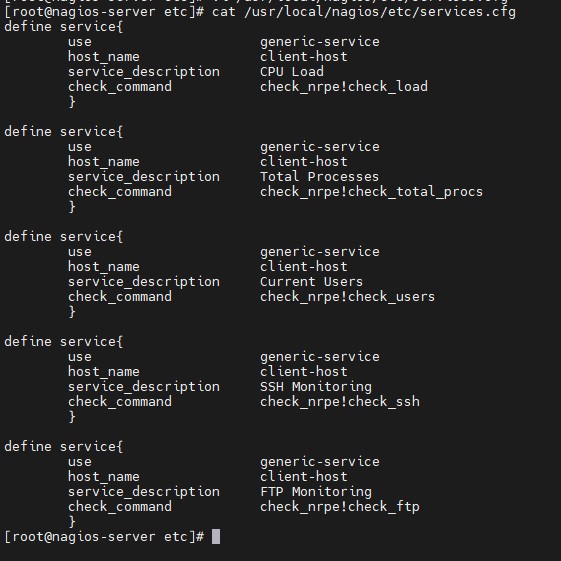


Figure 66 Configuring Nagios Host and Services File, continued

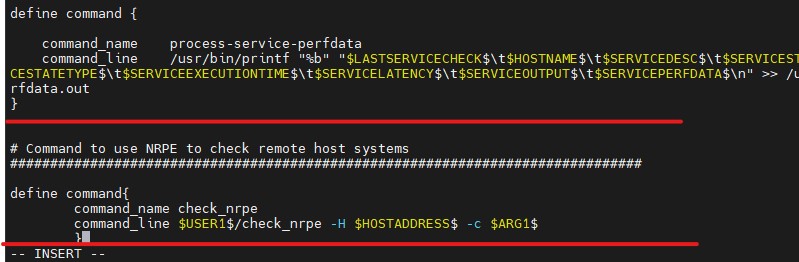


Figure 67 Configuring NRPE Command Definition

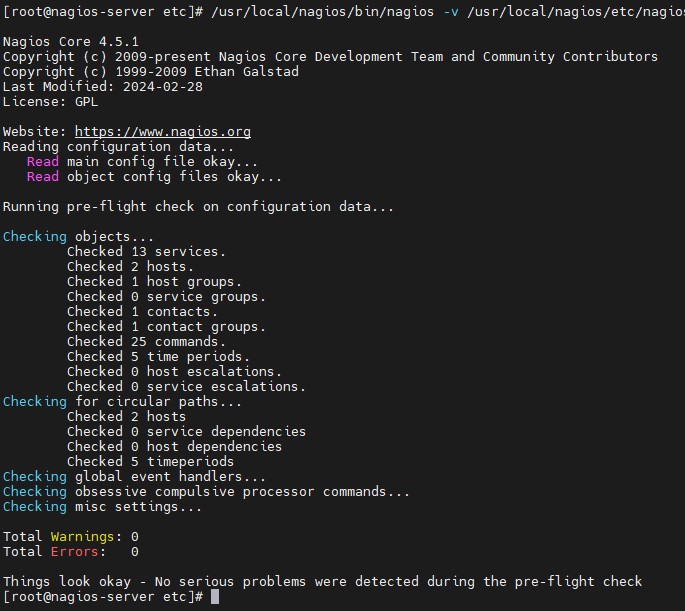


Figure 68 verify Nagios Configuration files for any errors



Figure 69 restart Nagios to apply recent configuration changes

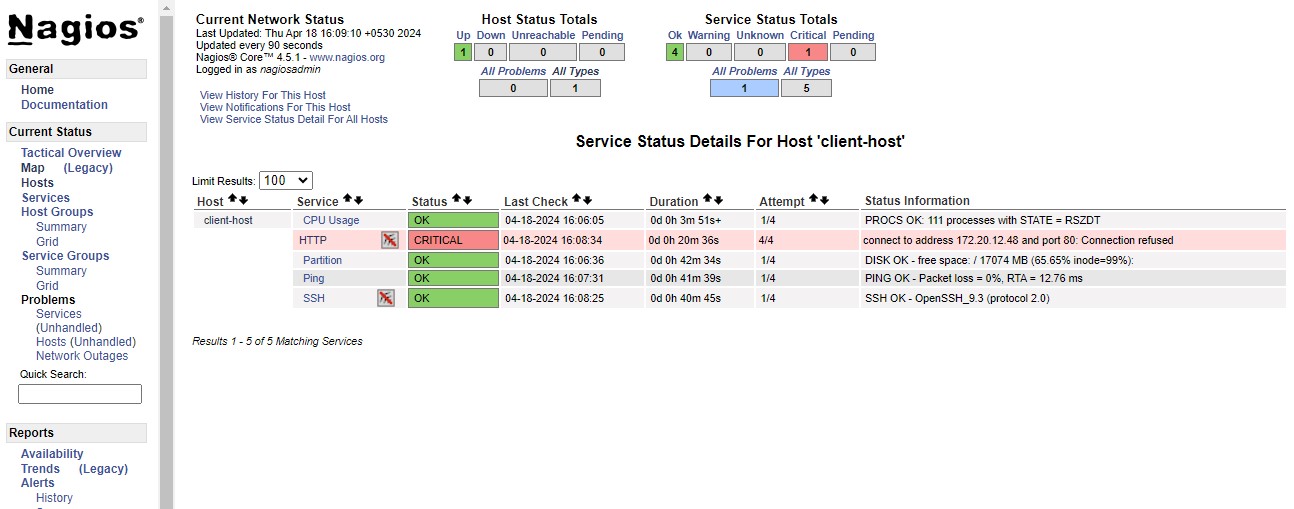


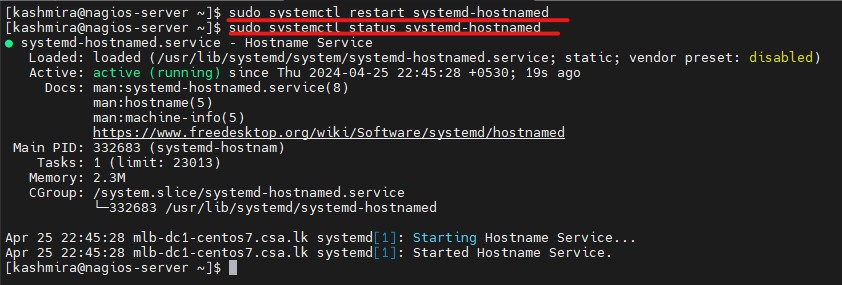
Figure 70 Monitoring Remote Linux in Nagios

# 2. Configuring the Caching Name Server



Figure 71 instructing the system to set the hostname of the machine , After executing this command and rebooting the system , the new hostname will be applied to the machine

used to restart the systemd-hostnamed service on a Linux system. This service is responsible for managing the hostname of the system. When you restart this service, any changes made to the hostname configuration will take effect.

Figure 72 provide you with information about the current status of the systemd-hostnamed service, including whether it's active, its process ID (PID), any recent logs, and any errors or warnings encountered

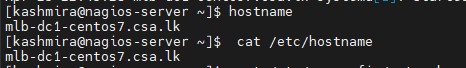


Figure 73 To view the current hostname of your system,

2.4 display the fully qualified domain name (FQDN) of the system.

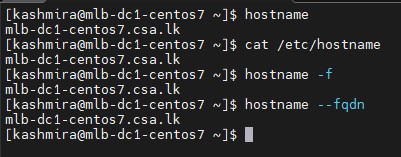


Figure 74 to display the fully qualified domain name (FQDN) of the system

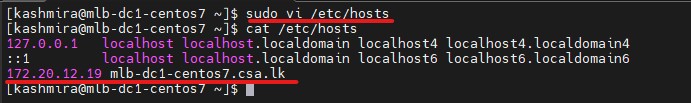


Figure 75 open superuser privileges, allowing you to make changes to the file. You can then add or modify entries in the file as needed.

A screenshot of a computer

Description automatically generated

Figure 76 open superuser privileges, allowing you to make changes to the file. You can then add or modify entries in the file as needed. continuedA black background with white text

Description automatically generated

Figure 77 display the contents of DNS servers, search domains, and other options related to DNS resolution configured on your system.

‘systemctl status named’ to check the status of the BIND (Berkeley Internet Name Domain) service on your system.

‘sudo service named start’ used to start the BIND (Berkeley Internet Name Domain) service on your system.

‘sudo systemctl status named’ command will display the current status of the named service, indicating whether it's enabled to start at boot time or not.

A screen shot of a computer

Description automatically generated‘service named status’ display information about the status of the BIND service, indicating whether it's running or not.

Figure 78 systemctl status named’ to check the status of the BIND (Berkeley Internet Name Domain) service on your system.

A black background with white text

Description automatically generated

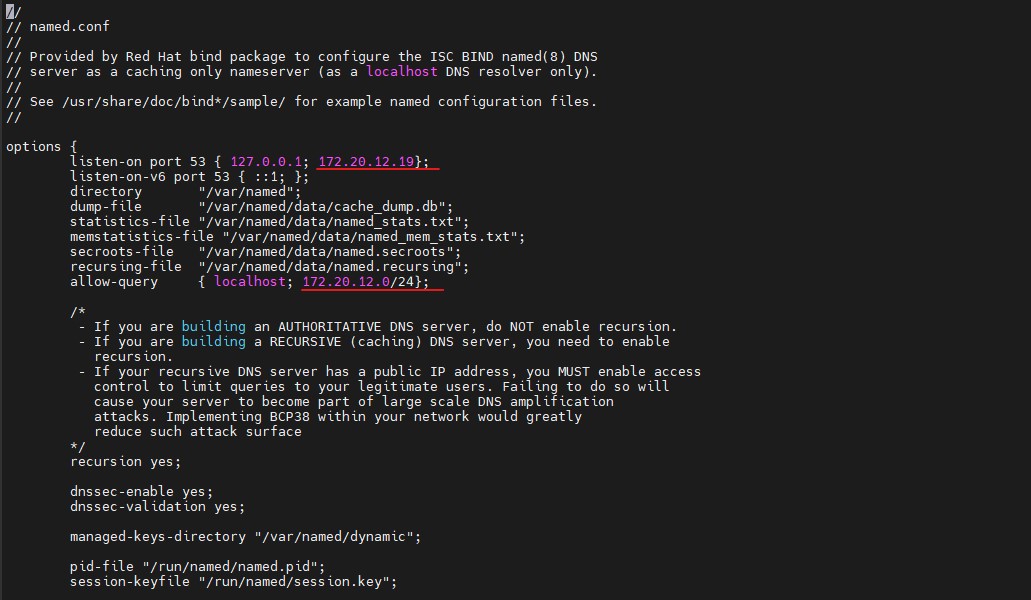
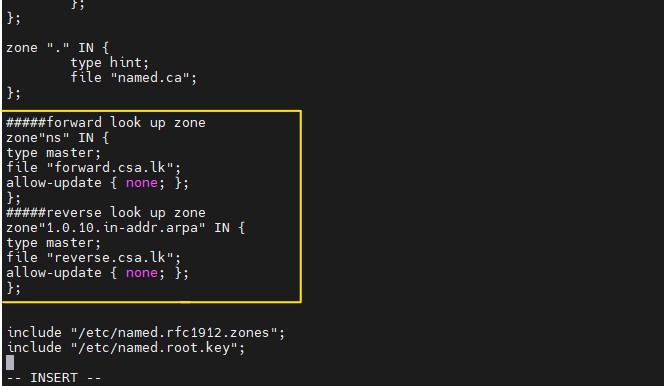
Figure 79 Editing the Main DNS Configuration File in /etc/named.conf Location

Figure 80 Editing the Main DNS Configuration File in /etc/named.conf Location, continued



Adding the zones

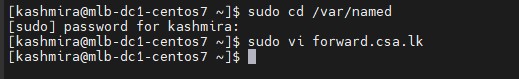


Figure 81 going to inside of the directory called ‘forward.csa.lk’, Adding the zones

Figure 82 going to inside of the directory called ‘forward.csa.lk’, adding the zones, continued

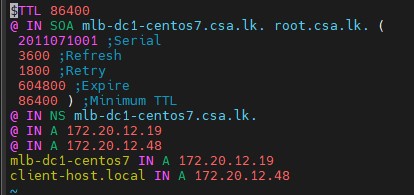


Figure 83 going to inside of the directory called ‘forward.csa.lk’, adding the zones, further ontinued



Figure 84 going to inside of the directory called ‘reverse.csa.lk’

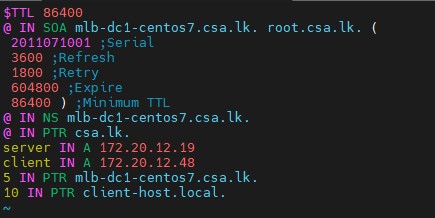


Figure 85 going to inside of the directory called ‘reverse.csa.lk’, adding zones, futher continued

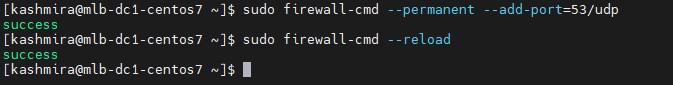


Figure 86 sudo fire wall command

Thank you