Aim: To perform Port, Service monitoring, and Windows/Linux server monitoring using Nagios.

Theory:

Port and Service Monitoring

Port and service monitoring in Nagios involves checking the availability and responsiveness of network services running on specific ports. This ensures that critical services (like HTTP, FTP, or SSH) are operational. Nagios uses plugins to ping the ports and verify whether services are up and responding as expected, allowing administrators to be alerted in case of outages.

Windows/Linux Server Monitoring

Windows/Linux server monitoring with Nagios entails tracking the performance and health of servers running these operating systems. It includes monitoring metrics such as CPU usage, memory consumption, disk space, and system logs. Nagios employs various plugins to gather data, enabling administrators to ensure optimal performance, identify potential issues, and maintain uptime across their server infrastructure.

Prerequisites:

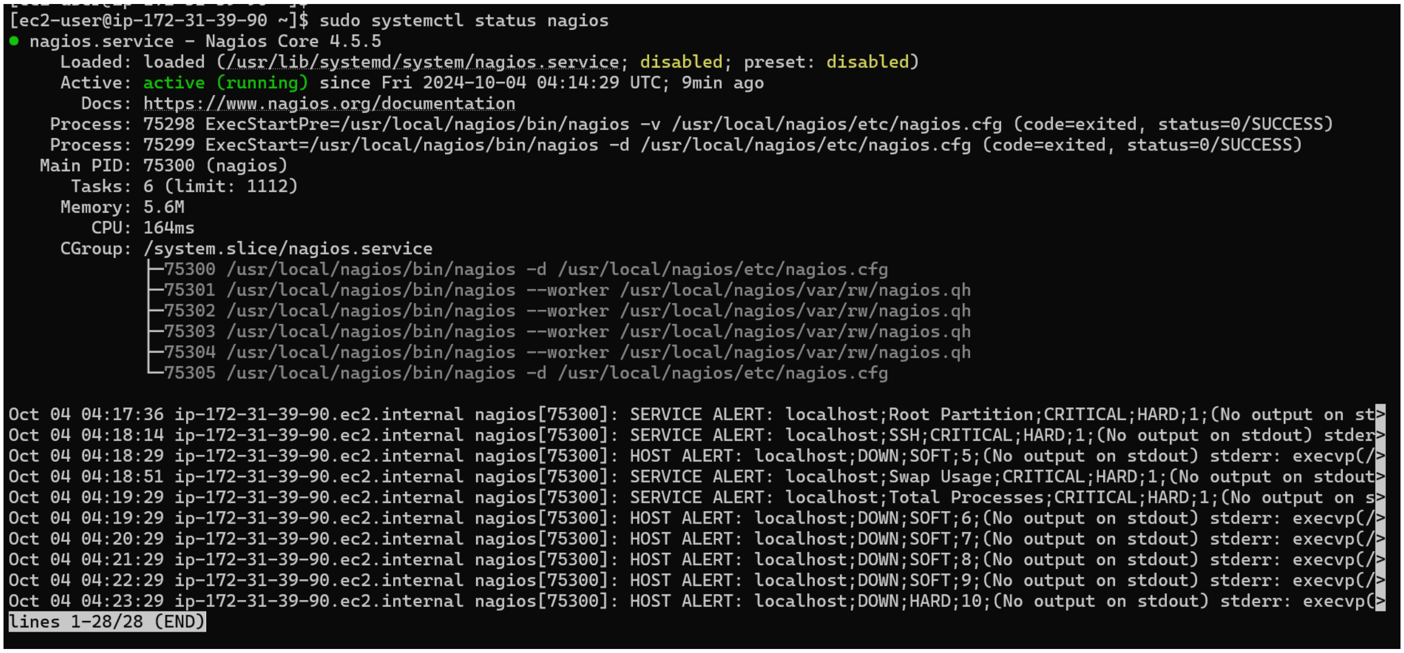
AWS Academy or Personal account.

Nagios Server running on Amazon Linux Machine. (Refer Experiment No 9)

Monitoring Using Nagios:

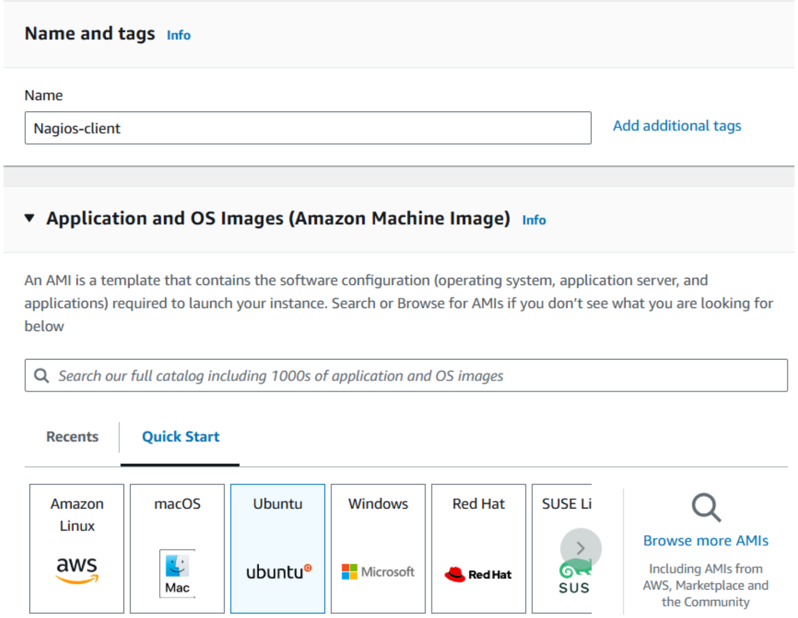
Step 1: To Confirm Nagios is running on the server side Perform the following command on your Amazon Linux Machine (Nagios-host).

sudo systemctl status nagios



```
[ec2-user@ip-172-31-39-90 ~]$ sudo systemctl status nagios
● nagios.service - Nagios Core 4.5.5
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; disabled; preset: disabled)
     Active: active (running) since Fri 2024-10-04 04:14:29 UTC; 9min ago
       Docs: https://www.nagios.org/documentation
    Process: 75298 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
    Process: 75299 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 75300 (nagios)
      Tasks: 6 (limit: 1112)
     Memory: 5.6M
        CPU: 164ms
     CGroup: /system.slice/nagios.service
             ├─75300 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─75301 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─75302 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─75303 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─75304 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─75305 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Oct 04 04:17:36 ip-172-31-39-90.ec2.internal nagios[75300]: SERVICE ALERT: localhost;Root Partition;CRITICAL;HARD;1;(No output on st>
Oct 04 04:18:14 ip-172-31-39-90.ec2.internal nagios[75300]: SERVICE ALERT: localhost;SSH;CRITICAL;HARD;1;(No output on stdout) stder>
Oct 04 04:18:29 ip-172-31-39-90.ec2.internal nagios[75300]: HOST ALERT: localhost;DOWN;SOFT;5;(No output on stdout) stderr: execvp(/>
Oct 04 04:18:51 ip-172-31-39-90.ec2.internal nagios[75300]: SERVICE ALERT: localhost;Swap Usage;CRITICAL;HARD;1;(No output on stdout>
Oct 04 04:19:29 ip-172-31-39-90.ec2.internal nagios[75300]: SERVICE ALERT: localhost;Total Processes;CRITICAL;HARD;1;(No output on s>
Oct 04 04:19:29 ip-172-31-39-90.ec2.internal nagios[75300]: HOST ALERT: localhost;DOWN;SOFT;6;(No output on stdout) stderr: execvp(/>
Oct 04 04:20:29 ip-172-31-39-90.ec2.internal nagios[75300]: HOST ALERT: localhost;DOWN;SOFT;7;(No output on stdout) stderr: execvp(/>
Oct 04 04:21:29 ip-172-31-39-90.ec2.internal nagios[75300]: HOST ALERT: localhost;DOWN;SOFT;8;(No output on stdout) stderr: execvp(/>
Oct 04 04:22:29 ip-172-31-39-90.ec2.internal nagios[75300]: HOST ALERT: localhost;DOWN;SOFT;9;(No output on stdout) stderr: execvp(/>
Oct 04 04:23:29 ip-172-31-39-90.ec2.internal nagios[75300]: HOST ALERT: localhost;DOWN;HARD;10;(No output on stdout) stderr: execvp(>
lines 1-28/28 (END)
```

You can now proceed if you get the above message/output.
Step 2: Now Create a new EC2 instance. Name: Nagios-client, AMI: Ubuntu Instance Type: t2.micro.



Name and tags Info

Name

Nagios-client

Add additional tags

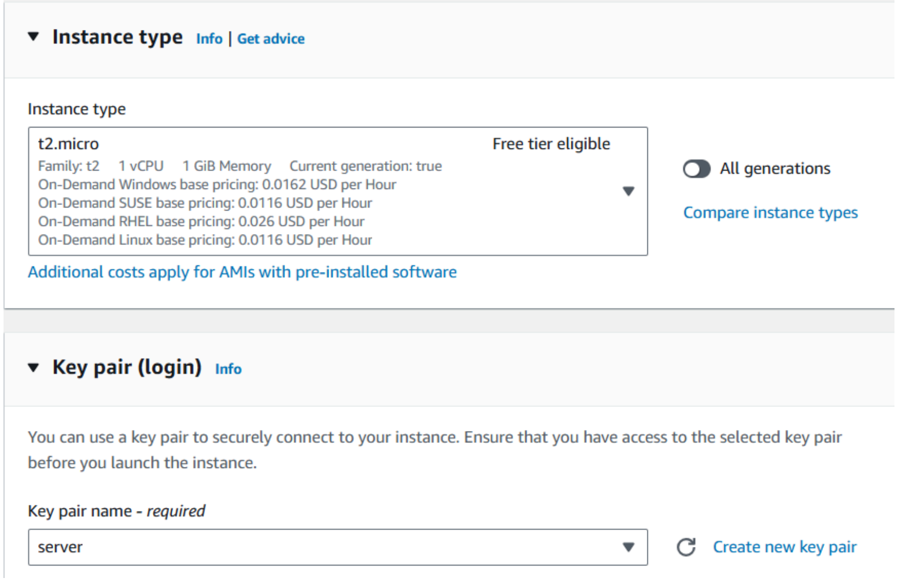
▼ Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

For Key pair : Click on create key and make key of type RSA with extension .pem . Key will be downloaded to your local machine.

Now select that key in key pair if you already have key with type RSA and extension .pem no need to create new key but you must have that key downloaded.



▼ Instance type Info | Get advice

Instance type

t2.micro Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

Additional costs apply for AMIs with pre-installed software

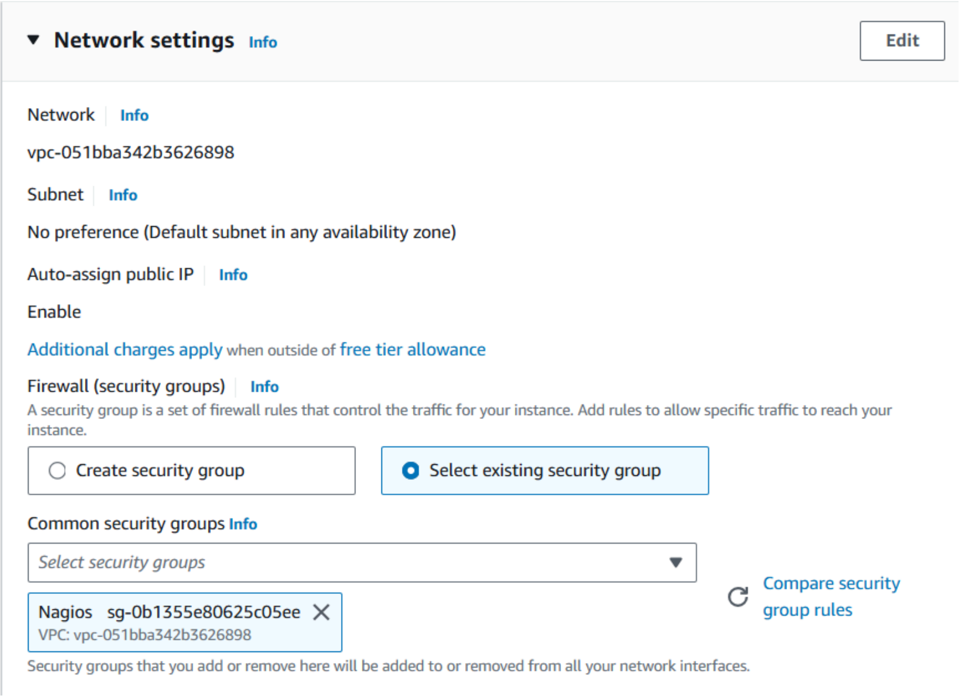
▼ Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

server

Select the Existing Security Group and select the Security Group that we have created in Experiment no 9 or the same one you have used for the Nagios server (Nagios-host).



▼ **Network settings** Info

Edit

Network | Info

vpc-051bba342b3626898

Subnet | Info

No preference (Default subnet in any availability zone)

Auto-assign public IP | Info

Enable

Additional charges apply when outside of free tier allowance

Firewall (security groups) | Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

○ Create security group ● Select existing security group

Common security groups Info

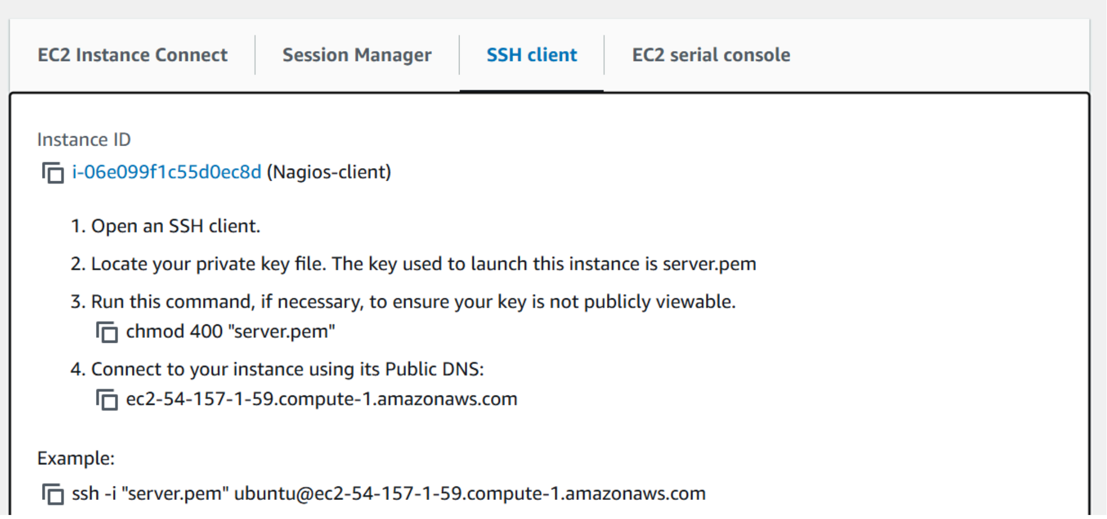
Select security groups ▼

Nagios sg-0b1355e80625c05ee ✕
VPC: vpc-051bba342b3626898

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

Step 3: Now After creating the EC2 Instance click on connect and then copy the command which is given as example in the SSH Client section .
Now open the terminal in the folder where your key(RSA key with .pem) is located. and paste that copied command.



EC2 Instance Connect | Session Manager | **SSH client** | EC2 serial console

Instance ID

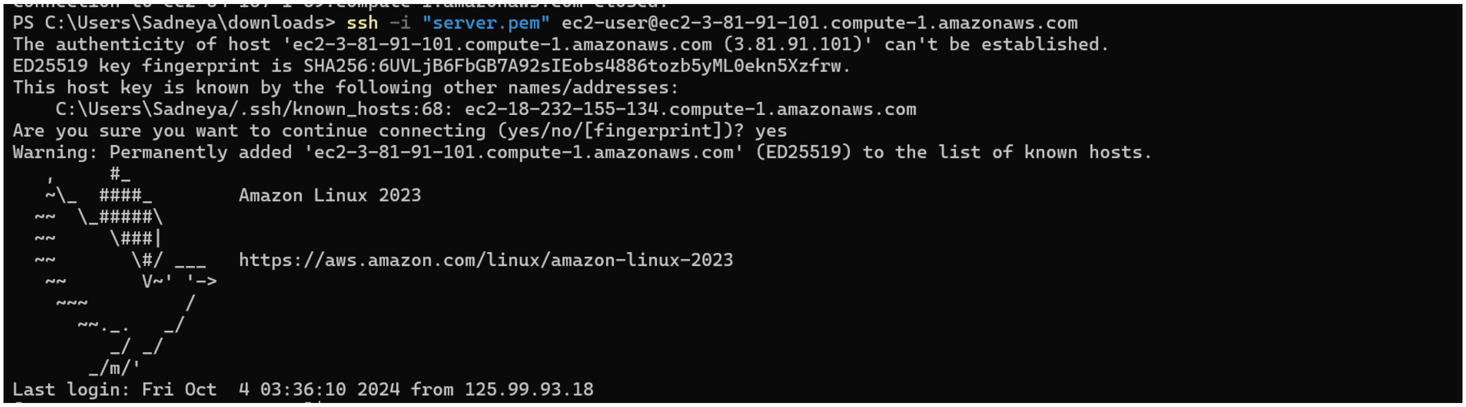
i-06e099f1c55d0ec8d (Nagios-client)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is server.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
   ```
   chmod 400 "server.pem"
   ```
4. Connect to your instance using its Public DNS:
   ```
   ec2-54-157-1-59.compute-1.amazonaws.com
   ```

Example:

```
ssh -i "server.pem" ubuntu@ec2-54-157-1-59.compute-1.amazonaws.com
```

Successfully connected to the instance.

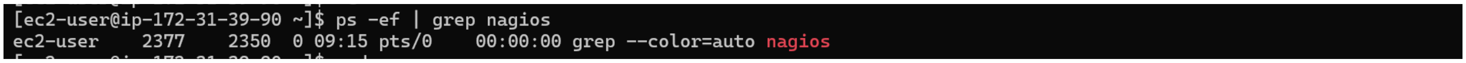


```
PS C:\Users\Sadneya\downloads> ssh -i "server.pem" ec2-user@ec2-3-81-91-101.compute-1.amazonaws.com
The authenticity of host 'ec2-3-81-91-101.compute-1.amazonaws.com (3.81.91.101)' can't be established.
ED25519 key fingerprint is SHA256:6UVLjB6FbGB7A92sIEobs4886tozb5yML0ekn5Xzfrw.
This host key is known by the following other names/addresses:
    C:\Users\Sadneya/.ssh/known_hosts:68: ec2-18-232-155-134.compute-1.amazonaws.com
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-81-91-101.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
Last login: Fri Oct  4 03:36:10 2024 from 125.99.93.18
```

Now perform all the commands on the Nagios-host till step 10

Step 4: Now on the server Nagios-host run the following command.

ps -ef | grep nagios



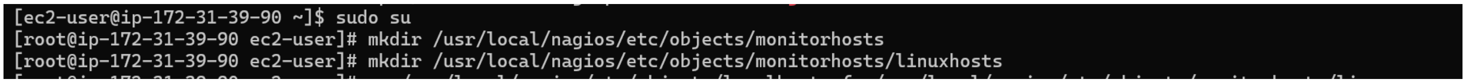
```
[ec2-user@ip-172-31-39-90 ~]$ ps -ef | grep nagios
ec2-user    2377    2350  0 09:15 pts/0    00:00:00 grep --color=auto nagios
```

Step 5: Now Become root user and create root directories.

sudo su

mkdir /usr/local/nagios/etc/objects/monitorhosts

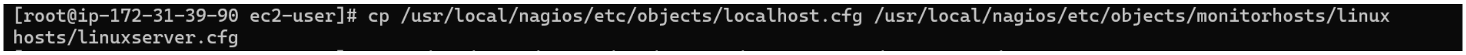
mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts



```
[ec2-user@ip-172-31-39-90 ~]$ sudo su
[root@ip-172-31-39-90 ec2-user]# mkdir /usr/local/nagios/etc/objects/monitorhosts
[root@ip-172-31-39-90 ec2-user]# mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts
```

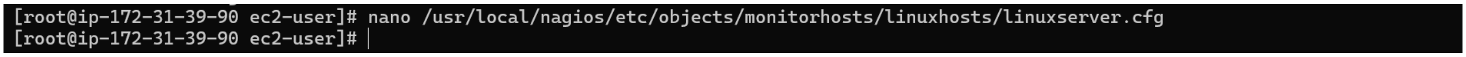
Step 6: Copy the sample localhost.cfg to linuxhost.cfg by running the following command.(Below command should come in one line see screenshot below)

cp /usr/local/nagios/etc/objects/localhost.cfg /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg



```
[root@ip-172-31-39-90 ec2-user]# cp /usr/local/nagios/etc/objects/localhost.cfg /usr/local/nagios/etc/objects/monitorhosts/linux
hosts/linuxserver.cfg
```

Step 7: Open linuxserver.cfg using nano and make the following changes in all positions?everywhere in file.



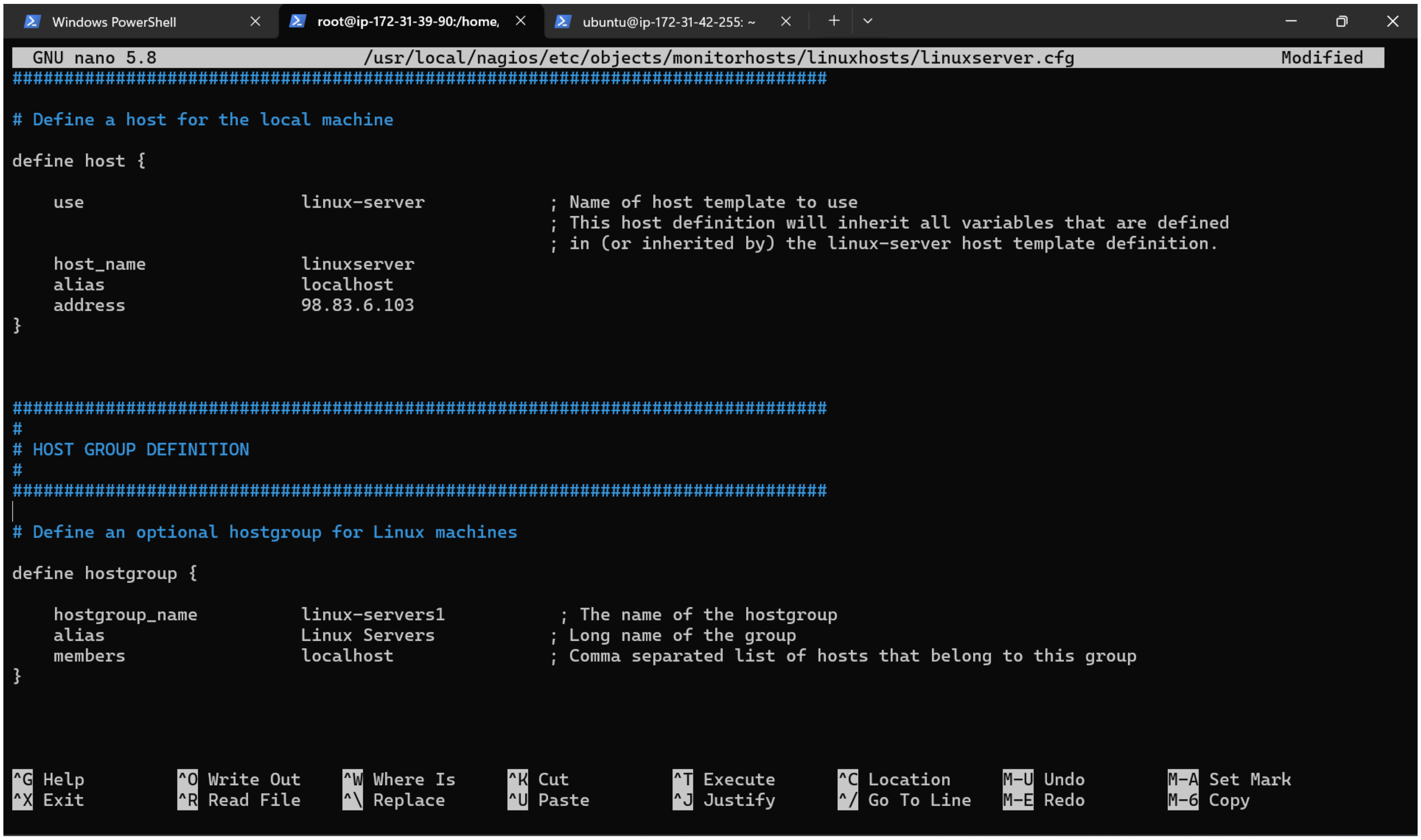
```
[root@ip-172-31-39-90 ec2-user]# nano /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg
[root@ip-172-31-39-90 ec2-user]# |
```

Change `hostname` to **linuxserver**.

Change `address` to the public IP of your Linux client.

Set `hostgroup_name` to **linux-servers1**.

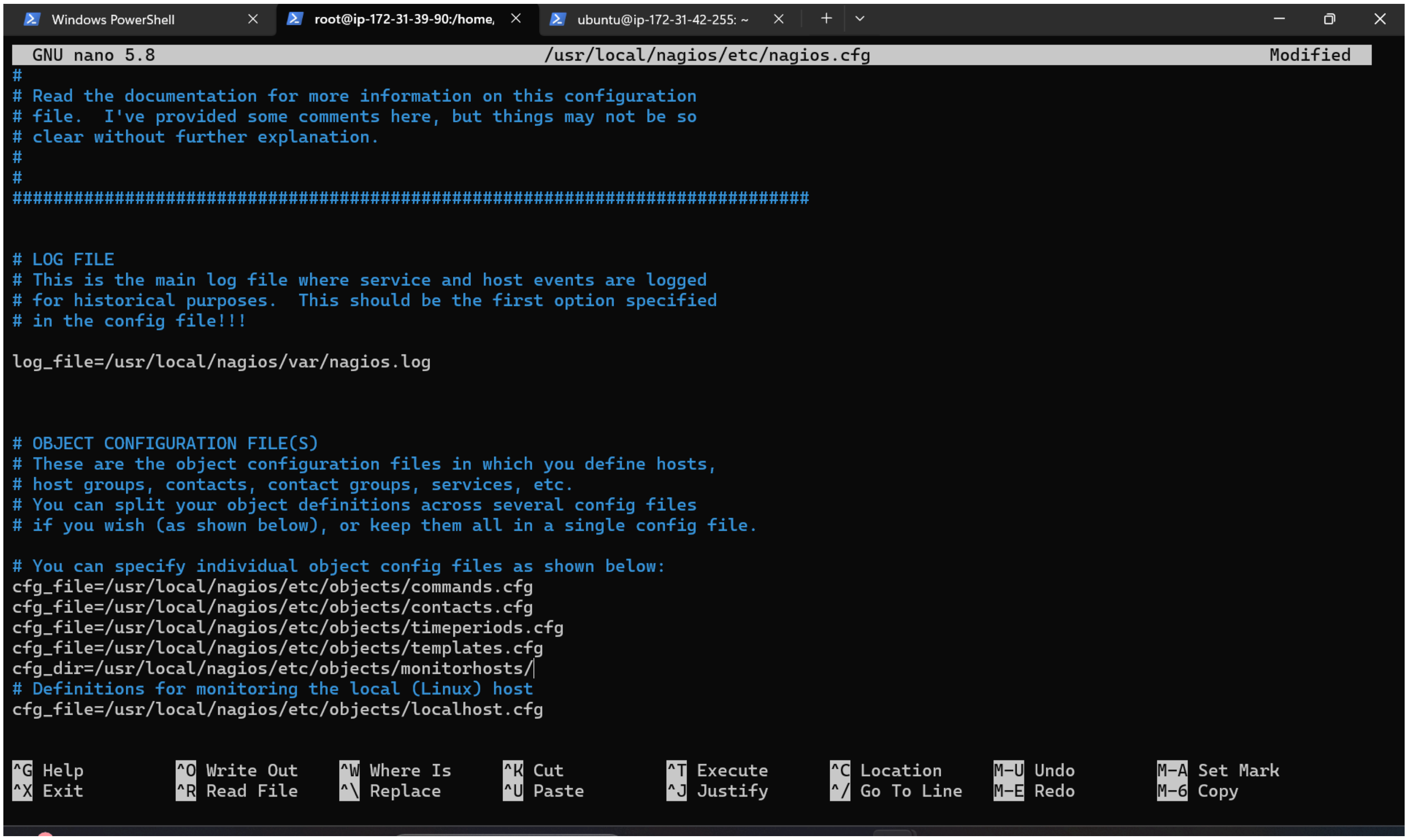
nano /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg



```
  GNU nano 5.8                 /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg                  Modified
###############################################################################

# Define a host for the local machine

define host {

    use                     linux-server            ; Name of host template to use
                                                    ; This host definition will inherit all variables that are defined
                                                    ; in (or inherited by) the linux-server host template definition.

    host_name               linuxserver
    alias                   localhost
    address                 98.83.6.103
}



###############################################################################
#
# HOST GROUP DEFINITION
#
###############################################################################

# Define an optional hostgroup for Linux machines

define hostgroup {

    hostgroup_name          linux-servers1           ; The name of the hostgroup
    alias                   Linux Servers           ; Long name of the group
    members                 localhost               ; Comma separated list of hosts that belong to this group
}



^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location    M-U Undo       M-A Set Mark
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo       M-6 Copy
```

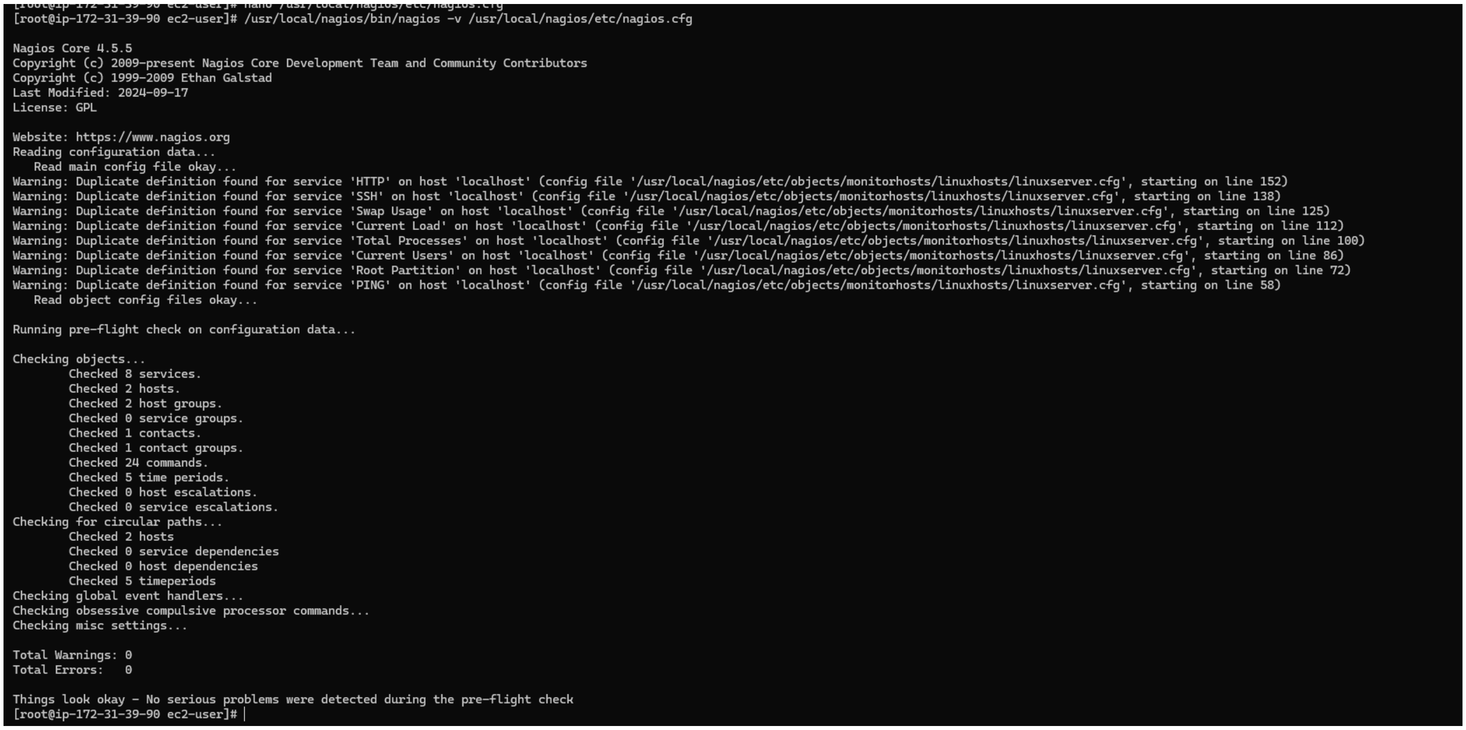
Step 8: Now update the Nagios config file .Add the following line in the file.

Line to add : cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/
Run the command : **nano /usr/local/nagios/etc/nagios.cfg**



```
  GNU nano 5.8                    /usr/local/nagios/etc/nagios.cfg                    Modified
#
# 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/timeperiods.cfg
cfg_file=/usr/local/nagios/etc/objects/templates.cfg
cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/
# Definitions for monitoring the local (Linux) host
cfg_file=/usr/local/nagios/etc/objects/localhost.cfg


^G Help       ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo      M-A Set Mark
^X Exit       ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^/ Go To Line M-E Redo      M-6 Copy
```

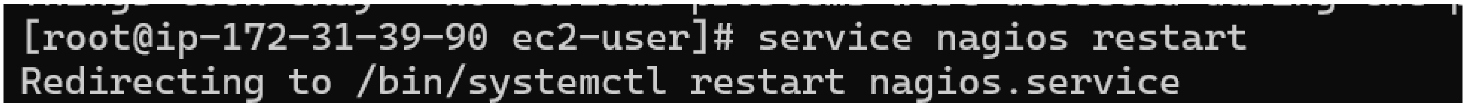
Step 9: Now Verify the configuration files by running the following commands.
/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg



```
[root@ip-172-31-39-90 ec2-user]# nano /usr/local/nagios/etc/nagios.cfg
[root@ip-172-31-39-90 ec2-user]# /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.5.5
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2024-09-17
License: GPL

Website: https://www.nagios.org
Reading configuration data...
   Read main config file okay...
Warning: Duplicate definition found for service 'HTTP' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 152)
Warning: Duplicate definition found for service 'SSH' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 138)
Warning: Duplicate definition found for service 'Swap Usage' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 125)
Warning: Duplicate definition found for service 'Current Load' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 112)
Warning: Duplicate definition found for service 'Total Processes' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 100)
Warning: Duplicate definition found for service 'Current Users' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 86)
Warning: Duplicate definition found for service 'Root Partition' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 72)
Warning: Duplicate definition found for service 'PING' on host 'localhost' (config file '/usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg', starting on line 58)
   Read object config files okay...

Running pre-flight check on configuration data...

Checking objects...
        Checked 8 services.
        Checked 2 hosts.
        Checked 2 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 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@ip-172-31-39-90 ec2-user]# 
```

Step 10: Now restart the services of nagios by running the following command.

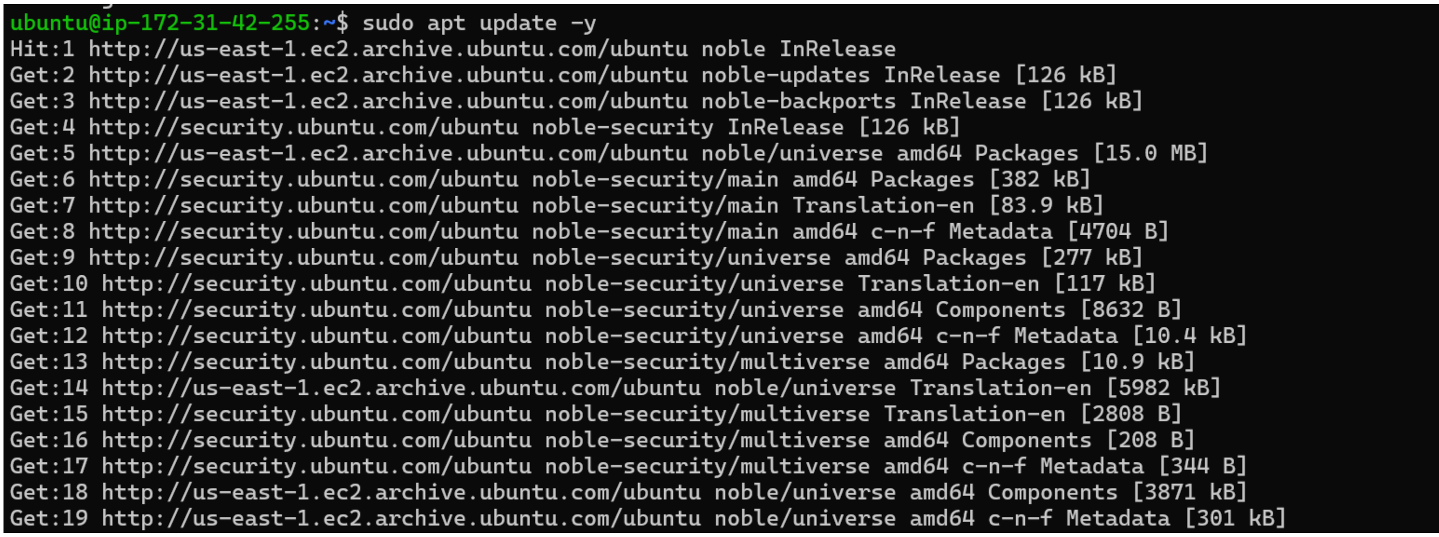
service nagios restart



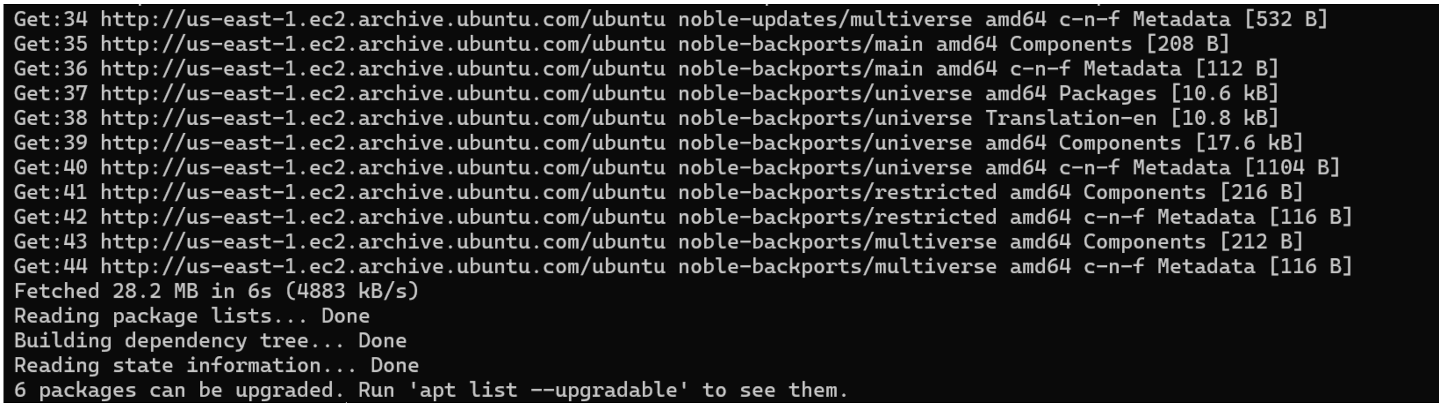
```
[root@ip-172-31-39-90 ec2-user]# service nagios restart
Redirecting to /bin/systemctl restart nagios.service
```

Step 11: Now Go to the Nagios-client ssh terminal and update and install the packages by running the following command.

sudo apt update -y

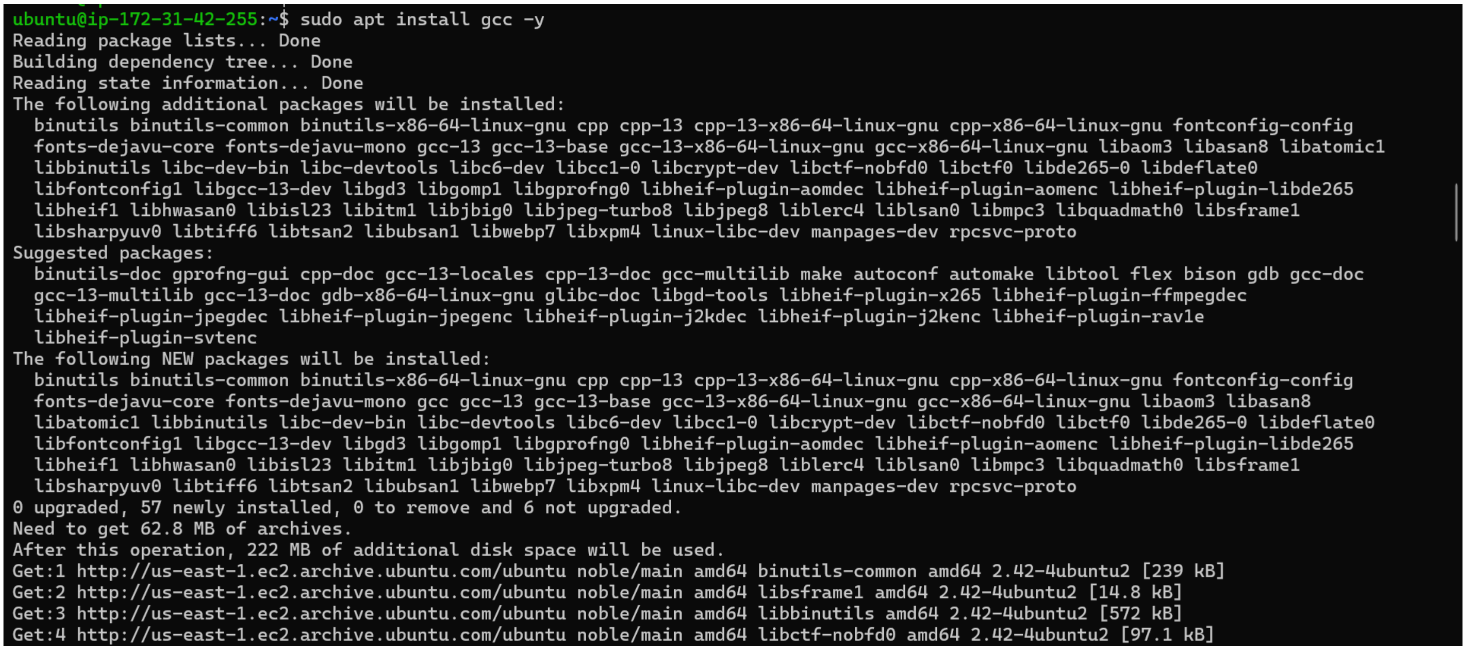


```
ubuntu@ip-172-31-42-255:~$ sudo apt update -y
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [382 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [83.9 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [4704 B]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [277 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [117 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [8632 B]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [10.4 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [10.9 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [2808 B]
Get:16 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 B]
Get:17 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [344 B]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
```

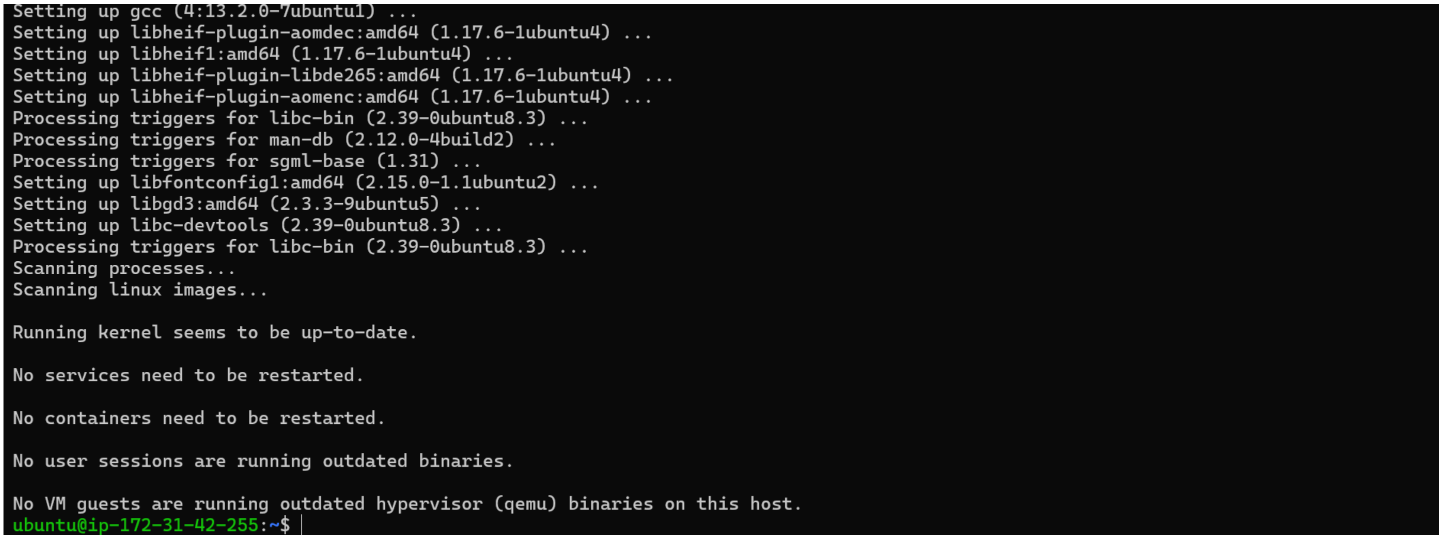


```
Get:34 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [532 B]
Get:35 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:36 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:37 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.6 kB]
Get:38 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.8 kB]
Get:39 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
Get:40 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1104 B]
Get:41 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:42 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:43 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:44 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 28.2 MB in 6s (4883 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
6 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

sudo apt install gcc -y

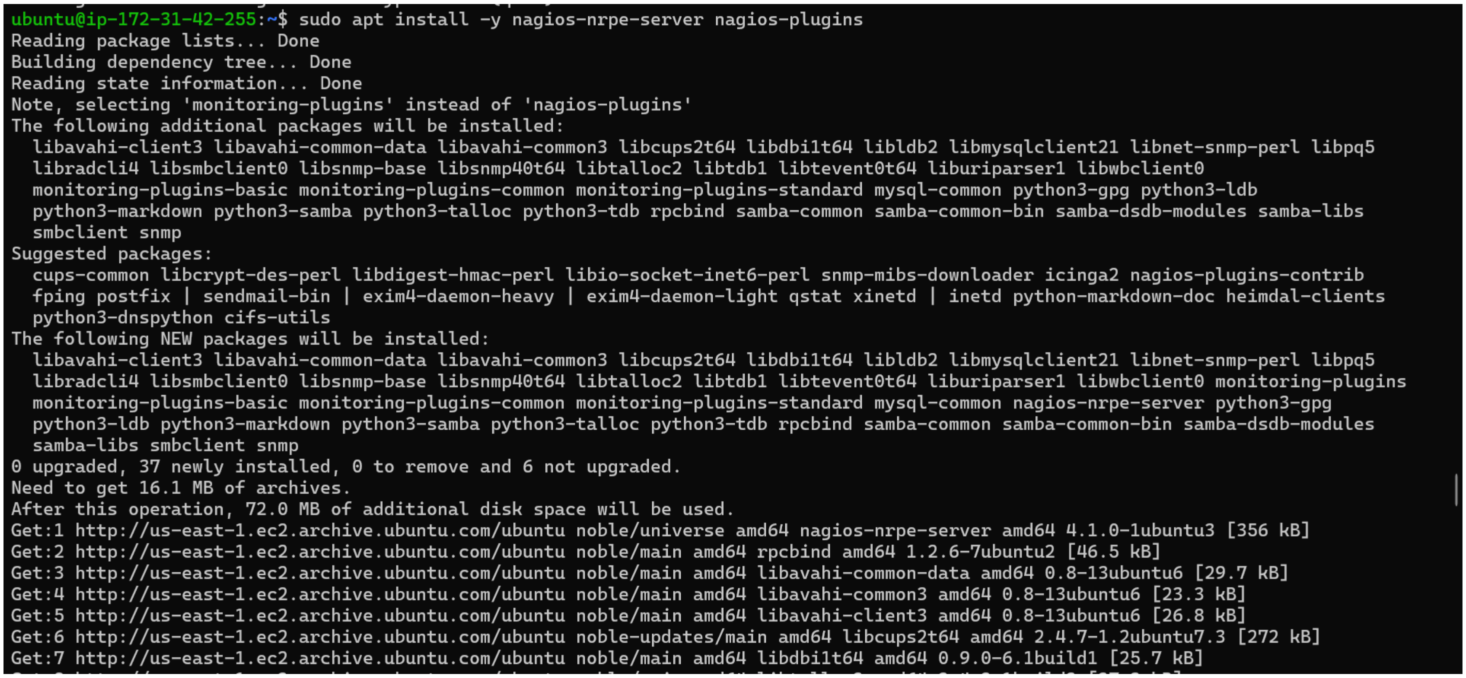


```
ubuntu@ip-172-31-42-255:~$ sudo apt install gcc -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu fontconfig-config
  fonts-dejavu-core fonts-dejavu-mono gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu libaom3 libasan8 libatomic1
  libbinutils libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0 libctf0 libde265-0 libdeflate0
  libfontconfig1 libgcc-13-dev libgd3 libgomp1 libgprofng0 libheif-plugin-aomdec libheif-plugin-aomenc libheif-plugin-libde265
  libheif1 libhwasan0 libisl23 libitm1 libjbig0 libjpeg-turbo8 libjpeg8 liblerc4 liblsan0 libmpc3 libquadmath0 libsframe1
  libsharpyuv0 libtiff6 libtsan2 libubsan1 libwebp7 libxpm4 linux-libc-dev manpages-dev rpcsvc-proto
Suggested packages:
  binutils-doc gprofng-gui cpp-doc gcc-13-locales cpp-13-doc gcc-multilib make autoconf automake libtool flex bison gdb gcc-doc
  gcc-13-multilib gcc-13-doc gdb-x86-64-linux-gnu glibc-doc libgd-tools libheif-plugin-x265 libheif-plugin-ffmpegdec
  libheif-plugin-jpegdec libheif-plugin-jpegenc libheif-plugin-j2kdec libheif-plugin-j2kenc libheif-plugin-rav1e
  libheif-plugin-svtenc
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu fontconfig-config
  fonts-dejavu-core fonts-dejavu-mono gcc gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu libaom3 libasan8
  libatomic1 libbinutils libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0 libctf0 libde265-0 libdeflate0
  libfontconfig1 libgcc-13-dev libgd3 libgomp1 libgprofng0 libheif-plugin-aomdec libheif-plugin-aomenc libheif-plugin-libde265
  libheif1 libhwasan0 libisl23 libitm1 libjbig0 libjpeg-turbo8 libjpeg8 liblerc4 liblsan0 libmpc3 libquadmath0 libsframe1
  libsharpyuv0 libtiff6 libtsan2 libubsan1 libwebp7 libxpm4 linux-libc-dev manpages-dev rpcsvc-proto
0 upgraded, 57 newly installed, 0 to remove and 6 not upgraded.
Need to get 62.8 MB of archives.
After this operation, 222 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 binutils-common amd64 2.42-4ubuntu2 [239 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libsframe1 amd64 2.42-4ubuntu2 [14.8 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libbinutils amd64 2.42-4ubuntu2 [572 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libctf-nobfd0 amd64 2.42-4ubuntu2 [97.1 kB]
```

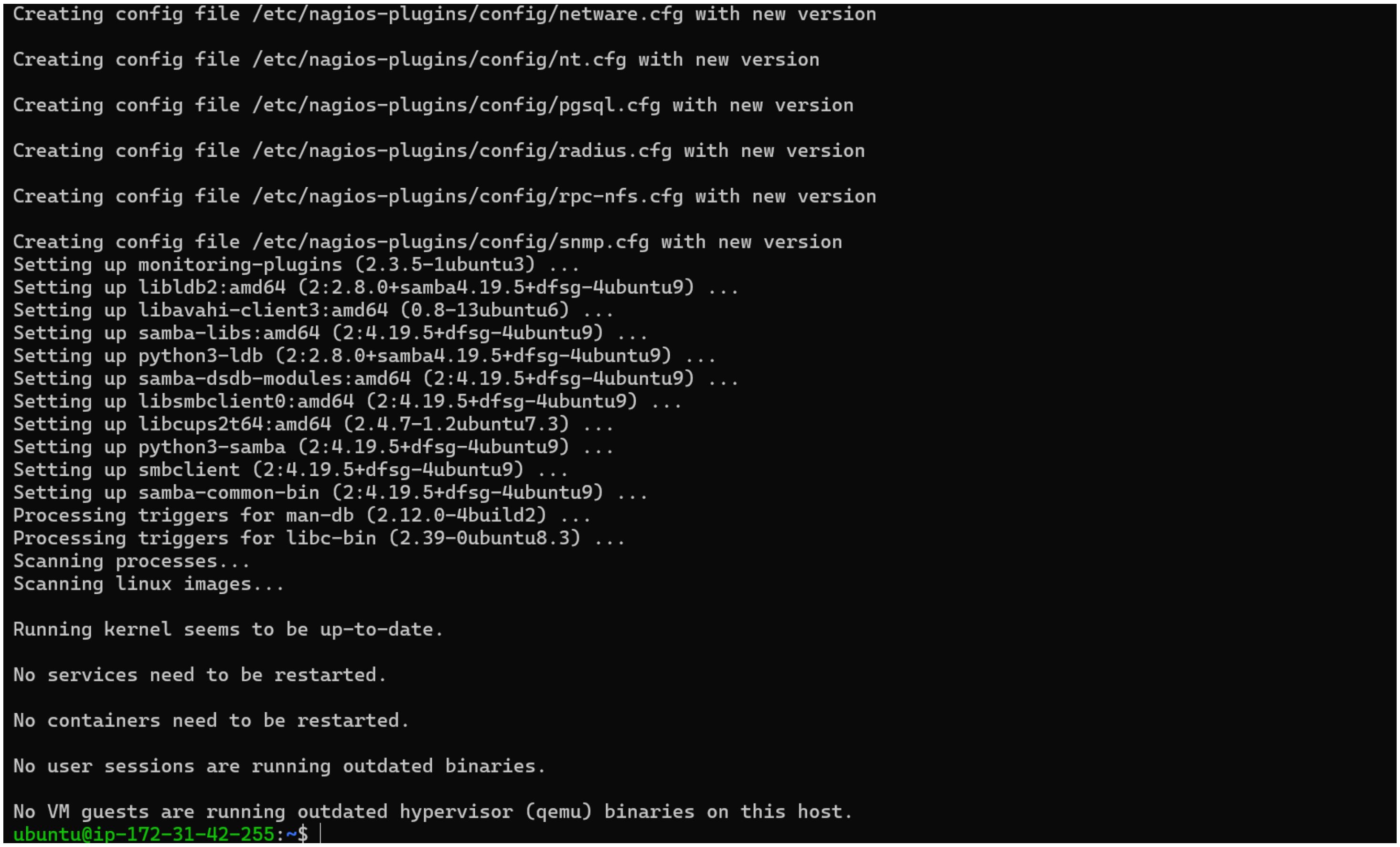


```
Setting up gcc (4:13.2.0-7ubuntu1) ...
Setting up libheif-plugin-aomdec:amd64 (1.17.6-1ubuntu4) ...
Setting up libheif1:amd64 (1.17.6-1ubuntu4) ...
Setting up libheif-plugin-libde265:amd64 (1.17.6-1ubuntu4) ...
Setting up libheif-plugin-aomenc:amd64 (1.17.6-1ubuntu4) ...
Processing triggers for libc-bin (2.39-0ubuntu8.3) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for sgml-base (1.31) ...
Setting up libfontconfig1:amd64 (2.15.0-1.1ubuntu2) ...
Setting up libgd3:amd64 (2.3.3-9ubuntu5) ...
Setting up libc-devtools (2.39-0ubuntu8.3) ...
Processing triggers for libc-bin (2.39-0ubuntu8.3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-42-255:~$
```

sudo apt install -y nagios-nrpe-server nagios-plugins

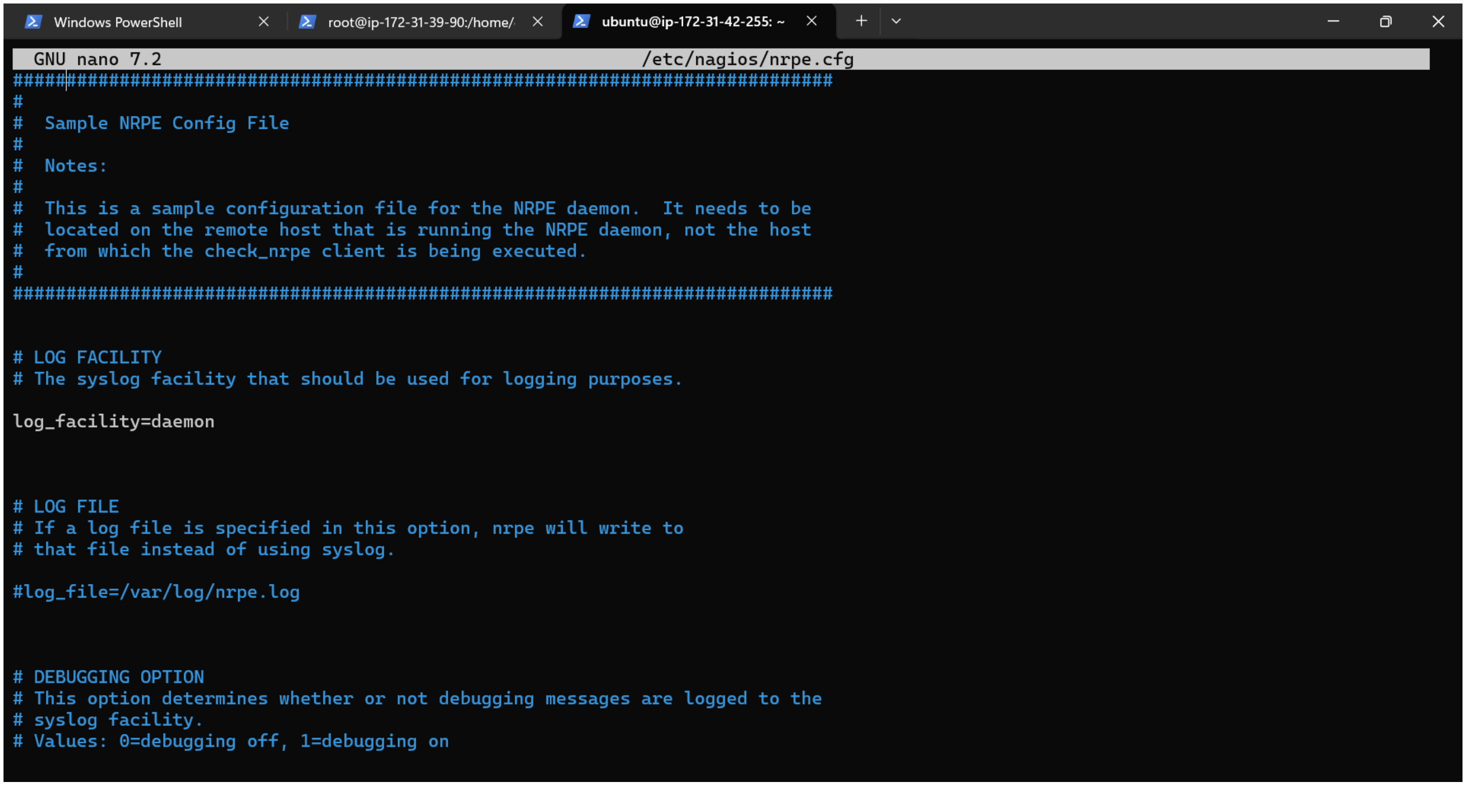


```
ubuntu@ip-172-31-42-255:~$ sudo apt install -y nagios-nrpe-server nagios-plugins
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'monitoring-plugins' instead of 'nagios-plugins'
The following additional packages will be installed:
  libavahi-client3 libavahi-common-data libavahi-common3 libcups2t64 libdbi1t64 libldb2 libmysqlclient21 libnet-snmp-perl libpq5
  libradcli4 libsmbclient0 libsnmp-base libsnmp40t64 libtalloc2 libtdb1 libtevent0t64 liburiparser1 libwbclient0
  monitoring-plugins-basic monitoring-plugins-common monitoring-plugins-standard mysql-common python3-gpg python3-ldb
  python3-markdown python3-samba python3-talloc python3-tdb rpcbind samba-common samba-common-bin samba-dsdb-modules samba-libs
  smbclient snmp
Suggested packages:
  cups-common libcrypt-des-perl libdigest-hmac-perl libio-socket-inet6-perl snmp-mibs-downloader icinga2 nagios-plugins-contrib
  fping postfix | sendmail-bin | exim4-daemon-heavy | exim4-daemon-light qstat xinetd | inetd python-markdown-doc heimdal-clients
  python3-dnspython cifs-utils
The following NEW packages will be installed:
  libavahi-client3 libavahi-common-data libavahi-common3 libcups2t64 libdbi1t64 libldb2 libmysqlclient21 libnet-snmp-perl libpq5
  libradcli4 libsmbclient0 libsnmp-base libsnmp40t64 libtalloc2 libtdb1 libtevent0t64 liburiparser1 libwbclient0 monitoring-plugins
  monitoring-plugins-basic monitoring-plugins-common monitoring-plugins-standard mysql-common nagios-nrpe-server python3-gpg
  python3-ldb python3-markdown python3-samba python3-talloc python3-tdb rpcbind samba-common samba-common-bin samba-dsdb-modules
  samba-libs smbclient snmp
0 upgraded, 37 newly installed, 0 to remove and 6 not upgraded.
Need to get 16.1 MB of archives.
After this operation, 72.0 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 nagios-nrpe-server amd64 4.1.0-1ubuntu3 [356 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 rpcbind amd64 1.2.6-7ubuntu2 [46.5 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libavahi-common-data amd64 0.8-13ubuntu6 [29.7 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libavahi-common3 amd64 0.8-13ubuntu6 [23.3 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libavahi-client3 amd64 0.8-13ubuntu6 [26.8 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcups2t64 amd64 2.4.7-1.2ubuntu7.3 [272 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libdbi1t64 amd64 0.9.0-6.1build1 [25.7 kB]
```

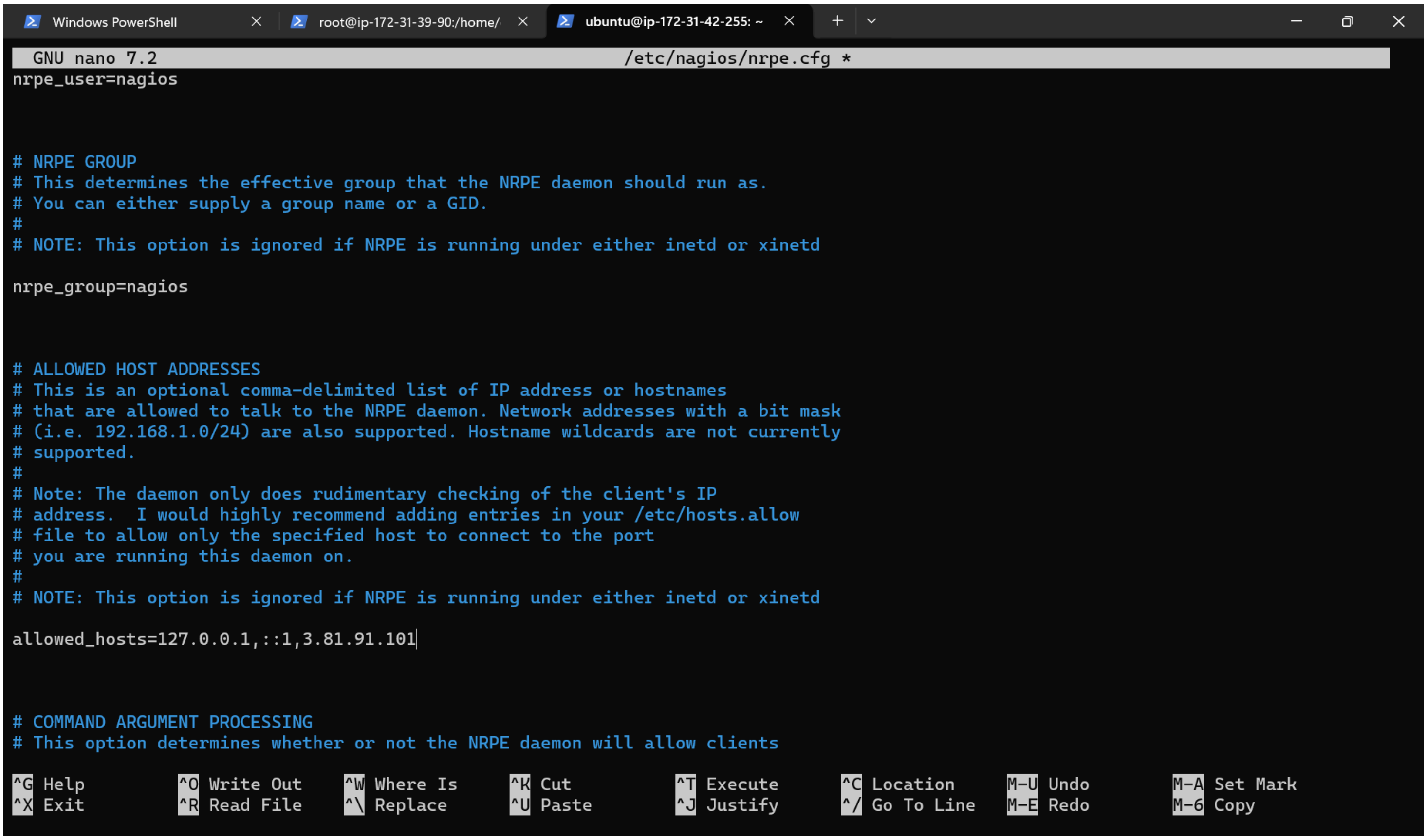


```
Creating config file /etc/nagios-plugins/config/netware.cfg with new version

Creating config file /etc/nagios-plugins/config/nt.cfg with new version

Creating config file /etc/nagios-plugins/config/pgsql.cfg with new version

Creating config file /etc/nagios-plugins/config/radius.cfg with new version

Creating config file /etc/nagios-plugins/config/rpc-nfs.cfg with new version

Creating config file /etc/nagios-plugins/config/snmp.cfg with new version
Setting up monitoring-plugins (2.3.5-1ubuntu3) ...
Setting up libldb2:amd64 (2:2.8.0+samba4.19.5+dfsg-4ubuntu9) ...
Setting up libavahi-client3:amd64 (0.8-13ubuntu6) ...
Setting up samba-libs:amd64 (2:4.19.5+dfsg-4ubuntu9) ...
Setting up python3-ldb (2:2.8.0+samba4.19.5+dfsg-4ubuntu9) ...
Setting up samba-dsdb-modules:amd64 (2:4.19.5+dfsg-4ubuntu9) ...
Setting up libsmbclient0:amd64 (2:4.19.5+dfsg-4ubuntu9) ...
Setting up libcups2t64:amd64 (2.4.7-1.2ubuntu7.3) ...
Setting up python3-samba (2:4.19.5+dfsg-4ubuntu9) ...
Setting up smbclient (2:4.19.5+dfsg-4ubuntu9) ...
Setting up samba-common-bin (2:4.19.5+dfsg-4ubuntu9) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-42-255:~$
```

Step 12: Open nrpe.cfg file to make changes.Under allowed_hosts, add your nagios host IP address.
sudo nano /etc/nagios/nrpe.cfg



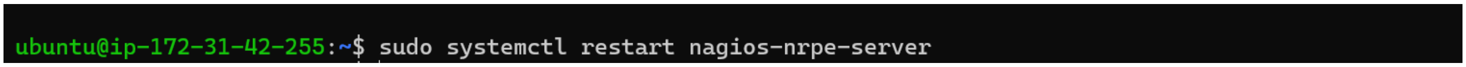
```
  GNU nano 7.2                                           /etc/nagios/nrpe.cfg
#############################################################################
#
#  Sample NRPE Config File
#
#  Notes:
#
#  This is a sample configuration file for the NRPE daemon.  It needs to be
#  located on the remote host that is running the NRPE daemon, not the host
#  from which the check_nrpe client is being executed.
#
#############################################################################


# LOG FACILITY
# The syslog facility that should be used for logging purposes.

log_facility=daemon



# LOG FILE
# If a log file is specified in this option, nrpe will write to
# that file instead of using syslog.

#log_file=/var/log/nrpe.log



# DEBUGGING OPTION
# This option determines whether or not debugging messages are logged to the
# syslog facility.
# Values: 0=debugging off, 1=debugging on
```



```
  GNU nano 7.2                                           /etc/nagios/nrpe.cfg *
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,::1,3.81.91.101



# COMMAND ARGUMENT PROCESSING
# This option determines whether or not the NRPE daemon will allow clients

^G Help          ^O Write Out     ^W Where Is      ^K Cut           ^T Execute       ^C Location      M-U Undo         M-A Set Mark
^X Exit          ^R Read File     ^\ Replace       ^U Paste         ^J Justify       ^/ Go To Line    M-E Redo         M-6 Copy
```

Step 13: Now restart the NRPE server by this command.

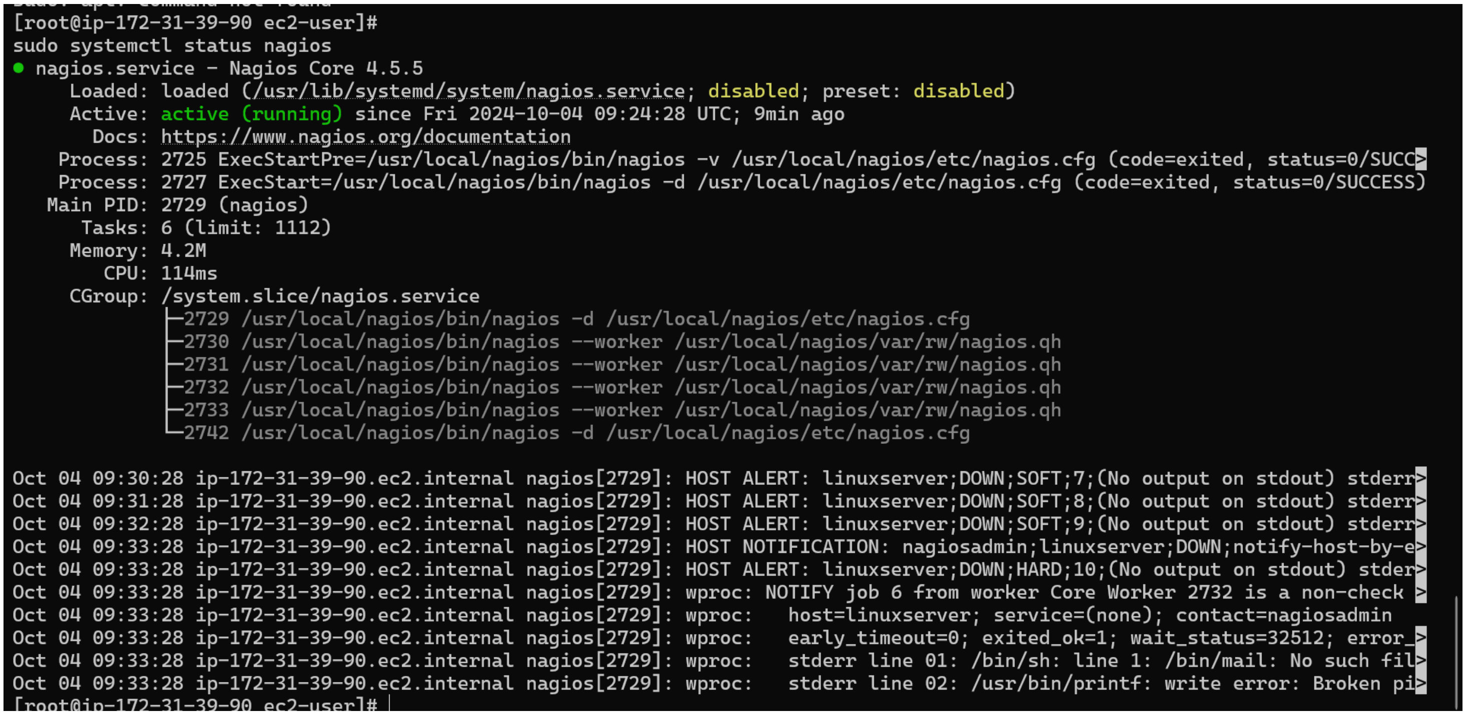
sudo systemctl restart nagios-nrpe-server



```
ubuntu@ip-172-31-42-255:~$ sudo systemctl restart nagios-nrpe-server
```

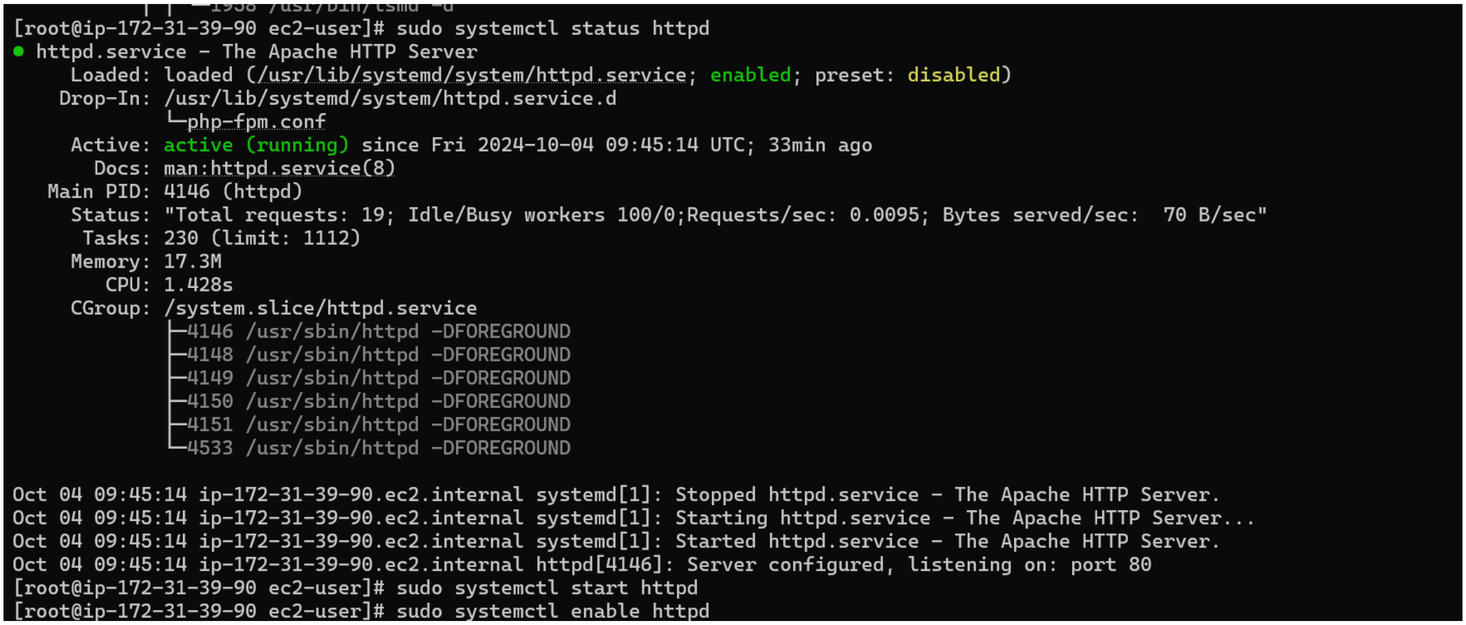
Step 14: Now again check the status of Nagios by running this command on Nagios-host and also check httpd is active and run the command to active it.

sudo systemctl status nagios



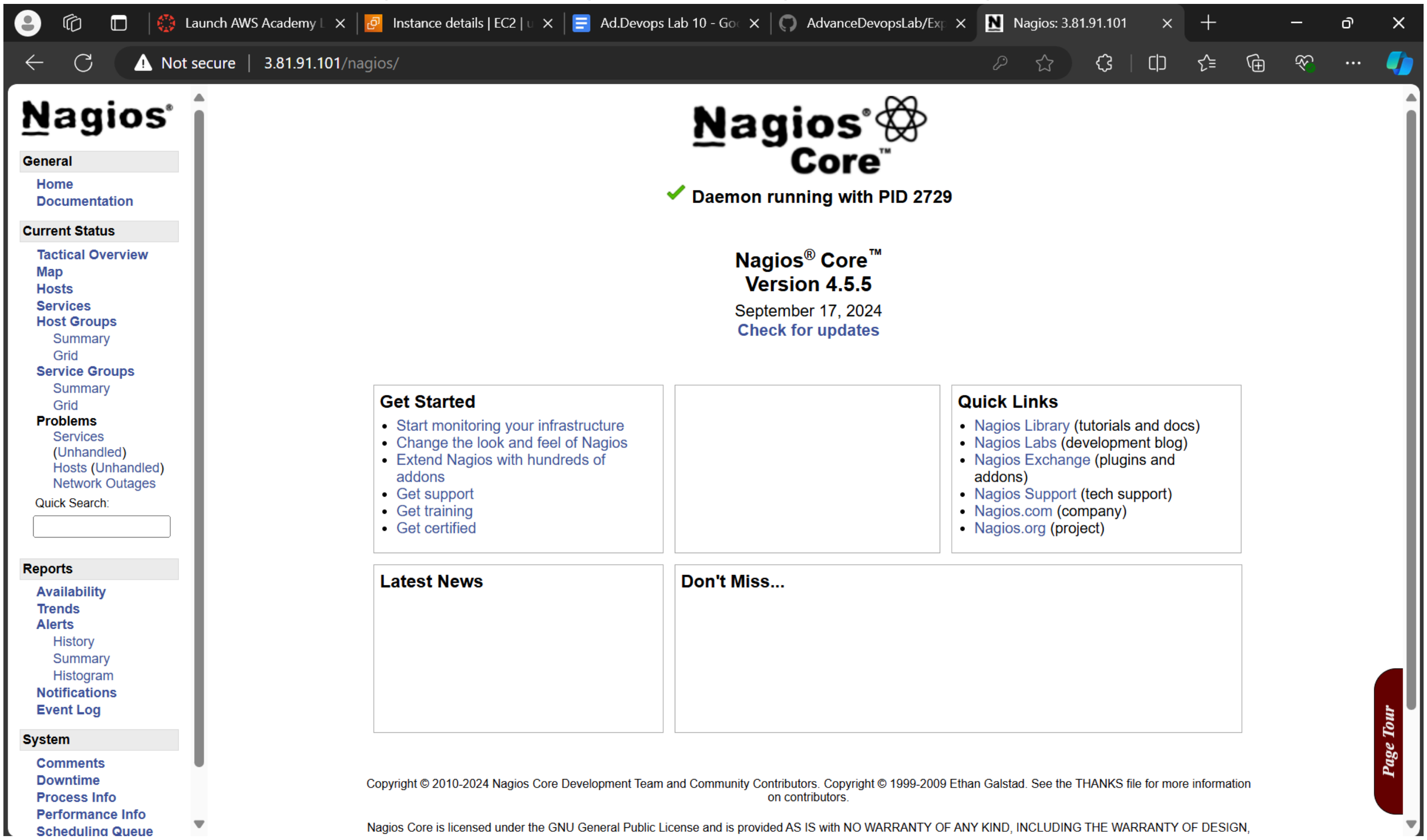
```
[root@ip-172-31-39-90 ec2-user]#
sudo systemctl status nagios
● nagios.service - Nagios Core 4.5.5
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; disabled; preset: disabled)
     Active: active (running) since Fri 2024-10-04 09:24:28 UTC; 9min ago
       Docs: https://www.nagios.org/documentation
    Process: 2725 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCC>
    Process: 2727 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 2729 (nagios)
      Tasks: 6 (limit: 1112)
     Memory: 4.2M
        CPU: 114ms
     CGroup: /system.slice/nagios.service
             ├─2729 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─2730 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─2731 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─2732 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─2733 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─2742 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Oct 04 09:30:28 ip-172-31-39-90.ec2.internal nagios[2729]: HOST ALERT: linuxserver;DOWN;SOFT;7;(No output on stdout) stderr>
Oct 04 09:31:28 ip-172-31-39-90.ec2.internal nagios[2729]: HOST ALERT: linuxserver;DOWN;SOFT;8;(No output on stdout) stderr>
Oct 04 09:32:28 ip-172-31-39-90.ec2.internal nagios[2729]: HOST ALERT: linuxserver;DOWN;SOFT;9;(No output on stdout) stderr>
Oct 04 09:33:28 ip-172-31-39-90.ec2.internal nagios[2729]: HOST NOTIFICATION: nagiosadmin;linuxserver;DOWN;notify-host-by-e>
Oct 04 09:33:28 ip-172-31-39-90.ec2.internal nagios[2729]: HOST ALERT: linuxserver;DOWN;HARD;10;(No output on stdout) stder>
Oct 04 09:33:28 ip-172-31-39-90.ec2.internal nagios[2729]: wproc: NOTIFY job 6 from worker Core Worker 2732 is a non-check >
Oct 04 09:33:28 ip-172-31-39-90.ec2.internal nagios[2729]: wproc:   host=linuxserver; service=(none); contact=nagiosadmin
Oct 04 09:33:28 ip-172-31-39-90.ec2.internal nagios[2729]: wproc:   early_timeout=0; exited_ok=1; wait_status=32512; error_>
Oct 04 09:33:28 ip-172-31-39-90.ec2.internal nagios[2729]: wproc:   stderr line 01: /bin/sh: line 1: /bin/mail: No such fil>
Oct 04 09:33:28 ip-172-31-39-90.ec2.internal nagios[2729]: wproc:   stderr line 02: /usr/bin/printf: write error: Broken pi>
[root@ip-172-31-39-90 ec2-user]#
```

sudo systemctl status httpd
sudo systemctl start httpd
sudo systemctl enable httpd



```
        │ │ └─1958 /usr/bin/tsmd -d
[root@ip-172-31-39-90 ec2-user]# sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
    Drop-In: /usr/lib/systemd/system/httpd.service.d
             └─php-fpm.conf
     Active: active (running) since Fri 2024-10-04 09:45:14 UTC; 33min ago
       Docs: man:httpd.service(8)
   Main PID: 4146 (httpd)
     Status: "Total requests: 19; Idle/Busy workers 100/0;Requests/sec: 0.0095; Bytes served/sec:  70 B/sec"
      Tasks: 230 (limit: 1112)
     Memory: 17.3M
        CPU: 1.428s
     CGroup: /system.slice/httpd.service
             ├─4146 /usr/sbin/httpd -DFOREGROUND
             ├─4148 /usr/sbin/httpd -DFOREGROUND
             ├─4149 /usr/sbin/httpd -DFOREGROUND
             ├─4150 /usr/sbin/httpd -DFOREGROUND
             ├─4151 /usr/sbin/httpd -DFOREGROUND
             └─4533 /usr/sbin/httpd -DFOREGROUND

Oct 04 09:45:14 ip-172-31-39-90.ec2.internal systemd[1]: Stopped httpd.service - The Apache HTTP Server.
Oct 04 09:45:14 ip-172-31-39-90.ec2.internal systemd[1]: Starting httpd.service - The Apache HTTP Server...
Oct 04 09:45:14 ip-172-31-39-90.ec2.internal systemd[1]: Started httpd.service - The Apache HTTP Server.
Oct 04 09:45:14 ip-172-31-39-90.ec2.internal httpd[4146]: Server configured, listening on: port 80
[root@ip-172-31-39-90 ec2-user]# sudo systemctl start httpd
[root@ip-172-31-39-90 ec2-user]# sudo systemctl enable httpd
```

Step 15: Now to check Nagios dashboard go to http://<Nagios-host ip>/nagios .



✓ Daemon running with PID 2729

Nagios® Core™
Version 4.5.5
September 17, 2024
Check for updates

Get Started

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

Quick Links

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

Latest News

Don't Miss...

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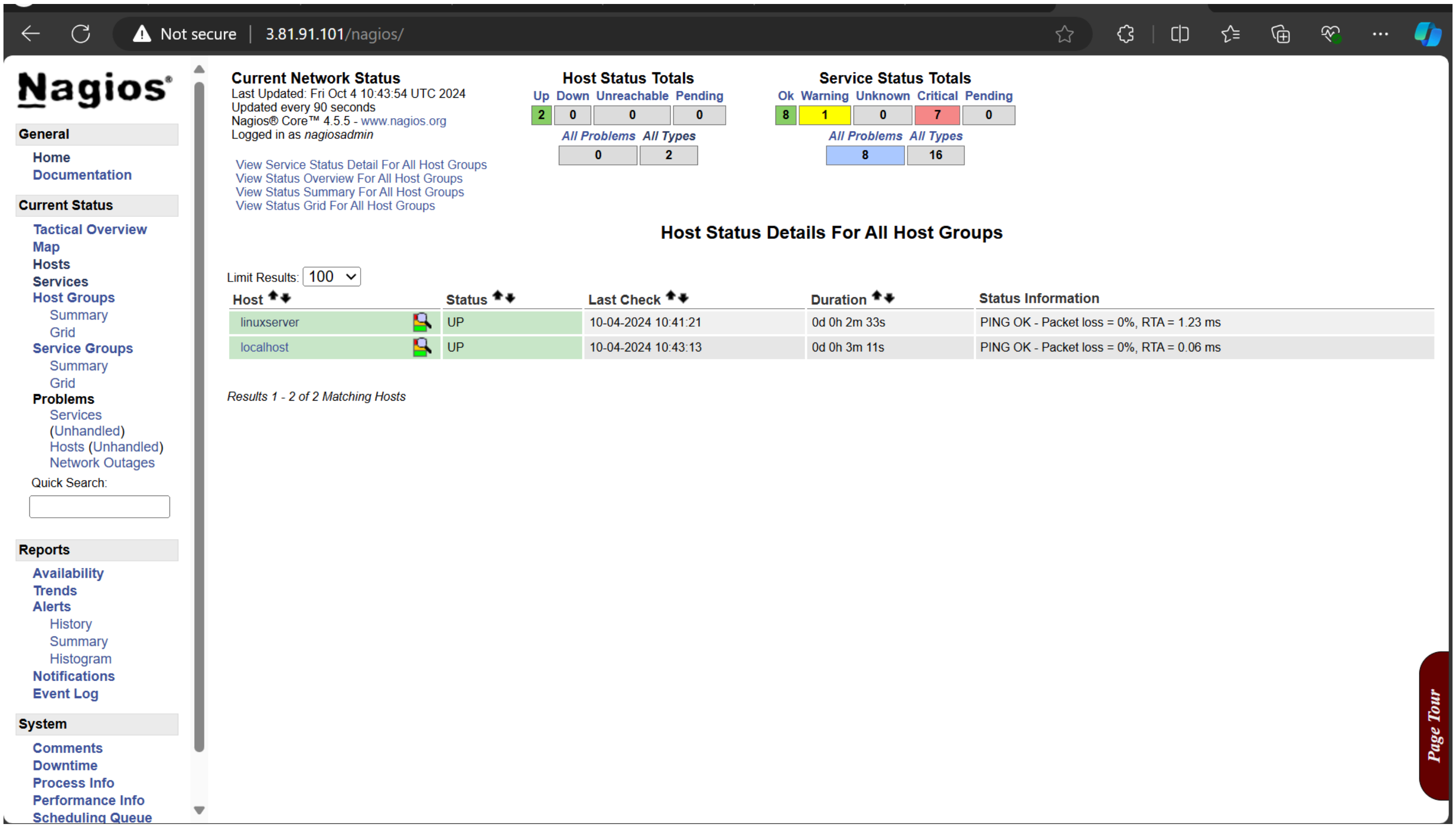
Now Click on Hosts from left side panel



Current Network Status
Last Updated: Fri Oct 4 10:43:54 UTC 2024
Updated every 90 seconds
Nagios® Core™ 4.5.5 - www.nagios.org
Logged in as *nagiosadmin*

View Service Status Detail For All Host Groups
View Status Overview For All Host Groups
View Status Summary For All Host Groups
View Status Grid For All Host Groups

Host Status Totals

Up	Down	Unreachable	Pending
2	0	0	0

All Problems	*All Types*
0	2

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
8	1	0	7	0

All Problems	*All Types*
8	16

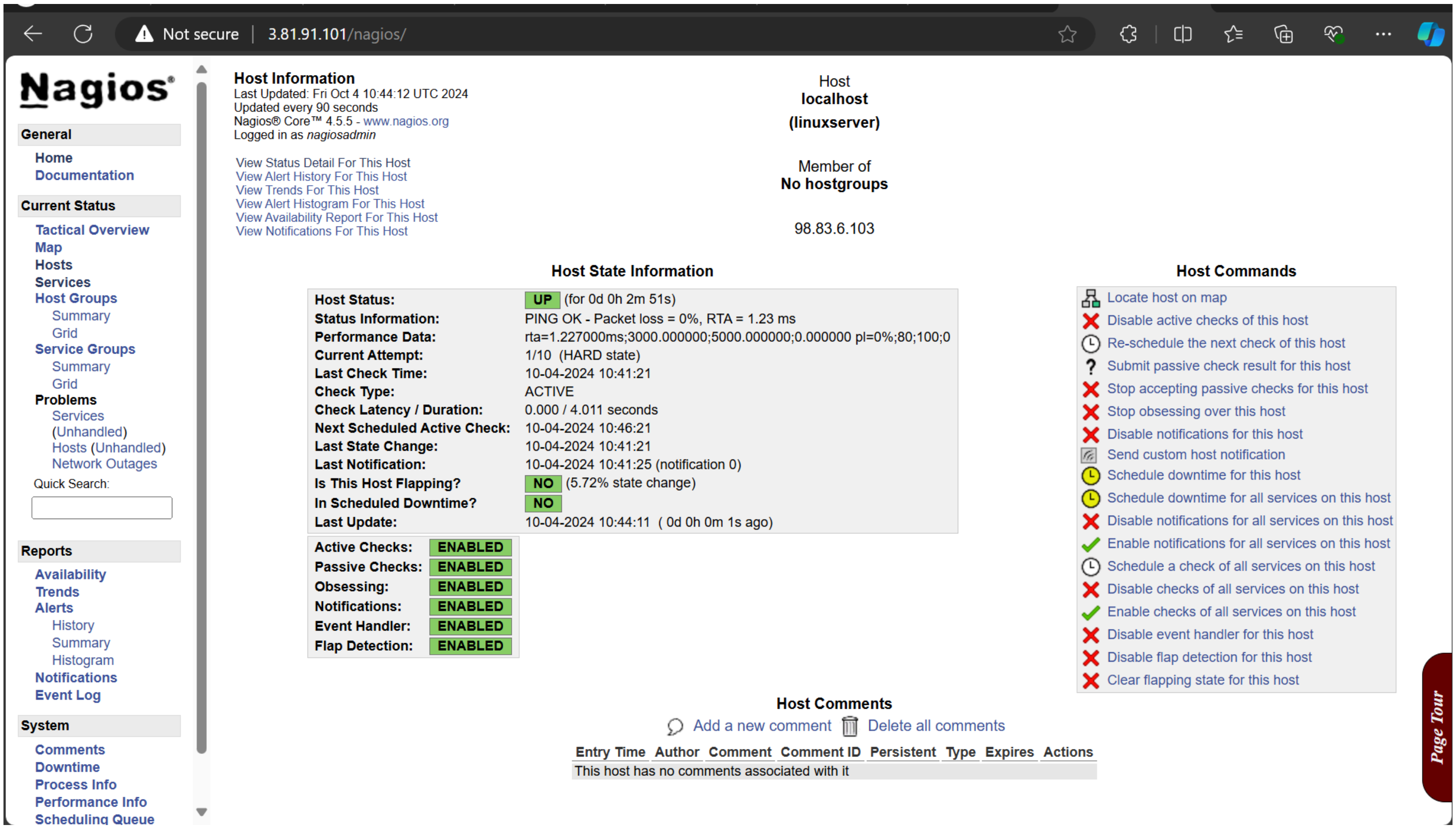
Host Status Details For All Host Groups

Limit Results: 100

Host	Status	Last Check	Duration	Status Information
linuxserver	UP	10-04-2024 10:41:21	0d 0h 2m 33s	PING OK - Packet loss = 0%, RTA = 1.23 ms
localhost	UP	10-04-2024 10:43:13	0d 0h 3m 11s	PING OK - Packet loss = 0%, RTA = 0.06 ms

Results 1 - 2 of 2 Matching Hosts

We can see our linuxserver now click on it we can see the host information.



Host Information
Last Updated: Fri Oct 4 10:44:12 UTC 2024
Updated every 90 seconds
Nagios® Core™ 4.5.5 - www.nagios.org
Logged in as *nagiosadmin*

View Status Detail For This Host
View Alert History For This Host
View Trends For This Host
View Alert Histogram For This Host
View Availability Report For This Host
View Notifications For This Host

Host
localhost
(linuxserver)

Member of
No hostgroups

98.83.6.103

Host State Information

Host Status:	UP (for 0d 0h 2m 51s)
Status Information:	PING OK - Packet loss = 0%, RTA = 1.23 ms
Performance Data:	rta=1.227000ms;3000.000000;5000.000000;0.000000 pl=0%;80;100;0
Current Attempt:	1/10 (HARD state)
Last Check Time:	10-04-2024 10:41:21
Check Type:	ACTIVE
Check Latency / Duration:	0.000 / 4.011 seconds
Next Scheduled Active Check:	10-04-2024 10:46:21
Last State Change:	10-04-2024 10:41:21
Last Notification:	10-04-2024 10:41:25 (notification 0)
Is This Host Flapping?	NO (5.72% state change)
In Scheduled Downtime?	NO
Last Update:	10-04-2024 10:44:11 (0d 0h 0m 1s ago)

Active Checks:	ENABLED
Passive Checks:	ENABLED
Obsessing:	ENABLED
Notifications:	ENABLED
Event Handler:	ENABLED
Flap Detection:	ENABLED

Host Commands

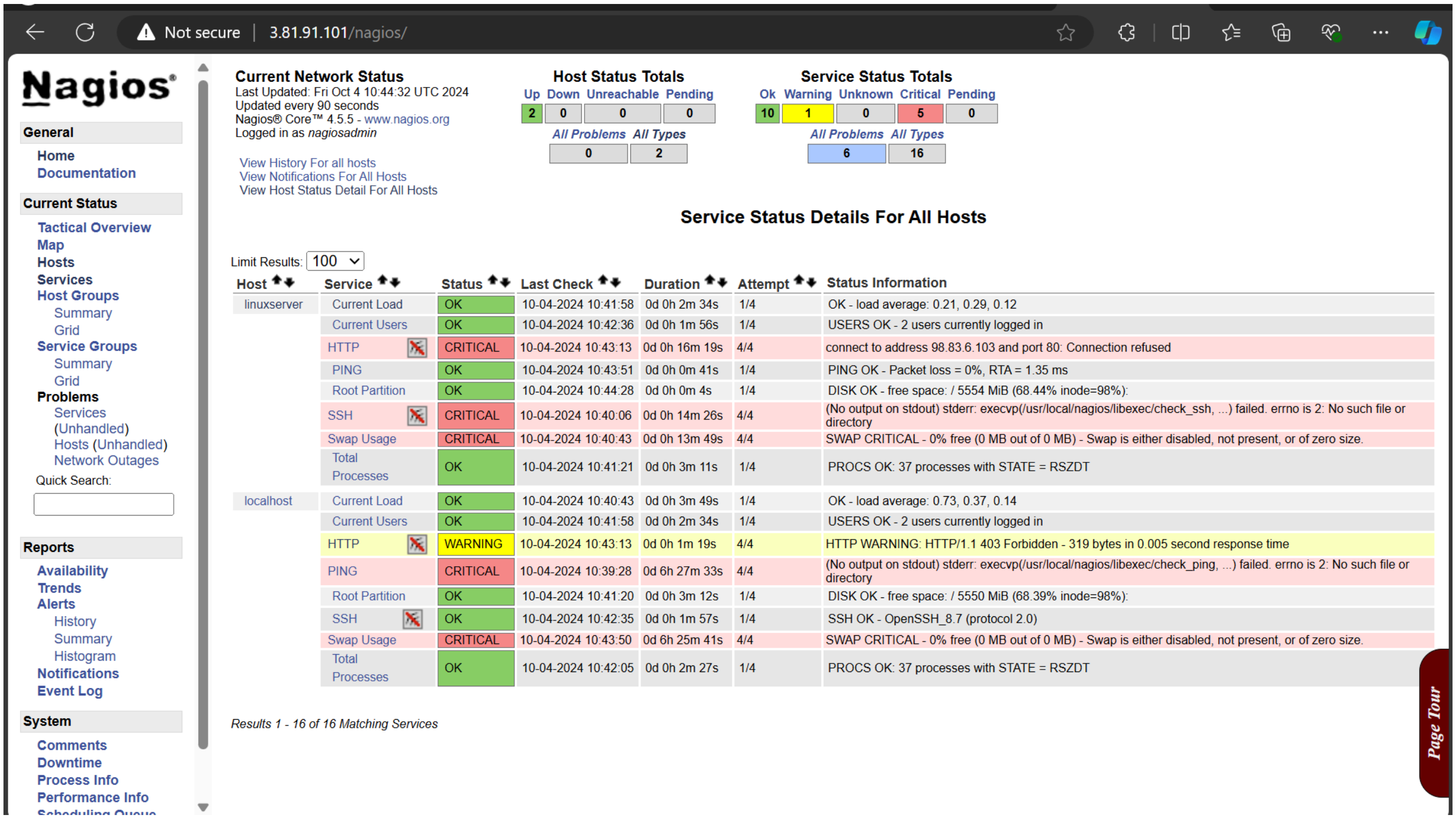
- Locate host on map
- Disable active checks of this host
- Re-schedule the next check of this host
- Submit passive check result for this host
- Stop accepting passive checks for this host
- Stop obsessing over this host
- Disable notifications for this host
- Send custom host notification
- Schedule downtime for this host
- Schedule downtime for all services on this host
- Disable notifications for all services on this host
- Enable notifications for all services on this host
- Schedule a check of all services on this host
- Disable checks of all services on this host
- Enable checks of all services on this host
- Disable event handler for this host
- Disable flap detection for this host
- Clear flapping state for this host

Host Comments

Add a new comment Delete all comments

Entry Time	Author	Comment	Comment ID	Persistent	Type	Expires	Actions
This host has no comments associated with it							

Current Network Status



Current Network Status
Last Updated: Fri Oct 4 10:44:32 UTC 2024
Updated every 90 seconds
Nagios® Core™ 4.5.5 - www.nagios.org
Logged in as *nagiosadmin*

View History For all hosts
View Notifications For All Hosts
View Host Status Detail For All Hosts

Host Status Totals

Up	Down	Unreachable	Pending
2	0	0	0

All Problems	*All Types*
0	2

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
10	1	0	5	0

All Problems	*All Types*
6	16

Service Status Details For All Hosts

Limit Results: 100

Host	Service	Status	Last Check	Duration	Attempt	Status Information
linuxserver	Current Load	OK	10-04-2024 10:41:58	0d 0h 2m 34s	1/4	OK - load average: 0.21, 0.29, 0.12
	Current Users	OK	10-04-2024 10:42:36	0d 0h 1m 56s	1/4	USERS OK - 2 users currently logged in
	HTTP	CRITICAL	10-04-2024 10:43:13	0d 0h 16m 19s	4/4	connect to address 98.83.6.103 and port 80: Connection refused
	PING	OK	10-04-2024 10:43:51	0d 0h 0m 41s	1/4	PING OK - Packet loss = 0%, RTA = 1.35 ms
	Root Partition	OK	10-04-2024 10:44:28	0d 0h 0m 4s	1/4	DISK OK - free space: / 5554 MiB (68.44% inode=98%):
	SSH	CRITICAL	10-04-2024 10:40:06	0d 0h 14m 26s	4/4	(No output on stdout) stderr: execvp(/usr/local/nagios/libexec/check_ssh, ...) failed. errno is 2: No such file or directory
	Swap Usage	CRITICAL	10-04-2024 10:40:43	0d 0h 13m 49s	4/4	SWAP CRITICAL - 0% free (0 MB out of 0 MB) - Swap is either disabled, not present, or of zero size.
	Total Processes	OK	10-04-2024 10:41:21	0d 0h 3m 11s	1/4	PROCS OK: 37 processes with STATE = RSZDT
localhost	Current Load	OK	10-04-2024 10:40:43	0d 0h 3m 49s	1/4	OK - load average: 0.73, 0.37, 0.14
	Current Users	OK	10-04-2024 10:41:58	0d 0h 2m 34s	1/4	USERS OK - 2 users currently logged in
	HTTP	WARNING	10-04-2024 10:43:13	0d 0h 1m 19s	4/4	HTTP WARNING: HTTP/1.1 403 Forbidden - 319 bytes in 0.005 second response time
	PING	CRITICAL	10-04-2024 10:39:28	0d 6h 27m 33s	4/4	(No output on stdout) stderr: execvp(/usr/local/nagios/libexec/check_ping, ...) failed. errno is 2: No such file or directory
	Root Partition	OK	10-04-2024 10:41:20	0d 0h 3m 12s	1/4	DISK OK - free space: / 5550 MiB (68.39% inode=98%):
	SSH	OK	10-04-2024 10:42:35	0d 0h 1m 57s	1/4	SSH OK - OpenSSH_8.7 (protocol 2.0)
	Swap Usage	CRITICAL	10-04-2024 10:43:50	0d 6h 25m 41s	4/4	SWAP CRITICAL - 0% free (0 MB out of 0 MB) - Swap is either disabled, not present, or of zero size.
	Total Processes	OK	10-04-2024 10:42:05	0d 0h 2m 27s	1/4	PROCS OK: 37 processes with STATE = RSZDT

Results 1 - 16 of 16 Matching Services

Conclusion: In conclusion, the experiment focused on monitoring ports, services, and a Linux server using Nagios. Through the step-by-step process, we successfully configured Nagios to monitor essential network services on the Linux server. By setting up both the Nagios host and client, we were able to track system performance, ensure service availability, and monitor key metrics like CPU and memory usage.