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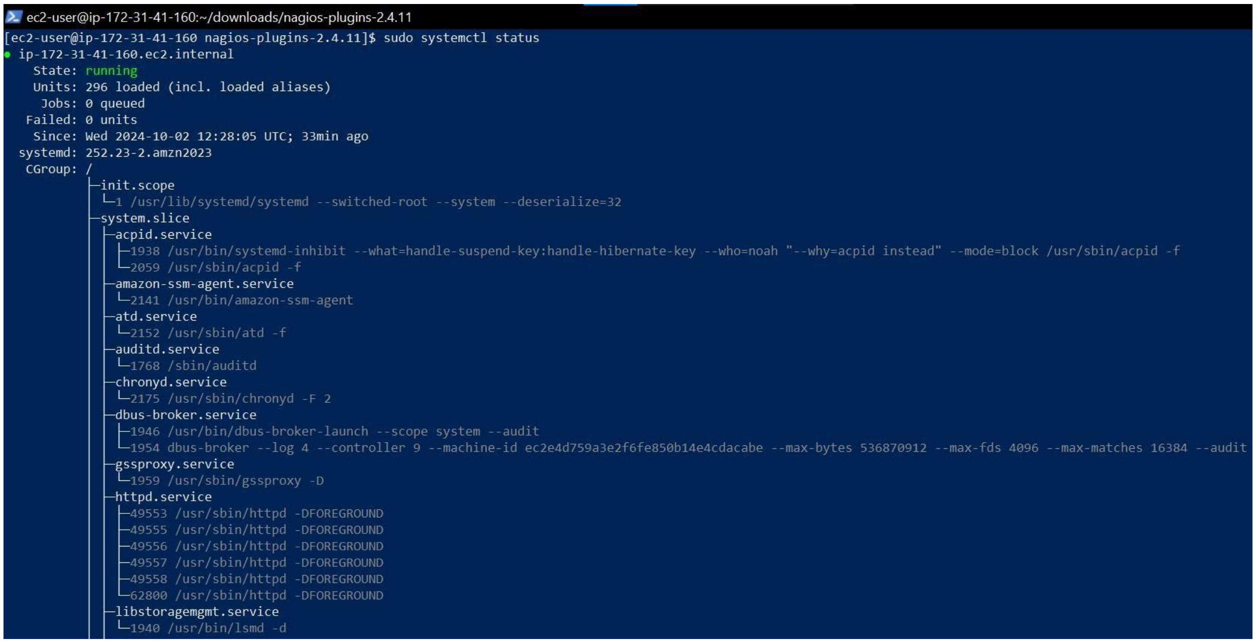
# Adv DevOps Exp 10

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

## Monitoring Using Nagios:

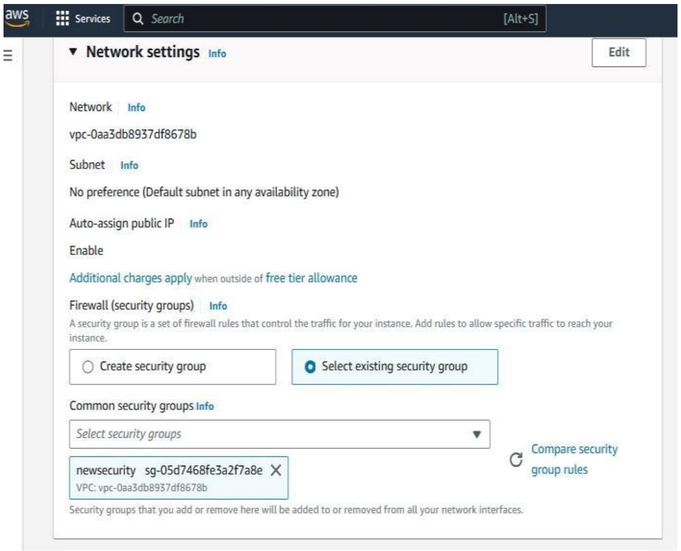
**Step 1:** To Confirm Nagios is running on the server side Perform the following command on your Amazon Linux Machine (Nagios-host). Run this command **sudo systemctl status**



```
ec2-user@ip-172-31-41-160:~/downloads/nagios-plugins-2.4.11
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$ sudo systemctl status
● ip-172-31-41-160.ec2.internal
    State: running
    Units: 296 loaded (incl. loaded aliases)
     Jobs: 0 queued
   Failed: 0 units
    Since: Wed 2024-10-02 12:28:05 UTC; 33min ago
  systemd: 252.23-2.amzn2023
   CGroup: /
           ├─init.scope
           │ └─1 /usr/lib/systemd/systemd --switched-root --system --deserialize=32
           ├─system.slice
           │ ├─acpid.service
           │ │ ├─1938 /usr/bin/systemd-inhibit --what=handle-suspend-key:handle-hibernate-key --who=noah "--why=acpid instead" --mode=block /usr/sbin/acpid -f
           │ │ └─2059 /usr/sbin/acpid -f
           │ ├─amazon-ssm-agent.service
           │ │ └─2141 /usr/bin/amazon-ssm-agent
           │ ├─atd.service
           │ │ └─2152 /usr/sbin/atd -f
           │ ├─auditd.service
           │ │ └─1768 /sbin/auditd
           │ ├─chronyd.service
           │ │ └─2175 /usr/sbin/chronyd -F 2
           │ ├─dbus-broker.service
           │ │ ├─1946 /usr/bin/dbus-broker-launch --scope system --audit
           │ │ └─1954 dbus-broker --log 4 --controller 9 --machine-id ec2e4d759a3e2f6fe850b14e4cdacabe --max-bytes 536870912 --max-fds 4096 --max-matches 16384 --audit
           │ ├─gssproxy.service
           │ │ └─1959 /usr/sbin/gssproxy -D
           │ ├─httpd.service
           │ │ ├─49553 /usr/sbin/httpd -DFOREGROUND
           │ │ ├─49555 /usr/sbin/httpd -DFOREGROUND
           │ │ ├─49556 /usr/sbin/httpd -DFOREGROUND
           │ │ ├─49557 /usr/sbin/httpd -DFOREGROUND
           │ │ ├─49558 /usr/sbin/httpd -DFOREGROUND
           │ │ └─62800 /usr/sbin/httpd -DFOREGROUND
           │ ├─libstoragemgmt.service
           │ │ └─1940 /usr/bin/lsmd -d
```

**Step 2:** Before we begin,

To monitor a Linux machine, create an **Ubuntu 20.04 server** EC2 Instance in AWS. Provide it with the **same security group** as the Nagios Host and name it ‘nagios-client’ alongside the host.



▼ Network settings Info

Network Info
vpc-0aa3db8937df8678b

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.

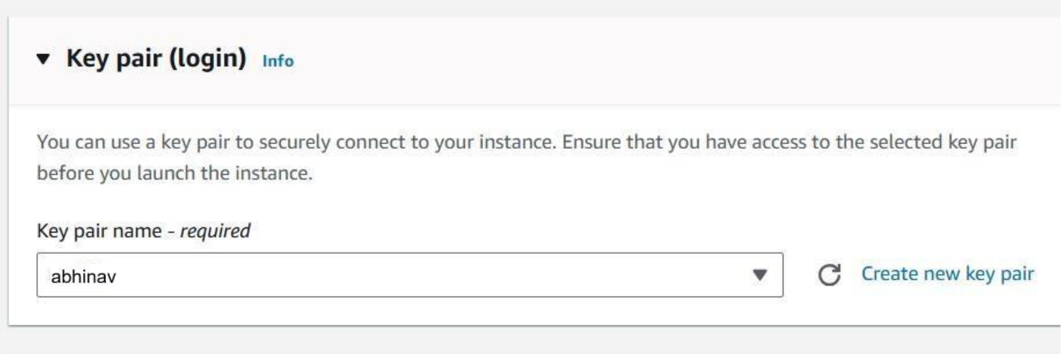
○ Create security group ● Select existing security group

Common security groups Info
Select security groups ▼

newsecurity sg-05d7468fe3a2f7a8e ✕
VPC: vpc-0aa3db8937df8678b

Compare security group rules

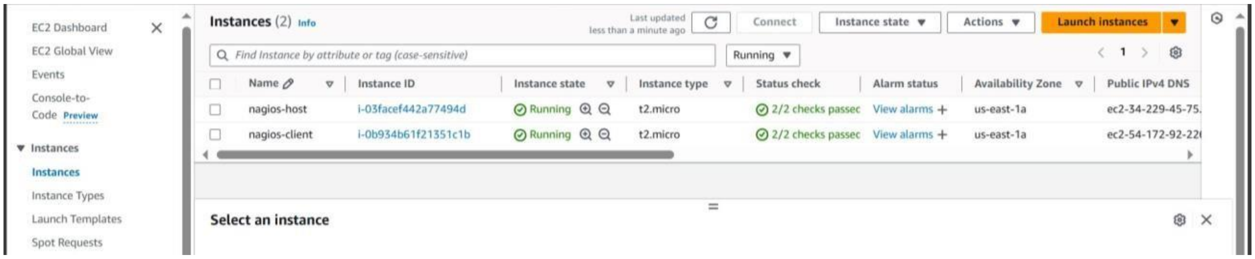
Security groups that you add or remove here will be added to or removed from all your network interfaces.



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*

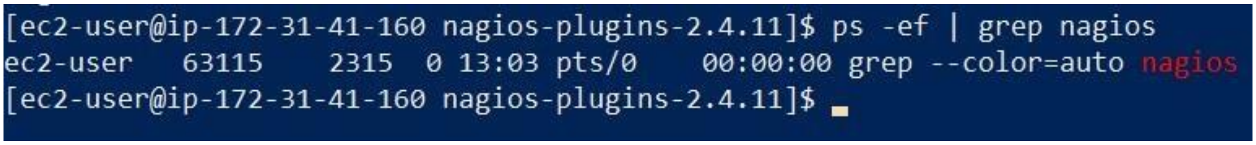
abhinav ▼



| □ | Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv4 DNS |
|---|---|---|---|---|---|---|---|---|
| □ | nagios-host | i-03facef442a77494d | Running | t2.micro | 2/2 checks passec | View alarms + | us-east-1a | ec2-34-229-45-75. |
| □ | nagios-client | i-0b934b61f21351c1b | Running | t2.micro | 2/2 checks passec | View alarms + | us-east-1a | ec2-54-172-92-22( |

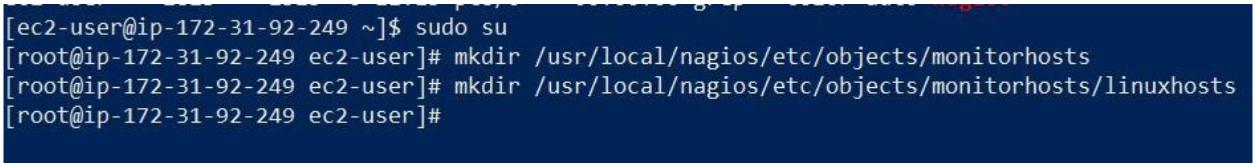
**Step 3: TO BE DONE IN THE Nagios-host TERMINAL**

In the nagios-host terminal, run this command **ps -ef | grep nagios**



```
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$ ps -ef | grep nagios
ec2-user   63115    2315  0 13:03 pts/0    00:00:00 grep --color=auto nagios
[ec2-user@ip-172-31-41-160 nagios-plugins-2.4.11]$
```

To become a root user, run **'sudo su'** and make two directories using the following commands. If one is running these commands in windows powershell, make sure that he/she copies it line by line as powershell might make an error while interpreting multiple lines **mkdir /usr/local/nagios/etc/objects/monitorhosts mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts**



```
[ec2-user@ip-172-31-92-249 ~]$ sudo su
[root@ip-172-31-92-249 ec2-user]# mkdir /usr/local/nagios/etc/objects/monitorhosts
[root@ip-172-31-92-249 ec2-user]# mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts
[root@ip-172-31-92-249 ec2-user]#
```

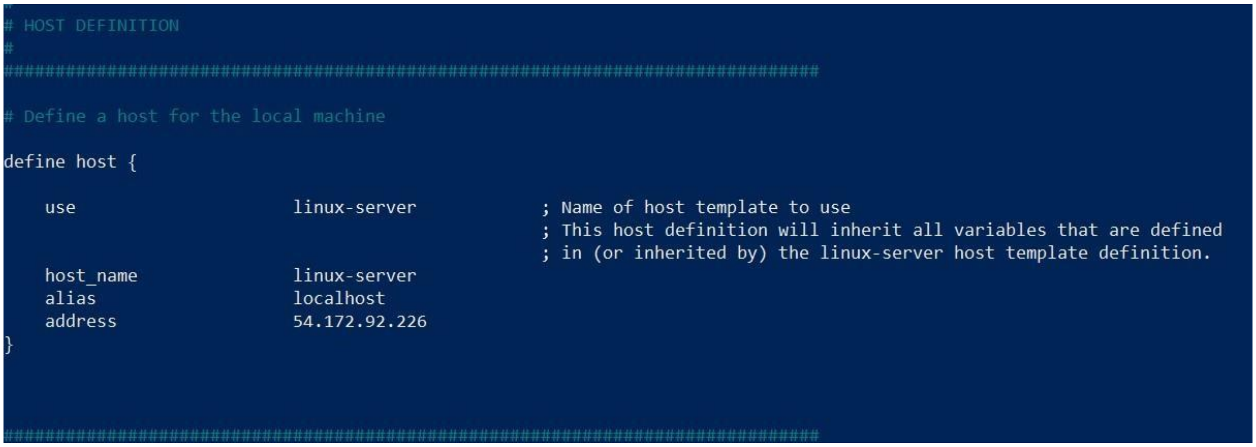
Copy the sample localhost.cfg file to linuxhost folder. Use the following mentioned command to achieve it **cp /usr/local/nagios/etc/objects/localhost.cfg /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg**

Open linuxserver.cfg using nano and make the following changes. This is a conf type file in which we will have to modify the configurations in way which will help us specify the hosts and clients to be monitored

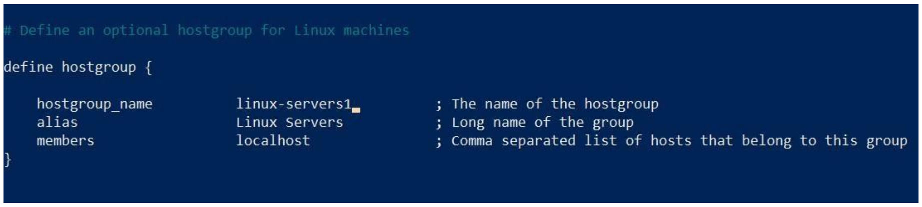
**nano /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg**

**Changes to be made:**

1. Change the hostname to linux-server (EVERYWHERE ON THE FILE)
2. Change address to the public IP address of your LINUX CLIENT.
3. Change hostgroup_name under hostgroup to linux-servers1



```
# HOST DEFINITION
#
###############################################################################

# 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               linux-server
    alias                   localhost
    address                 54.172.92.226
}



###############################################################################
```

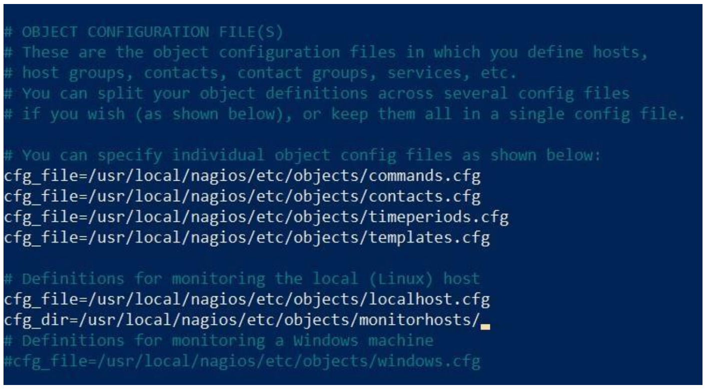


```
# Define an optional hostgroup for Linux machines

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
}
```

**IMP: Everywhere else on the file, change the hostname to linux-server instead of localhost.**

Open the Nagios Config file and add the following line **nano /usr/local/nagios/etc/nagios.cfg**

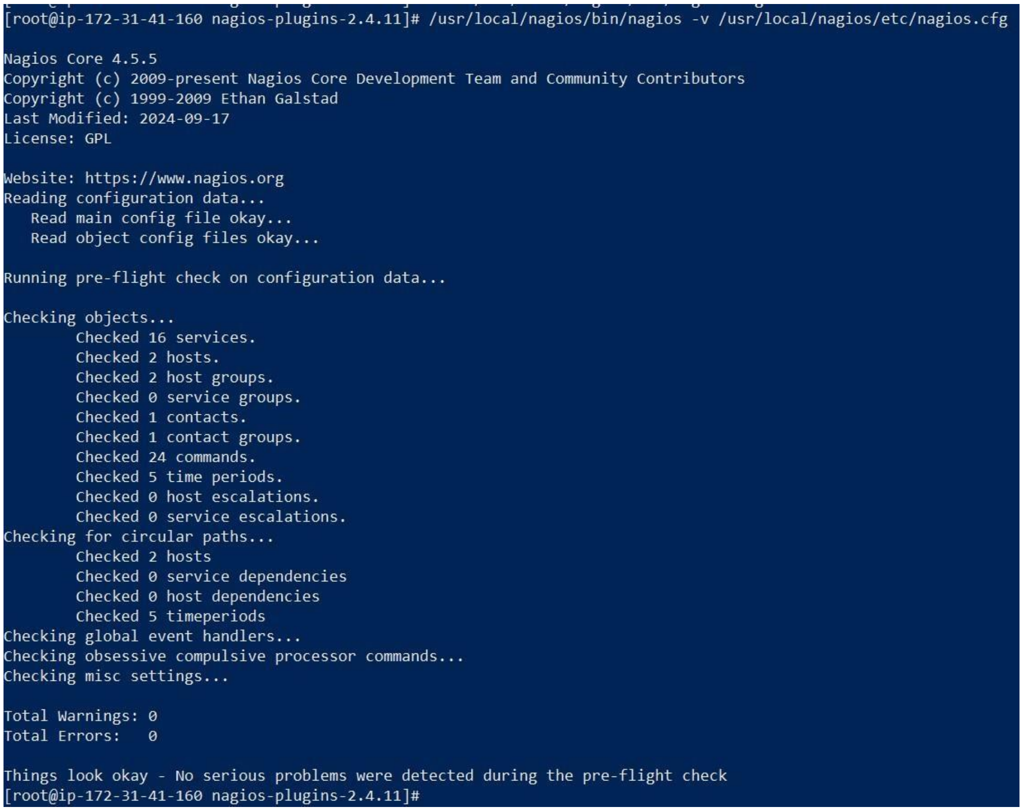
Add the following line in the file and save **cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/**



```
# 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

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

Verify the configuration files by running the following command

**/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg**

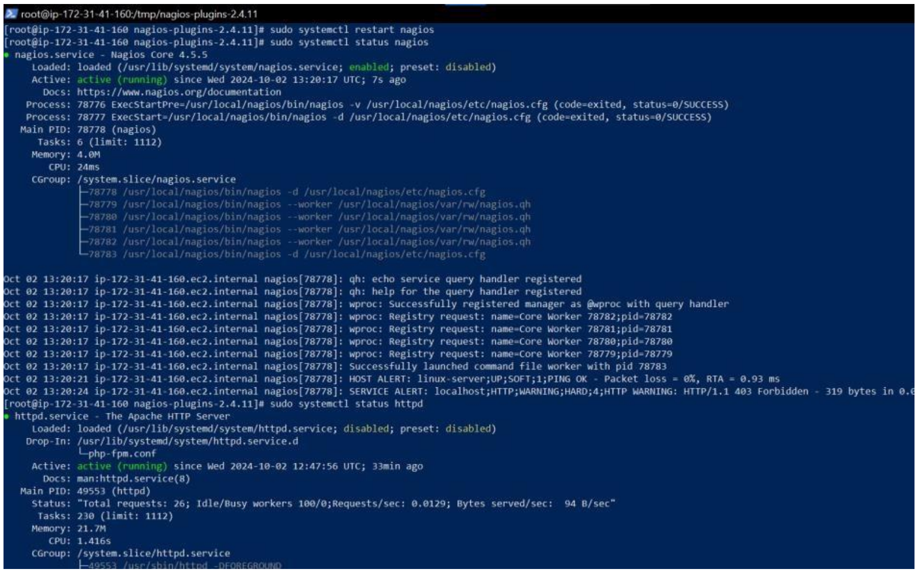


```
[root@ip-172-31-41-160 nagios-plugins-2.4.11]# /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

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...
   Read object config files okay...

Running pre-flight check on configuration data...

Checking objects...
        Checked 16 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-172-31-41-160 nagios-plugins-2.4.11]#
```

You are good to go if there are no errors.

Restart the nagios service **service nagios restart**

And by running sudo systemctl status nagios, we can again check whether our server is running or not

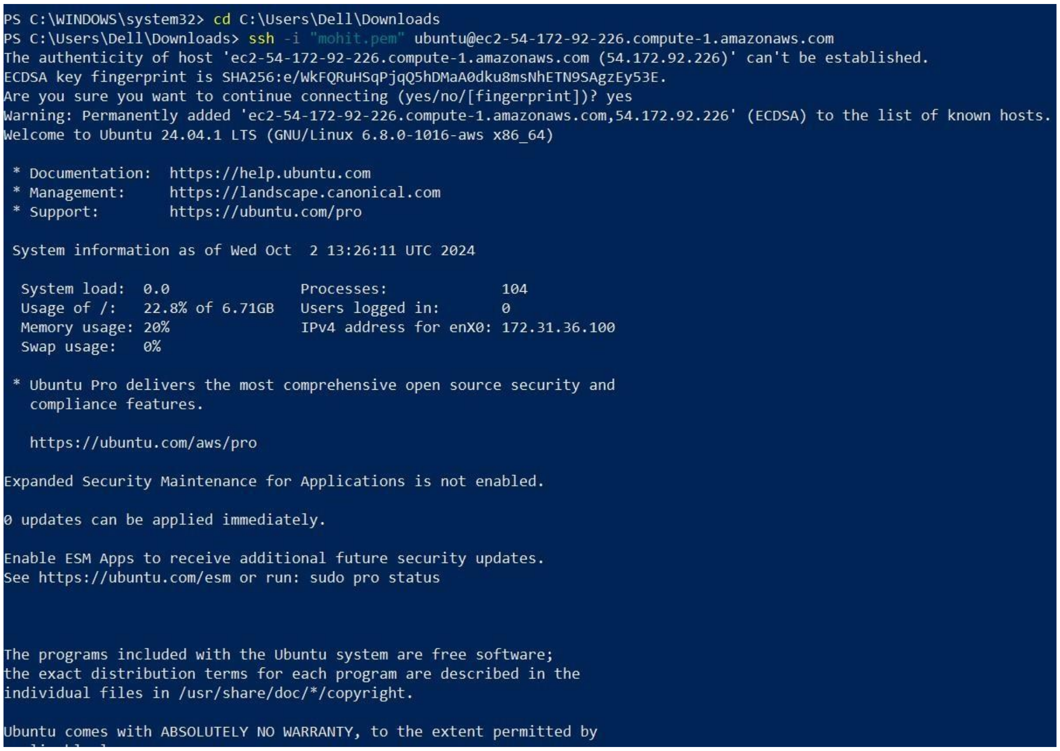


```
[root@ip-172-31-41-160 nagios-plugins-2.4.11]# sudo systemctl restart nagios
[root@ip-172-31-41-160 nagios-plugins-2.4.11]# sudo systemctl status nagios
● nagios.service - Nagios Core 4.5.5
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: disabled)
     Active: active (running) since Wed 2024-10-02 13:20:17 UTC; 7s ago
       Docs: https://www.nagios.org/documentation
    Process: 78776 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
    Process: 78777 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 78778 (nagios)
      Tasks: 6 (limit: 1112)
     Memory: 4.0M
        CPU: 24ms
     CGroup: /system.slice/nagios.service
             ├─78778 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─78779 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─78780 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─78781 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─78782 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─78783 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: qh: echo service query handler registered
Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: qh: help for the query handler registered
Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: wproc: Successfully registered manager as @wproc with query handler
Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: wproc: Registry request: name=Core Worker 78782;pid=78782
Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: wproc: Registry request: name=Core Worker 78781;pid=78781
Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: wproc: Registry request: name=Core Worker 78780;pid=78780
Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: wproc: Registry request: name=Core Worker 78779;pid=78779
Oct 02 13:20:17 ip-172-31-41-160.ec2.internal nagios[78778]: Successfully launched command file worker with pid 78783
Oct 02 13:20:21 ip-172-31-41-160.ec2.internal nagios[78778]: HOST ALERT: linux-server;UP;SOFT;1;PING OK - Packet loss = 0%, RTA = 0.93 ms
Oct 02 13:20:24 ip-172-31-41-160.ec2.internal nagios[78778]: SERVICE ALERT: localhost;HTTP;WARNING;HARD;4;HTTP WARNING: HTTP/1.1 403 Forbidden - 319 bytes in 0.0
[root@ip-172-31-41-160 nagios-plugins-2.4.11]# sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
    Drop-In: /usr/lib/systemd/system/httpd.service.d
             └─php-fpm.conf
     Active: active (running) since Wed 2024-10-02 12:47:56 UTC; 33min ago
       Docs: man:httpd.service(8)
   Main PID: 49553 (httpd)
     Status: "Total requests: 26; Idle/Busy workers 100/0;Requests/sec: 0.0129; Bytes served/sec:  94 B/sec"
      Tasks: 230 (limit: 1112)
     Memory: 21.7M
        CPU: 1.416s
     CGroup: /system.slice/httpd.service
             ├─49553 /usr/sbin/httpd -DFOREGROUND
```

**Step 4: TO BE DONE IN THE Nagios-client TERMINAL**

Now it is time to switch to the client machine.

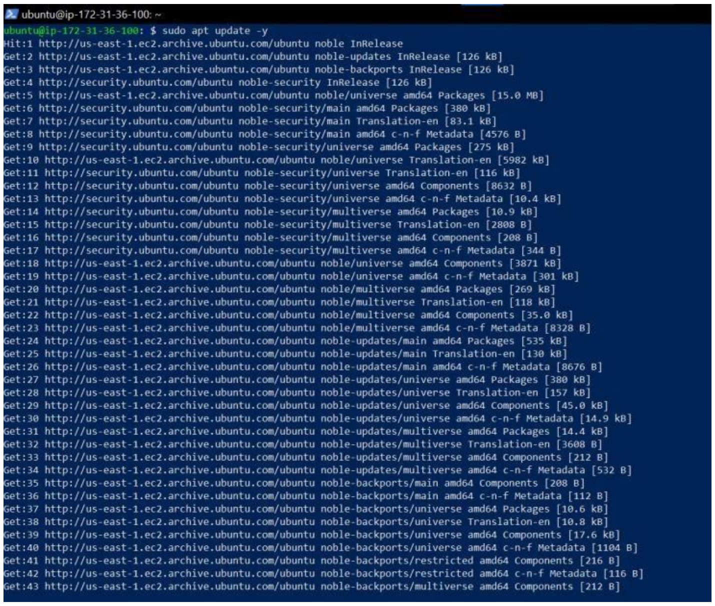
SSH into the machine or simply use the EC2 Instance Connect feature.



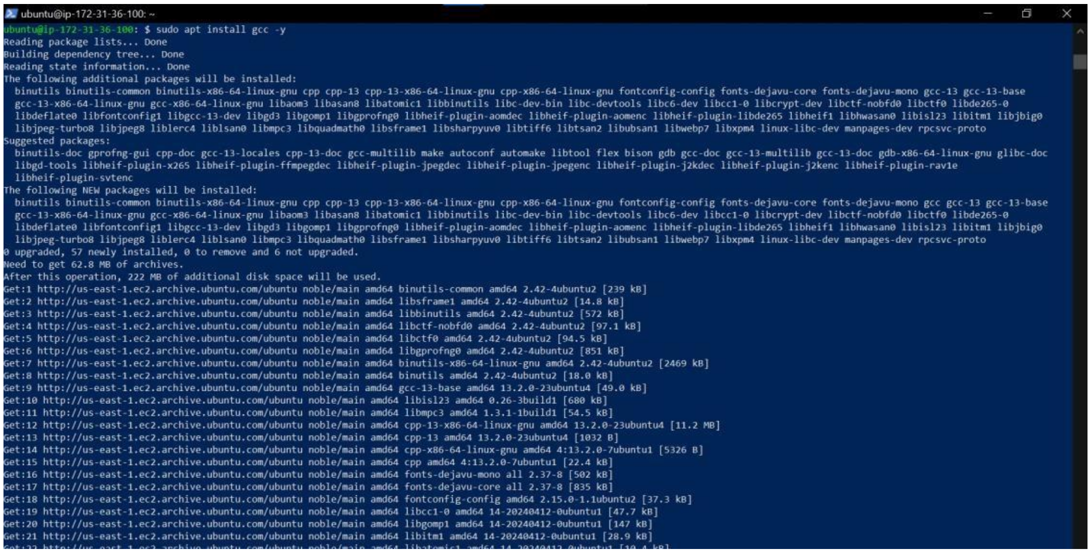
```
PS C:\WINDOWS\system32> cd C:\Users\Dell\Downloads
PS C:\Users\Dell\Downloads> ssh -i "mohit.pem" ubuntu@ec2-54-172-92-226.compute-1.amazonaws.com
The authenticity of host 'ec2-54-172-92-226.compute-1.amazonaws.com (54.172.92.226)' can't be established.
ECDSA key fingerprint is SHA256:e/WkFQRuHSqPjqQ5hDMaA0dku8msNhETN9SAgzEy53E.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-172-92-226.compute-1.amazonaws.com,54.172.92.226' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Wed Oct  2 13:26:11 UTC 2024

  System load:  0.0               Processes:             104
  Usage of /:   22.8% of 6.71GB   Users logged in:       0
  Memory usage: 20%               IPv4 address for enX0: 172.31.36.100
  Swap usage:   0%

 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.

   https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
```

Make a package index update and install gcc, nagios-nrpe-server and the plugins. Run the following commands to achieve the same. **sudo apt update -y sudo apt install gcc -y sudo apt**

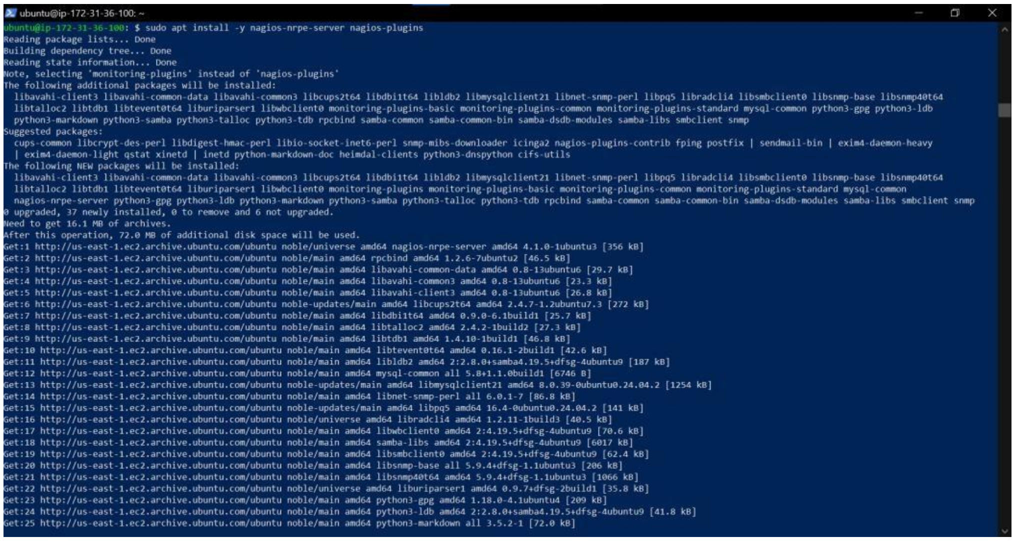
```
install -y nagios-nrpe-server nagios-plugins
```



```
ubuntu@ip-172-31-36-100: $ 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 [380 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [83.1 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [4576 B]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [275 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [116 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [8632 B]
Get:13 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [10.4 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [10.9 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:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [535 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [130 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [8676 B]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [380 kB]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [157 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [45.0 kB]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [14.9 kB]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [14.4 kB]
Get:32 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3608 B]
Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]
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]
```



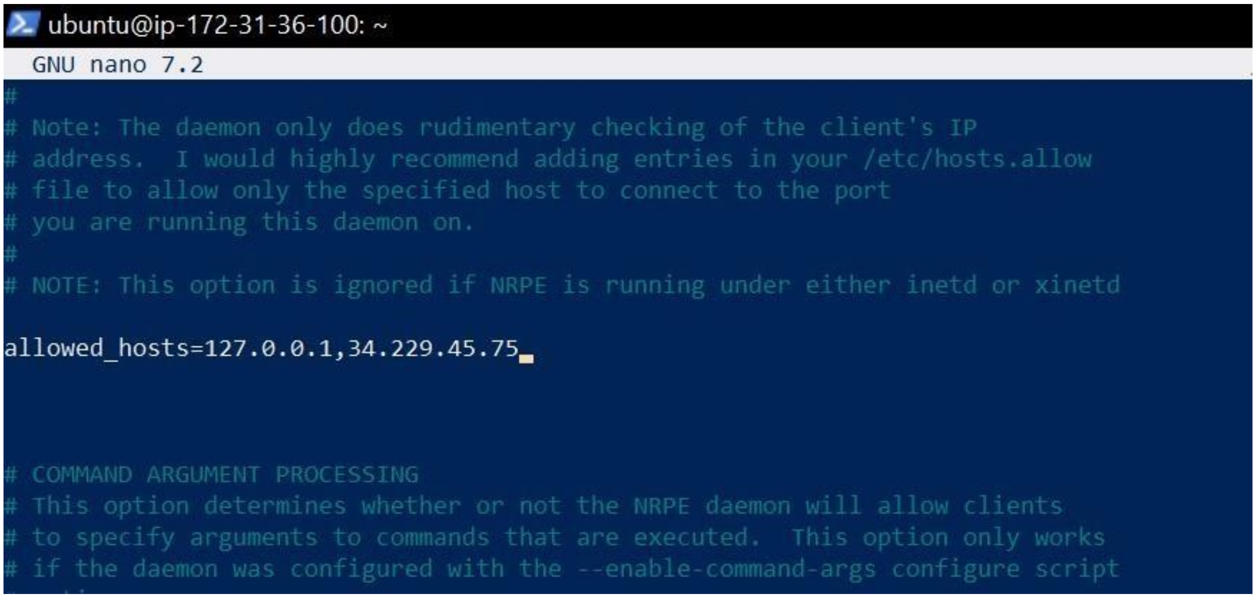
```
ubuntu@ip-172-31-36-100: $ sudo apt install gcc -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu 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]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libctf0 amd64 2.42-4ubuntu2 [94.5 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libgprofng0 amd64 2.42-4ubuntu2 [851 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 binutils-x86-64-linux-gnu amd64 2.42-4ubuntu2 [2469 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 binutils amd64 2.42-4ubuntu2 [18.0 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 gcc-13-base amd64 13.2.0-23ubuntu4 [49.0 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libisl23 amd64 0.26-3build1 [680 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libmpc3 amd64 1.3.1-1build1 [54.5 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 cpp-13-x86-64-linux-gnu amd64 13.2.0-23ubuntu4 [11.2 MB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 cpp-13 amd64 13.2.0-23ubuntu4 [1032 B]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 cpp-x86-64-linux-gnu amd64 4:13.2.0-7ubuntu1 [5326 B]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 cpp amd64 4:13.2.0-7ubuntu1 [22.4 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 fonts-dejavu-mono all 2.37-8 [502 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 fonts-dejavu-core all 2.37-8 [835 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 fontconfig-config amd64 2.15.0-1.1ubuntu2 [37.3 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libcc1-0 amd64 14-20240412-0ubuntu1 [47.7 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libgomp1 amd64 14-20240412-0ubuntu1 [147 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libitm1 amd64 14-20240412-0ubuntu1 [28.9 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libatomic1 amd64 14-20240412-0ubuntu1 [10.4 kB]
```



```
ubuntu@ip-172-31-36-100: $ 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]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libtalloc2 amd64 2.4.2-1build2 [27.3 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libtdb1 amd64 1.4.10-1build1 [46.8 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libtevent0t64 amd64 0.16.1-2build1 [42.6 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libldb2 amd64 2:2.8.0+samba4.19.5+dfsg-4ubuntu9 [187 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 mysql-common all 5.8+1.1.0build1 [6746 B]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libmysqlclient21 amd64 8.0.39-0ubuntu0.24.04.2 [1254 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libnet-snmp-perl all 6.0.1-7 [86.8 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libpq5 amd64 16.4-0ubuntu0.24.04.2 [141 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 libradcli4 amd64 1.2.11-1build3 [40.5 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libwbclient0 amd64 2:4.19.5+dfsg-4ubuntu9 [70.6 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 samba-libs amd64 2:4.19.5+dfsg-4ubuntu9 [6017 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libsmbclient0 amd64 2:4.19.5+dfsg-4ubuntu9 [62.4 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libsnmp-base all 5.9.4+dfsg-1.1ubuntu3 [206 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libsnmp40t64 amd64 5.9.4+dfsg-1.1ubuntu3 [1066 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 liburiparser1 amd64 0.9.7+dfsg-2build1 [35.8 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 python3-gpg amd64 1.18.0-4.1ubuntu4 [209 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 python3-ldb amd64 2:2.8.0+samba4.19.5+dfsg-4ubuntu9 [41.8 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 python3-markdown all 3.5.2-1 [72.0 kB]
```

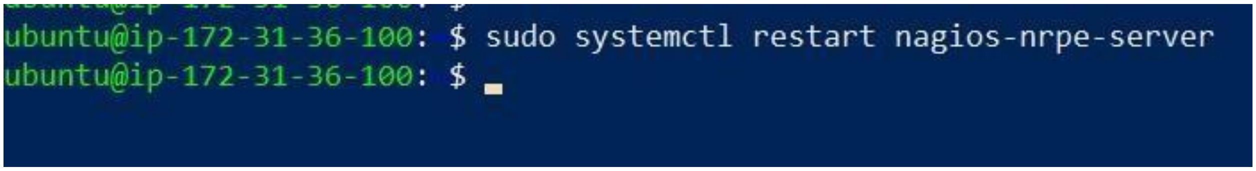
Open nrpe.cfg file to make changes. **sudo nano /etc/nagios/nrpe.cfg**

Under allowed_hosts, add your nagios host IP address like so



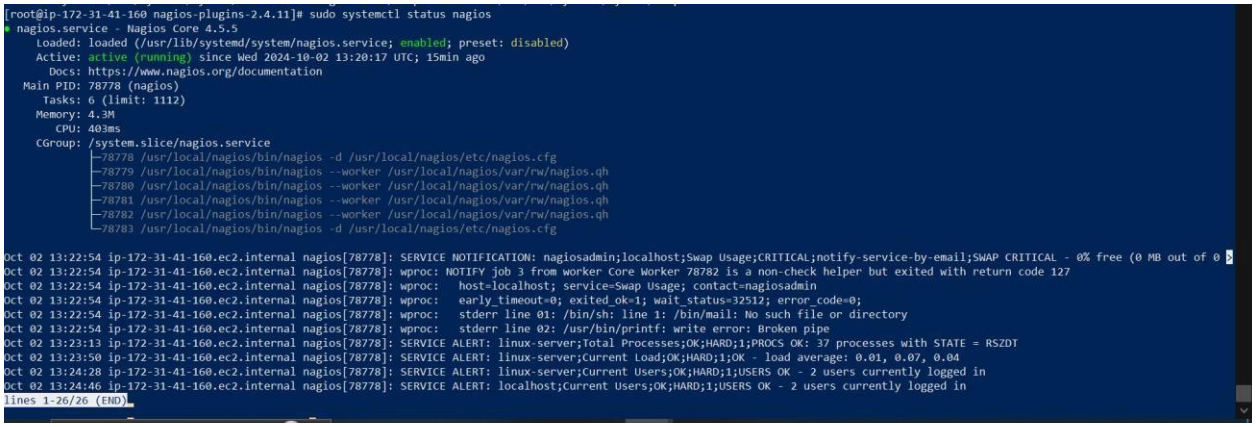
```
ubuntu@ip-172-31-36-100: ~
  GNU nano 7.2
#
# Note: The daemon only does rudimentary checking of the client's IP
# address.  I would highly recommend adding entries in your /etc/hosts.allow
# file to allow only the specified host to connect to the port
# you are running this daemon on.
#
# NOTE: This option is ignored if NRPE is running under either inetd or xinetd

allowed_hosts=127.0.0.1,34.229.45.75



# 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
```

Now restart the NRPE server by this command. **sudo systemctl restart nagios-nrpe-server**



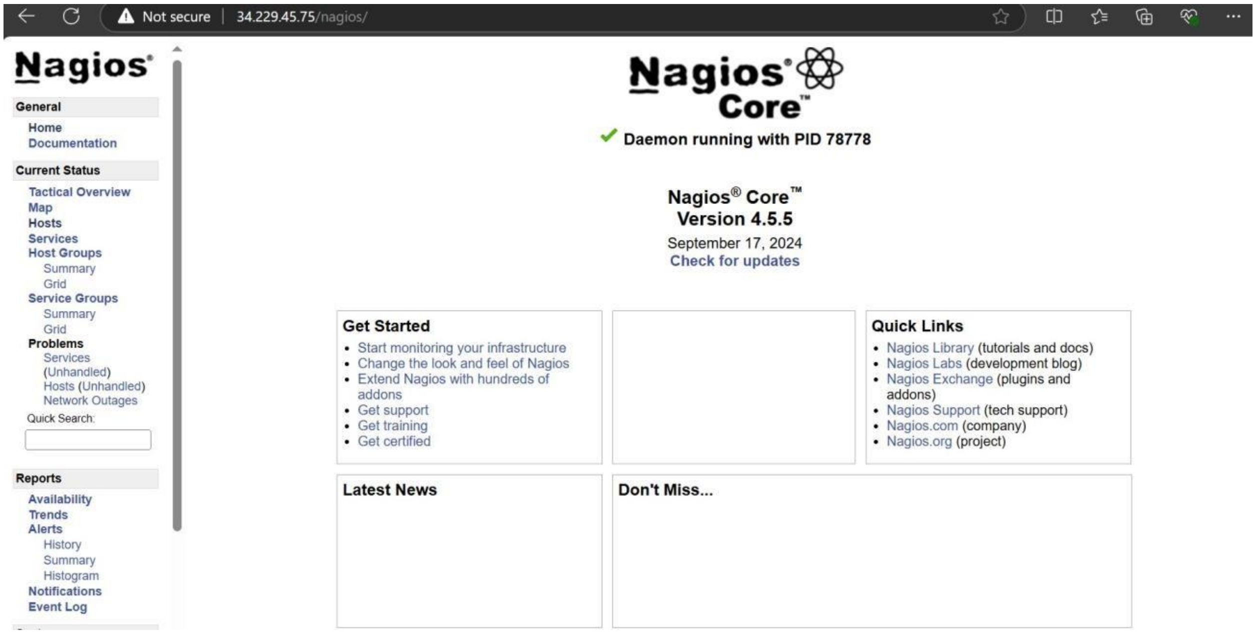
```
ubuntu@ip-172-31-36-100: $ sudo systemctl restart nagios-nrpe-server
ubuntu@ip-172-31-36-100: $
```

Run the following command in the Nagios-host terminal **sudo systemctl status nagios**



```
[root@ip-172-31-41-160 nagios-plugins-2.4.11]# sudo systemctl status nagios
● nagios.service - Nagios Core 4.5.5
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: disabled)
     Active: active (running) since Wed 2024-10-02 13:20:17 UTC; 15min ago
       Docs: https://www.nagios.org/documentation
   Main PID: 78778 (nagios)
      Tasks: 6 (limit: 1112)
     Memory: 4.3M
        CPU: 403ms
     CGroup: /system.slice/nagios.service
             ├─78778 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─78779 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─78780 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─78781 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─78782 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─78783 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Oct 02 13:22:54 ip-172-31-41-160.ec2.internal nagios[78778]: SERVICE NOTIFICATION: nagiosadmin;localhost;Swap Usage;CRITICAL;notify-service-by-email;SWAP CRITICAL - 0% free (0 MB out of 0 >
Oct 02 13:22:54 ip-172-31-41-160.ec2.internal nagios[78778]: wproc: NOTIFY job 3 from worker Core Worker 78782 is a non-check helper but exited with return code 127
Oct 02 13:22:54 ip-172-31-41-160.ec2.internal nagios[78778]: wproc:   host=localhost; service=Swap Usage; contact=nagiosadmin
Oct 02 13:22:54 ip-172-31-41-160.ec2.internal nagios[78778]: wproc:   early_timeout=0; exited_ok=1; wait_status=32512; error_code=0;
Oct 02 13:22:54 ip-172-31-41-160.ec2.internal nagios[78778]: wproc:   stderr line 01: /bin/sh: line 1: /bin/mail: No such file or directory
Oct 02 13:22:54 ip-172-31-41-160.ec2.internal nagios[78778]: wproc:   stderr line 02: /usr/bin/printf: write error: Broken pipe
Oct 02 13:23:13 ip-172-31-41-160.ec2.internal nagios[78778]: SERVICE ALERT: linux-server;Total Processes;OK;HARD;1;PROCS OK: 37 processes with STATE = RSZDT
Oct 02 13:23:50 ip-172-31-41-160.ec2.internal nagios[78778]: SERVICE ALERT: linux-server;Current Load;OK;HARD;1;OK - load average: 0.01, 0.07, 0.04
Oct 02 13:24:28 ip-172-31-41-160.ec2.internal nagios[78778]: SERVICE ALERT: linux-server;Current Users;OK;HARD;1;USERS OK - 2 users currently logged in
Oct 02 13:24:46 ip-172-31-41-160.ec2.internal nagios[78778]: SERVICE ALERT: localhost;Current Users;OK;HARD;1;USERS OK - 2 users currently logged in
lines 1-26/26 (END)
```

**Step 5: Visiting your nagios server using your nagios-host ip address** Open up your browser and look for http://<public_ip_address_of_nagios-host>/nagios



✓ Daemon running with PID 78778

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

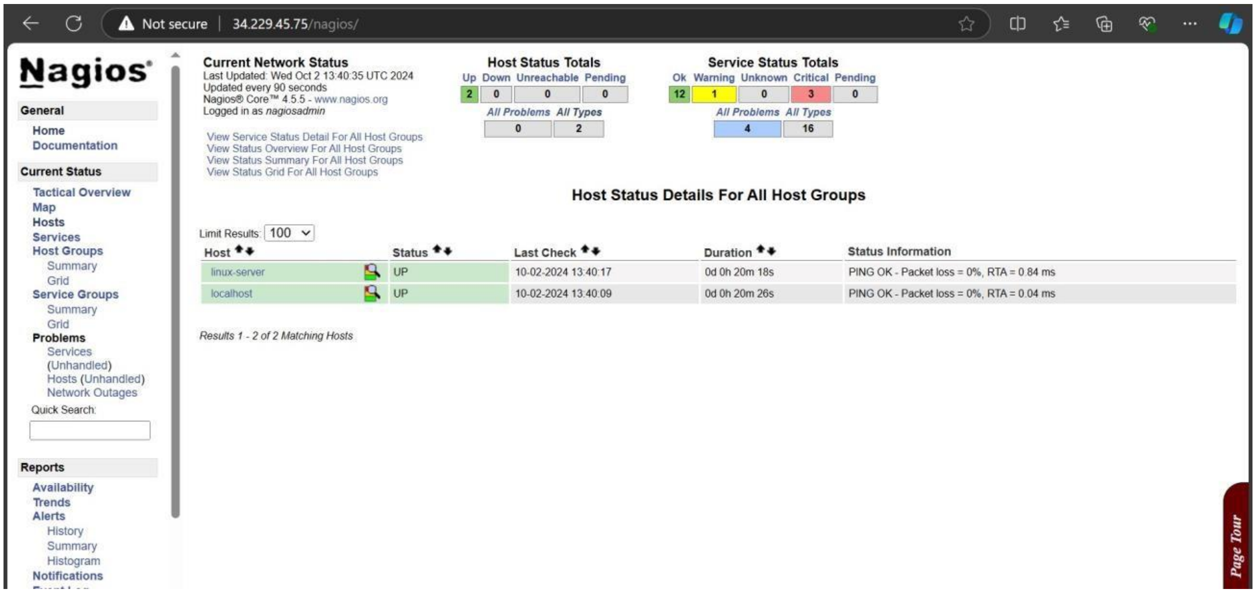
**Quick Links**

- 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...**

Click on Hosts.



**Current Network Status**
Last Updated: Wed Oct 2 13:40:35 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 |
|---|---|---|---|---|
| 12 | 1 | 0 | 3 | 0 |

| *All Problems* | *All Types* |
|---|---|
| 4 | 16 |

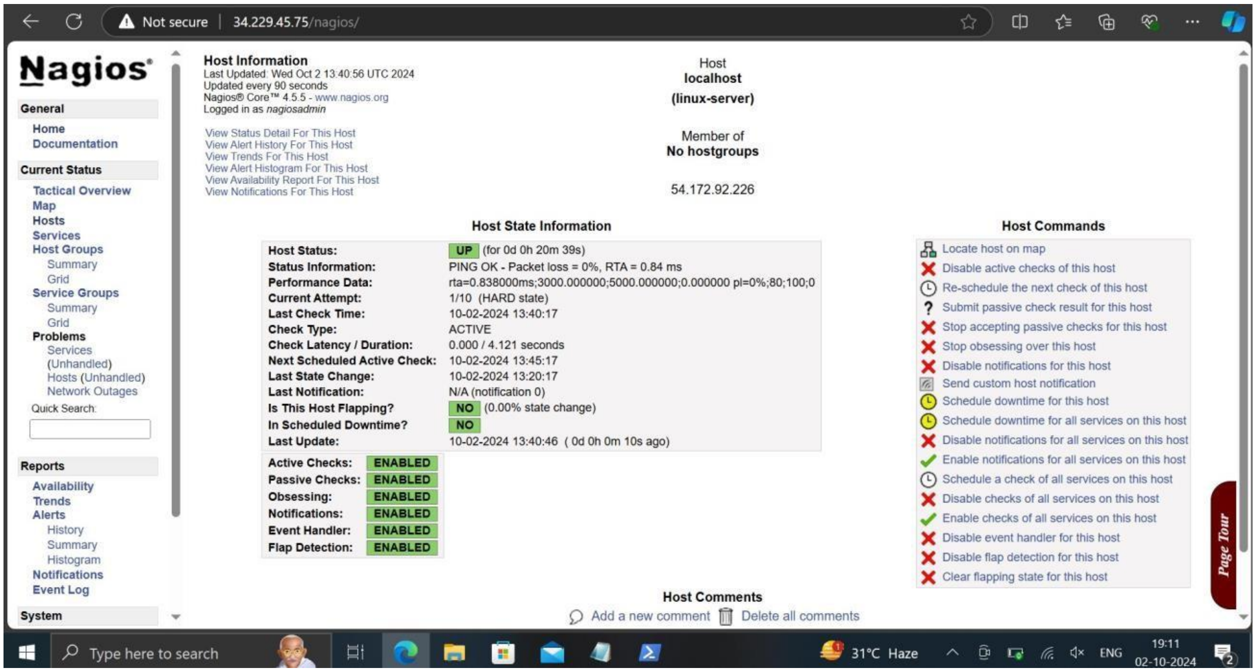
**Host Status Details For All Host Groups**

Limit Results: 100

| Host | Status | Last Check | Duration | Status Information |
|---|---|---|---|---|
| linux-server | UP | 10-02-2024 13:40:17 | 0d 0h 20m 18s | PING OK - Packet loss = 0%, RTA = 0.84 ms |
| localhost | UP | 10-02-2024 13:40:09 | 0d 0h 20m 26s | PING OK - Packet loss = 0%, RTA = 0.04 ms |

*Results 1 - 2 of 2 Matching Hosts*

Click on linux-server to view host information


Not secure | 34.229.45.75/nagios/
Nagios
General
Home
Documentation
Current Status
Tactical Overview
Map
Hosts
Services
Host Groups
Summary
Grid
Service Groups
Summary
Grid
Problems
Services
(Unhandled)
Hosts (Unhandled)
Network Outages
Quick Search:
Reports
Availability
Trends
Alerts
History
Summary
Histogram
Notifications
Event Log
System
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
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
Add a new comment
Delete all comments
Page Tour
Type here to search
31°C Haze
ENG
19:11
02-10-2024

**Host Information**
Last Updated: Wed Oct 2 13:40:56 UTC 2024
Updated every 90 seconds
Nagios® Core™ 4.5.5 - www.nagios.org
Logged in as *nagiosadmin*

Host
**localhost**
**(linux-server)**

Member of
**No hostgroups**

54.172.92.226

**Host State Information**

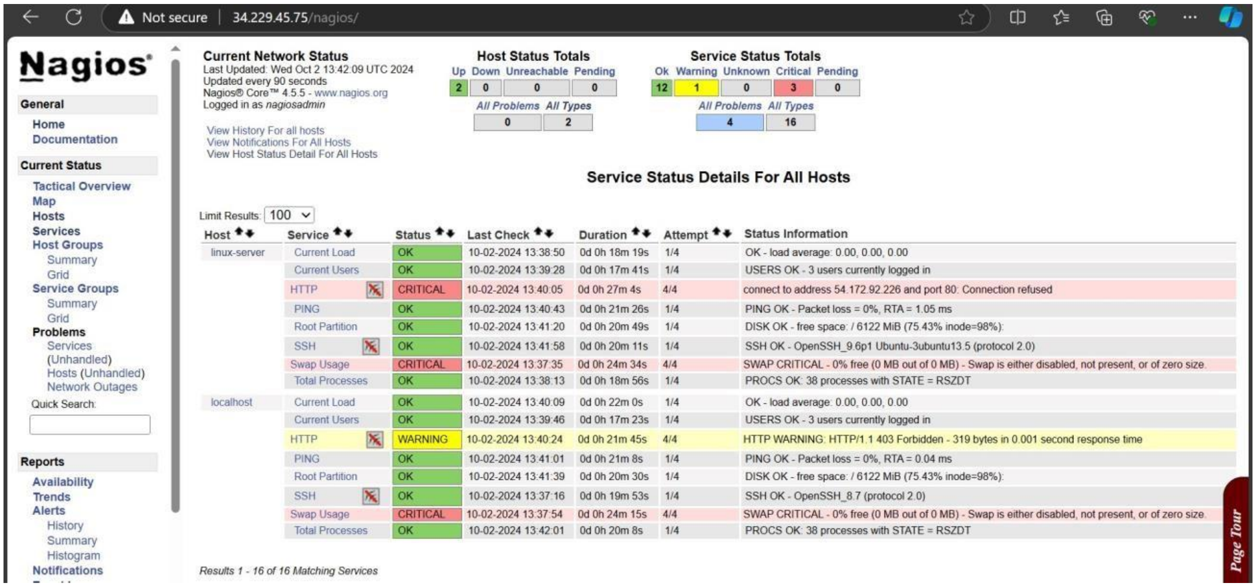
| | |
|---|---|
| **Host Status:** | UP (for 0d 0h 20m 39s) |
| **Status Information:** | PING OK - Packet loss = 0%, RTA = 0.84 ms |
| **Performance Data:** | rta=0.838000ms;3000.000000;5000.000000;0.000000 pl=0%;80;100;0 |
| **Current Attempt:** | 1/10 (HARD state) |
| **Last Check Time:** | 10-02-2024 13:40:17 |
| **Check Type:** | ACTIVE |
| **Check Latency / Duration:** | 0.000 / 4.121 seconds |
| **Next Scheduled Active Check:** | 10-02-2024 13:45:17 |
| **Last State Change:** | 10-02-2024 13:20:17 |
| **Last Notification:** | N/A (notification 0) |
| **Is This Host Flapping?** | NO (0.00% state change) |
| **In Scheduled Downtime?** | NO |
| **Last Update:** | 10-02-2024 13:40:46 ( 0d 0h 0m 10s ago) |

| | |
|---|---|
| **Active Checks:** | ENABLED |
| **Passive Checks:** | ENABLED |
| **Obsessing:** | ENABLED |
| **Notifications:** | ENABLED |
| **Event Handler:** | ENABLED |
| **Flap Detection:** | ENABLED |

**Host Commands**

**Host Comments**

We can even navigate to the services section, which explicitly mentions the status, duration, checks, information about the numerous services present on our hosts



**Current Network Status**
Last Updated: Wed Oct 2 13:42:09 UTC 2024
Updated every 90 seconds
Nagios® Core™ 4.5.5 - www.nagios.org
Logged in as *nagiosadmin*

**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 |
|---|---|---|---|---|
| 12 | 1 | 0 | 3 | 0 |

| *All Problems* | *All Types* |
|---|---|
| 4 | 16 |

**Service Status Details For All Hosts**

Limit Results: 100

| Host | Service | Status | Last Check | Duration | Attempt | Status Information |
|---|---|---|---|---|---|---|
| linux-server | Current Load | OK | 10-02-2024 13:38:50 | 0d 0h 18m 19s | 1/4 | OK - load average: 0.00, 0.00, 0.00 |
| | Current Users | OK | 10-02-2024 13:39:28 | 0d 0h 17m 41s | 1/4 | USERS OK - 3 users currently logged in |
| | HTTP | CRITICAL | 10-02-2024 13:40:05 | 0d 0h 27m 4s | 4/4 | connect to address 54.172.92.226 and port 80: Connection refused |
| | PING | OK | 10-02-2024 13:40:43 | 0d 0h 21m 26s | 1/4 | PING OK - Packet loss = 0%, RTA = 1.05 ms |
| | Root Partition | OK | 10-02-2024 13:41:20 | 0d 0h 20m 49s | 1/4 | DISK OK - free space: / 6122 MiB (75.43% inode=98%): |
| | SSH | OK | 10-02-2024 13:41:58 | 0d 0h 20m 11s | 1/4 | SSH OK - OpenSSH_9.6p1 Ubuntu-3ubuntu13.5 (protocol 2.0) |
| | Swap Usage | CRITICAL | 10-02-2024 13:37:35 | 0d 0h 24m 34s | 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 | 10-02-2024 13:38:13 | 0d 0h 18m 56s | 1/4 | PROCS OK: 38 processes with STATE = RSZDT |
| localhost | Current Load | OK | 10-02-2024 13:40:09 | 0d 0h 22m 0s | 1/4 | OK - load average: 0.00, 0.00, 0.00 |
| | Current Users | OK | 10-02-2024 13:39:46 | 0d 0h 17m 23s | 1/4 | USERS OK - 3 users currently logged in |
| | HTTP | WARNING | 10-02-2024 13:40:24 | 0d 0h 21m 45s | 4/4 | HTTP WARNING: HTTP/1.1 403 Forbidden - 319 bytes in 0.001 second response time |
| | PING | OK | 10-02-2024 13:41:01 | 0d 0h 21m 8s | 1/4 | PING OK - Packet loss = 0%, RTA = 0.04 ms |
| | Root Partition | OK | 10-02-2024 13:41:39 | 0d 0h 20m 30s | 1/4 | DISK OK - free space: / 6122 MiB (75.43% inode=98%): |
| | SSH | OK | 10-02-2024 13:37:16 | 0d 0h 19m 53s | 1/4 | SSH OK - OpenSSH_8.7 (protocol 2.0) |
| | Swap Usage | CRITICAL | 10-02-2024 13:37:54 | 0d 0h 24m 15s | 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 | 10-02-2024 13:42:01 | 0d 0h 20m 8s | 1/4 | PROCS OK: 38 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