Experiment No 10

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Batch C

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

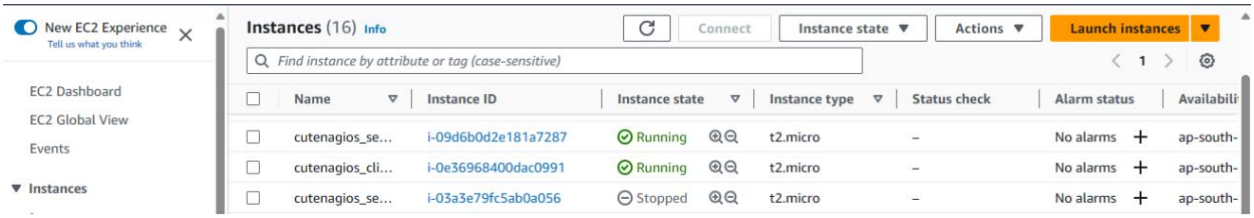
Output-

Step 1: To Confirm that Nagios is running on the server side, run this sudo systemctl status nagios on the “NAGIOS HOST”.

```
● nagios.service - Nagios Core 4.4.14
     Loaded: loaded (/lib/systemd/system/nagios.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2023-09-30 08:54:01 UTC; 20s ago
       Docs: https://www.nagios.org/documentation
    Process: 55285 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
    Process: 55286 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 55287 (nagios)
      Tasks: 6 (limit: 1141)
     Memory: 5.3M
        CPU: 252ms
     CGroup: /system.slice/nagios.service
             ├─55287 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─55288 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─55289 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─55290 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─55291 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─55292 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Sep 30 08:54:01 ip-172-31-44-151 nagios[55287]: qh: Socket '/usr/local/nagios/var/rw/nagios.qh' successfully initialized
lines 1-19
```

Step 2: To monitor a Linux machine, create an Ubuntu 20.04 server EC2 Instance in AWS.



Step 3: On client side Step-03 Make a package index update and install gcc, nagios-nrpe-server and the plugins.
sudo apt update -y
sudo apt install gcc -y
sudo apt install -y nagios-nrpe-server nagios-plugins

```
*** System restart required ***
Last login: Sat Sep 30 08:31:30 2023 from 13.233.177.3
ubuntu@ip-172-31-44-151:~$ sudo apt install gcc -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
gcc is already the newest version (4:11.2.0-1ubuntu1).
gcc set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
ubuntu@ip-172-31-44-151:~$
```

```
root@ip-172-31-44-151:/home/ubuntu# sudo apt install 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'
monitoring-plugins is already the newest version (2.3.1-1ubuntu4).
nagios-nrpe-server is already the newest version (4.0.3-1ubuntu2).
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
```

```
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 229 kB in 1s (290 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@ip-172-31-44-151:/home/ubuntu# sudo apt install gcc -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
gcc is already the newest version (4:11.2.0-1ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
root@ip-172-31-44-151:/home/ubuntu# 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'
monitoring-plugins is already the newest version (2.3.1-1ubuntu4).
nagios-nrpe-server is already the newest version (4.0.3-1ubuntu2).
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
```

Step 4: Open nrpe.cfg file to make changes.
sudo nano /etc/nagios/nrpe.cfg

```
  GNU nano 6.2                                  /etc/nagios/nrpe.cfg

# SERVER ADDRESS
# Address that nrpe should bind to in case there are more than one interface
# and you do not want nrpe to bind on all interfaces.
# NOTE: This option is ignored if NRPE is running under either inetd or xinetd

#server_address=127.0.0.1



# LISTEN QUEUE SIZE
# Listen queue size (backlog) for serving incoming connections.
# You may want to increase this value under high load.

#listen_queue_size=5

^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
```

```
  GNU nano 6.2                                  /etc/nagios/nrpe.cfg *
 95 # that are allowed to talk to the NRPE daemon. Network addresses with a bit mask
 96 # (i.e. 192.168.1.0/24) are also supported. Hostname wildcards are not currently
 97 # supported.
 98 #
 99 # Note: The daemon only does rudimentary checking of the client's IP
100 # address.  I would highly recommend adding entries in your /etc/hosts.allow
101 # file to allow only the specified host to connect to the port
102 # you are running this daemon on.
103 #
104 # NOTE: This option is ignored if NRPE is running under either inetd or xinetd
105
106 allowed_hosts=127.0.0.1,::1,13.235.0.144
107 server_address=0.0.0.0
108
109
110

^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 5: Restart the NRPE server
sudo systemctl restart nagios-nrpe-server

```
Restarting services...
Service restarts being deferred:
 /etc/needrestart/restart.d/dbus.service
 systemctl restart getty@tty1.service
 systemctl restart networkd-dispatcher.service
 systemctl restart systemd-logind.service
 systemctl restart unattended-upgrades.service
 systemctl restart user@1000.service

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.
root@ip-172-31-41-41:/home/ubuntu# sudo nano /etc/nagios/nrpe.cfg
root@ip-172-31-41-41:/home/ubuntu# sudo nano /etc/nagios/nrpe.cfg
root@ip-172-31-41-41:/home/ubuntu# sudo systemctl restart nagios-nrpe-server
root@ip-172-31-41-41:/home/ubuntu# sudo systemctl status nagios-nrpe-server
● nagios-nrpe-server.service - Nagios Remote Plugin Executor
```

```
root@ip-172-31-41-41:/home/ubuntu# sudo systemctl status nagios-nrpe-server
● nagios-nrpe-server.service - Nagios Remote Plugin Executor
     Loaded: loaded (/lib/systemd/system/nagios-nrpe-server.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2023-09-30 09:27:17 UTC; 6s ago
       Docs: http://www.nagios.org/documentation
   Main PID: 7349 (nrpe)
      Tasks: 1 (limit: 1141)
     Memory: 1.5M
        CPU: 9ms
     CGroup: /system.slice/nagios-nrpe-server.service
             └─7349 /usr/sbin/nrpe -c /etc/nagios/nrpe.cfg -f

Sep 30 09:27:17 ip-172-31-41-41 systemd[1]: nagios-nrpe-server.service: Deactivated successfully.
Sep 30 09:27:17 ip-172-31-41-41 systemd[1]: Stopped Nagios Remote Plugin Executor.
Sep 30 09:27:17 ip-172-31-41-41 systemd[1]: Started Nagios Remote Plugin Executor.
Sep 30 09:27:17 ip-172-31-41-41 nrpe[7349]: Starting up daemon
Sep 30 09:27:17 ip-172-31-41-41 nrpe[7349]: Server listening on 0.0.0.0 port 5666.
Sep 30 09:27:17 ip-172-31-41-41 nrpe[7349]: Listening for connections on port 5666
Sep 30 09:27:17 ip-172-31-41-41 nrpe[7349]: Allowing connections from: 127.0.0.1,::1,13.235.0.144
root@ip-172-31-41-41:/home/ubuntu#
```

Step 6: On the server run this command
ps -ef | grep nagios

```
root@ip-172-31-44-151:/home/ubuntu# ps -ef | grep nagios
nagios     55287       1  0 08:54 ?        00:00:00 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
nagios     55288   55287  0 08:54 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     55289   55287  0 08:54 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     55290   55287  0 08:54 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     55291   55287  0 08:54 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios     55292   55287  0 08:54 ?        00:00:00 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
nagios     56327       1  0 08:58 ?        00:00:00 /usr/sbin/nrpe -c /etc/nagios/nrpe.cfg -f
root       60903   60158  0 09:32 pts/1    00:00:00 grep --color=auto nagios
root@ip-172-31-44-151:/home/ubuntu# sudo su
root@ip-172-31-44-151:/home/ubuntu# mkdir /usr/local/nagios/etc/objects/monitorhosts
root@ip-172-31-44-151:/home/ubuntu# mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts
```

Step 7: Become a root user and create 2 folders 1.sudo su 2.mkdir /usr/local/nagios/etc/objects/monitorhosts 3.mkdir /usr/local/nagios/etc/objects/monitorhosts/linuxhosts Copy the sample localhost.cfg file to linuxhost folder 4.cp /usr/local/nagios/etc/objects/localhost.cfg /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg

```
root@ip-172-31-44-151:/home/ubuntu# cp /usr/local/nagios/etc/objects/localhost.cfg /usr/local/nagios/etc/objects/monitorhosts/linuxhos
ts/linuxserver.cfg
root@ip-172-31-44-151:/home/ubuntu# nano /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg
```

Step 8: Open linuxserver.cfg using nano and make the following changes
nano /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg Change the hostname to linux server (EVERYWHERE ON THE FILE) Change address to the public IP address of your LINUX CLIENT.

```
  GNU nano 6.2                  /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg
##############################################################################

# 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               localhost
    alias                   localhost
    address                 127.0.0.1
}


]
^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
```

i-03a3e79fc5ab0a056 (cutenagios_server)

```
  GNU nano 6.2                  /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg *
##############################################################################
#
# HOST GROUP DEFINITION
#
##############################################################################

# Define an optional hostgroup for Linux machines

define hostgroup {

    hostgroup_name          linux-servers           ; 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
```

Change hostgroup_name under hostgroup to linux-servers1

Step 9: Open the Nagios Config file and add the following line nano /usr/local/nagios/etc/nagios.cfg Add this line cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/

```
  GNU nano 6.2                            /usr/local/nagios/etc/nagios.cfg *
# You can also tell Nagios to process all config files (with a .cfg
# extension) in a particular directory by using the cfg_dir
# directive as shown below:

#cfg_dir=/usr/local/nagios/etc/servers
#cfg_dir=/usr/local/nagios/etc/printers
#cfg_dir=/usr/local/nagios/etc/switches
#cfg_dir=/usr/local/nagios/etc/routers
cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/



# OBJECT CACHE FILE
# This option determines where object definitions are cached when
# Nagios starts/restarts.  The CGIs read object definitions from
Save modified buffer?
 Y Yes
 N No            ^C Cancel
```

Step 10: Verify the configuration files.

```
root@ip-172-31-44-151:/home/ubuntu# nano /usr/local/nagios/etc/objects/monitorhosts/linuxhosts/linuxserver.cfg
root@ip-172-31-44-151:/home/ubuntu#    /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.4.14
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 2023-08-01
License: GPL

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

Running pre-flight check on configuration data...

Checking objects...
        Checked 8 services.
        Checked 1 hosts.
        Checked 1 host groups.
        Checked 1 contacts.
        Checked 1 contact groups.
        Checked 24 commands.
        Checked 5 time periods.
        Checked 0 host escalations.
        Checked 0 service escalations.
Checking for circular paths...
        Checked 1 hosts
        Checked 0 service dependencies
        Checked 0 host dependencies
        Checked 5 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-172-31-44-151:/home/ubuntu# nano /usr/local/nagios/etc/nagios.cfg
```

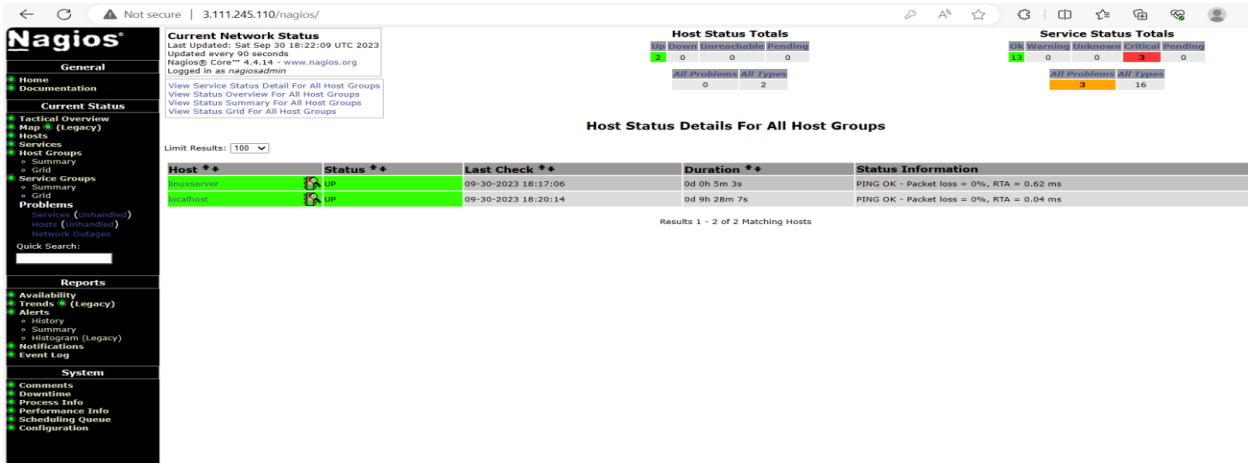
Step 11: Restart the nagios service service nagios restart

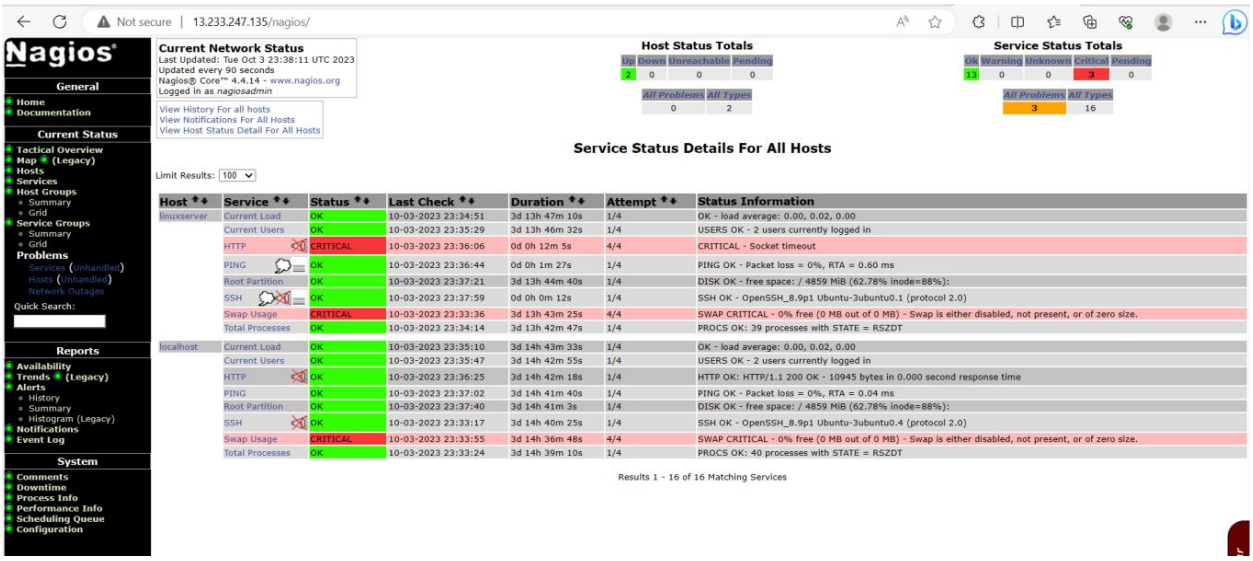
Sudo systemctl status nagios

```
● nagios.service - Nagios Core 4.4.14
     Loaded: loaded (/lib/systemd/system/nagios.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2023-09-30 08:54:01 UTC; 20s ago
       Docs: https://www.nagios.org/documentation
    Process: 55285 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
    Process: 55286 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 55287 (nagios)
      Tasks: 6 (limit: 1141)
     Memory: 5.3M
        CPU: 252ms
     CGroup: /system.slice/nagios.service
             ├─55287 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
             ├─55288 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─55289 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─55290 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             ├─55291 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
             └─55292 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Sep 30 08:54:01 ip-172-31-44-151 nagios[55287]: qh: Socket '/usr/local/nagios/var/rw/nagios.qh' successfully initialized
lines 1-19
```

Step 12: Now, check your nagios dashboard and you'll see a new host being added.




Not secure | 13.233.247.135/nagios/
Nagios
General
Home
Documentation
Current Status
Tactical Overview
Map (Legacy)
Hosts
Services
Host Groups
Summary
Grid
Service Groups
Summary
Grid
Problems
Services (Unhandled)
Hosts (Unhandled)
Network Outages
Quick Search:
Reports
Availability
Trends (Legacy)
Alerts
History
Summary
Histogram (Legacy)
Notifications
Event Log
System
Comments
Downtime
Process Info
Performance Info
Scheduling Queue
Configuration
Current Network Status
Last Updated: Tue Oct 3 23:38:11 UTC 2023
Updated every 90 seconds
Nagios® Core™ 4.4.14 - 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
13 0 0 3 0
All Problems All Types
3 16
Service Status Details For All Hosts
Limit Results: 100
Host Service Status Last Check Duration Attempt Status Information
linuxserver Current Load OK 10-03-2023 23:34:51 3d 13h 47m 10s 1/4 OK - load average: 0.00, 0.02, 0.00
Current Users OK 10-03-2023 23:35:29 3d 13h 46m 32s 1/4 USERS OK - 2 users currently logged in
HTTP CRITICAL 10-03-2023 23:36:06 0d 0h 12m 5s 4/4 CRITICAL - Socket timeout
PING OK 10-03-2023 23:36:44 0d 0h 1m 27s 1/4 PING OK - Packet loss = 0%, RTA = 0.60 ms
Root Partition OK 10-03-2023 23:37:21 3d 13h 44m 40s 1/4 DISK OK - free space: / 4859 MiB (62.78% inode=88%):
SSH OK 10-03-2023 23:37:59 0d 0h 0m 12s 1/4 SSH OK - OpenSSH_8.9p1 Ubuntu-3ubuntu0.1 (protocol 2.0)
Swap Usage CRITICAL 10-03-2023 23:33:36 3d 13h 43m 25s 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 10-03-2023 23:34:14 3d 13h 42m 47s 1/4 PROCS OK: 39 processes with STATE = RSZDT
localhost Current Load OK 10-03-2023 23:35:10 3d 14h 43m 33s 1/4 OK - load average: 0.00, 0.02, 0.00
Current Users OK 10-03-2023 23:35:47 3d 14h 42m 55s 1/4 USERS OK - 2 users currently logged in
HTTP OK 10-03-2023 23:36:25 3d 14h 42m 18s 1/4 HTTP OK: HTTP/1.1 200 OK - 10945 bytes in 0.000 second response time
PING OK 10-03-2023 23:37:02 3d 14h 41m 40s 1/4 PING OK - Packet loss = 0%, RTA = 0.04 ms
Root Partition OK 10-03-2023 23:37:40 3d 14h 41m 3s 1/4 DISK OK - free space: / 4859 MiB (62.78% inode=88%):
SSH OK 10-03-2023 23:33:17 3d 14h 40m 25s 1/4 SSH OK - OpenSSH_8.9p1 Ubuntu-3ubuntu0.4 (protocol 2.0)
Swap Usage CRITICAL 10-03-2023 23:33:55 3d 14h 36m 48s 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 10-03-2023 23:33:24 3d 14h 39m 10s 1/4 PROCS OK: 40 processes with STATE = RSZDT
Results 1 - 16 of 16 Matching Services