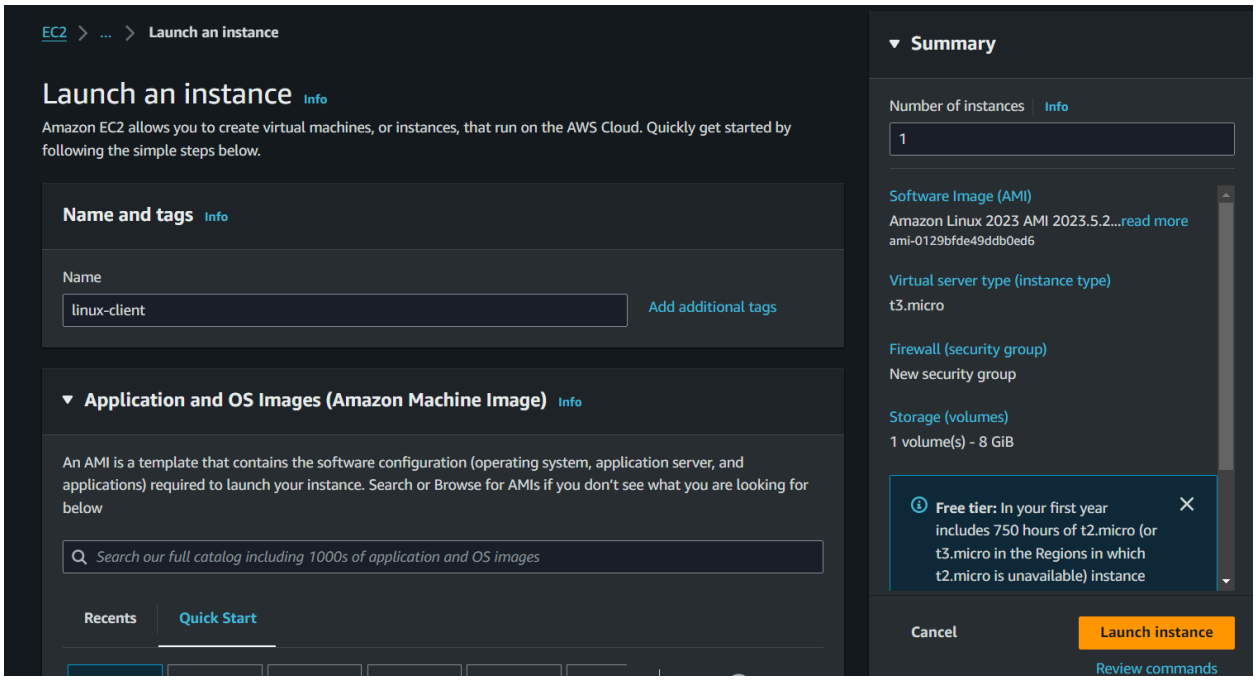
Experiment 10

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

Prerequisites: AWS Free Tier, Nagios Server running on Amazon Linux Machine.

Step 1: Create a new ec2 instance called linux-client and choose Ubuntu as operating system.



Application and OS Images (Amazon Machine Image) Info

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Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type — Free tier eligible

ami-04cdc91e49cb06165 (64-bit (x86)) / ami-02b7539372433cf6b (64-bit (Arm))

Virtualization: hvm ENA enabled: true Root device type: ebs

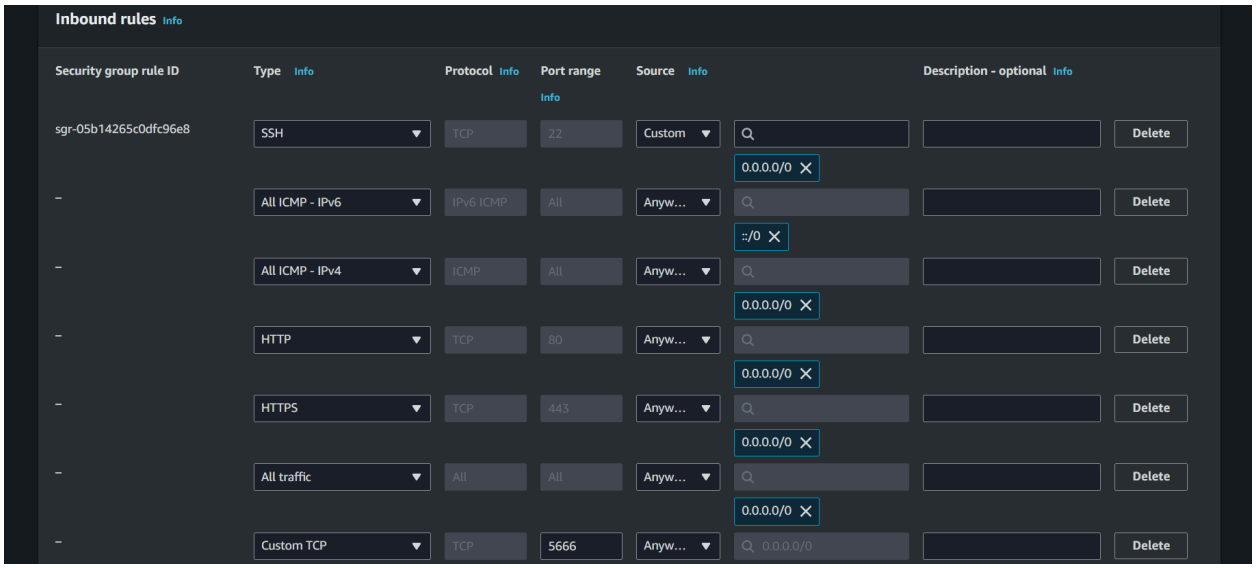
EC2 > ... > Launch an instance

Success

Successfully initiated launch of instance (i-0f2dd6bd87339d15e)

Launch log

Step 2: Change the settings for security groups



Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info		Description - optional Info	
sgr-05b14265c0dfc96e8	SSH	TCP	22	Custom	0.0.0.0/0		Delete
-	All ICMP - IPv6	IPv6 ICMP	All	Anyw...	::/0		Delete
-	All ICMP - IPv4	ICMP	All	Anyw...	0.0.0.0/0		Delete
-	HTTP	TCP	80	Anyw...	0.0.0.0/0		Delete
-	HTTPS	TCP	443	Anyw...	0.0.0.0/0		Delete
-	All traffic	All	All	Anyw...	0.0.0.0/0		Delete
-	Custom TCP	TCP	5666	Anyw...	0.0.0.0/0		Delete

On server, check if server is running then, ps -ef | grep nagios

```
[ec2-user@ip-172-31-38-129 ~]$ ps -ef | grep nagios
nagios      1628       1  0 07:20 ?        00:00:00 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
nagios      1633    1628  0 07:20 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios      1634    1628  0 07:20 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios      1635    1628  0 07:20 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios      1636    1628  0 07:20 ?        00:00:00 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
nagios      1637    1628  0 07:20 ?        00:00:00 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
ec2-user   34154   33992  0 09:19 pts/0    00:00:00 grep --color=auto nagios
[ec2-user@ip-172-31-38-129 ~]$
```

Step 3: Copy Sample Configuration File

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

Step 4: Edit the Configuration File

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

- Change hostname to linuxserver everywhere in the file.
- Change address to the public IP address of your linux-client.

```
###############################################################################
#
# 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               linuxserver
    alias                   linuxserver
    address                 13.60.19.89
}



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

```
  GNU nano 5.8                    /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                 linuxserver             ; Comma separated list of hosts that belong to this group
}



###############################################################################
#
# SERVICE DEFINITIONS
#
###############################################################################

# Define a service to "ping" the local machine

define service {

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

Step 5: Update Nagios Configuration
sudo nano /usr/local/nagios/etc/nagios.cfg

- Add the following line:

cfg_dir=/usr/local/nagios/etc/objects/monitorhosts/

```
  GNU nano 5.8                                                    /usr/local/nagios/etc/nagios.cf
# Definitions for monitoring a Windows machine
#cfg_file=/usr/local/nagios/etc/objects/windows.cfg

# Definitions for monitoring a router/switch
#cfg_file=/usr/local/nagios/etc/objects/switch.cfg

# Definitions for monitoring a network printer
#cfg_file=/usr/local/nagios/etc/objects/printer.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
```

Step 6: Verify Configuration Files
sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

```
[root@ip-172-31-38-129 ec2-user]# nano /usr/local/nagios/etc/nagios.cfg
[root@ip-172-31-38-129 ec2-user]# sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

Nagios Core 4.4.6
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Last Modified: 2020-04-28
License: GPL

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

Running pre-flight check on configuration data...

Checking objects...
        Checked 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.
```

In client side:

Step 9: Update Package Index and Install Required Packages

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

Step 10: Edit NRPE Configuration File

sudo nano /etc/nagios/nrpe.cfg

- Add your Nagios host IP address under allowed_hosts:

allowed_hosts=<Nagios_Host_IP>

```
# 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,::1,16.171.175.50



# 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
```

Step 11: Restart 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 serial-getty@ttyS0.service
 systemctl restart systemd-logind.service
 systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
 ubuntu @ session #2: sshd[1046,1498]
 ubuntu @ user manager service: systemd[1393]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-46-222:~$ sudo nano /etc/nagios/nrpe.cfg
ubuntu@ip-172-31-46-222:~$ sudo systemctl restart nagios-nrpe-server
ubuntu@ip-172-31-46-222:~$
```

Step 12: Check Nagios Dashboard

- Open your browser and navigate to http://<Nagios_Host_IP>/nagios.
- Log in with nagiosadmin and the password you set earlier.
- You should see the new host linuxserver added.
- Click on Hosts to see the host details.
- Click on Services to see all services and ports being monitored