

**Aim:** To Understand Continuous monitoring and Installation and configuration of Nagios Core, Nagios Plugins and NRPE (Nagios Remote Plugin Executor) on Linux Machine.

**Prerequisites:** AWS Free Tier

Steps:

1. Create an Amazon Linux EC2 Instance in AWS and name it - nagios-host

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv
<input type="checkbox"/>	aws-cloud9-a...	i-031453e9a581a8b02	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1d	ec2-44-22
<input type="checkbox"/>	My Web server	i-06a85947b2d9e4072	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	ec2-35-17
<input checked="" type="checkbox"/>	nagios-host	i-07ae956bdd4ee100c	Running	t2.micro	Initializing	View alarms +	us-east-1c	ec2-34-20

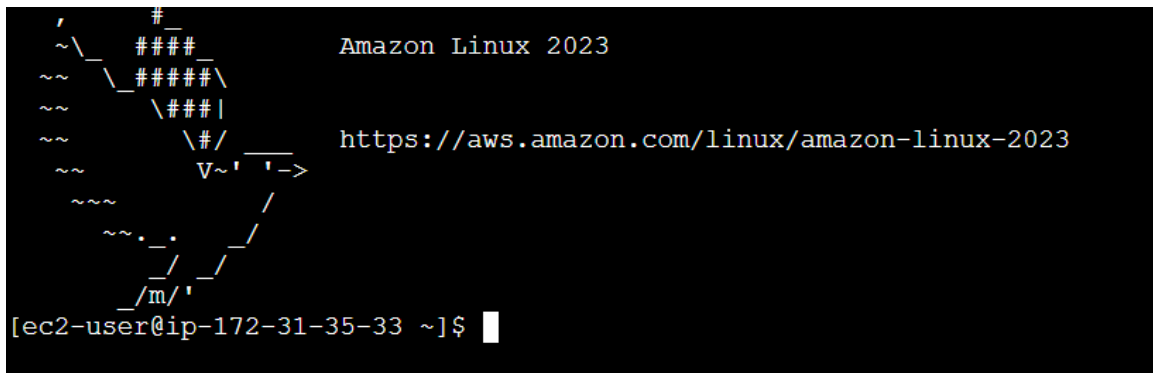
2. Under Security Group, make sure HTTP, HTTPS, SSH, ICMP are open from everywhere.

	Name	Security group rule...	IP version	Type	Protocol	Port range
<input type="checkbox"/>	-	sgr-Od3a046f7b9fc67b5	IPv4	All traffic	All	All

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	
sgr-0ec19557ab9330565	SSH	TCP	22	Custom	0.0.0.0/0	Delete
-	HTTP	TCP	80	Anywhere-I...	0.0.0.0/0	Delete
-	All ICMP - IPv6	IPv6 ICMP	All	Anywhere-I...	0.0.0.0/0	Delete
-	HTTPS	TCP	443	Anywhere-I...	0.0.0.0/0	Delete
-	All traffic	All	All	Anywhere-I...	0.0.0.0/0	Delete
-	Custom TCP	TCP	5666	Anywhere-I...	0.0.0.0/0	Delete
-	All ICMP - IPv4	ICMP	All	Anywhere-I...	0.0.0.0/0	Delete

You have to edit the inbound rules of the specified Security Group for this.

3. SSH into Your EC2 instance or simply use EC2 Instance Connect from the browser.



4. Update the package indices and install the following packages using yum

```
sudo yum update
sudo yum install httpd php
sudo yum install gcc glibc glibc-common
sudo yum install gd gd-devel
```

5. Create a new Nagios User with its password. You'll have to enter the password twice for confirmation.

```
sudo adduser -m nagios
sudo passwd nagios
```

```
Retype new password:
[ec2-user@ip-172-31-35-33 ~]$ sudo passwd nagios
Changing password for user nagios.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[ec2-user@ip-172-31-35-33 ~]$
```

- ## 6. Create a new user group

```
sudo groupadd nagcmd
```

7. Use these commands so that you don't have to use sudo for Apache and Nagios

```
sudo usermod -a -G nagcmd nagios
sudo usermod -a -G nagcmd apache
```

- ## 8. Create a new directory for Nagios downloads

```
mkdir ~/downloads
cd ~/downloads
```

9. Use `wget` to download the source zip files.

wget

<http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-4.0.8.tar.gz>

wget

<http://nagios-plugins.org/download/nagios-plugins-2.0.3.tar.gz>

```
([ec2-user@ip-172-31-35-33 downloads]$ wget http://nagios-plugins.org/download/nagios-plugins-2.0.3.tar.gz
--2024-10-04 04:01:10-- http://nagios-plugins.org/download/nagios-plugins-2.0.3.tar.gz
Resolving nagios-plugins.org (nagios-plugins.org)... 45.56.123.251
Connecting to nagios-plugins.org (nagios-plugins.org)|45.56.123.251|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2659772 (2.5M) [application/x-gzip]
Saving to: 'nagios-plugins-2.0.3.tar.gz'

nagios-plugins-2.0.3.tar.gz      0%[          ] 0 --KB/s
nagios-plugins-2.0.3.tar.gz    11%[=====>] 287.47K 1.33MB/s
nagios-plugins-2.0.3.tar.gz    100%[=====>] 2.54M 6.88MB/s  in 0.4s

2024-10-04 04:01:10 (6.88 MB/s) - 'nagios-plugins-2.0.3.tar.gz' saved [2659772/2659772]
```

10. Use tar to unzip and change to that directory.

```
tar zxvf nagios-4.0.8.tar.gz
```

11. Run the configuration script with the same group name you previously created.

```
./configure --with-command-group=nagcmd
```

```
*** Configuration summary for nagios 4.0.8 08-12-2014 ***:

General Options:
-----
Nagios executable: nagios
Nagios user/group: nagios,nagios
Command user/group: nagios,nagcmd
Event Broker: yes
Install ${prefix}: /usr/local/nagios
Install ${includedir}: /usr/local/nagios/include/nagios
Lock file: ${prefix}/var/nagios.lock
Check result directory: ${prefix}/var/spool/checkresults
Init directory: /etc/rc.d/init.d
Apache conf.d directory: /etc/httpd/conf.d
Mail program: /bin/mail
Host OS: linux-gnu
IOBroker Method: epoll

Web Interface Options:
-----
HTML URL: http://localhost/nagios/
CGI URL: http://localhost/nagios/cgi-bin/
Traceroute (used by WAP): /usr/bin/traceroute

Review the options above for accuracy. If they look okay,
type 'make all' to compile the main program and CGIs.
```

12. Compile the source code.

```
make all
```

13. Install binaries, init script and sample config files. Lastly, set permissions on the external command directory.

```
sudo make install
sudo make install-init
sudo make install-config
sudo make install-commandmode
```

```
[ec2-user@ip-172-31-35-33 nagios-4.0.8]$ sudo make install-commandmode
/usr/bin/install -c -m 775 -o nagios -g nagcmd -d /usr/local/nagios/var/rw
chmod g+s /usr/local/nagios/var/rw

*** External command directory configured ***
```

14. Edit the config file and change the email address.

```
sudo nano /usr/local/nagios/etc/objects/contacts.cfg
```

```
#####
# CONTACTS
#####
# Just one contact defined by default - the Nagios admin (that's you)
# This contact definition inherits a lot of default values from the 'generic-contact'
# template which is defined elsewhere.

define contact{
    contact_name      nagiosadmin          ; Short name of user
    use               generic-contact       ; Inherit default values from generic-contact template (defined above)
    alias             Nagios Admin         ; Full name of user

    email             nagios@localhost     ; <<***** CHANGE THIS TO YOUR EMAIL ADDRESS *****
}
```

15. Configure the web interface.

```
sudo make install-webconf
```

```
#####
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ sudo make install-webconf
/usr/bin/install -c -m 644 sample-config/httpd.conf /etc/httpd/conf.d/nagios
.conf
if [ 0 -eq 1 ]; then \
    ln -s /etc/httpd/conf.d/nagios.conf /etc/apache2/sites-enabled/nagios
s.conf; \
fi

*** Nagios/Apache conf file installed ***

[ec2-user@ip-172-31-91-91 nagios-4.5.5]$
```

16. Create a nagiosadmin account for nagios login along with password. You'll have to specify the password twice.

```
sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
```

```
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ sudo htpasswd -c /usr/local/nagios/
etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
[ec2-user@ip-172-31-91-91 nagios-4.5.5]$ |
```

## 17. Restart Apache

```
sudo service httpd restart
```

## 18. Go back to the downloads folder and unzip the plugins zip file.

```
cd ~/downloads
```

```
tar zxvf nagios-plugins-2.0.3.tar.gz
```

```
[ec2-user@ip-172-31-91-91 downloads]$ cd ~/downloads
[ec2-user@ip-172-31-91-91 downloads]$ tar zxvf nagios-plugins-2.4.11.tar.gz
nagios-plugins-2.4.11/
nagios-plugins-2.4.11/build-aux/
nagios-plugins-2.4.11/build-aux/compile
nagios-plugins-2.4.11/build-aux/config.guess
nagios-plugins-2.4.11/build-aux/config.rpath
nagios-plugins-2.4.11/build-aux/config.sub
nagios-plugins-2.4.11/build-aux/install-sh
nagios-plugins-2.4.11/build-aux/ltmain.sh
nagios-plugins-2.4.11/build-aux/missing
nagios-plugins-2.4.11/build-aux/mkinstalldirs
nagios-plugins-2.4.11/build-aux/depcomp
nagios-plugins-2.4.11/build-aux/snippet/
nagios-plugins-2.4.11/build-aux/snippet/_Noreturn.h
nagios-plugins-2.4.11/build-aux/snippet/arg-nonnull.h
nagios-plugins-2.4.11/build-aux/snippet/c++defs.h
nagios-plugins-2.4.11/build-aux/snippet/warn-on-use.h
nagios-plugins-2.4.11/build-aux/test-driver
nagios-plugins-2.4.11/config_test/
```

## 19. Compile and install plugins

```
cd nagios-plugins-2.0.3
```

```
./configure --with-nagios-user=nagios --with-nagios-group=nagios
```

```
make
```

```
sudo make install
```

## 20. Start Nagios

Add Nagios to the list of system services

```
sudo chkconfig --add nagios
```

```
sudo chkconfig nagios on
```

Verify the sample configuration files

```
sudo /usr/local/nagios/bin/nagios -v
```

/usr/local/nagios/etc/nagios.cfg If there are no errors, you can go ahead and

start Nagios.

```
sudo service nagios start
```

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$ sudo chkconfig --add nagios
s
sudo chkconfig nagios on
Note: Forwarding request to 'systemctl enable nagios.service'.
Synchronizing state of nagios.service with SysV service script with /usr/lib
/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable nagios
Created symlink /etc/systemd/system/multi-user.target.wants/nagios.service ->
/usr/lib/systemd/system/nagios.service.
[ec2-user@ip-172-31-91-91 nagios-plugins-2.4.11]$ |
```

If facing error like this:

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.0.3]$ sudo /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg
Nagios Core 4.0.8
Copyright (c) 2009-present Nagios Core Development Team and Community Contributors
Copyright (c) 1999-2009 Ethan Galstad
Last Modified: 08-12-2014
License: GPL

Website: http://www.nagios.org
Reading configuration data...
Error in configuration file '/usr/local/nagios/etc/nagios.cfg' - Line 452 (Check result path '/usr/local/nagios/var/spool/checkres
ults' is not a valid directory)
Error processing main config file!
```

Run these commands:

```
sudo mkdir -p /usr/local/nagios/var/spool/checkresults sudo
chown nagios:nagios /usr/local/nagios/var/spool/checkresults sudo
chmod 775 /usr/local/nagios/var/spool/checkresults
```

## 21. Check the status of Nagios

```
sudo systemctl status nagios
```

```
[ec2-user@ip-172-31-91-91 nagios-plugins-2.0.3]$ sudo systemctl status nagios
● nagios.service - LSB: Starts and stops the Nagios monitoring server
   Loaded: loaded (/etc/rc.d/init.d/nagios; generated)
   Active: active (running) since Sun 2024-09-29 08:04:30 UTC; 37s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 68037 ExecStart=/etc/rc.d/init.d/nagios start (code=exited, status=0/SUCCESS)
    Tasks: 6 (limit: 1112)
   Memory: 2.0M
      CPU: 47ms
  CGroup: /system.slice/nagios.service
          └─68059 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
            └─68061 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              └─68062 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                └─68063 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                  └─68064 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
                    └─68065 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Sep 29 08:04:30 ip-172-31-91-91.ec2.internal nagios[68059]: wproc: Registry request: name=Core Worker 68063;pid=68063
Sep 29 08:04:30 ip-172-31-91-91.ec2.internal nagios[68059]: wproc: Registry request: name=Core Worker 68062;pid=68062
Sep 29 08:04:30 ip-172-31-91-91.ec2.internal nagios[68059]: wproc: Registry request: name=Core Worker 68064;pid=68064
Sep 29 08:04:30 ip-172-31-91-91.ec2.internal nagios[68059]: wproc: Registry request: name=Core Worker 68061;pid=68061
Sep 29 08:04:30 ip-172-31-91-91.ec2.internal nagios[68059]: Warning: Could not open object cache file '/usr/local/nagios/var/object
Sep 29 08:04:30 ip-172-31-91-91.ec2.internal nagios[68059]: Error: Unable to create temp file '/usr/local/nagios/var/nagios.tmpx2N
Sep 29 08:04:30 ip-172-31-91-91.ec2.internal nagios[68059]: Successfully launched command file worker with pid 68065
Sep 29 08:04:39 ip-172-31-91-91.ec2.internal nagios[68059]: Error: Unable to create temp file '/usr/local/nagios/var/nagios.tmpTmg
Sep 29 08:04:49 ip-172-31-91-91.ec2.internal nagios[68059]: Error: Unable to create temp file '/usr/local/nagios/var/nagios.tmpAfy
Sep 29 08:04:59 ip-172-31-91-91.ec2.internal nagios[68059]: Error: Unable to create temp file '/usr/local/nagios/var/nagios.tmpCtQ
lines 1-26/26 (END)
```

If you are facing error again:

Firstly check whether `/usr/local/nagios/var/` is there or not. If yes.....

```
ls -ld /usr/local/nagios/var/
```

Change ownership: Set the correct ownership for the Nagios user and group:

**sudo chown -R nagios:nagcmd /usr/local/nagios/var**

Set permissions: Ensure the directory has the right permissions:

**sudo chmod -R 775 /usr/local/nagios/var**

Restart Nagios: After adjusting the ownership and permissions, restart the Nagios service:

**sudo systemctl restart nagios22.** Go back to EC2 Console and copy the Public IP address of this instance

```
[ec2-user@ip-172-31-91-91 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 Sun 2024-09-29 08:51:47 UTC; 42min ago
     Docs: https://www.nagios.org/documentation
    Tasks: 6 (Limit: 1112)
   Memory: 2.9M
      CPU: 562ms
   CGroup: /system.slice/nagios.service
           └─/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
              /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg

Sep 29 08:51:47 ip-172-31-91-91.ec2.internal nagios[71188]: wproc: Registry request: name=Core Worker 71191;pid=71191
Sep 29 08:51:47 ip-172-31-91-91.ec2.internal nagios[71188]: wproc: Registry request: name=Core Worker 71190;pid=71190
Sep 29 08:51:47 ip-172-31-91-91.ec2.internal nagios[71188]: Successfully launched command file worker with pid 71194
Sep 29 08:59:22 ip-172-31-91-91.ec2.internal nagios[71188]: SERVICE ALERT: localhost;HTTP;WARNING;HARD;4;HTTP WARNING: HTTP/1.1 403 Forbidden - 319 bytes
Sep 29 09:11:52 ip-172-31-91-91.ec2.internal nagios[71188]: SERVICE NOTIFICATION: nagiosadmin;localhost;Swap Usage;CRITICAL;notify-service-by-email;SWAP CR
Sep 29 09:11:52 ip-172-31-91-91.ec2.internal nagios[71188]: wproc: NOTIFY job 10 from worker Core Worker 71192 is a non-check helper but exited with return
Sep 29 09:11:52 ip-172-31-91-91.ec2.internal nagios[71188]: wproc: host=localhost; service=Swap Usage; contact=nagiosadmin
Sep 29 09:11:52 ip-172-31-91-91.ec2.internal nagios[71188]: wproc: early_timeout=0; exited_ok=1; wait_status=32512; error_code=0;
Sep 29 09:11:52 ip-172-31-91-91.ec2.internal nagios[71188]: wproc: stderr line 01: /bin/sh: line 1: /bin/mail: No such file or directory
Sep 29 09:11:52 ip-172-31-91-91.ec2.internal nagios[71188]: wproc: stderr line 02: /usr/bin/printf: write error: Broken pipe
lines 1=25/25 (END)
```

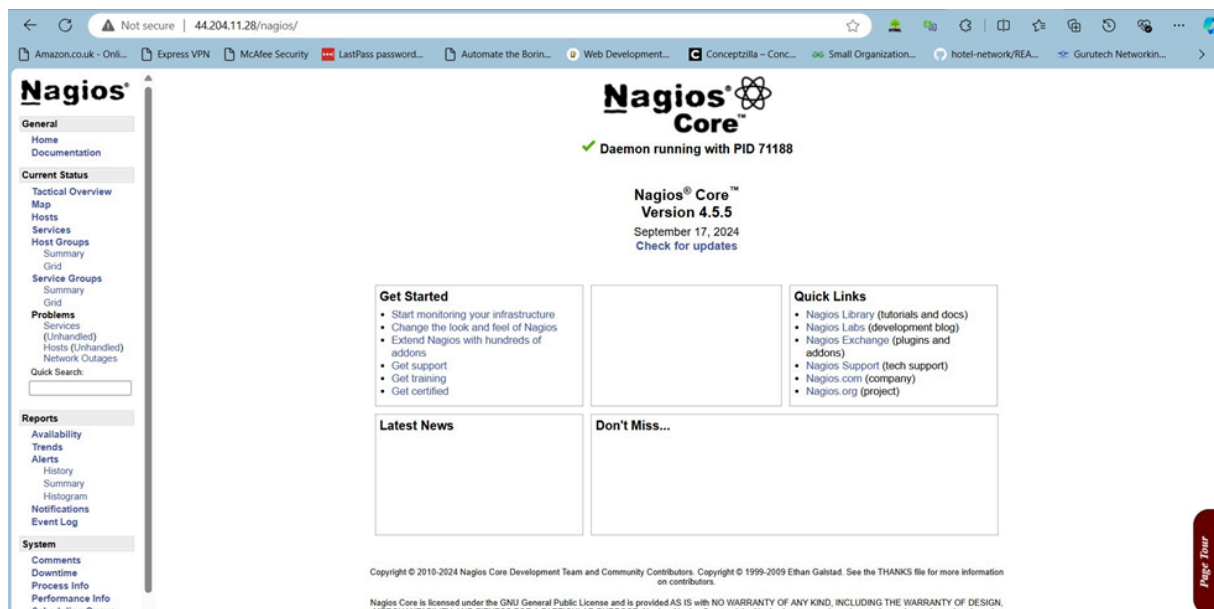
22. Go back to EC2 Console and copy the Public IP address of this instance

The screenshot displays the AWS Management Console interface for an EC2 instance. The top section shows the instance summary for 'i-0011127bbfdb2f467 (nagios-host)'. Key details include the instance ID, IP address (44.204.11.28), hostname type (ip-172-31-91-91.ec2.internal), and instance state (Running). The instance type is t2.micro, and the VPC ID is vpc-0d4c0d8f48c2e4508. The instance details section at the bottom shows the platform as Amazon Linux (Inferred), the AMI name as al2023-ami-2023.5.20240916.0-kernel-6.1-x86\_64, and the launch time as 2024-09-29 08:51:47 UTC. A callout box highlights the public IP address 44.204.11.28.

23. Open up your browser and look for **http://<your\_public\_ip\_address>/nagios** Enter username as nagiosadmin and password which you set in Step 16.

24. After entering the correct credentials, you will see this page.





This means that Nagios was correctly installed and configured with its plugins so far.

### **Conclusion:**

In this practical, we successfully installed and configured Nagios Core along with Nagios plugins and NRPE on an Amazon EC2 instance. We created a Nagios user, set up necessary permissions, and resolved common installation errors. Finally, we verified the setup by accessing the Nagios web interface, confirming that our monitoring system was fully operational.