

## ADVANCE DEVOPS EXPERIMENT 9

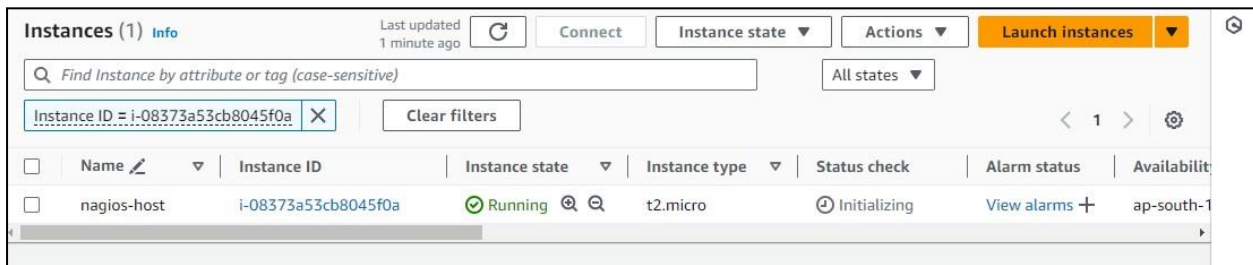
**Name:**Laksh .V. Sodhai

**Class:**D15A

**Roll No:**59

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

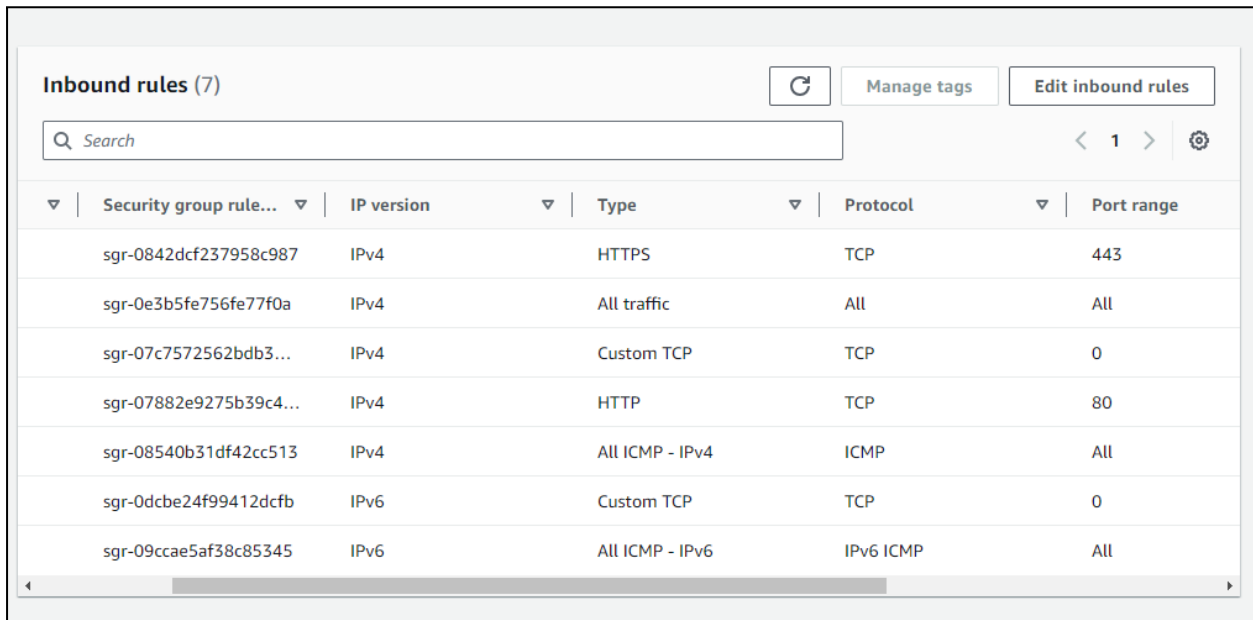
**Step 1:** Create an Amazon Linux EC2 instance and name it as nagios-host



The screenshot shows the AWS Management Console 'Instances' page. It displays one instance named 'nagios-host' with ID 'i-08373a53cb8045f0a'. The instance is in the 'Running' state, using the 't2.micro' instance type. The status check shows 'Initializing'. The console also includes search filters, a 'Launch instances' button, and a table with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, and Availability zone.

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability zone
<input type="checkbox"/>	nagios-host	i-08373a53cb8045f0a	Running	t2.micro	Initializing	View alarms +	ap-south-1

**Step 2:**Edit the following inbound rules of the specified security groups and ensure HTTP,HTTPS,SSH,ICMP are accessible from anywhere



The screenshot shows the 'Inbound rules' page for a security group. It lists seven inbound rules with columns for Security group rule ID, IP version, Type, Protocol, and Port range. The rules include HTTPS (443), All traffic, Custom TCP (0), HTTP (80), All ICMP - IPv4, Custom TCP (0), and All ICMP - IPv6.

Security group rule...	IP version	Type	Protocol	Port range
sgr-0842dcf237958c987	IPv4	HTTPS	TCP	443
sgr-0e3b5fe756fe77f0a	IPv4	All traffic	All	All
sgr-07c7572562bdb3...	IPv4	Custom TCP	TCP	0
sgr-07882e9275b39c4...	IPv4	HTTP	TCP	80
sgr-08540b31df42cc513	IPv4	All ICMP - IPv4	ICMP	All
sgr-0dcbe24f99412dcfb	IPv6	Custom TCP	TCP	0
sgr-09ccae5af38c85345	IPv6	All ICMP - IPv6	IPv6 ICMP	All

### Step 3: Connect to your EC2 instance via the connect option available in EC2 instances menu

```
[ec2-user@ip-172-31-33-14 ~]$ sudo yum install httpd php
Last metadata expiration check: 0:19:23 ago on Thu Sep 26 08:42:17 2024.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
httpd	x86_64	2.4.62-1.amzn2023	amazonlinux	48 k
php8.3	x86_64	8.3.10-1.amzn2023.0.1	amazonlinux	10 k
Installing dependencies:				
apr	x86_64	1.7.2-2.amzn2023.0.2	amazonlinux	129 k
apr-util	x86_64	1.6.3-1.amzn2023.0.1	amazonlinux	98 k
generic-logos-httpd	noarch	18.0.0-12.amzn2023.0.3	amazonlinux	19 k
httpd-core	x86_64	2.4.62-1.amzn2023	amazonlinux	1.4 M
httpd-filesystem	noarch	2.4.62-1.amzn2023	amazonlinux	14 k
httpd-tools	x86_64	2.4.62-1.amzn2023	amazonlinux	81 k
libbrotli	x86_64	1.0.9-4.amzn2023.0.2	amazonlinux	315 k
libsodium	x86_64	1.0.19-4.amzn2023	amazonlinux	176 k
libxslt	x86_64	1.1.34-5.amzn2023.0.2	amazonlinux	241 k
mailman	noarch	2.1.48-3.amzn2023.0.3	amazonlinux	23 k

### Step 4: Update and install the required packages

Use the following commands:

```
sudo yum update
```

```
sudo yum install httpd php
```

```
sudo yum install gcc glibc glibc-common
```

```
sudo yum install gd gd-devel
```

```
[ec2-user@ip-172-31-33-14 ~]$ sudo yum install gcc glibc glibc-common
Last metadata expiration check: 0:20:32 ago on Thu Sep 26 08:42:17 2024.
Package glibc-2.34-52.amzn2023.0.11.x86_64 is already installed.
Package glibc-common-2.34-52.amzn2023.0.11.x86_64 is already installed.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
gcc	x86_64	11.4.1-2.amzn2023.0.2	amazonlinux	32 M
Installing dependencies:				
annobin-docs	noarch	10.93-1.amzn2023.0.1	amazonlinux	92 k
annobin-plugin-gcc	x86_64	10.93-1.amzn2023.0.1	amazonlinux	887 k
cpp	x86_64	11.4.1-2.amzn2023.0.2	amazonlinux	10 M
gc	x86_64	8.0.4-5.amzn2023.0.2	amazonlinux	105 k
glibc-devel	x86_64	2.34-52.amzn2023.0.11	amazonlinux	27 k
glibc-headers-x86	noarch	2.34-52.amzn2023.0.11	amazonlinux	427 k
guile22	x86_64	2.2.7-2.amzn2023.0.3	amazonlinux	6.4 M
kernel-headers	x86_64	6.1.109-118.189.amzn2023	amazonlinux	1.4 M
libmpc	x86_64	1.2.1-2.amzn2023.0.2	amazonlinux	62 k
libtool-ltdl	x86_64	2.4.7-1.amzn2023.0.3	amazonlinux	38 k
libxcrypt-devel	x86_64	4.4.33-7.amzn2023	amazonlinux	32 k

```
[ec2-user@ip-172-31-33-14 ~]$ sudo yum install gd gd-devel
Last metadata expiration check: 0:21:27 ago on Thu Sep 26 08:42:17 2024.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
gd	x86_64	2.3.3-5.amzn2023.0.3	amazonlinux	139 k
gd-devel	x86_64	2.3.3-5.amzn2023.0.3	amazonlinux	38 k
Installing dependencies:				
broccoli	x86_64	1.0.9-4.amzn2023.0.2	amazonlinux	314 k
broccoli-devel	x86_64	1.0.9-4.amzn2023.0.2	amazonlinux	31 k
bzip2-devel	x86_64	1.0.8-6.amzn2023.0.2	amazonlinux	214 k
cairo	x86_64	1.17.6-2.amzn2023.0.1	amazonlinux	684 k
cmake-filesystem	x86_64	3.22.2-1.amzn2023.0.4	amazonlinux	16 k
fontconfig	x86_64	2.13.94-2.amzn2023.0.2	amazonlinux	273 k
fontconfig-devel	x86_64	2.13.94-2.amzn2023.0.2	amazonlinux	128 k
fontconfig-filesystem	noarch	1.2.0.5-12.amzn2023.0.2	amazonlinux	9.5 k
fontconfig-headers	x86_64	2.13.94-2.amzn2023.0.1	amazonlinux	422 k

**Step 5:** Create a new nagios user by writing the following commands

**sudo adduser -m nagios**

**sudo passwd nagios**

```
Complete!
[ec2-user@ip-172-31-33-14 ~]$ sudo adduser -m nagios
[ec2-user@ip-172-31-33-14 ~]$ sudo passwd nagios
Changing password for user nagios.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[ec2-user@ip-172-31-33-14 ~]$
```

**Step 6:** Create a new user group using **sudo groupadd nagcmd** and

Add users to the group using the following commands:

**sudo usermod -a -G nagcmd nagios**

**sudo usermod -a -G nagcmd apache**

```
Complete!
[ec2-user@ip-172-31-33-14 ~]$ sudo adduser -m nagios
[ec2-user@ip-172-31-33-14 ~]$ sudo passwd nagios
Changing password for user nagios.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[ec2-user@ip-172-31-33-14 ~]$ sudo groupadd nagcmd
[ec2-user@ip-172-31-33-14 ~]$ sudo usermod -a -G nagcmd nagios
[ec2-user@ip-172-31-33-14 ~]$ sudo usermod -a -G nagcmd apache
[ec2-user@ip-172-31-33-14 ~]$ mkdir downloads
[ec2-user@ip-172-31-33-14 ~]$ cd downloads
[ec2-user@ip-172-31-33-14 downloads]$ wget https://sourceforge.net/projects/nagios/files/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz/download?use_mirror=excellmedia
--2024-09-26 09:15:54-- https://sourceforge.net/projects/nagios/files/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz/download?use_mirror=excellmedia
Resolving sourceforge.net (sourceforge.net)... 172.64.150.145, 104.18.37.111, 2606:4700:4400::6812:256f, ...
Connecting to sourceforge.net (sourceforge.net)|172.64.150.145|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz?ts=gAAAAABm9S2KLFw7LwD1QAJ2jNzqmSJwAPAlmQ-eAJYK8z5Nmrv iFVkhbsV-qOfPsLUyIC6yvdHu6UeeIyvNZsVGutir9BeQ%3D%3D&use_mirror=excellmedia&r= [following]
```

**Step 7:** Create a directory for Nagios downloads using the following commands-

Commands -

**mkdir ~/downloads**

**cd ~/downloads**

Also download Nagios and plugin source files

Commands -

**wget**

**<https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.4.6.tar.gz>**

**wget <https://nagios-plugins.org/download/nagios-plugins-2.3.3.tar.gz>**

```

Connecting to prdownloads.sourceforge.net (prdownloads.sourceforge.net)|204.68.111.105|:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz [following]
--2024-09-26 09:38:43-- https://downloads.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz
Resolving downloads.sourceforge.net (downloads.sourceforge.net)... 204.68.111.105
Connecting to downloads.sourceforge.net (downloads.sourceforge.net)|204.68.111.105|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://excellmedia.dl.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz?viasf=1 [following]
--2024-09-26 09:38:45-- https://excellmedia.dl.sourceforge.net/project/nagios/nagios-4.x/nagios-4.0.8/nagios-4.0.8.tar.gz?viasf=1
Resolving excellmedia.dl.sourceforge.net (excellmedia.dl.sourceforge.net)... 202.153.32.19, 2401:fb00:0:1fe:8000::5
Connecting to excellmedia.dl.sourceforge.net (excellmedia.dl.sourceforge.net)|202.153.32.19|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1805059 (1.7M) [application/x-gzip]
Saving to: 'nagios-4.0.8.tar.gz'

nagios-4.0.8.tar.gz          100%[=====>]  1.72M  8.14MB/s  in 0.2s

2024-09-26 09:38:45 (8.14 MB/s) - 'nagios-4.0.8.tar.gz' saved [1805059/1805059]

[ec2-user@ip-172-31-33-14 downloads]$ ls
'download?use_mirror=excellmedia'  nagios-4.0.8.tar.gz
[ec2-user@ip-172-31-33-14 downloads]$ tar -xzf nagios-4.0.8.tar.gz
[ec2-user@ip-172-31-33-14 downloads]$ 

```

**Step 8-Extract the nagios source file with the following commands**

**tar zxvf nagios-4.4.6.tar.gz**

**cd nagios-4.4.6**

Then run the configuration script with the following command

**/configure --with-command-group=nagcmd**

```

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.

[ec2-user@ip-172-31-33-14 nagios-4.0.8]$ 

```

**Step 9-**Compile the source code with the following commands  
make all

```
[ec2-user@ip-172-31-33-14 nagios-4.0.8]$ make all
cd ./base && make
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/base'
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o nagios.o nagios.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o broker.o broker.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o nebmodes.o nebmodes.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o ../common/shared.o ../common/shared.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o nerd.o nerd.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o query-handler.o query-handler.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o workers.o workers.c
In function 'get_wproc_list',
    inlined from 'get_worker' at workers.c:224:12:
workers.c:209:17: warning: 's' directive argument is null [-Wformat-overflow=]
   209 |         log_debug_info(DEBUGL_CHECKS, 1, "Found specialized worker(s) for '%s'", (slash && *slash != '/') ? slash : cmd_name);
       |         ^~~~~~
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o checks.o checks.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o config.o config.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o commands.o commands.c
commands.c: In function 'process_passive_service_check':
commands.c:2247:19: warning: assignment discards 'const' qualifier from pointer target type [-Wdiscarded-qualifiers]
```

**Step 10-**Install binaries,init script and sample config files

Commands -

**./sudo make install**

**sudo make install-init**

**sudo make install-config**

**sudo make install-commandmode**

```
*** Config files installed ***

Remember, these are *SAMPLE* config files.  You'll need to read
the documentation for more information on how to actually define
services, hosts, etc. to fit your particular needs.

/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 ***

[ec2-user@ip-172-31-33-14 nagios-4.0.8]$
```

**Step 11-**Edit the Config File to Change the Email Address

Commands -

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

- Change the email address in the contacts.cfg file to your preferred email

**Step 12-**Configure the Web Interface

Commands -

**sudo make install-webconf**

```
aws Services Search [Alt+S] Mumbai Vaishnal
GNU nano 5.8 /usr/local/nagios/etc/objects/contacts.cfg

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 *****
}

#####
#
# CONTACT GROUPS
#
#####

] We only have one contact in this simple configuration file, so there is

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

## Step 13-Create a Nagios Admin Account

Commands -

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

- You will be prompted to enter and confirm the password for the nagiosadmin user

```
aws Services Search [Alt+S] Mumbai Vaishnal Modified
GNU nano 5.8 /usr/local/nagios/etc/objects/contacts.cfg

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            vaishnal16305@gmail.com ; <<***** CHANGE THIS TO YOUR EMAIL ADDRESS *****
}

#####
#
# CONTACT GROUPS
#
#####

] We only have one contact in this simple configuration file, so there is

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

## Step 14-. Extract the Plugins Source File

Commands -

**cd ~/downloads**

**tar xzvf nagios-plugins-2.3.3.tar.gz**

**cd nagios-plugins-2.3.3**

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

[ec2-user@ip-172-31-33-14 nagios-4.0.8]$ sudo nano /usr/local/nagios/etc/objects/contacts.cfg
[ec2-user@ip-172-31-33-14 nagios-4.0.8]$ sudo make install-webconf
/usr/bin/install -c -m 644 sample-config/httpd.conf /etc/httpd/conf.d/nagios.conf

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



## Step 15-19. Compile and Install Plugins

Commands -

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

**make**

**sudo make install**

```
[ec2-user@ip-172-31-33-14 nagios-4.0.8]$ sudo htpasswd -c /usr/local/nagios/etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
```

## Step 16-Start Nagios

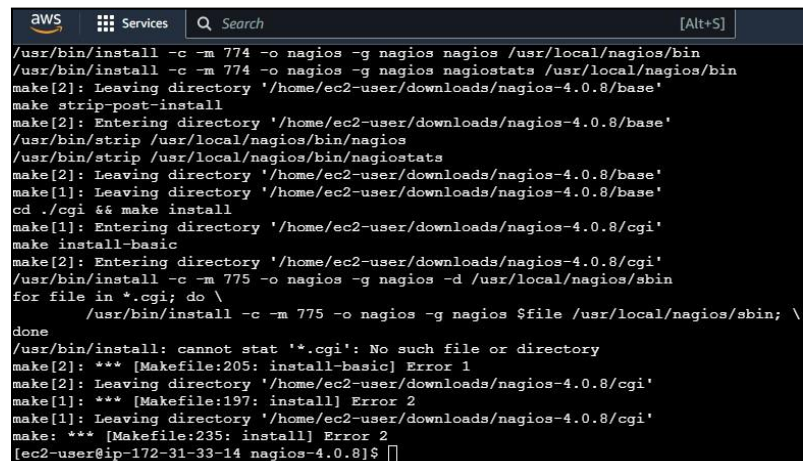
Commands -

**sudo chkconfig --add nagios**

**sudo chkconfig nagios on**

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

**sudo systemctl start nagios**



```
aws Services Search [Alt+S] Mumbai
/usr/bin/install -c -m 774 -o nagios -g nagios nagios /usr/local/nagios/bin
/usr/bin/install -c -m 774 -o nagios -g nagios nagiosstats /usr/local/nagios/bin
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/base'
make strip-post-install
make[2]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/base'
/usr/bin/strip /usr/local/nagios/bin/nagios
/usr/bin/strip /usr/local/nagios/bin/nagiosstats
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/base'
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/base'
cd ./cgi && make install
make[1]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/cgi'
make install-basic
make[2]: Entering directory '/home/ec2-user/downloads/nagios-4.0.8/cgi'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/sbin
for file in *.cgi; do \
  /usr/bin/install -c -m 775 -o nagios -g nagios $file /usr/local/nagios/sbin; \
done
/usr/bin/install: cannot stat '*.cgi': No such file or directory
make[2]: *** [Makefile:205: install-basic] Error 1
make[2]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/cgi'
make[1]: *** [Makefile:197: install] Error 2
make[1]: Leaving directory '/home/ec2-user/downloads/nagios-4.0.8/cgi'
make: *** [Makefile:235: install] Error 2
[ec2-user@ip-172-31-33-14 nagios-4.0.8]$
```

## Step 17-Access Nagios Web Interface

- Copy the Public IP address of your EC2 instance.
- Open your browser and navigate to <http://nagios>.
- Enter the username nagiosadmin and the password you set in Step 16.

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 Unable to get process status

**Nagios® Core™**  
**Version 4.4.6**

April 28, 2020  
[Check for updates](#)

**A new version of Nagios Core is available!**  
Visit [nagios.org](https://nagios.org) to download Nagios 4.5.5.

### Get Started

- Start monitoring your infrastructure
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