

Nginx Reverse proxy

Tasks :

Configure a Linux VM with the following:

- Nginx as a reverse proxy.
- Firewall rules to allow only HTTP/HTTPS traffic.
- A custom 404 error page.

Launching the EC2 instances in Linux (Ubuntu)

Instance summary for i-0a1c50134539f50cf (nginx) info

Updated less than a minute ago

Instance ID: i-0a1c50134539f50cf

Public IPv4 address: 44.211.142.135 | open address

Private IPv4 address: 172.31.95.168

Instance state: Running

Public IPv4 DNS: ec2-44-211-142-135.compute-1.amazonaws.com | open address

Private IP DNS name (IPv4 only): ip-172-31-95-168.ec2.internal

Instance type: t2.micro

Elastic IP addresses: -

AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendation s. | Learn more

Auto Scaling Group name: -

Managed: false

Hostname type: IP name: ip-172-31-95-168.ec2.internal

Answer private resource DNS name: IPV4 (A)

Auto-assigned IP address: 44.211.142.135 [Public IP]

IAM Role: -

IMDSv2: Required

VPC ID: vpc-057be6ca72553334

Subnet ID: subnet-0e2f006cd857d91e8

Instance ARN: arn:aws:ec2:us-east-1:519397520425:instance/i-0a1c50134539f50cf

Operator

Installing Proxy server (Nginx)

```
root@ip-172-31-95-168:/home/ubuntu# apt install nginx -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  nginx-common
Suggested packages:
  fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  nginx nginx-common
0 upgraded, 2 newly installed, 0 to remove and 56 not upgraded.
Need to get 552 kB of archives.
After this operation, 1596 kB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2ubuntu7.1 [31.2 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubuntu7.1 [521 kB]
Fetched 552 kB in 0s (22.1 MB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 70601 files and directories currently installed.)
Preparing to unpack .../nginx-common-1.24.0-2ubuntu7.1_all.deb ...
Unpacking nginx-common (1.24.0-2ubuntu7.1) ...
Selecting previously unselected package nginx.
Preparing to unpack .../nginx-1.24.0-2ubuntu7.1_amd64.deb ...
Unpacking nginx (1.24.0-2ubuntu7.1) ...
Setting up nginx-common (1.24.0-2ubuntu7.1) ...
Setting up nginx (1.24.0-2ubuntu7.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service -> /usr/lib/systemd/system/nginx.service.
Processing triggers for ufw (0.36.2-6) ...
```

i-0a1c50134539f50cf (nginx)

PublicIPs: 44.211.142.135 PrivateIPs: 172.31.95.168

Added the Inbound rules for HTTP and HTTPS.

Edit inbound rules [Info](#)

Inbound rules control the incoming traffic that's allowed to reach the instance.

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	
sgr-059c4de801e616620	SSH	TCP	22	Cu...		Delete
-	HTTP	TCP	80	An...	0.0.0.0/0	Delete
-	HTTPS	TCP	443	An...	0.0.0.0/0	Delete

[Add rule](#)

Rules with source of 0.0.0.0/0 or :::0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

[Cancel](#) [Preview changes](#) [Save rules](#)

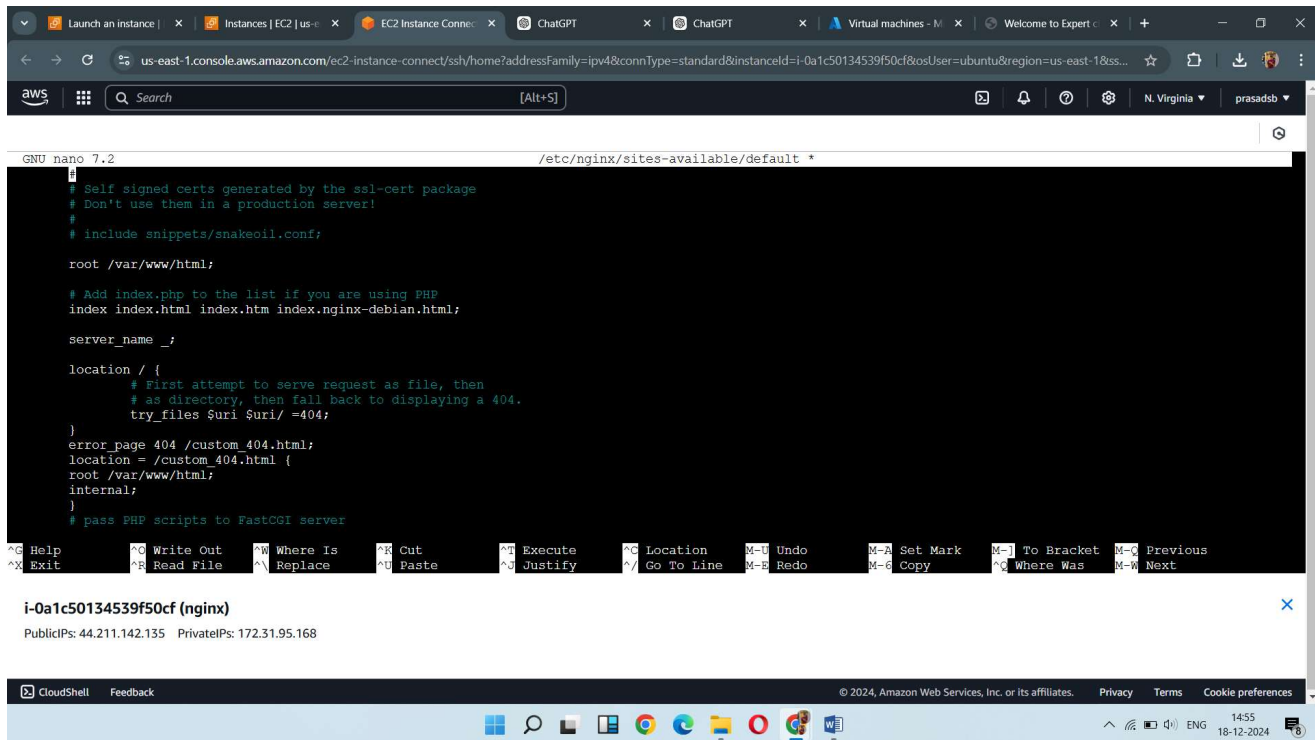
Nginx page is visible now

Welcome to Expert cloud consulting!

this is prasad!!!!

Thank you for using nginx.

Added configuration for 404_Error page



The screenshot shows the AWS CloudShell interface with a terminal window. The terminal is running the nano text editor to edit the file `/etc/nginx/sites-available/default`. The configuration includes comments about self-signed certificates and includes `snippets/snakeoil.conf`. The `server` block is configured with `root /var/www/html;` and a `location /` block that attempts to serve the request as a file or directory, falling back to displaying a 404 error page. The `error_page 404 /custom_404.html;` directive is added, and a `location = /custom_404.html` block is defined with `root /var/www/html;` and `internal;` directives. The terminal also shows the `server_name _;` directive. The CloudShell interface includes a top navigation bar with tabs for 'Launch an instance', 'Instances | EC2 | us-east-1', 'EC2 Instance Connect', 'ChatGPT', 'Virtual machines - M', and 'Welcome to Expert'. The bottom status bar shows the instance ID `i-0a1c50134539f50cf` (nginx), public IP `44.211.142.135`, private IP `172.31.95.168`, and the date `18-12-2024`.

```
GNU nano 7.2 /etc/nginx/sites-available/default *
# Self signed certs generated by the ssl-cert package
# Don't use them in a production server!
#
# include snippets/snakeoil.conf;

root /var/www/html;

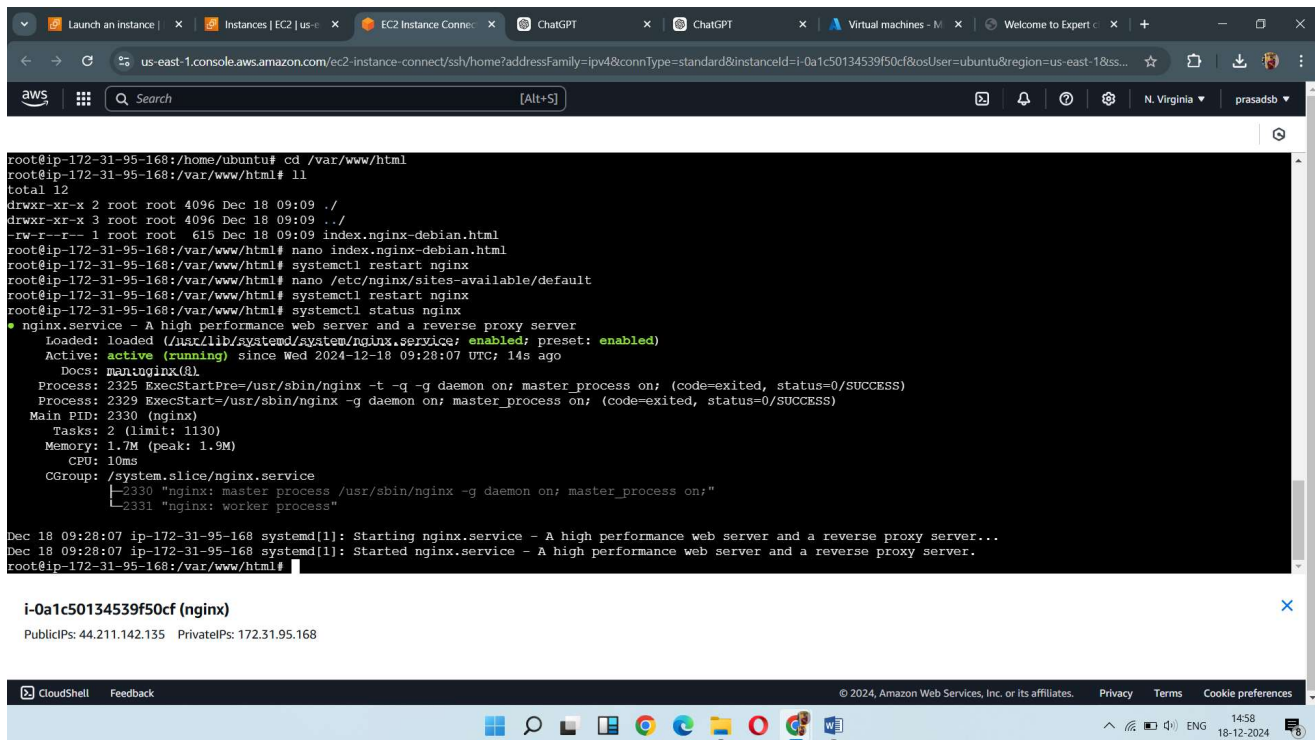
# Add index.php to the list if you are using PHP
index index.html index.htm index.nginx-debian.html;

server_name _;

location / {
    # First attempt to serve request as file, then
    # as directory, then fall back to displaying a 404.
    try_files $uri $uri/ =404;
}
error_page 404 /custom_404.html;
location = /custom_404.html {
    root /var/www/html;
    internal;
}
# pass PHP scripts to FastCGI server

i-0a1c50134539f50cf (nginx)
PublicIPs: 44.211.142.135 PrivateIPs: 172.31.95.168
```

Restart Nginx service

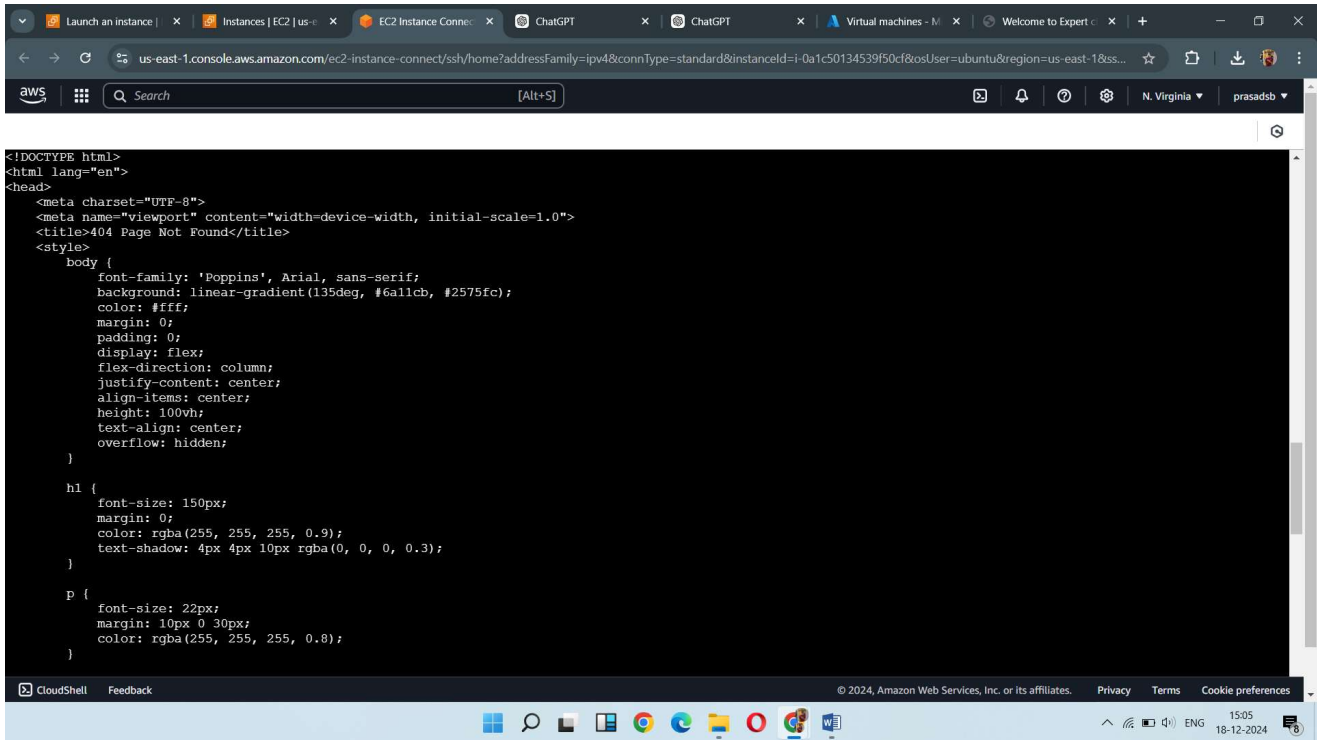


The screenshot shows the AWS CloudShell interface with a terminal window. The terminal displays the output of the `systemctl restart nginx` command. The output shows that the `nginx.service` is a high performance web server and a reverse proxy server, loaded from `/usr/lib/systemd/system/nginx.service`, and is currently active (running). The terminal also shows the output of the `systemctl status nginx` command, which displays the service's status, including the main PID, tasks, memory, CPU, and CGroup. The CloudShell interface includes a top navigation bar with tabs for 'Launch an instance', 'Instances | EC2 | us-east-1', 'EC2 Instance Connect', 'ChatGPT', 'Virtual machines - M', and 'Welcome to Expert'. The bottom status bar shows the instance ID `i-0a1c50134539f50cf` (nginx), public IP `44.211.142.135`, private IP `172.31.95.168`, and the date `18-12-2024`.

```
root@ip-172-31-95-168:/home/ubuntu# cd /var/www/html
root@ip-172-31-95-168:/var/www/html# ll
total 12
drwxr-xr-x 2 root root 4096 Dec 18 09:09 ./
drwxr-xr-x 3 root root 4096 Dec 18 09:09 ../
-rw-r--r-- 1 root root 615 Dec 18 09:09 index.nginx-debian.html
root@ip-172-31-95-168:/var/www/html# nano index.nginx-debian.html
root@ip-172-31-95-168:/var/www/html# systemctl restart nginx
root@ip-172-31-95-168:/var/www/html# nano /etc/nginx/sites-available/default
root@ip-172-31-95-168:/var/www/html# systemctl restart nginx
root@ip-172-31-95-168:/var/www/html# systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-12-18 09:28:07 UTC; 14s ago
     Docs: man:nginx(8)
   Process: 2325 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Process: 2329 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Main PID: 2330 (nginx)
    Tasks: 2 (limit: 1130)
   Memory: 1.7M (peak: 1.9M)
      CPU: 10ms
   CGroup: /system.slice/nginx.service
           └─2330 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             └─2331 "nginx: worker process"

Dec 18 09:28:07 ip-172-31-95-168 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Dec 18 09:28:07 ip-172-31-95-168 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
root@ip-172-31-95-168:/var/www/html#
```

Added custom_404.html file and restart nginx.



The screenshot shows a CloudShell terminal window with the following HTML code for a custom 404 error page:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>404 Page Not Found</title>
  <style>
    body {
      font-family: 'Poppins', Arial, sans-serif;
      background: linear-gradient(135deg, #6allcb, #2575fc);
      color: #fff;
      margin: 0;
      padding: 0;
      display: flex;
      flex-direction: column;
      justify-content: center;
      align-items: center;
      height: 100vh;
      text-align: center;
      overflow: hidden;
    }

    h1 {
      font-size: 150px;
      margin: 0;
      color: rgba(255, 255, 255, 0.9);
      text-shadow: 4px 4px 10px rgba(0, 0, 0, 0.3);
    }

    p {
      font-size: 22px;
      margin: 10px 0 30px 0;
      color: rgba(255, 255, 255, 0.8);
    }
  </style>
</head>
<body>
  <h1>404</h1>
  <p>Oops! The page you are looking for doesn't exist.</p>
  <img alt="A yellow star icon." data-bbox="392 728 418 748"/>
  <p>Lost in the Galaxy...</p>
  <a href="#">Go Back to Space</a>
</body>
</html>
```

Custom 404 error page

