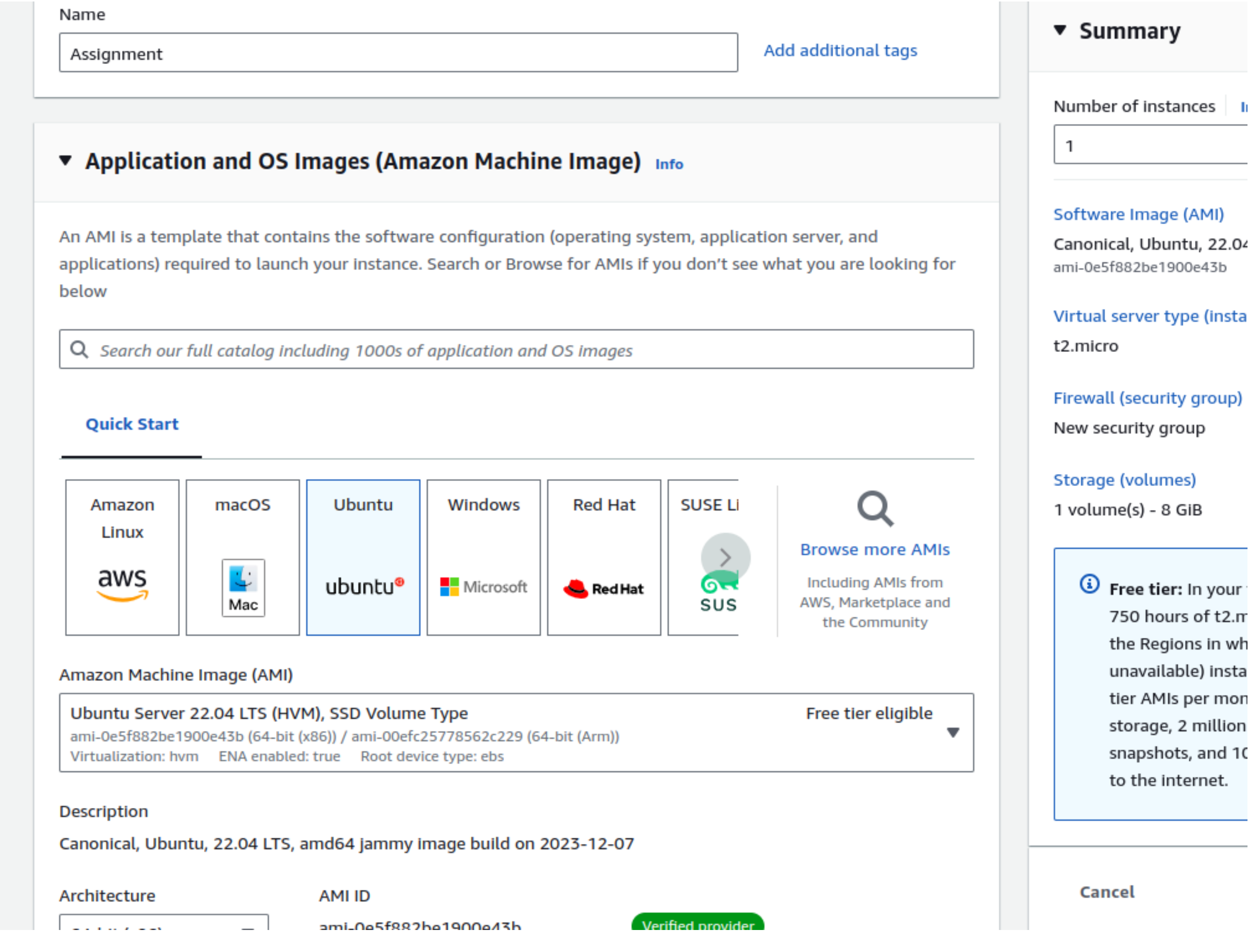
Server Provisioning:

1: Provision a Virtual Private Server (VPS) with a major cloud provider (e.g., AWS, Azure, Google Cloud, or DigitalOcean) to host the WordPress website.

2. Configure the VPS with a secure Linux distribution (e.g., Ubuntu 22.04) and ensure that all necessary firewall rules are applied.

Created EC2 instance on AWS (Ubuntu server = 22.04 LTS)



Name

Assignment

▼ Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Amazon Machine Image (AMI)

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type — Free tier eligible
ami-0e5f882be1900e43b (64-bit (x86)) / ami-00efc25778562c229 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Canonical, Ubuntu, 22.04 LTS, amd64 jammy image build on 2023-12-07

Architecture

AMI ID

ami-0e5f882be1900e43b

▼ Summary

Number of instances

1

Software Image (AMI)

Canonical, Ubuntu, 22.04

ami-0e5f882be1900e43b

Virtual server type (insta

t2.micro

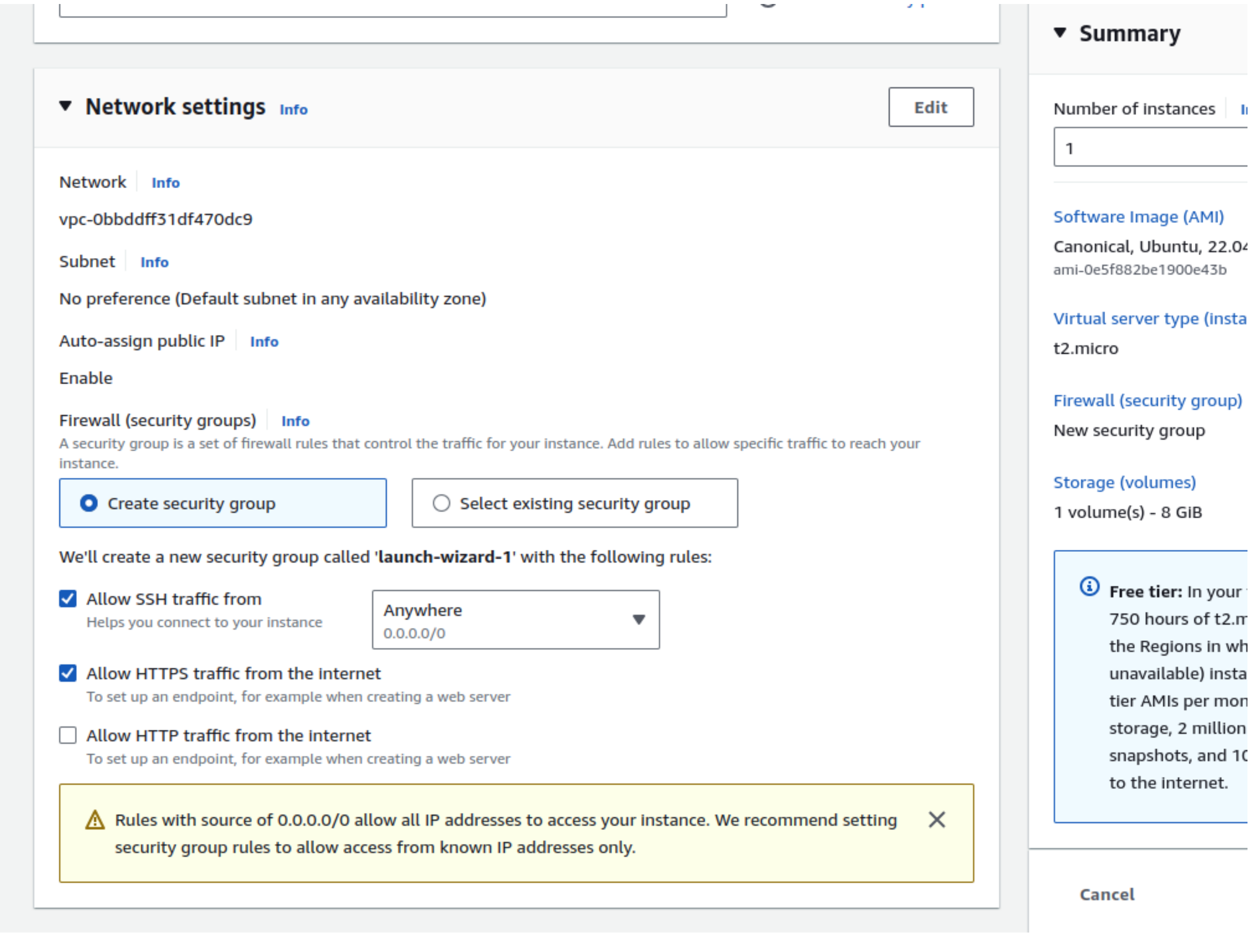
Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your
750 hours of t2.m
the Regions in wh
unavailable) insta
tier AMIs per mon
storage, 2 million
snapshots, and 10
to the internet.



▼ **Network settings** Info

Network | Info

vpc-0bbddff31df470dc9

Subnet | Info

No preference (Default subnet in any availability zone)

Auto-assign public IP | Info

Enable

Firewall (security groups) | Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

● Create security group ○ Select existing security group

We'll create a new security group called '**launch-wizard-1**' with the following rules:

☑ Allow SSH traffic from — Anywhere 0.0.0.0/0 ▼
Helps you connect to your instance

☑ Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

□ Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

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

▼ **Summary**

Number of instances | I

1

Software Image (AMI)

Canonical, Ubuntu, 22.04
ami-0e5f882be1900e43b

Virtual server type (insta

t2.micro

Firewall (security group)

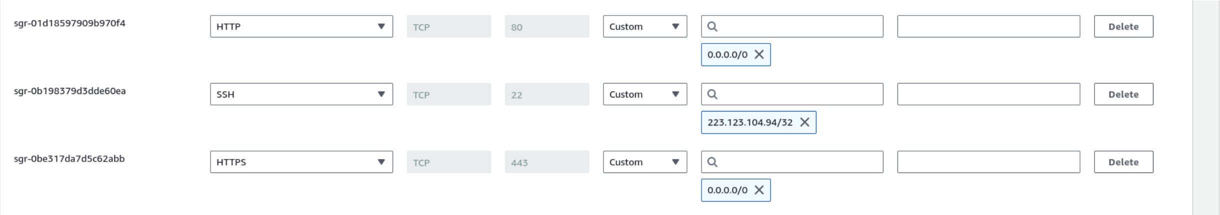
New security group

Storage (volumes)

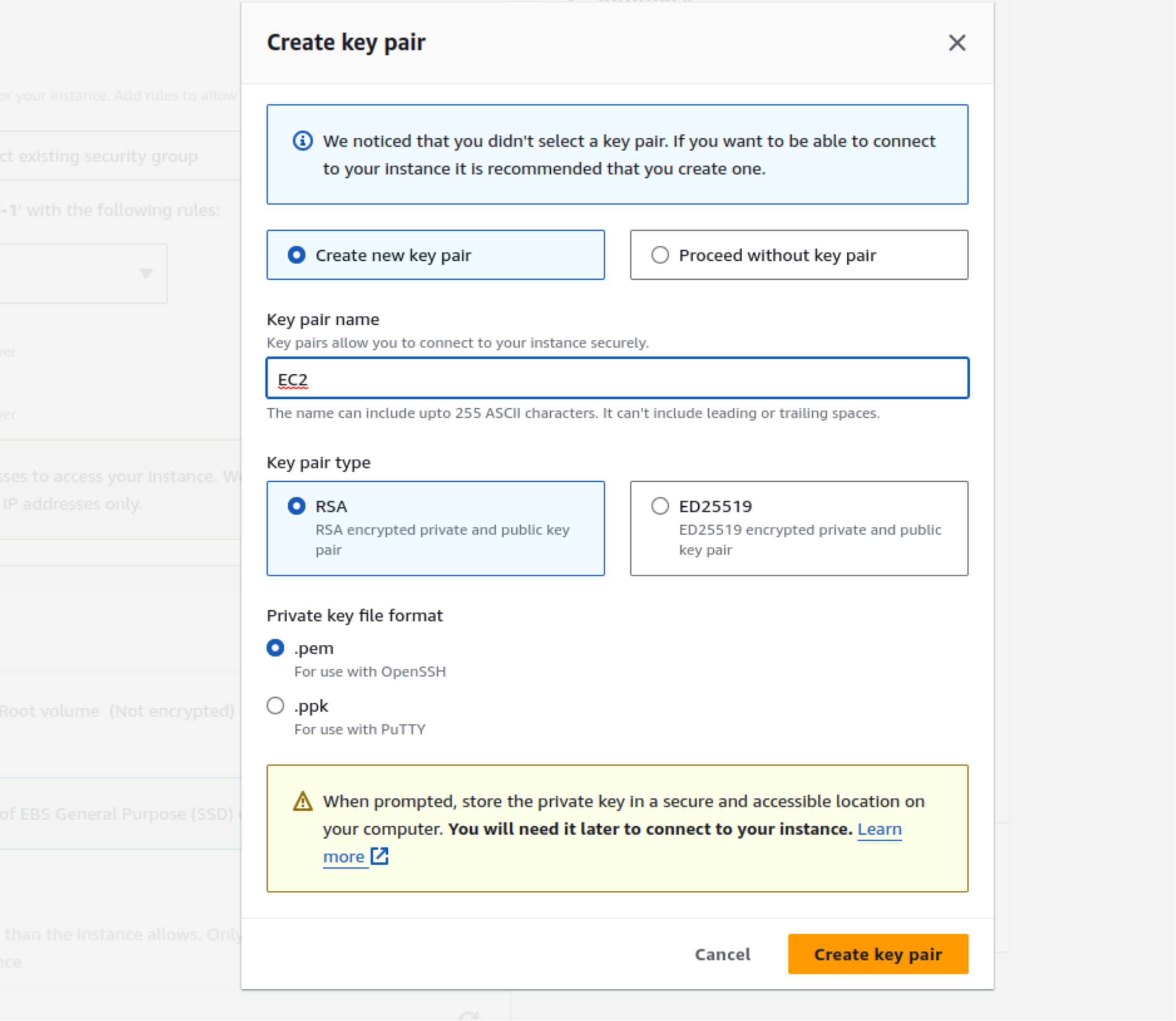
1 volume(s) - 8 GiB

Free tier: In your
750 hours of t2.m
the Regions in wh
unavailable) insta
tier AMIs per mon
storage, 2 million
snapshots, and 10
to the internet.

Later on modified SSH traffic to my IP only:



sgr-01d18597909b970f4	HTTP ▼	TCP	80	Custom ▼	0.0.0.0/0 ✕		Delete
sgr-0b198379d3dde60ea	SSH ▼	TCP	22	Custom ▼	223.123.104.94/32 ✕		Delete
sgr-0be317da7d5c62abb	HTTPS ▼	TCP	443	Custom ▼	0.0.0.0/0 ✕		Delete



Create key pair

ⓘ We noticed that you didn't select a key pair. If you want to be able to connect to your instance it is recommended that you create one.

● Create new key pair

○ Proceed without key pair

Key pair name

Key pairs allow you to connect to your instance securely.

EC2

The name can include upto 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

● RSA
RSA encrypted private and public key pair

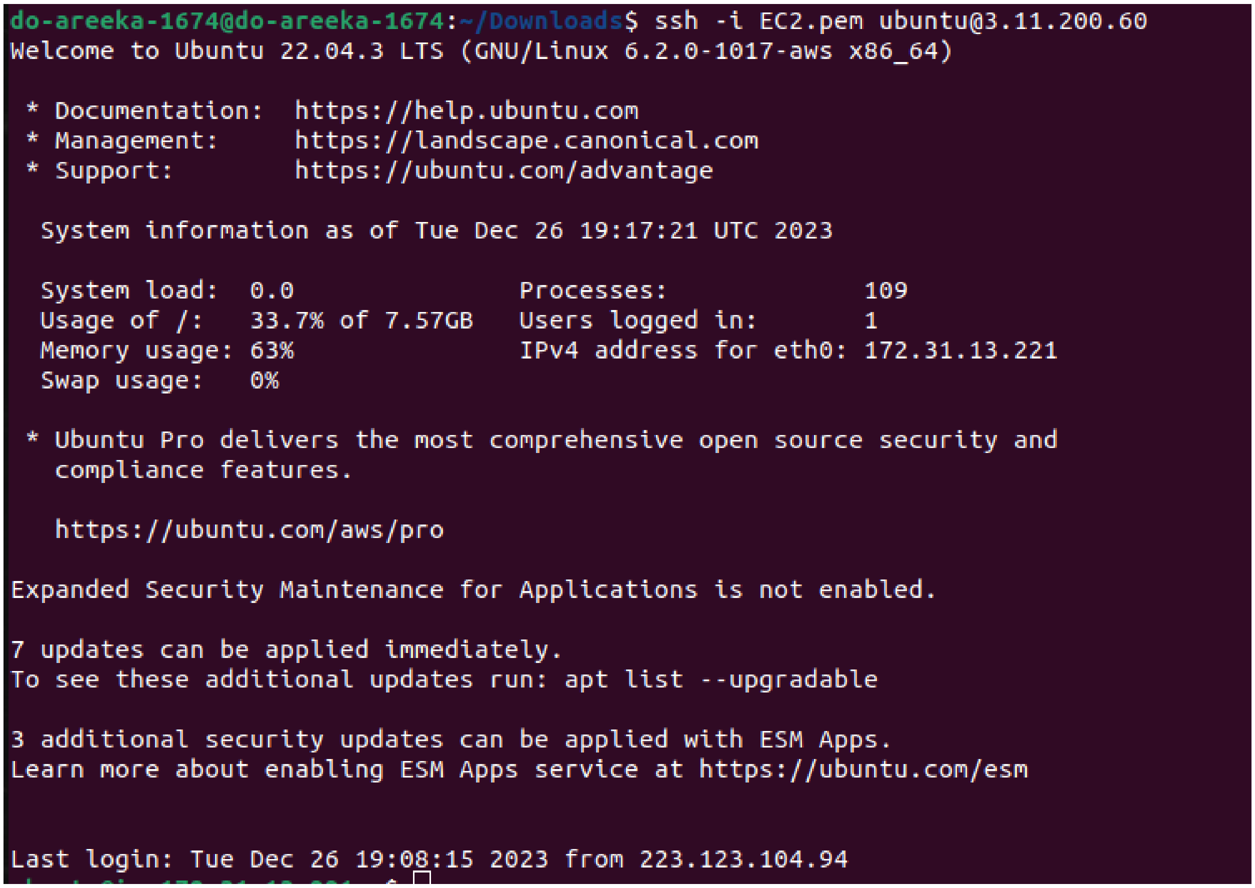
○ ED25519
ED25519 encrypted private and public key pair

Private key file format

● .pem
For use with OpenSSH

○ .ppk
For use with PuTTY

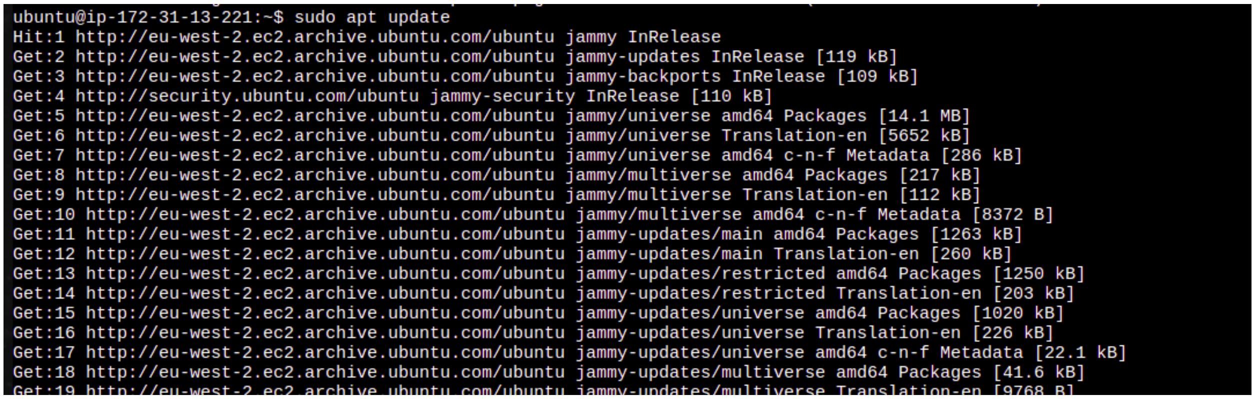
⚠ When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** Learn more



```
do-areeka-1674@do-areeka-1674:~/Downloads$ ssh -i EC2.pem ubuntu@3.11.200.60
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1017-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Tue Dec 26 19:17:21 UTC 2023

  System load:  0.0               Processes:             109
  Usage of /:   33.7% of 7.57GB   Users logged in:       1
  Memory usage: 63%               IPv4 address for eth0: 172.31.13.221
  Swap usage:   0%

 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.

   https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

7 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

3 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm


Last login: Tue Dec 26 19:08:15 2023 from 223.123.104.94
```

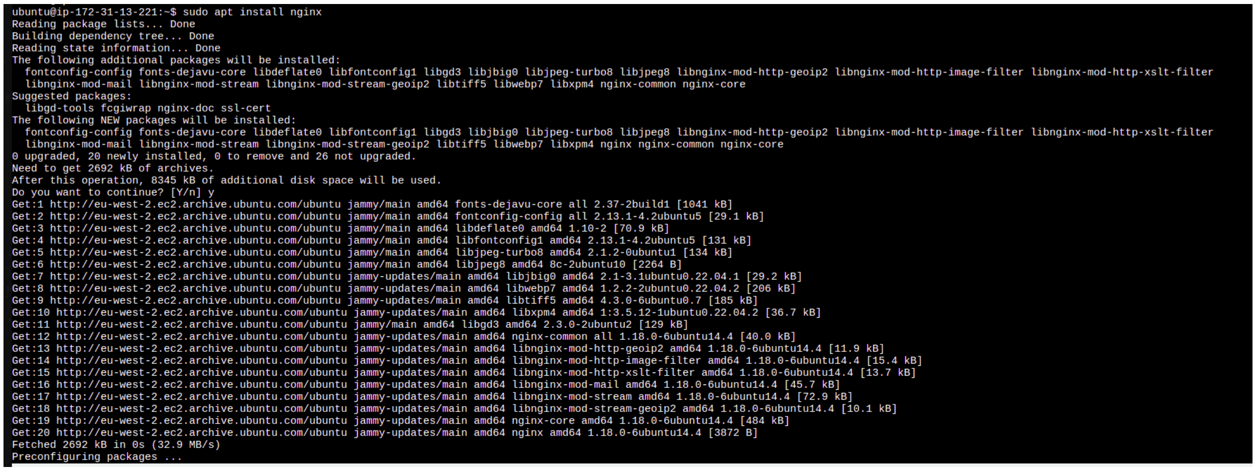
3: Install and configure Nginx as the web server, MySQL/MariaDB as the database, and PHP for processing dynamic content.

Update packages



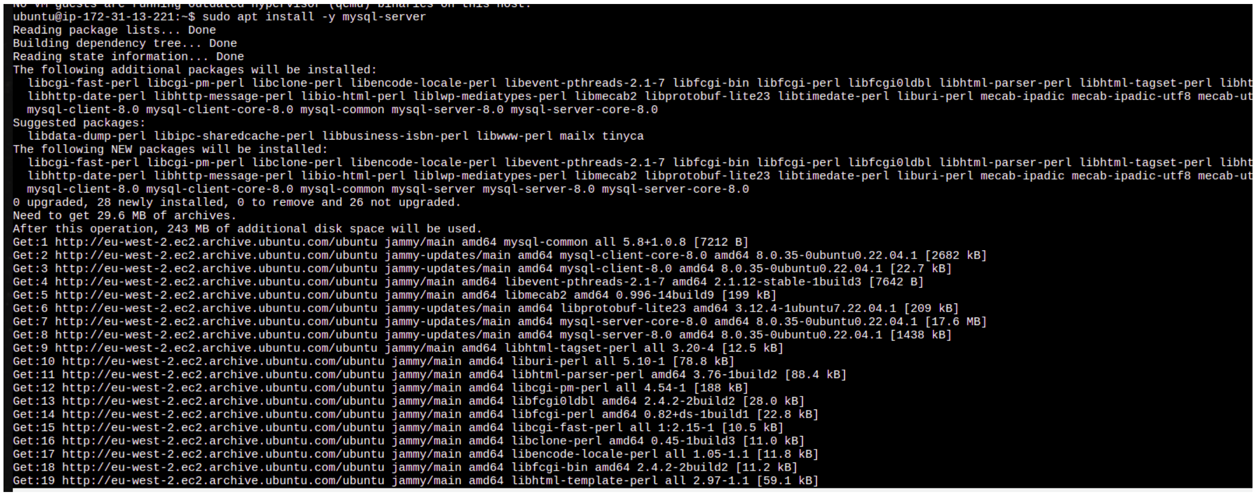
```
ubuntu@ip-172-31-13-221:~$ sudo apt update
Hit:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1263 kB]
Get:12 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [260 kB]
Get:13 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1250 kB]
Get:14 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [203 kB]
Get:15 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1020 kB]
Get:16 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [226 kB]
Get:17 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [22.1 kB]
Get:18 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [41.6 kB]
Get:19 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [9768 B]
```

Install Nginx



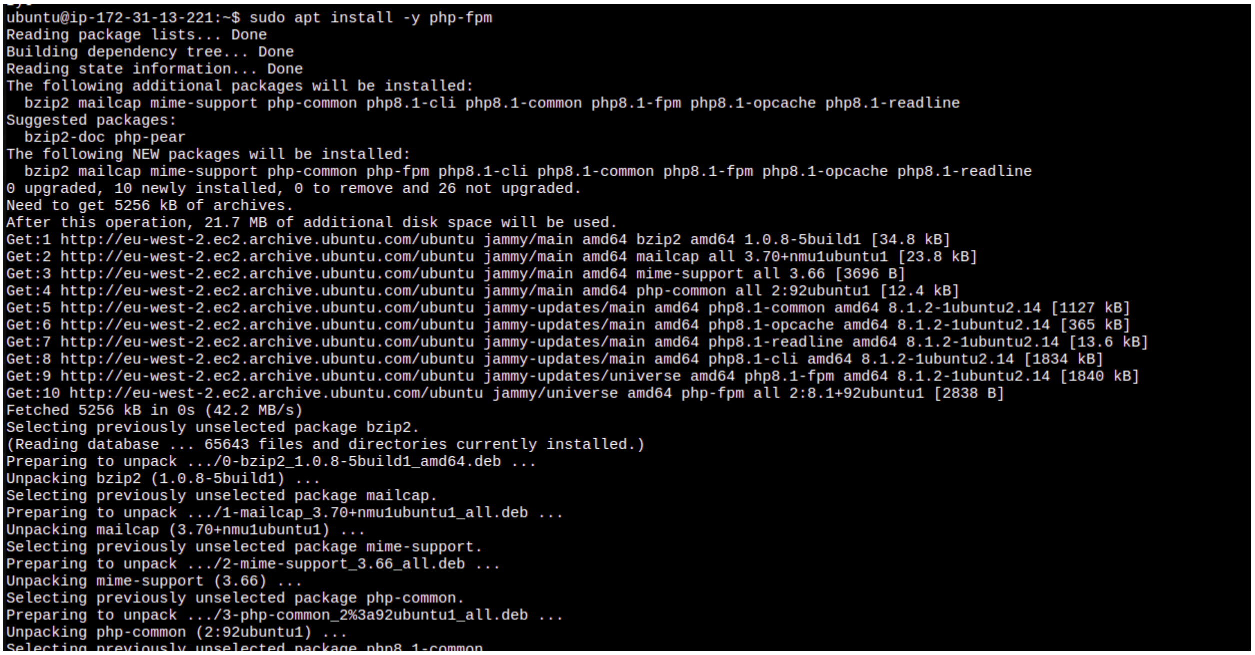
```
ubuntu@ip-172-31-13-221:~$ sudo apt install nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core libdeflate0 libfontconfig1 libgd3 libjbig0 libjpeg-turbo8 libjpeg8 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libtiff5 libwebp7 libxpm4 nginx-common nginx-core
Suggested packages:
  libgd-tools fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core libdeflate0 libfontconfig1 libgd3 libjbig0 libjpeg-turbo8 libjpeg8 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libtiff5 libwebp7 libxpm4 nginx nginx-common nginx-core
0 upgraded, 20 newly installed, 0 to remove and 26 not upgraded.
Need to get 2692 kB of archives.
After this operation, 8345 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 fonts-dejavu-core all 2.37-2build1 [1041 kB]
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 fontconfig-config all 2.13.1-4.2ubuntu5 [29.1 kB]
Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libdeflate0 amd64 1.10-2 [70.9 kB]
Get:4 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libfontconfig1 amd64 2.13.1-4.2ubuntu5 [131 kB]
Get:5 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libjpeg-turbo8 amd64 2.1.2-0ubuntu1 [134 kB]
Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libjpeg8 amd64 8c-2ubuntu10 [2264 B]
Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libjbig0 amd64 2.1-3.1ubuntu0.22.04.1 [29.2 kB]
Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libwebp7 amd64 1.2.2-2ubuntu0.22.04.2 [206 kB]
Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libtiff5 amd64 4.3.0-6ubuntu0.7 [185 kB]
Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libxpm4 amd64 1:3.5.12-1ubuntu0.22.04.2 [36.7 kB]
Get:11 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libgd3 amd64 2.3.0-2ubuntu2 [129 kB]
Get:12 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx-common all 1.18.0-6ubuntu14.4 [40.0 kB]
Get:13 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-geoip2 amd64 1.18.0-6ubuntu14.4 [11.9 kB]
Get:14 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-image-filter amd64 1.18.0-6ubuntu14.4 [15.4 kB]
Get:15 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-xslt-filter amd64 1.18.0-6ubuntu14.4 [13.7 kB]
Get:16 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-mail amd64 1.18.0-6ubuntu14.4 [45.7 kB]
Get:17 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-stream amd64 1.18.0-6ubuntu14.4 [72.9 kB]
Get:18 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-stream-geoip2 amd64 1.18.0-6ubuntu14.4 [10.1 kB]
Get:19 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx-core amd64 1.18.0-6ubuntu14.4 [484 kB]
Get:20 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx amd64 1.18.0-6ubuntu14.4 [3872 B]
Fetched 2692 kB in 0s (32.9 MB/s)
Preconfiguring packages ...
```

Install MySQL server



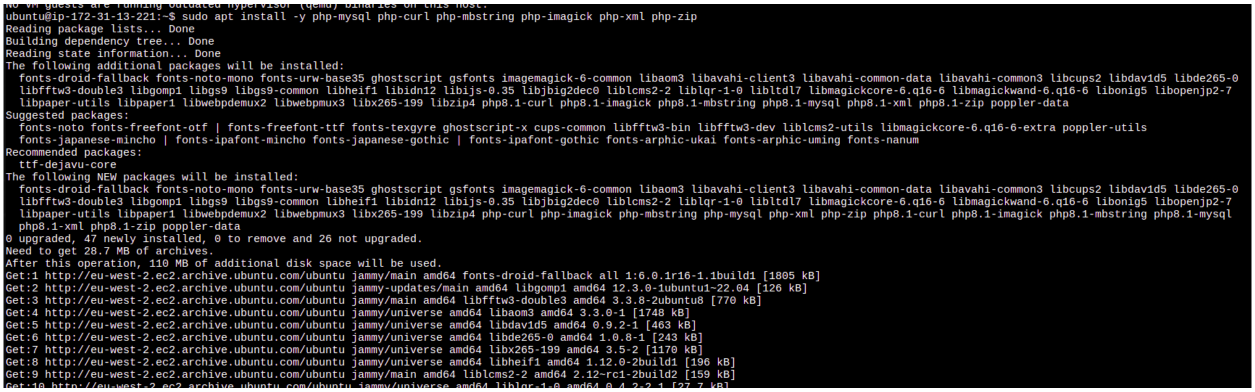
```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-13-221:~$ sudo apt install -y mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl libht
  libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-ut
  mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server-8.0 mysql-server-core-8.0
Suggested packages:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tinyca
The following NEW packages will be installed:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl libht
  libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-ut
  mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server mysql-server-8.0 mysql-server-core-8.0
0 upgraded, 28 newly installed, 0 to remove and 26 not upgraded.
Need to get 29.6 MB of archives.
After this operation, 243 MB of additional disk space will be used.
Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 mysql-common all 5.8+1.0.8 [7212 B]
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-core-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [2682 kB]
Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [22.7 kB]
Get:4 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libevent-pthreads-2.1-7 amd64 2.1.12-stable-1build3 [7642 B]
Get:5 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libmecab2 amd64 0.996-14build9 [199 kB]
Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libprotobuf-lite23 amd64 3.12.4-1ubuntu7.22.04.1 [209 kB]
Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-server-core-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [17.6 MB]
Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-server-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [1438 kB]
Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libhtml-tagset-perl all 3.20-4 [12.5 kB]
Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 liburi-perl all 5.10-1 [78.8 kB]
Get:11 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libhtml-parser-perl amd64 3.76-1build2 [88.4 kB]
Get:12 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libcgi-pm-perl all 4.54-1 [188 kB]
Get:13 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libfcgi0ldbl amd64 2.4.2-2build2 [28.0 kB]
Get:14 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libfcgi-perl amd64 0.82+ds-1build1 [22.8 kB]
Get:15 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libcgi-fast-perl all 1:2.15-1 [10.5 kB]
Get:16 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libclone-perl amd64 0.45-1build3 [11.0 kB]
Get:17 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libencode-locale-perl all 1.05-1.1 [11.8 kB]
Get:18 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libfcgi-bin amd64 2.4.2-2build2 [11.2 kB]
Get:19 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libhtml-template-perl all 2.97-1.1 [59.1 kB]
```

Install PHP



```
ubuntu@ip-172-31-13-221:~$ sudo apt install -y php-fpm
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bzip2 mailcap mime-support php-common php8.1-cli php8.1-common php8.1-fpm php8.1-opcache php8.1-readline
Suggested packages:
  bzip2-doc php-pear
The following NEW packages will be installed:
  bzip2 mailcap mime-support php-common php-fpm php8.1-cli php8.1-common php8.1-fpm php8.1-opcache php8.1-readline
0 upgraded, 10 newly installed, 0 to remove and 26 not upgraded.
Need to get 5256 kB of archives.
After this operation, 21.7 MB of additional disk space will be used.
Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 bzip2 amd64 1.0.8-5build1 [34.8 kB]
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 mailcap all 3.70+nmu1ubuntu1 [23.8 kB]
Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 mime-support all 3.66 [3696 B]
Get:4 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 php-common all 2:92ubuntu1 [12.4 kB]
Get:5 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 php8.1-common amd64 8.1.2-1ubuntu2.14 [1127 kB]
Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 php8.1-opcache amd64 8.1.2-1ubuntu2.14 [365 kB]
Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 php8.1-readline amd64 8.1.2-1ubuntu2.14 [13.6 kB]
Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 php8.1-cli amd64 8.1.2-1ubuntu2.14 [1834 kB]
Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 php8.1-fpm amd64 8.1.2-1ubuntu2.14 [1840 kB]
Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 php-fpm all 2:8.1+92ubuntu1 [2838 B]
Fetched 5256 kB in 0s (42.2 MB/s)
Selecting previously unselected package bzip2.
(Reading database ... 65643 files and directories currently installed.)
Preparing to unpack .../0-bzip2_1.0.8-5build1_amd64.deb ...
Unpacking bzip2 (1.0.8-5build1) ...
Selecting previously unselected package mailcap.
Preparing to unpack .../1-mailcap_3.70+nmu1ubuntu1_all.deb ...
Unpacking mailcap (3.70+nmu1ubuntu1) ...
Selecting previously unselected package mime-support.
Preparing to unpack .../2-mime-support_3.66_all.deb ...
Unpacking mime-support (3.66) ...
Selecting previously unselected package php-common.
Preparing to unpack .../3-php-common_2%3a92ubuntu1_all.deb ...
Unpacking php-common (2:92ubuntu1) ...
Selecting previously unselected package php8.1-common.
```

Installed the required PHP modules.

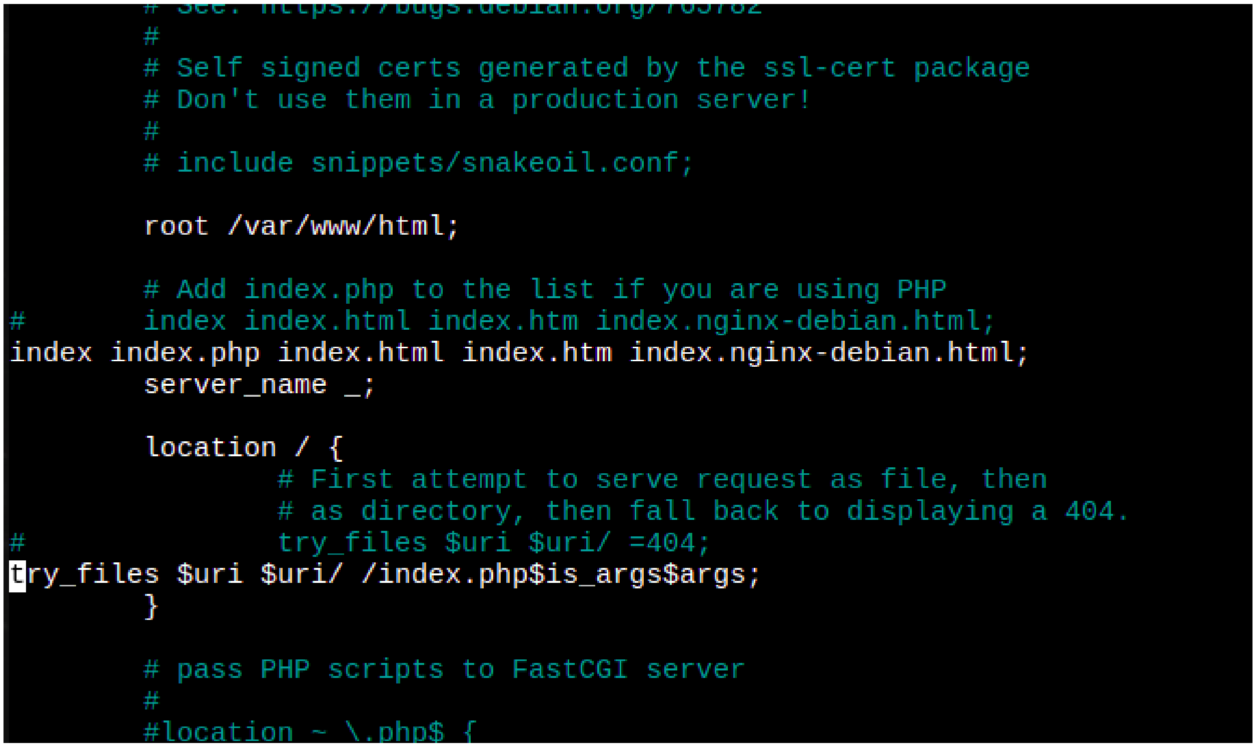


```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-13-221:~$ sudo apt install -y php-mysql php-curl php-mbstring php-imagick php-xml php-zip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  fonts-droid-fallback fonts-noto-mono fonts-urw-base35 ghostscript gsfonts imagemagick-6-common libaom3 libavahi-client3 libavahi-common-data libavahi-common3 libcups2 libdav1d5 libde265-0
  libfftw3-double3 libgomp1 libgs9 libgs9-common libheif1 libidn12 libijs-0.35 libjbig2dec0 liblcms2-2 liblqr-1-0 libltdl7 libmagickcore-6.q16-6 libmagickwand-6.q16-6 libonig5 libopenjp2-7
  libpaper-utils libpaper1 libwebpdemux2 libwebpmux3 libx265-199 libzip4 php8.1-curl php8.1-imagick php8.1-mbstring php8.1-mysql php8.1-xml php8.1-zip poppler-data
Suggested packages:
  fonts-noto fonts-freefont-otf | fonts-freefont-ttf fonts-texgyre ghostscript-x cups-common libfftw3-bin libfftw3-dev liblcms2-utils libmagickcore-6.q16-6-extra poppler-utils
  fonts-japanese-mincho | fonts-ipafont-mincho fonts-japanese-gothic | fonts-ipafont-gothic fonts-arphic-ukai fonts-arphic-uming fonts-nanum
Recommended packages:
  ttf-dejavu-core
The following NEW packages will be installed:
  fonts-droid-fallback fonts-noto-mono fonts-urw-base35 ghostscript gsfonts imagemagick-6-common libaom3 libavahi-client3 libavahi-common-data libavahi-common3 libcups2 libdav1d5 libde265-0
  libfftw3-double3 libgomp1 libgs9 libgs9-common libheif1 libidn12 libijs-0.35 libjbig2dec0 liblcms2-2 liblqr-1-0 libltdl7 libmagickcore-6.q16-6 libmagickwand-6.q16-6 libonig5 libopenjp2-7
  libpaper-utils libpaper1 libwebpdemux2 libwebpmux3 libx265-199 libzip4 php-curl php-imagick php-mbstring php-mysql php-xml php-zip php8.1-curl php8.1-imagick php8.1-mbstring php8.1-mysql
  php8.1-xml php8.1-zip poppler-data
0 upgraded, 47 newly installed, 0 to remove and 26 not upgraded.
Need to get 28.7 MB of archives.
After this operation, 110 MB of additional disk space will be used.
Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 fonts-droid-fallback all 1:6.0.1r16-1.1build1 [1805 kB]
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libgomp1 amd64 12.3.0-1ubuntu1~22.04 [126 kB]
Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libfftw3-double3 amd64 3.3.8-2ubuntu8 [770 kB]
Get:4 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libaom3 amd64 3.3.0-1 [1748 kB]
Get:5 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libdav1d5 amd64 0.9.2-1 [463 kB]
Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libde265-0 amd64 1.0.8-1 [243 kB]
Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libx265-199 amd64 3.5-2 [1170 kB]
Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libheif1 amd64 1.12.0-2build1 [196 kB]
Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 liblcms2-2 amd64 2.12~rc1-2build2 [159 kB]
Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 liblqr-1-0 amd64 0.4.2-2.1 [27.7 kB]
```

Configured Nginx

Inside of the existing `location /` block, let's adjust the `try_files` list. Comment out the default setting by prepending the line with a pound sign (`#`) and then add the highlighted line. This way, instead of returning a 404 error as the default option, control is passed to the `index.php` file with the request arguments.

This should look something like this:



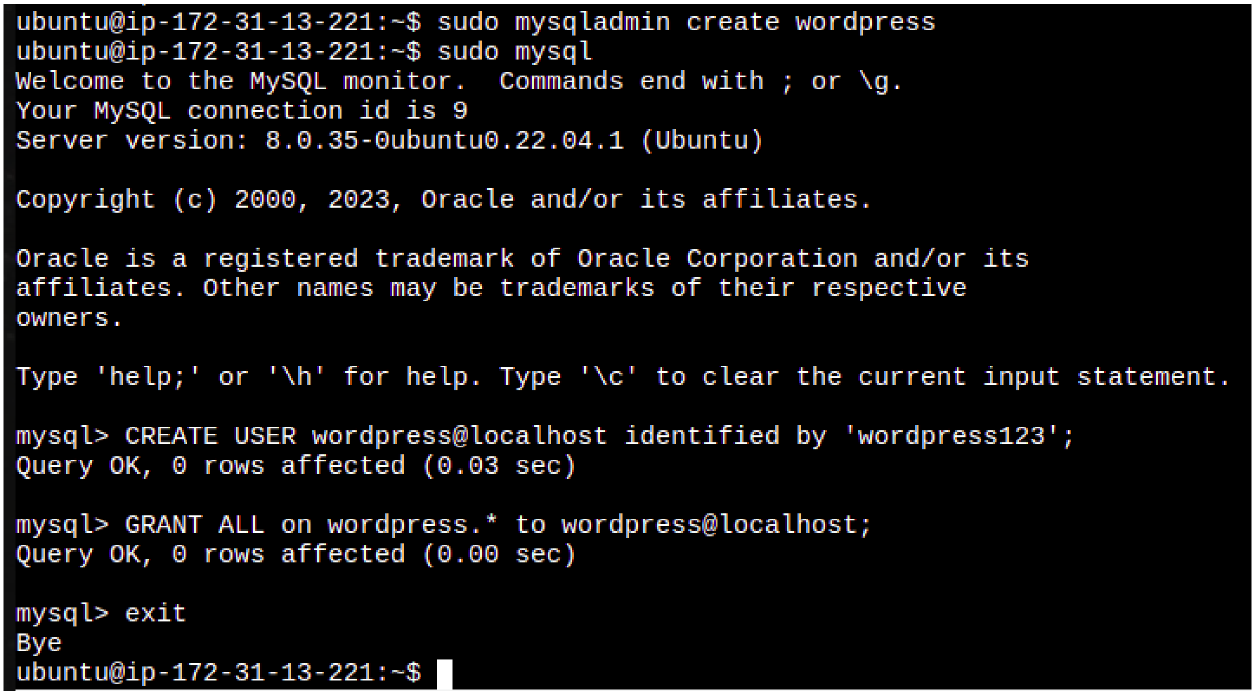
```
        # See: https://bugs.debian.org/765782
        #
        # Self signed certs generated by the ssl-cert package
        # Don't use them in a production server!
        #
        # include snippets/snakeoil.conf;

        root /var/www/html;

        # Add index.php to the list if you are using PHP
#       index index.html index.htm index.nginx-debian.html;
index index.php 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;
try_files $uri $uri/ /index.php$is_args$args;
        }

        # pass PHP scripts to FastCGI server
        #
        #location ~ \.php$ {
```

Website Configuration:

1: Set up a WordPress website on the VPS and secure it following best practices(e.g., strong passwords, limited user privileges, etc.).

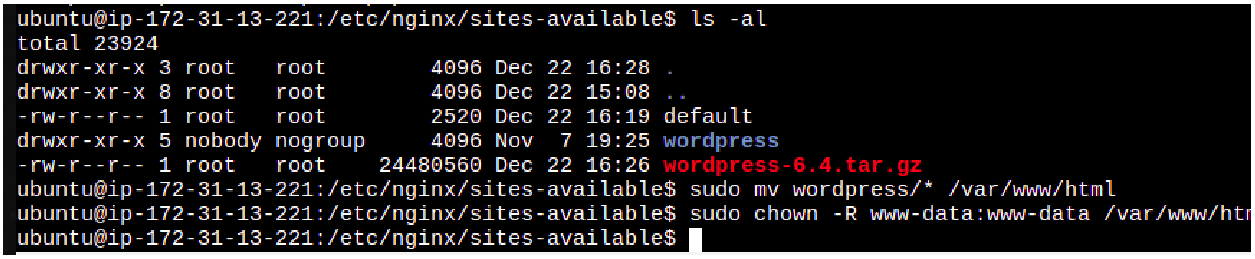
Domain is **linuxisfun.ddns.net**
Admin: http://linuxisfun.ddns.net/input
Username: areeka-nankani-CE
Password: YioVSKvNIlQaobhrp2

Created DB, setup admin rights and grant access

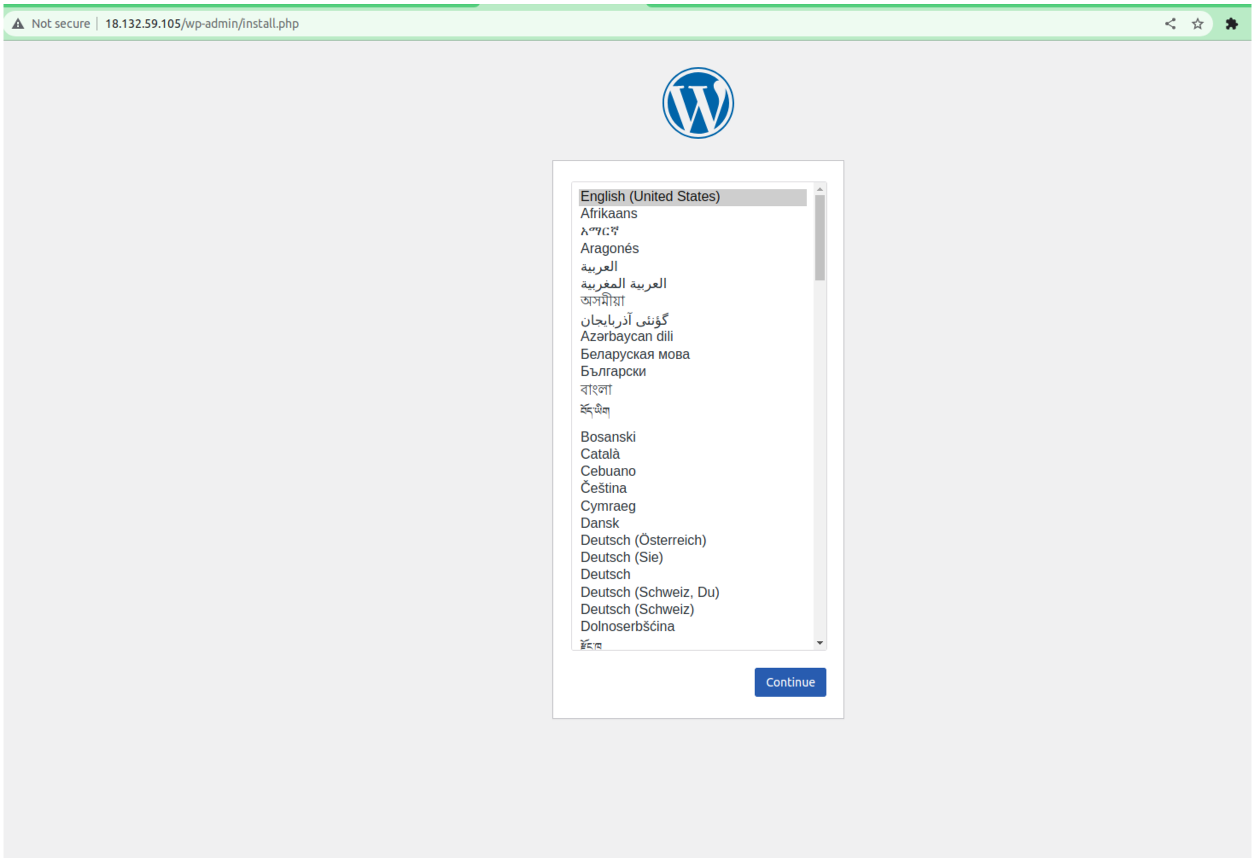


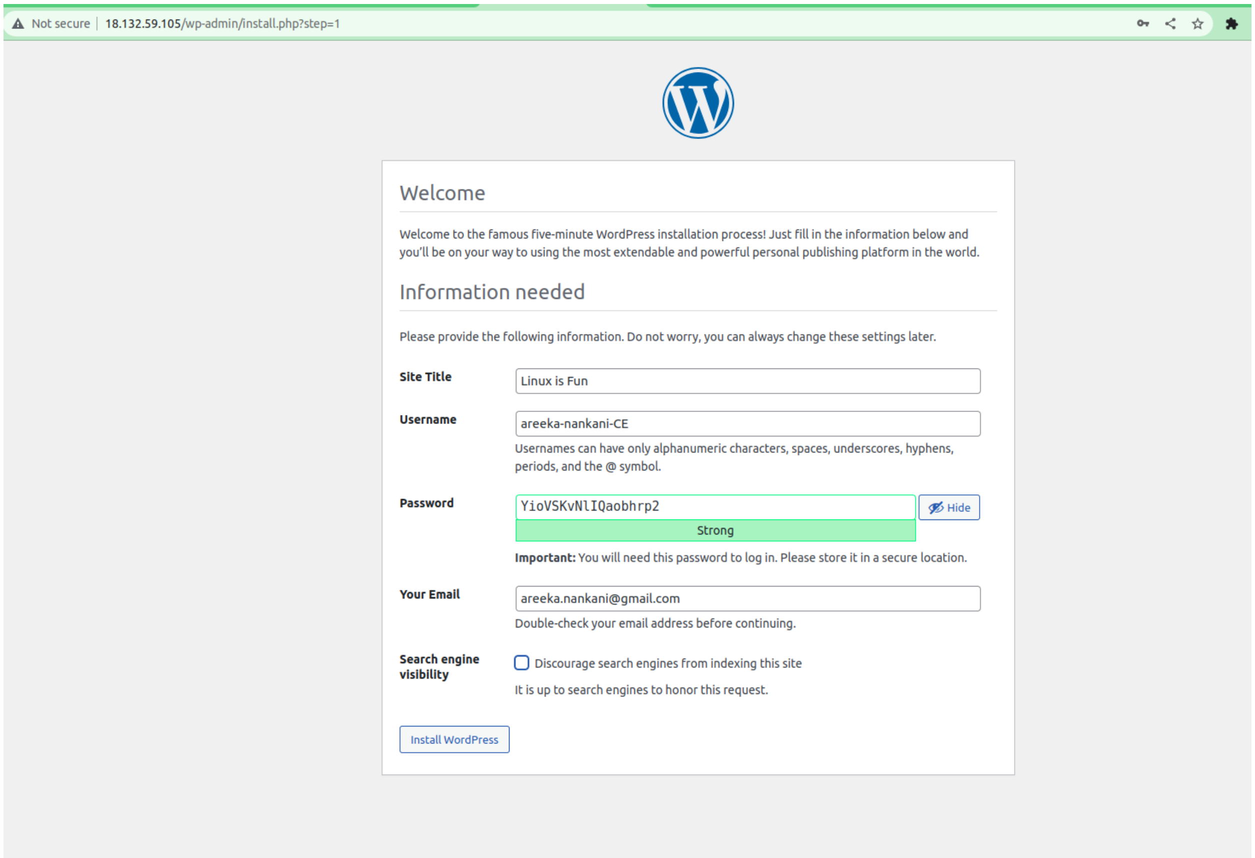
```
ubuntu@ip-172-31-13-221:~$ sudo mysqladmin create wordpress
ubuntu@ip-172-31-13-221:~$ sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

Copyright (c) 2000, 2023, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE USER wordpress@localhost identified by 'wordpress123';
Query OK, 0 rows affected (0.03 sec)

mysql> GRANT ALL on wordpress.* to wordpress@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> exit
Bye
ubuntu@ip-172-31-13-221:~$
```

Install Wordpress



```
ubuntu@ip-172-31-13-221:/etc/nginx/sites-available$ ls -al
total 23924
drwxr-xr-x 3 root   root        4096 Dec 22 16:28 .
drwxr-xr-x 8 root   root        4096 Dec 22 15:08 ..
-rw-r--r-- 1 root   root        2520 Dec 22 16:19 default
drwxr-xr-x 5 nobody nogroup     4096 Nov  7 19:25 wordpress
-rw-r--r-- 1 root   root    24480560 Dec 22 16:26 wordpress-6.4.tar.gz
ubuntu@ip-172-31-13-221:/etc/nginx/sites-available$ sudo mv wordpress/* /var/www/html
ubuntu@ip-172-31-13-221:/etc/nginx/sites-available$ sudo chown -R www-data:www-data /var/www/htm
ubuntu@ip-172-31-13-221:/etc/nginx/sites-available$
```

Not secure
18.132.59.105/wp-admin/install.php
English (United States)
Afrikaans
አማርኛ
Aragonés
العربية
العربية المغربية
অসমীয়া
گؤنئی آذربایجان
Azərbaycan dili
Беларуская мова
Български
বাংলা
བོད་ཡིག
Bosanski
Català
Cebuano
Čeština
Cymraeg
Dansk
Deutsch (Österreich)
Deutsch (Sie)
Deutsch
Deutsch (Schweiz, Du)
Deutsch (Schweiz)
Dolnoserbšćina
རྫོང་ཁ
Continue



Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Do not worry, you can always change these settings later.

Site Title Linux is Fun

Username areeka-nankani-CE

Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.

Password YioVSKvNlIQaobhrp2 Hide

Strong

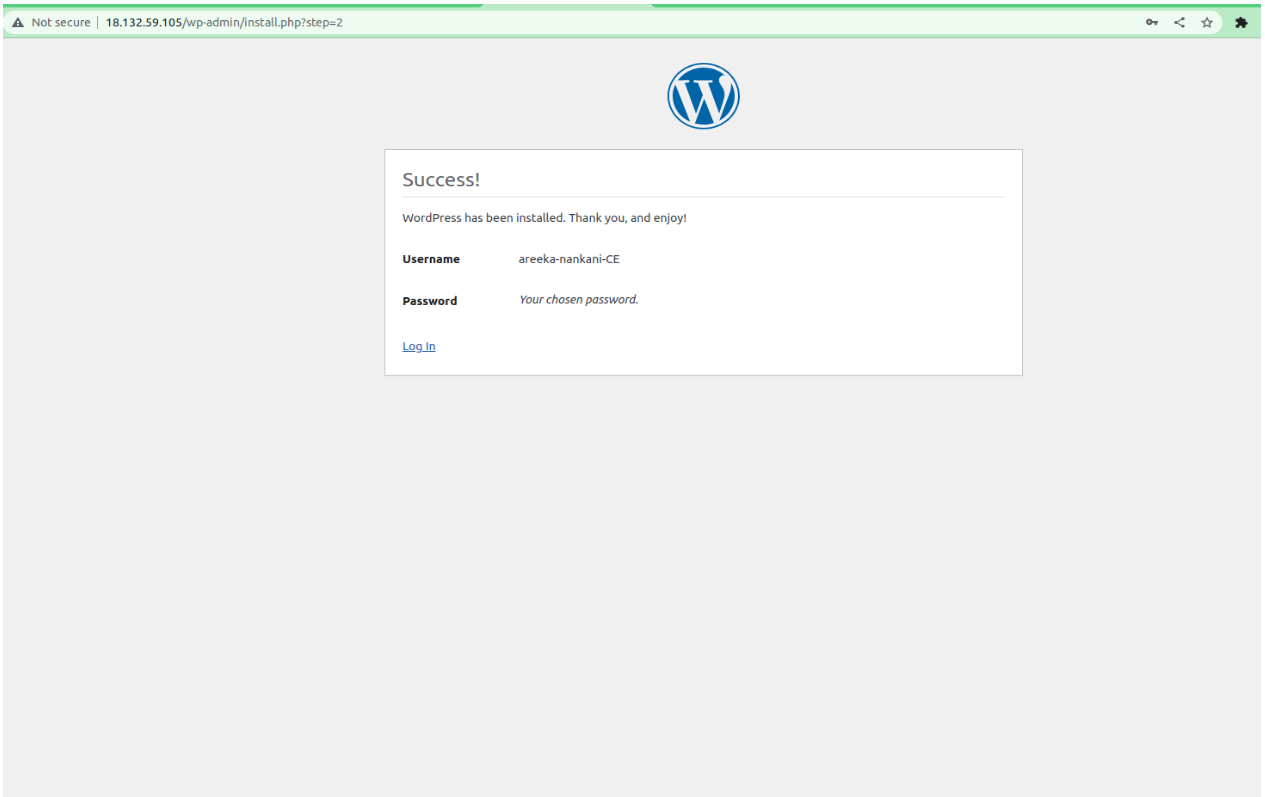
Important: You will need this password to log in. Please store it in a secure location.

Your Email areeka.nankani@gmail.com

Double-check your email address before continuing.

Search engine visibility □ Discourage search engines from indexing this site

It is up to search engines to honor this request.

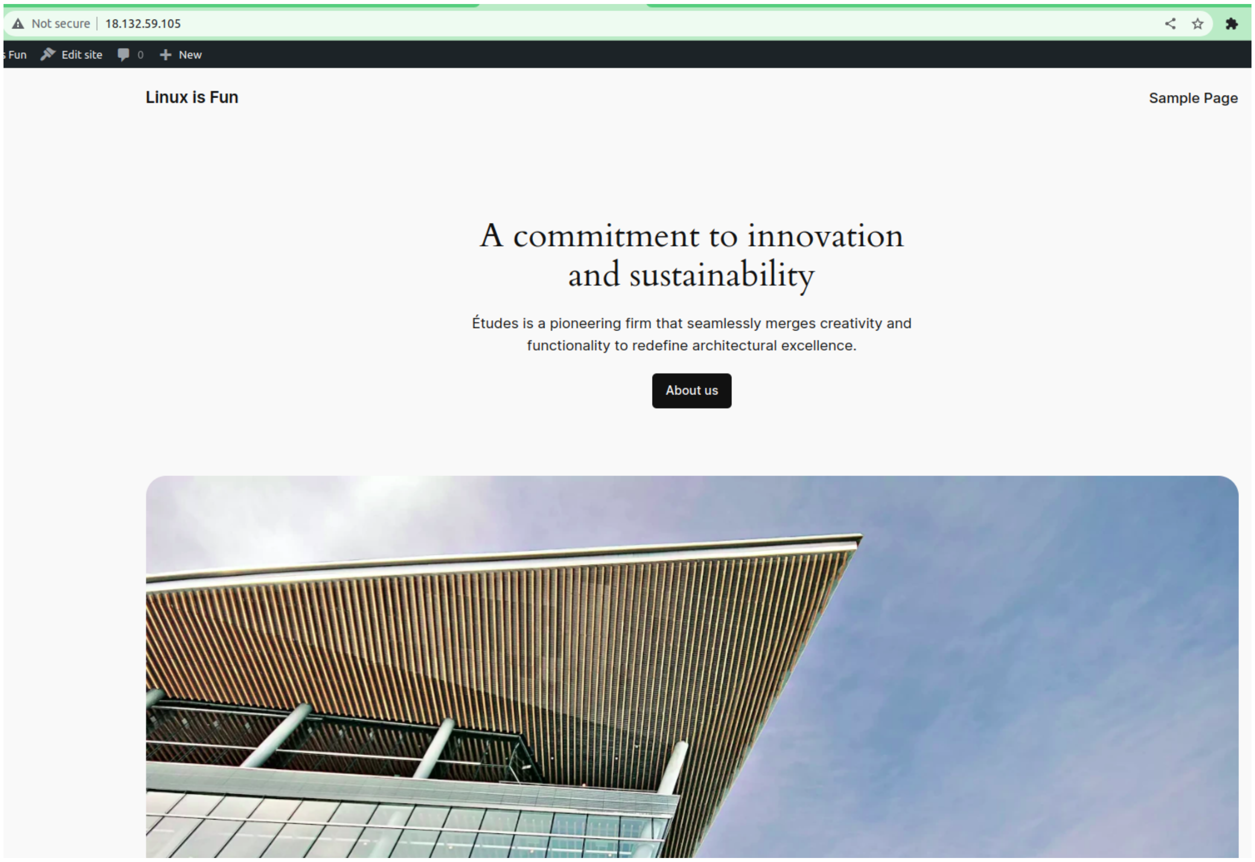


Success!

WordPress has been installed. Thank you, and enjoy!

Username areeka-nankani-CE

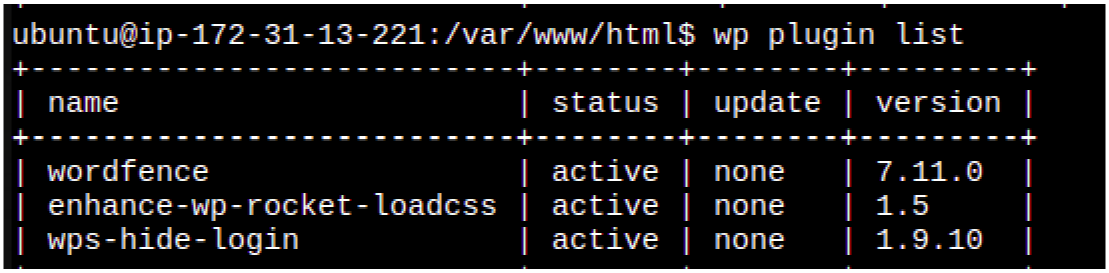
Password *Your chosen password.*



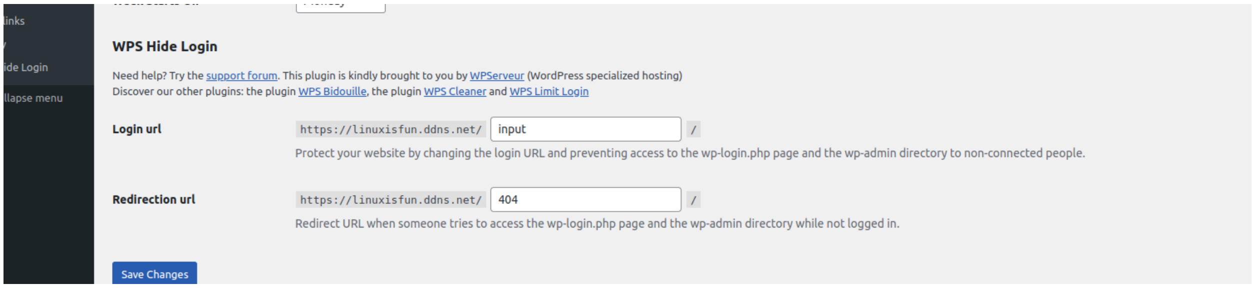
A commitment to innovation and sustainability

Études is a pioneering firm that seamlessly merges creativity and functionality to redefine architectural excellence.

- Installed security plugin, changed wp-admin url using wps-hide-login and setup difficult login details for security.
- While creating user, we can setup roles and privileges accordingly.
- For best practices we should keep plugins/themes/wordpress updated.
- wp-rocket cache plugin for better performance of site.



```
ubuntu@ip-172-31-13-221:/var/www/html$ wp plugin list
+----------------------------+--------+--------+---------+
| name                       | status | update | version |
+----------------------------+--------+--------+---------+
| wordfence                  | active | none   | 7.11.0  |
| enhance-wp-rocket-loadcss  | active | none   | 1.5     |
| wps-hide-login             | active | none   | 1.9.10  |
```

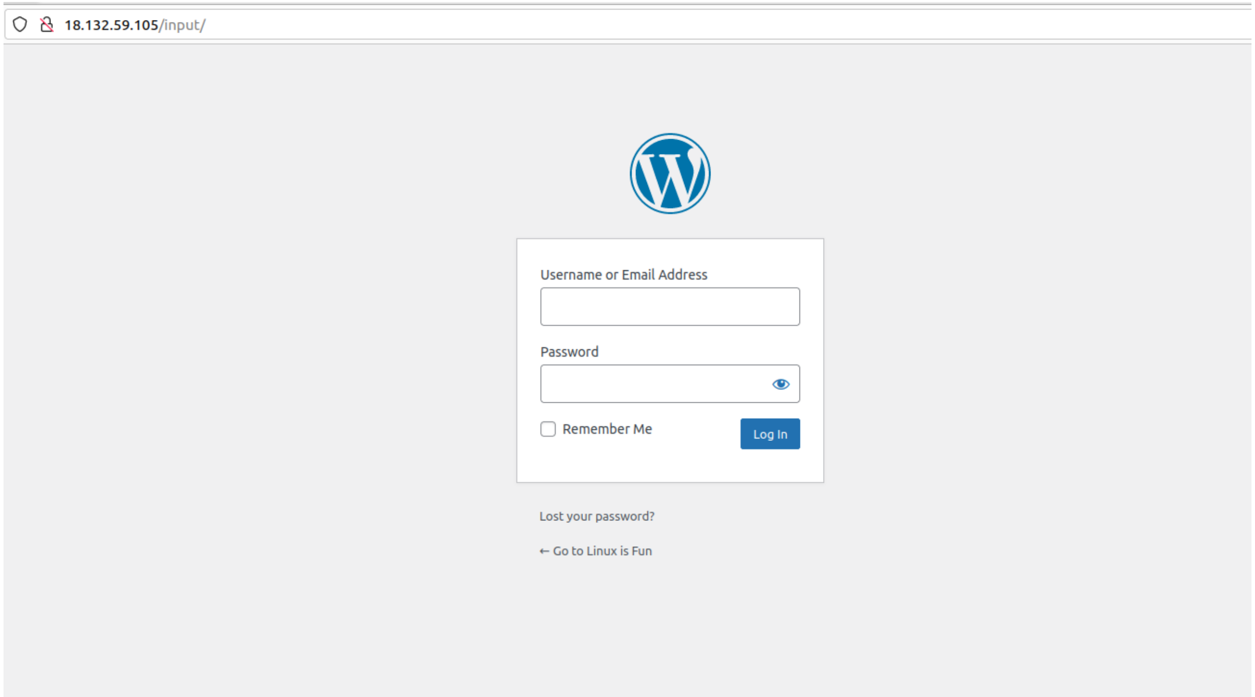


WPS Hide Login

Need help? Try the support forum. This plugin is kindly brought to you by WPServeur (WordPress specialized hosting)
Discover our other plugins: the plugin WPS Bidouille, the plugin WPS Cleaner and WPS Limit Login

Login url `https://linuxisfun.ddns.net/` input /
Protect your website by changing the login URL and preventing access to the wp-login.php page and the wp-admin directory to non-connected people.

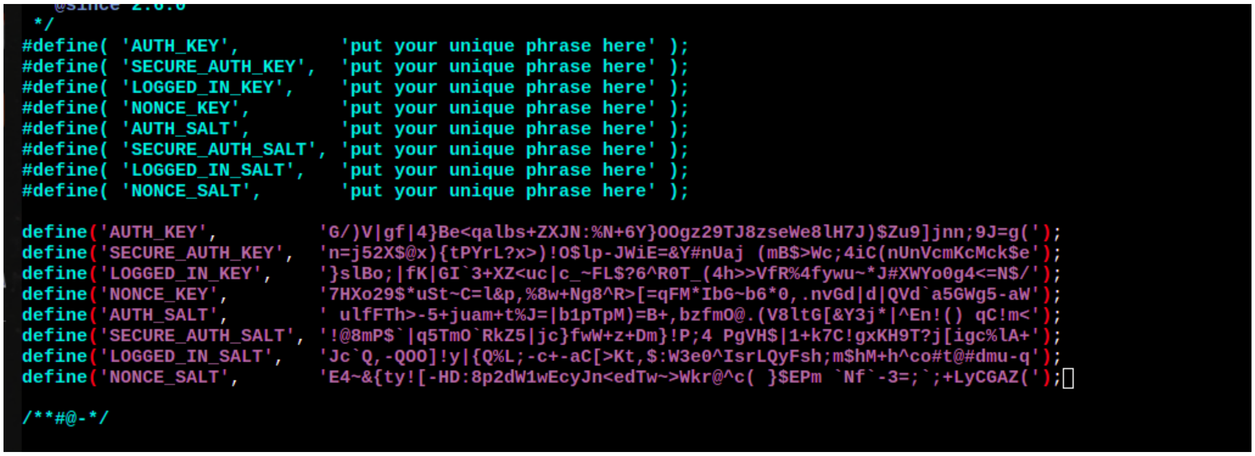
Redirection url `https://linuxisfun.ddns.net/` 404 /
Redirect URL when someone tries to access the wp-login.php page and the wp-admin directory while not logged in.


18.132.59.105/input/

To grab secure values from the WordPress secret key generator, type:

```
curl -s https://api.wordpress.org/secret-key/1.1/salt/
```

We will get back unique values that look something like this:



```
   * @since 2.6.0
   */
#define( 'AUTH_KEY',         'put your unique phrase here' );
#define( 'SECURE_AUTH_KEY',  'put your unique phrase here' );
#define( 'LOGGED_IN_KEY',    'put your unique phrase here' );
#define( 'NONCE_KEY',        'put your unique phrase here' );
#define( 'AUTH_SALT',        'put your unique phrase here' );
#define( 'SECURE_AUTH_SALT', 'put your unique phrase here' );
#define( 'LOGGED_IN_SALT',   'put your unique phrase here' );
#define( 'NONCE_SALT',       'put your unique phrase here' );

define('AUTH_KEY',         'G/)V|gf|4}Be<qalbs+ZXJN:%N+6Y}OOgz29TJ8zseWe8lH7J)$Zu9]jnn;9J=g(');
define('SECURE_AUTH_KEY',  'n=j52X$@x){tPYrL?x>)!O$lp-JWiE=&Y#nUaj (mB$>Wc;4iC(nUnVcmKcMck$e');
define('LOGGED_IN_KEY',    '}slBo;|fK|GI`3+XZ<uc|c_~FL$?6^R0T_(4h>>VfR%4fywu~*J#XWYo0g4<=N$/');
define('NONCE_KEY',        '7HXo29$*uSt~C=l&p,%8w+Ng8^R>[=qFM*IbG~b6*0,.nvGd|d|QVd`a5GWg5-aW');
define('AUTH_SALT',        ' ulfFTh>-5+juam+t%J=|b1pTpM)=B+,bzfmO@.(V8ltG[&Y3j*|^En!() qC!m<');
define('SECURE_AUTH_SALT', '!@8mP$`|q5TmO`RkZ5|jc}fwW+z+Dm}!P;4 PgVH$|1+k7C!gxKH9T?j[igc%lA+');
define('LOGGED_IN_SALT',   'Jc`Q,-QOO]!y|{Q%L;-c+-aC[>Kt,$:W3e0^IsrLQyFsh;m$hM+h^co#t@#dmu-q');
define('NONCE_SALT',       'E4~&{ty![-HD:8p2dW1wEcyJn<edTw~>Wkr@^c( }$EPm `Nf`-3=;`;+LyCGAZ(');

/**#@-*/
```

2: Implement SSL/TLS certificate using Let's Encrypt for secure communication between the server and clients.

Registered domain, created elastic IP and associate it with EC2 instance.

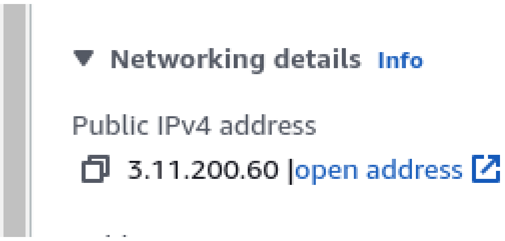
Step 1: Allocate an Elastic IP

1. Go to the AWS Management Console and navigate to the EC2 Dashboard.
2. From the navigation bar, click on “Elastic IPs” under “Network & Security.”
3. Click on “Allocate new address” and choose “Amazon’s pool of IPv4 addresses.”
4. Click on “Allocate” to create a new Elastic IP.

Step 2: Associate the Elastic IP with your EC2 Instance

1. From the Elastic IPs list, select the newly allocated Elastic IP.
2. Click on “Actions” and choose “Associate IP address.”
3. In the “Associate Elastic IP address” dialog, select your EC2 instance from the drop-down menu.
4. Click on “Associate” to link the Elastic IP with your EC2 instance.

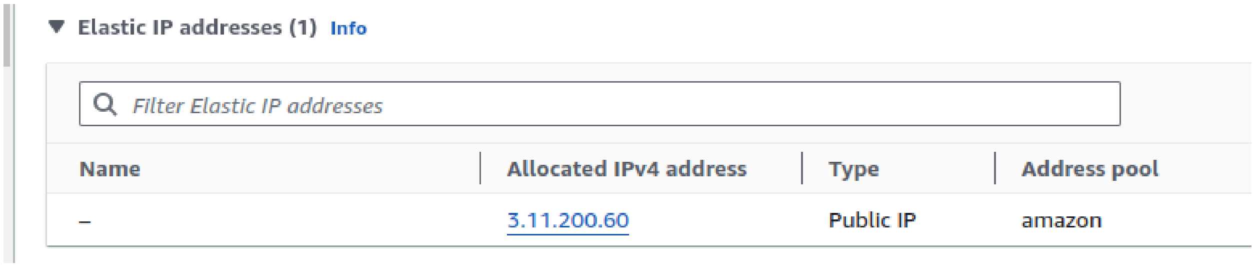
You will notice that IPv4 public address and elastic IP address will be the **same.**



▼ Networking details Info

Public IPv4 address

3.11.200.60 |open address



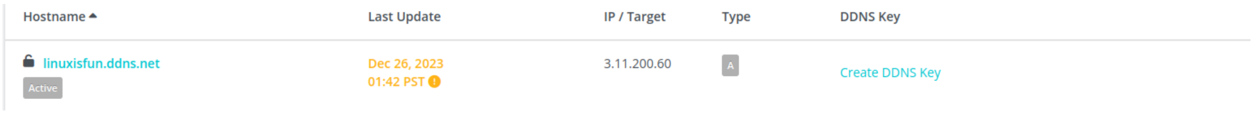
▼ Elastic IP addresses (1) Info

Filter Elastic IP addresses

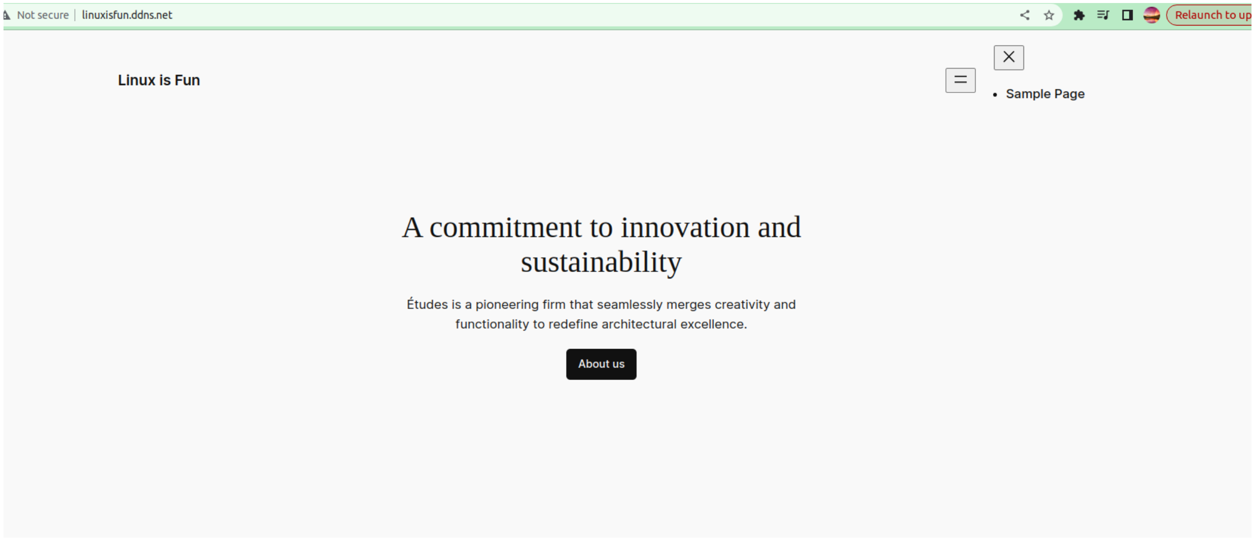
Name	Allocated IPv4 address	Type	Address pool
–	3.11.200.60	Public IP	amazon

Step 3: Update DNS Records with Domain Registrar

1. Log in to your domain registrar’s website (where you registered the domain).
2. Locate the DNS management settings for domain.
3. Add an “A” record with a blank or “@” hostname, pointing to the Elastic IP address you just associated with your EC2 instance.
4. Save the changes to update your DNS records.



Hostname ▲	Last Update	IP / Target	Type	DDNS Key
linuxisfun.ddns.net Active	Dec 26, 2023 01:42 PST	3.11.200.60	A	Create DDNS Key



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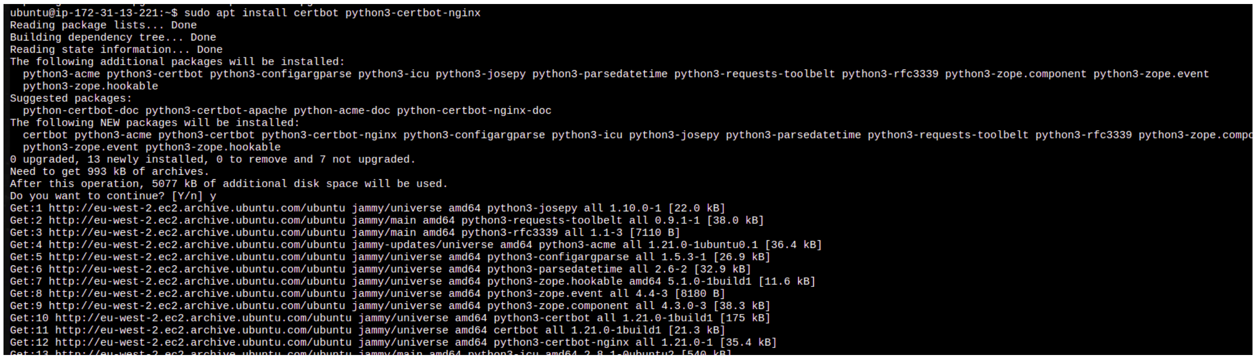
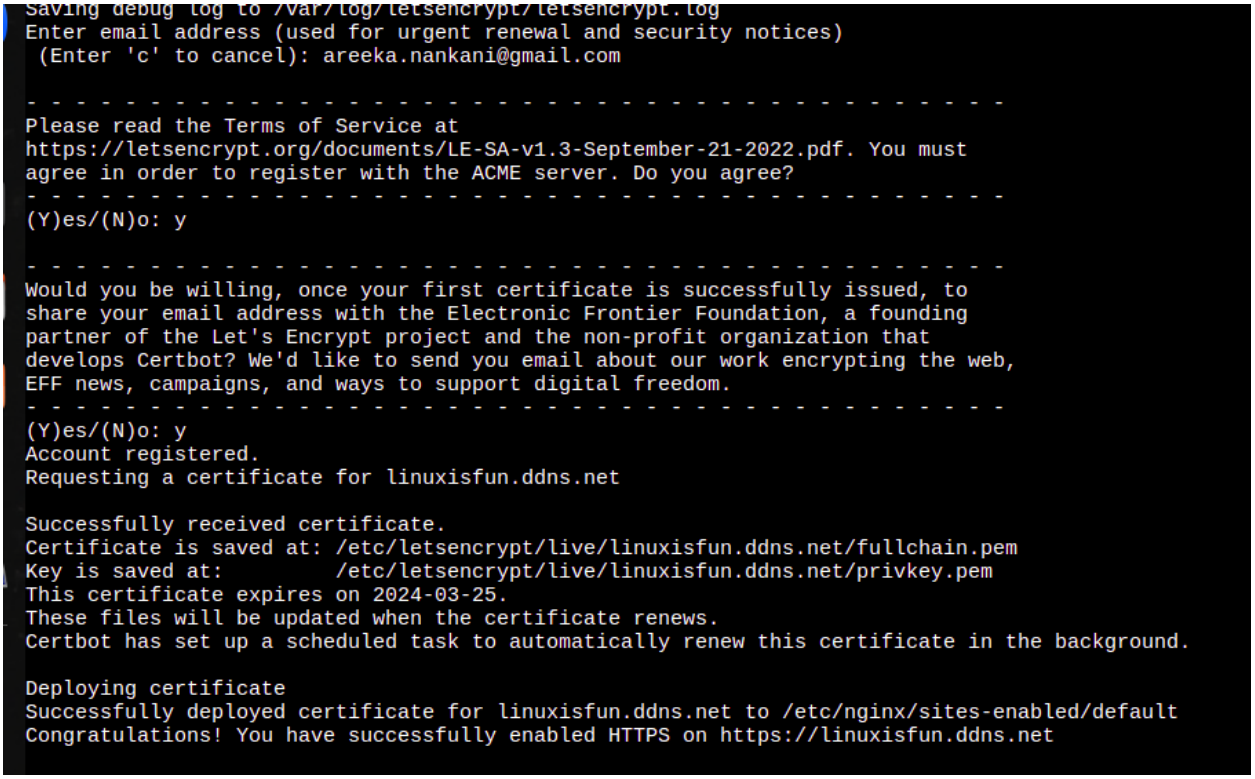
Installing Let’s Encrypt certificate.

- Connect to your EC2 instance via SSH.
- Update package lists: `sudo apt update`
- Install Certbot: `sudo apt install certbot python3-certbot-nginx`

- **sudo certbot --nginx -d linuxisfun.ddns.net**
- Restart Nginx to apply changes: **`sudo systemctl restart nginx`**



```
ubuntu@ip-172-31-13-221:~$ sudo apt install certbot python3-certbot-nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  python3-acme python3-certbot python3-configargparse python3-icu python3-josepy python3-parsedatetime python3-requests-toolbelt python3-rfc3339 python3-zope.component python3-zope.event
  python3-zope.hookable
Suggested packages:
  python-certbot-doc python3-certbot-apache python-acme-doc python-certbot-nginx-doc
The following NEW packages will be installed:
  certbot python3-acme python3-certbot python3-certbot-nginx python3-configargparse python3-icu python3-josepy python3-parsedatetime python3-requests-toolbelt python3-rfc3339 python3-zope.compo
  python3-zope.event python3-zope.hookable
0 upgraded, 13 newly installed, 0 to remove and 7 not upgraded.
Need to get 993 kB of archives.
After this operation, 5077 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-josepy all 1.10.0-1 [22.0 kB]
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-requests-toolbelt all 0.9.1-1 [38.0 kB]
Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-rfc3339 all 1.1-3 [7110 B]
Get:4 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 python3-acme all 1.21.0-1ubuntu0.1 [36.4 kB]
Get:5 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-configargparse all 1.5.3-1 [26.9 kB]
Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-parsedatetime all 2.6-2 [32.9 kB]
Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-zope.hookable amd64 5.1.0-1build1 [11.6 kB]
Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-zope.event all 4.4-3 [8180 B]
Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-zope.component all 4.3.0-3 [38.3 kB]
Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-certbot all 1.21.0-1build1 [175 kB]
Get:11 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 certbot all 1.21.0-1build1 [21.3 kB]
Get:12 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-certbot-nginx all 1.21.0-1 [35.4 kB]
Get:13 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-icu amd64 2.8.1-0ubuntu2 [540 kB]
```



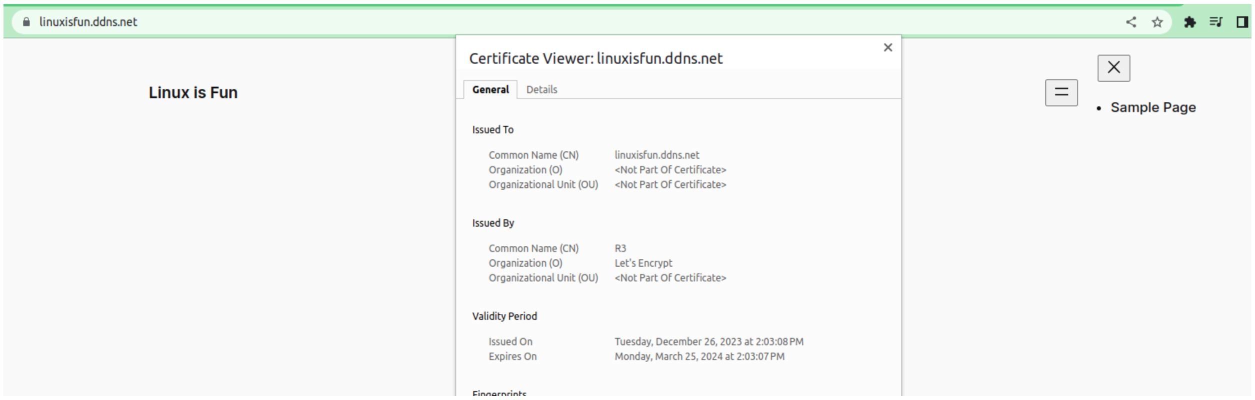
```
Saving debug log to /var/log/letsencrypt/letsencrypt.log
Enter email address (used for urgent renewal and security notices)
 (Enter 'c' to cancel): areeka.nankani@gmail.com

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Please read the Terms of Service at
https://letsencrypt.org/documents/LE-SA-v1.3-September-21-2022.pdf. You must
agree in order to register with the ACME server. Do you agree?
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
(Y)es/(N)o: y

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Would you be willing, once your first certificate is successfully issued, to
share your email address with the Electronic Frontier Foundation, a founding
partner of the Let's Encrypt project and the non-profit organization that
develops Certbot? We'd like to send you email about our work encrypting the web,
EFF news, campaigns, and ways to support digital freedom.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
(Y)es/(N)o: y
Account registered.
Requesting a certificate for linuxisfun.ddns.net

Successfully received certificate.
Certificate is saved at: /etc/letsencrypt/live/linuxisfun.ddns.net/fullchain.pem
Key is saved at:         /etc/letsencrypt/live/linuxisfun.ddns.net/privkey.pem
This certificate expires on 2024-03-25.
These files will be updated when the certificate renews.
Certbot has set up a scheduled task to automatically renew this certificate in the background.

Deploying certificate
Successfully deployed certificate for linuxisfun.ddns.net to /etc/nginx/sites-enabled/default
Congratulations! You have successfully enabled HTTPS on https://linuxisfun.ddns.net
```



Certificate Viewer: linuxisfun.ddns.net

Issued To

Common Name (CN) linuxisfun.ddns.net
Organization (O) <Not Part Of Certificate>
Organizational Unit (OU) <Not Part Of Certificate>

Issued By

Common Name (CN) R3
Organization (O) Let's Encrypt
Organizational Unit (OU) <Not Part Of Certificate>

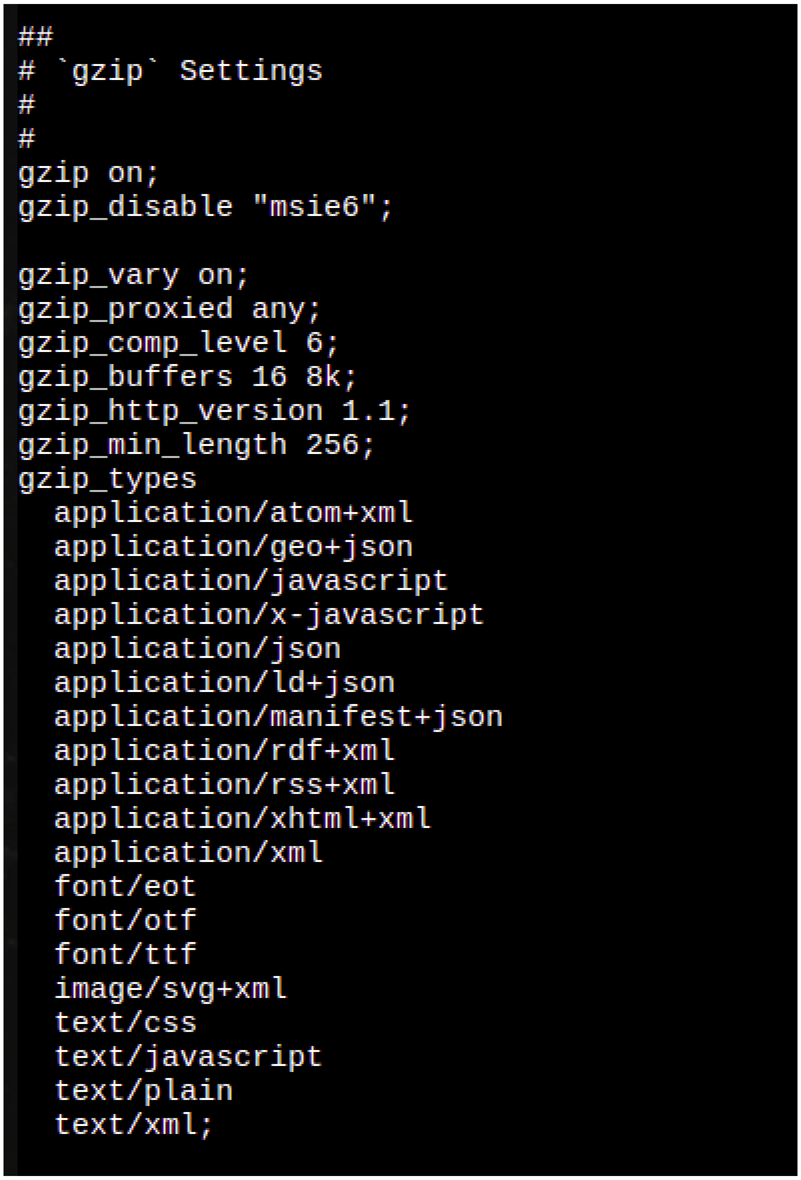
Validity Period

Issued On Tuesday, December 26, 2023 at 2:03:08 PM
Expires On Monday, March 25, 2024 at 2:03:07 PM

Fingerprints

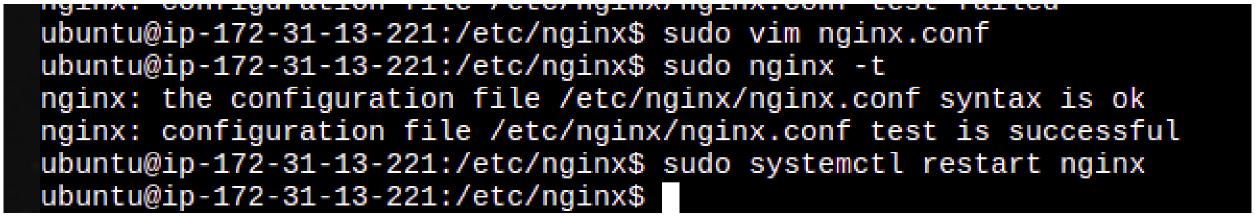
3: Optimize the Nginx server configuration to enhance website performance (e.g., caching, gzip compression, etc.).

Added gzip compression

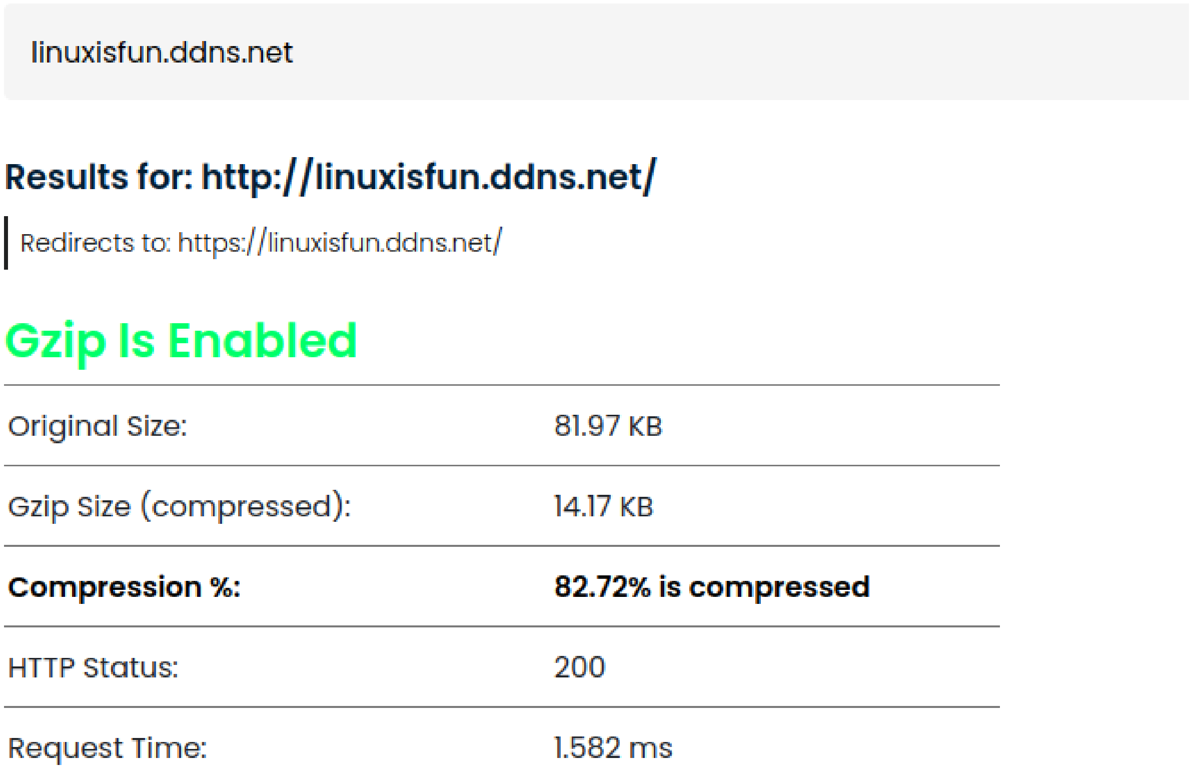


```
##
# `gzip` Settings
#
#
gzip on;
gzip_disable "msie6";

gzip_vary on;
gzip_proxied any;
gzip_comp_level 6;
gzip_buffers 16 8k;
gzip_http_version 1.1;
gzip_min_length 256;
gzip_types
  application/atom+xml
  application/geo+json
  application/javascript
  application/x-javascript
  application/json
  application/ld+json
  application/manifest+json
  application/rdf+xml
  application/rss+xml
  application/xhtml+xml
  application/xml
  font/eot
  font/otf
  font/ttf
  image/svg+xml
  text/css
  text/javascript
  text/plain
  text/xml;
```



```
nginx: configuration file /etc/nginx/nginx.conf test failed
ubuntu@ip-172-31-13-221:/etc/nginx$ sudo vim nginx.conf
ubuntu@ip-172-31-13-221:/etc/nginx$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
ubuntu@ip-172-31-13-221:/etc/nginx$ sudo systemctl restart nginx
ubuntu@ip-172-31-13-221:/etc/nginx$
```



linuxisfun.ddns.net

Results for: http://linuxisfun.ddns.net/

Redirects to: https://linuxisfun.ddns.net/

Gzip Is Enabled

Original Size:	81.97 KB
Gzip Size (compressed):	14.17 KB
Compression %:	**82.72% is compressed**
HTTP Status:	200
Request Time:	1.582 ms

Enable caching:

```
proxy_cache_path /var/cache/nginx levels=1:2 keys_zone=my_cache:10m max_size=1g inactive=60m use_temp_path=off;
```

This directive creates a cache with the following parameters:

- /var/cache/nginx: Cache storage location.
- levels=1:2: Cache directory structure.
- keys_zone=my_cache:10m: Cache zone and its size.
- max_size=1g: Maximum cache size.
- inactive=60m: Time after which unused cached content is removed.
- use_temp_path=off: Disable the use of a temporary path for cache storage.

proxy_cache my_cache;

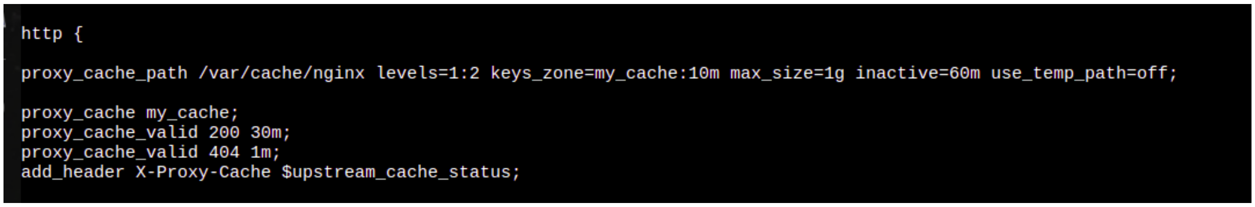
proxy_cache_valid 200 30m;

proxy_cache_valid 404 1m;

add_header X-Proxy-Cache $upstream_cache_status;

These directives enable caching for your website with the following settings:

- proxy_cache my_cache: Use the previously defined cache zone.
- proxy_cache_valid 200 30m: Cache successful responses (HTTP 200) for 30 minutes.
- proxy_cache_valid 404 1m: Cache ‘not found’ responses (HTTP 404) for 1 minute.
- add_header X-Proxy-Cache $upstream_cache_status: Add a header to display the cache status in responses.



```
http {

proxy_cache_path /var/cache/nginx levels=1:2 keys_zone=my_cache:10m max_size=1g inactive=60m use_temp_path=off;

proxy_cache my_cache;
proxy_cache_valid 200 30m;
proxy_cache_valid 404 1m;
add_header X-Proxy-Cache $upstream_cache_status;
```

GitHub Repository Setup:

1: Create a GitHub repository and set up a GitHub Actions workflow for the automated deployment of the WordPress website to the VPS.

2:Ensure that the GitHub Actions workflow includes the necessary steps to install dependencies, build the project, and securely transfer files to the server.

3:Include a README.md file in the GitHub repository with clear instructions on how to set up the environment locally and deploy the website using the GitHub

Actions workflow.

Created repository: https://github.com/areekaa/wordpress-vps-deployment
Unfortunately issue persists yaml file as I do not have experience with on github actions. I have experience on AWS though but have been reading official documents and working on it while resolving errors one by one to make it work.