

Report on WordPress Website Integration in Amazon Web Services and Google Cloud Platform

Prepared By

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INTRODUCTION:

Cloud computing model defined as on-demand and pay-as-you-go model access to a set of computing resources like storage, network, server, virtual machines that provided by cloud service providers like Amazon, Google, Microsoft which can be easily managed and operated via internet. [1]

In this report, I am going to compare Amazon web services and Google cloud services regarding their key service offerings, cost model and going to write the procedure to install WordPress website with Linux, Apache, MySQL, and PHP server on both platforms.

Beside comparison, I will suggest some improvement in the setup process, that I faced difficulties with, moreover I will discuss about the concepts of virtualization and elasticity and the implementation of these concepts on Amazon Web Services and Google Cloud platforms.

BACKGROUND INFORMATION:

Cloud computing is a board concept of using computing resources via internet on rent from cloud service providers like Amazon, Google, Microsoft and more. [1]

It has various key features, four deployed models and three service models. Using cloud computing a business can have scalability, security, easy maintainability, cost-effectiveness, and improved reliability. Moreover, cloud computing can be deployed like public, private, hybrid and community models, where the service models are Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). Some giants provide cloud computing services among them Amazon Web Services, Google Cloud Provider, Microsoft Azure, IBM Cloud and Alibaba Cloud are popular. [2]

In this report, I am going to focus on Amazon Web Service and Google Cloud Provider, and the relevant services I have used from AWS (Amazon Web Services) and GCP (Google Cloud Platform) in my WordPress website creation.

Specifically, their Elastic Compute Cloud (EC2) and Virtual Machines (VM) services I have utilized most in my website creation.

I am going to highlight each step I followed to create instance and virtual machine in both platforms and to install Linux, Apache, MySQL, and PHP to integrate WordPress.

KEY SERVICE OFFERINGS:

Public, private, government and individuals can utilize Amazon Web Services for on-demand computing resources with pay-as-you-go billing style. Amazon do offer distinct services, and focused frameworks for computing needs. [3]

With internet, Amazon Elastic Compute Cloud provides a virtual environment, that client can access it continuously from anywhere and anytime. Where client can have the Facilities like a hardware computer, with equipment like CPU and GPU for processing, RAM, SSD for storing information without having a physical computer.

Client also can access database, server, network, and CRM using Amazon, and utilize the virtual machine for hosting his website online. [4]

In my project, I used Amazon's EC2's instances to create a virtual environment, where I installed Linux, Apache, MySQL, and PHP to connect WordPress website with the server.

Amazon Web Services offer more various facilities, like storage features, computation features, infrastructure features, and network features where we can use storage for files, blocks, disaster recovery, backups and archiving our data, moreover virtual server as a computation feature, and for server automation, monitoring, logging, cloud deployment, and cloud management services Amazon Web services provide infrastructure facilities. [5]

For Google cloud provider, it is a dominant as a Platform as a Service from other cloud service providers, it mostly offers powerfully cloud security to the business, also virtual machines to create instances and connect with virtual server. [6]

Google offers complete business solutions according to the modern demand for enterprises and individuals such as compute engine, cloud storage, networking, serverless facilities, and developer tools, etc.

I used compute engine to create a virtual machine and create instance to install WordPress and LAMP stack server.

COST MODEL COMPARISON:

When comparing the cost models of AWS Elastic Compute Cloud (EC2) and Google Cloud Platform (GCP) Virtual Machines (VMs), several key factors should be considered, including pricing structures, billing methods, and cost-saving options. Both platforms offer various pricing models tailored to different use cases, but they have distinct differences that can impact your overall cloud expenses.

1. Pricing Models:

AWS EC2:

On-Demand Instances: AWS charges by the second, with no upfront commitment, allowing you to pay only for the compute capacity you use. This model is flexible but generally more expensive than reserved or spot instances.

Reserved Instances (RIs): You can save up to 75% over On-Demand pricing by committing to a 1- or 3-year term. This model is ideal for predictable, steady-state workloads.

Spot Instances: Spot Instances allow you to purchase unused EC2 capacity at up to 90% discount compared to On-Demand prices. However, these instances can be interrupted when AWS needs the capacity back, making them suitable for fault-tolerant and flexible workloads.

GCP VMs:

On-Demand Pricing: GCP also charges by the second, with a minimum of 1 minute, and there is no upfront commitment. This is similar to AWS's On-Demand model.

Committed Use Contracts: GCP offers a significant discount (up to 57%) when you commit to a specific amount of usage (e.g., a specific number of vCPUs and memory) for 1 or 3 years, similar to AWS Reserved Instances.

Preemptible VMs: These are equivalent to AWS Spot Instances, offering up to 80% savings. However, they are short-lived, as GCP can terminate them at any time, making them ideal for batch jobs and fault-tolerant workloads.

PROCEDURE:

LAMP stack and WordPress installation on AWS and GCP:

The screenshot displays the AWS Management Console interface for launching an EC2 instance. The breadcrumb navigation shows 'EC2 > Instances > Launch an instance'. The main heading is 'Launch an instance' with an 'Info' link. Below this, a sub-heading 'Name and tags' has an 'Info' link. A text input field for the instance name contains 'wordpress'. To the right of this field is a link 'Add additional tags'. Below the name field is a section titled 'Application and OS Images (Amazon Machine Image)' with an 'Info' link. This section includes a descriptive paragraph about AMIs and a search bar with the placeholder text 'Search our full catalog including 1000s of application and OS images'. Below the search bar are two tabs: 'Recents' and 'Quick Start'. The 'Quick Start' tab is active, showing a grid of AMI tiles for Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE Linux. To the right of the grid is a link 'Browse more AMIs' with a magnifying glass icon. On the right side of the console, a 'Summary' section lists the configuration: 'Number of instances' (1), 'Software Image (AMI)' (Amazon Linux 2023 AMI), 'Virtual server type (instance type)' (t2.micro), 'Firewall (security group)' (New security group), and 'Storage (volumes)' (1 volume(s) - 8 GiB). At the bottom right, there are 'Cancel' and 'Launch instance' buttons. A 'Free tier' notification box is also present, detailing the benefits of the free tier for t2.micro instances.

For creating EC2 instance on AWS I log in my AWS account and search EC2 on the search bar which accessed me on the instances. Then I created an instance named WordPress. When I set up the instance with ubuntu and 20gb storage, I made sure to allow all the https coming over the internet.

Instances | EC2 | ap-southeast-2

VM instances - Compute Engine

ICC104_Assessment 3_20240603.pdf

console.cloud.google.com/compute/instances?onCreate=true&project=bold-airlock-432604-r5

on the bookmarks bar: [import bookmarks now...](#)

Memory usage: 332 MB

88 days remaining. Activate your full account to get unlimited access to all of Google Cloud—use any remaining credits, then pay only for what you use.

Google Cloud

wordpress

Search (/) for resources, docs, products, and more

Search

Compute Engine

VM instances

CREATE INSTANCE

IMPORT VM

REFRESH

Virtual machines

VM instances

Instance templates

Sole-tenant nodes

Machine images

TPUs

Committed use discounts

Reservations

Migrate to Virtual Machin...

Storage

Disks

Storage Pools

Snapshots

Images

Async Replication

Marketplace

INSTANCES

OBSERVABILITY

INSTANCE SCHEDULES

VM instances

Filter Enter property name or value

Status

Name

Zone

Recommendations

In use by

Internal IP

External IP

Connect

VM Instances

Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows, or other standard images. Create your first VM instance, import it using a migration service, or try the quickstart to build a sample app.

CREATE INSTANCE

TAKE THE QUICKSTART

Launch an instance | EC2 | ap-south-1

Compute Engine - wordpress

ICC104_Assessment 3_20240603.pdf

console.cloud.google.com/compute/instancesAdd?project=bold-airlock-432604-r5

For quick access, place your bookmarks here on the bookmarks bar: [import bookmarks now...](#)

Free trial status: \$434.55 credit and 88 days remaining. Activate your full account to get unlimited access to all of Google Cloud—use any remaining credits, then pay only for what you use.

Google Cloud

wordpress

Search (/) for resources, docs, products, and more

Search

Create an instance

CREATE VM FROM...

New VM instance

Create a single VM instance from scratch

New VM instance from template

Create a single VM instance from an existing template

New VM instance from machine image

Create a single VM instance from an existing machine image

Marketplace

Deploy a ready-to-go solution onto a VM instance

Name *

wordpress

MANAGE TAGS AND LABELS

Region *

australia-southeast1 (Sydney)

Zone *

Any

Machine configuration

General purpose

Compute optimized

Memory optimized

Storage optimized

GPUs

Monthly estimate

\$36.05

That's about \$0.05 hourly

Pay for what you use: no upfront costs and per second billing

Item

Monthly est

2 vCPU + 4 GB memory

\$:

10 GB balanced persistent disk

!

Total

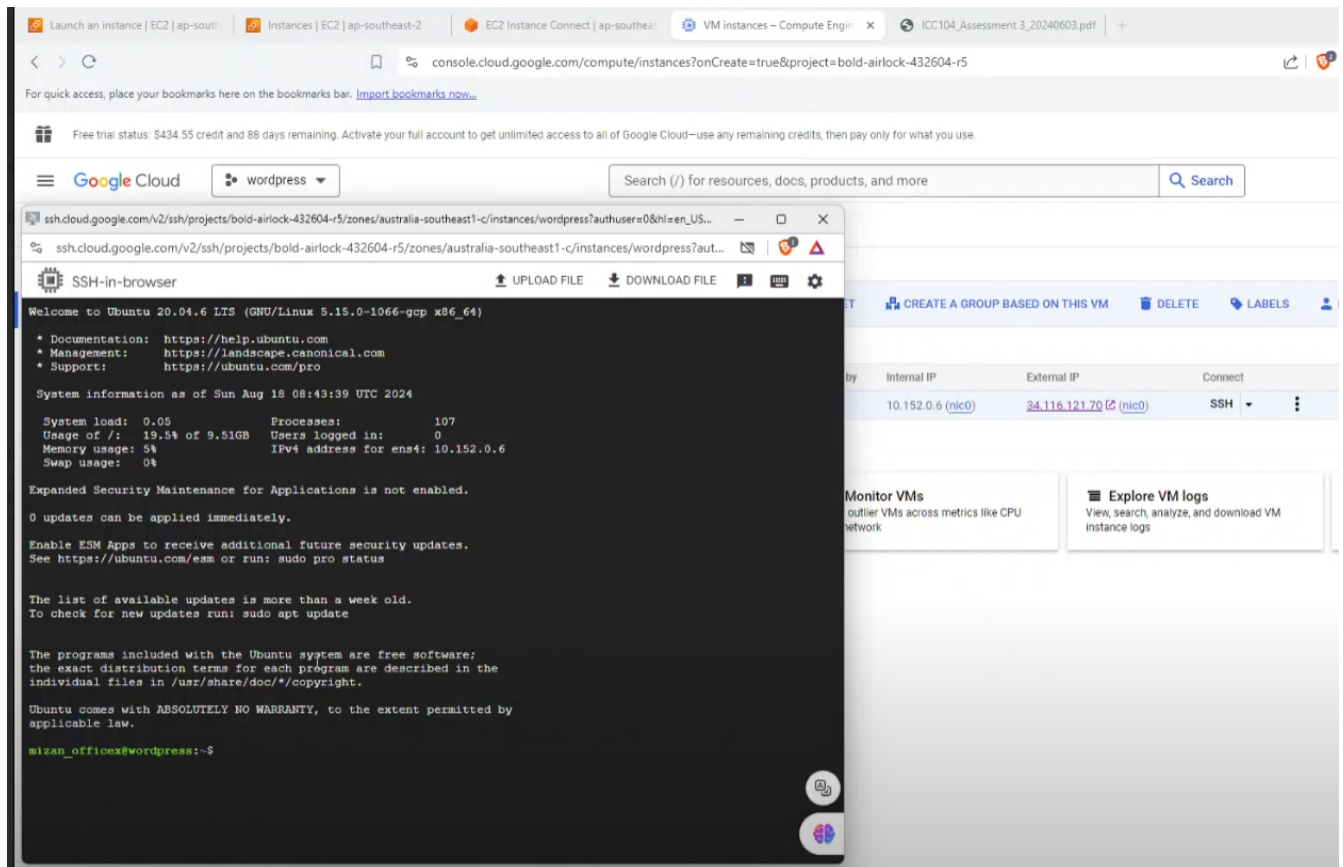
\$:

Machine types for common workloads, optimized for cost and flexibility

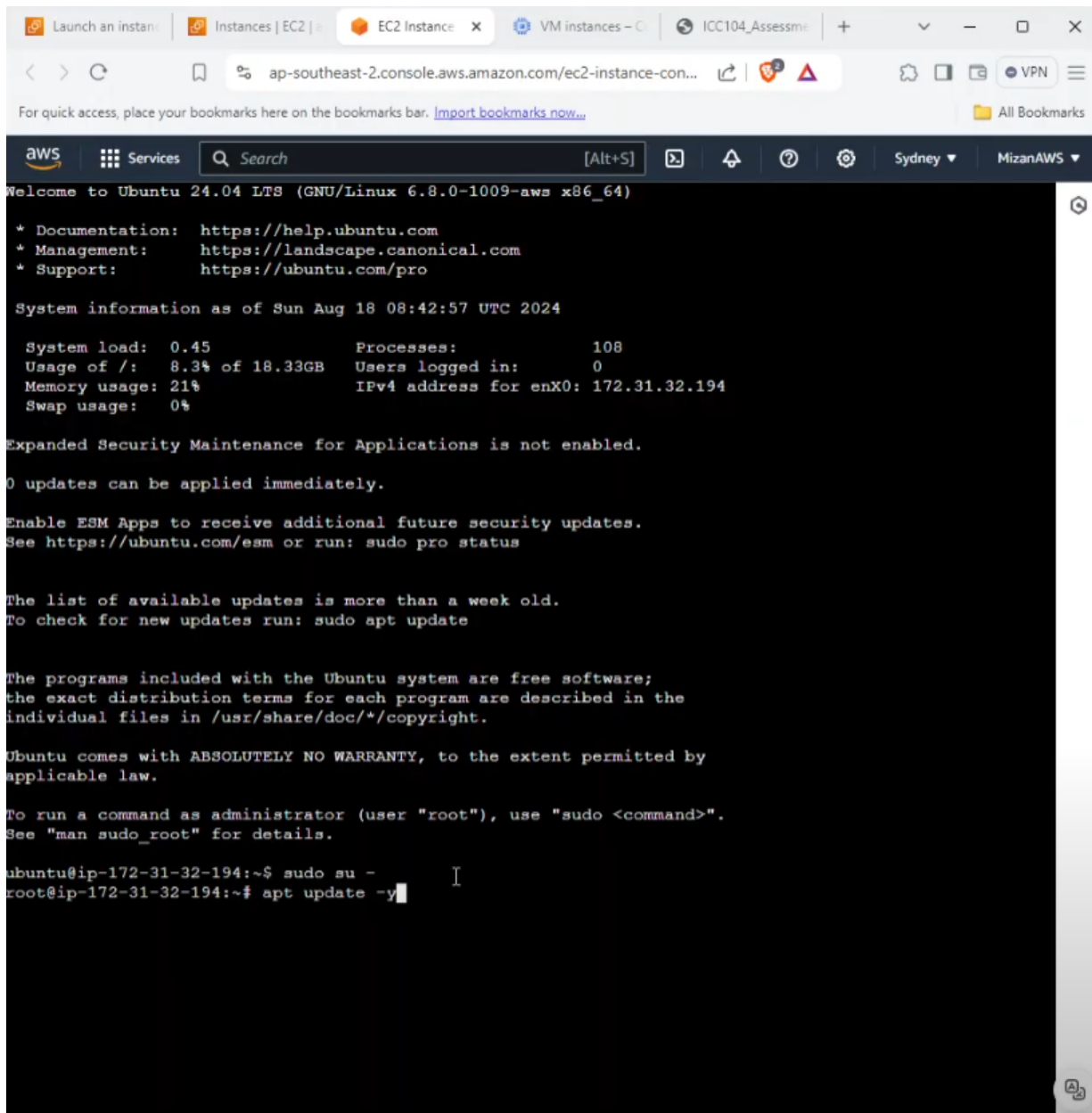
Series	Description	vCPUs	Memory	Platform
C4	Consistently high performance	2 - 192	4 - 1,488 GB	Intel Emerald Rapids
N4	Flexible & cost-optimized	2 - 80	4 - 640 GB	Intel Emerald Rapids
C3	Consistently high performance	4 - 192	8 - 1,536 GB	Intel Sapphire Rapids
C3D	Consistently high performance	4 - 360	8 - 2,880 GB	AMD Genoa
E2	Low cost, day-to-day computing	0.25 - 32	1 - 128 GB	Based on availability
N2	Balanced price & performance	2 - 128	2 - 864 GB	Intel Cascade and Ice Lake
N2D	Balanced price & performance	2 - 224	2 - 896 GB	AMD EPYC
T2A	Scale-out workloads	1 - 48	4 - 192 GB	Ampere Altra Arm
T2D	Scale-out workloads	1 - 60	4 - 240 GB	AMD EPYC Milan

Compute Engine pricing

LESS



For Google Cloud Provider, I created an account on GCP, then logged on to console, where I searched for compute engine, and pressed VM instances, where I create an instance named as wordpress. Then pressing on ssh I connected to the console.



The screenshot shows a web browser window with the AWS Management Console open. The active tab is 'EC2 Instance', and the URL is 'ap-southeast-2.console.aws.amazon.com/ec2-instance-con...'. The terminal window displays the following text:

```
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1009-aws x86_64)

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

System information as of Sun Aug 18 08:42:57 UTC 2024

System load:  0.45          Processes:           108
Usage of /:   8.3% of 18.3GB Users logged in:       0
Memory usage: 21%          IPv4 address for enx0: 172.31.32.194
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-32-194:~$ sudo su -
root@ip-172-31-32-194:~# apt update -y
```

```
ssh.cloud.google.com/v2/ssh/projects/bold-airlock-432604-r5/zones/australia-southeast
ssh.cloud.google.com/v2/ssh/projects/bold-airlock-432604-r5/zones/aust

SSH-in-browser

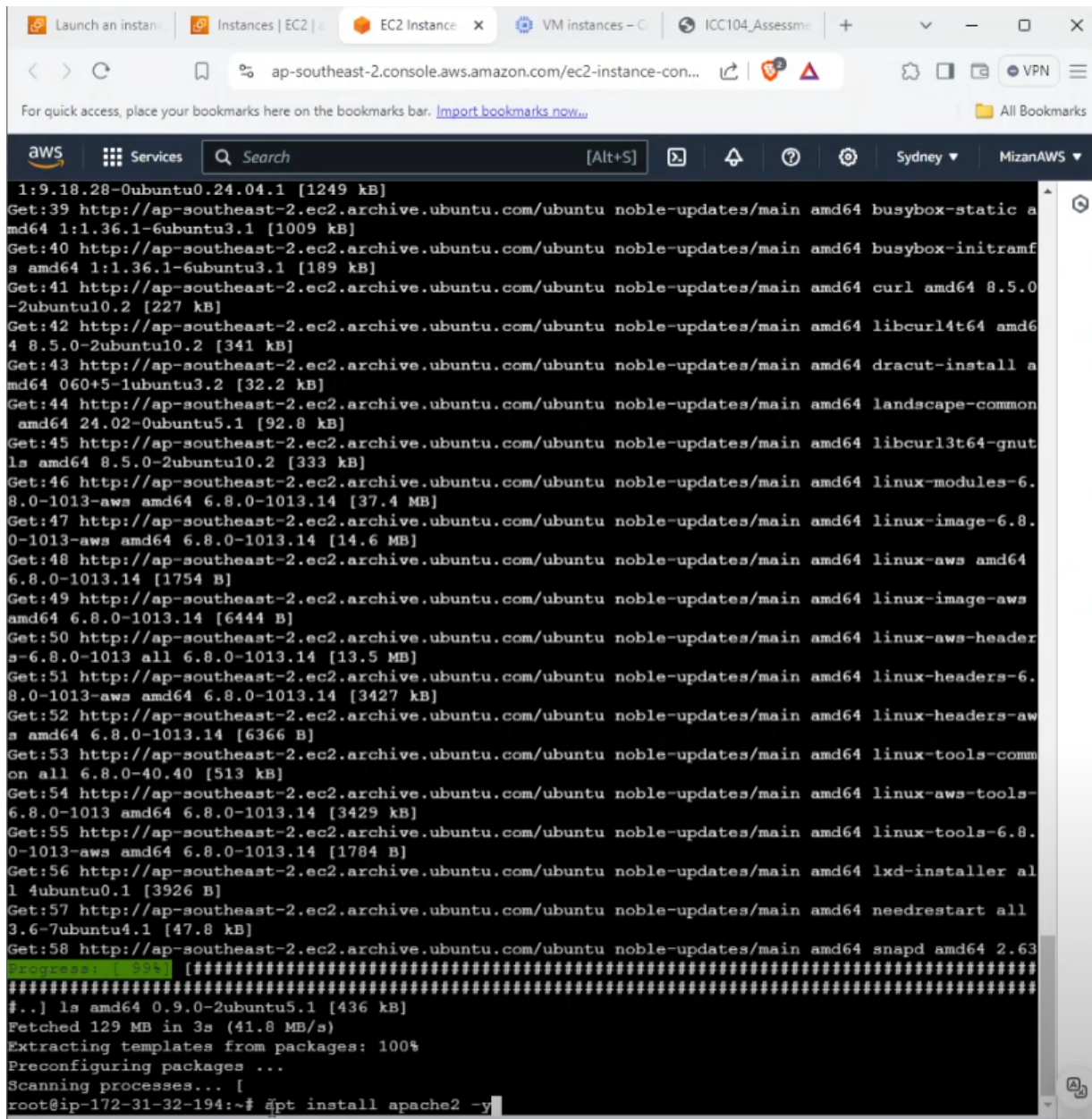
The programs included with the Ubuntu system are free software
the exact distribution terms for each program are described in
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permit
applicable law.

mizan_officex@wordpress:~$ sudo su -
root@wordpress:~# apt update -y
Hit:1 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:2 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:3 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:4 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:5 http://security.ubuntu.com/ubuntu focal-security InRelea
Get:6 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:7 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:8 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:9 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:10 http://australia-southeast1.gce.archive.ubuntu.com/ubun
Get:11 http://australia-southeast1.gce.archive.ubuntu.com/ubun
Get:12 http://australia-southeast1.gce.archive.ubuntu.com/ubun
Get:13 http://australia-southeast1.gce.archive.ubuntu.com/ubun
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Get:25 http://australia-southeast1.gce.archive.ubuntu.com/ubun
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Get:28 http://australia-southeast1.gce.archive.ubuntu.com/ubun
Get:29 http://australia-southeast1.gce.archive.ubuntu.com/ubun
]
Get:30 http://security.ubuntu.com/ubuntu focal-security/main as
Get:31 http://security.ubuntu.com/ubuntu focal-security/main T
Get:32 http://security.ubuntu.com/ubuntu focal-security/main as
Get:33 http://security.ubuntu.com/ubuntu focal-security/restric
Get:34 http://security.ubuntu.com/ubuntu focal-security/restric
Get:35 http://security.ubuntu.com/ubuntu focal-security/univer
Get:36 http://security.ubuntu.com/ubuntu focal-security/univer
Get:37 http://security.ubuntu.com/ubuntu focal-security/univer
Get:38 http://security.ubuntu.com/ubuntu focal-security/multiv
Get:39 http://security.ubuntu.com/ubuntu focal-security/multiv
Get:40 http://security.ubuntu.com/ubuntu focal-security/multiv
Fetched 32.3 MB in 6s (5120 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see
root@wordpress:~# apt upgrade -y
Reading package lists... Done
Building dependency tree... 50%
```

When I connected to the console, I used the following command to access the root user and update and upgrade the system.

```
sudo su-
apt update -y
apt upgrade -y
```



```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
md64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
Get:41 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0
-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
md64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: [ 99%] #####
#####
#..] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
root@ip-172-31-32-194:~# apt install apache2 -y
```

```
ssh.cloud.google.com/v2/ssh/projects/bold-airlock-432604-r5/zones/australia-southeast
ssh.cloud.google.com/v2/ssh/projects/bold-airlock-432604-r5/zones/aust

SSH-in-browser

Get:19 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:20 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:21 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:22 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:23 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:24 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:25 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
]
Get:26 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:27 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:28 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
Get:29 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
]
Get:30 http://security.ubuntu.com/ubuntu focal-security/main a
Get:31 http://security.ubuntu.com/ubuntu focal-security/main T
Get:32 http://security.ubuntu.com/ubuntu focal-security/main a
Get:33 http://security.ubuntu.com/ubuntu focal-security/restri
Get:34 http://security.ubuntu.com/ubuntu focal-security/restri
Get:35 http://security.ubuntu.com/ubuntu focal-security/univer
Get:36 http://security.ubuntu.com/ubuntu focal-security/univer
Get:37 http://security.ubuntu.com/ubuntu focal-security/univer
Get:38 http://security.ubuntu.com/ubuntu focal-security/multiv
Get:39 http://security.ubuntu.com/ubuntu focal-security/multiv
Get:40 http://security.ubuntu.com/ubuntu focal-security/multiv
Fetched 32.3 MB in 6s (5120 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see
root@wordpress:~# apt upgrade -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages will be upgraded:
  busybox-initramfs busybox-static
2 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
2 standard LTS security updates
Need to get 1118 kB of archives.
After this operation, 0 B of additional disk space will be use
Get:1 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
4ubuntu6.5 [950 kB]
Get:2 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu
.1-4ubuntu6.5 [169 kB]
Fetched 1118 kB in 0s (15.4 MB/s)
(Reading database ... 62149 files and directories currently in
Preparing to unpack .../busybox-static_1%3a1.30.1-4ubuntu6.5 a
Unpacking busybox-static (1:1.30.1-4ubuntu6.5) over (1:1.30.1-
Preparing to unpack .../busybox-initramfs_1%3a1.30.1-4ubuntu6.
Unpacking busybox-initramfs (1:1.30.1-4ubuntu6.5) over (1:1.30
Setting up busybox-static (1:1.30.1-4ubuntu6.5) ...
Setting up busybox-initramfs (1:1.30.1-4ubuntu6.5) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for initramfs-tools (0.136ubuntu6.7) ...
update-initramfs: Generating /boot/initrd.img-5.15.0-1066-gcp
root@wordpress:~# apt install apache2 -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

After updating and upgrading I install apache2 server on the console to do so the code is:

```
apt install apache2 -y
```

Launch ar... Instances EC2 I... VM instar... ICC104_A... Apache2... Apache2... +

ap-southeast-2.console.aws.amazon.com/ec2-instance-con... VPN

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#) All Bookmarks

aws Services Search [Alt+S] Sydney MizanAWS

```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
md64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
Get:41 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0
-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
md64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: [ 98%] [#####]
#####
...] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
root@ip-172-31-32-194:~# apt install mariadb-server mariadb-client -y
```

```
ssh.cloud.google.com/v2/ssh/projects/bold-airlock-432604-r5/zones/australia-southeast1-c/
ssh.cloud.google.com/v2/ssh/projects/bold-airlock-432604-r5/zones/australia-southeast1-c/
SSH-in-browser

Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service.
Processing triggers for ufw (0.36-6ubuntu1.1) ...
Processing triggers for systemd (245.4-4ubuntu3.23) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.16) ...
root@wordpress:~# apt install mariadb-server mariadb-client -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  galera-3 libbpf1 libbpf-perl libbpf-plugin-perl libconfig-inifiles-perl
  libencode-locale-perl libfcgi-perl libhtml-parser-perl libhtml-template-perl
  libhttp-message-perl libio-html-perl liblwp-mediatypes-perl liblua5.4-0
  libtimedate-perl liburi-perl mariadb-client-10.3 mariadb-client-core-10.3
  mariadb-server-10.3 mysql-common socat
Suggested packages:
  libclone-perl libmldbm-perl libnet-daemon-perl libsql-statement-perl
  libwww-perl mailx mariadb-test tinycsa
The following NEW packages will be installed:
  galera-3 libbpf1 libbpf-perl libbpf-plugin-perl libconfig-inifiles-perl
  libencode-locale-perl libfcgi-perl libhtml-parser-perl libhtml-template-perl
  libhttp-message-perl libio-html-perl liblwp-mediatypes-perl liblua5.4-0
  libtimedate-perl liburi-perl mariadb-client mariadb-client-10.3
  mariadb-server mariadb-server-10.3 mariadb-server-core-10.3 mysql-common
0 upgraded, 29 newly installed, 0 to remove and 0 not upgraded.
Need to get 21.6 MB of archives.
After this operation, 175 MB of additional disk space will be used.
Get:1 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu focal amd64 mariadb-client-10.3 amd64 10.3.39-0ubuntu0.20.04.2 [16.0 kB]
Get:2 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu focal amd64 mariadb-client-core-10.3 amd64 10.3.39-0ubuntu0.20.04.2 [16.0 kB]
Get:3 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu focal amd64 mariadb-server-10.3 amd64 10.3.39-0ubuntu0.20.04.2 [16.0 kB]
Get:4 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu focal amd64 mariadb-server-core-10.3 amd64 10.3.39-0ubuntu0.20.04.2 [16.0 kB]
Get:5 http://australia-southeast1.gce.archive.ubuntu.com/ubuntu focal amd64 mariadb-client-10.3 amd64 10.3.39-0ubuntu0.20.04.2 [16.0 kB]
10% [Waiting for headers]
```

When Apache2 installed, I installed MariaDB server on the console with the following code:

```
apt install mariadb-server mariadb-client -y
```

```
aws Services Search [Alt+S] Sydney MizanAWS
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
amd64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
Get:41 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0
-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
md64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: [ 35%] [#####]
#####
#..) ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
root@ip-172-31-32-194:~# sudo mysql_secure_installation
```

Launch ar... Instances EC2 I... VM insta... ICC104_A Apache2 Apache2 + - □ X

ap-southeast-2.console.aws.amazon.com/ec2-instance-con... | VPN

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#) All Bookmarks

aws Services Search [Alt+S] Sydney MizanAWS

```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
md64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
Get:41 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0
-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
md64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: [ 95%] #####
#####
#..] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
Re-enter new password: ? [Y/n] Yt protected, so you can safely answer 'n'.
```

```
SSH-in-browser

Setting up libfcgi-perl (0.79-1) ...
Setting up libterm-readkey-perl (2.38-1build1) ...
Setting up liburi-perl (1.76-2) ...
Setting up libdbi-perl:amd64 (1.643-1ubuntu0.1) ...
Setting up libhttp-date-perl (6.05-1) ...
Setting up mariadb-client-10.3 (1:10.3.39-0ubuntu0.20.04.2) ...
Setting up libdbd-mysql-perl:amd64 (4.050-3ubuntu0.2) ...
Setting up libhtml-parser-perl (3.72-5) ...
Setting up mariadb-server-10.3 (1:10.3.39-0ubuntu0.20.04.2) ...
Created symlink /etc/systemd/system/mysql.service → /lib/systemd/system/mysql.service
Created symlink /etc/systemd/system/mysqld.service → /lib/systemd/system/mysqld.service
Created symlink /etc/systemd/system/multi-user.target.wants/mariadb.service → /lib/systemd/system/mariadb.service
Setting up libhttp-message-perl (6.22-1) ...
Setting up mariadb-client (1:10.3.39-0ubuntu0.20.04.2) ...
Setting up libfcgi-pm-perl (4.46-1) ...
Setting up libhtml-template-perl (2.97-1) ...
Setting up mariadb-server (1:10.3.39-0ubuntu0.20.04.2) ...
Setting up libfcgi-fast-perl (1:2.15-1) ...
Processing triggers for systemd (245.4-4ubuntu3.23) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.16) ...
root@wordpress:~# systemctl status mariadb
● mariadb.service - MariaDB 10.3.39 database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2024-08-18 08:49:57 UTC; 1min 10s ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
   Main PID: 8185 (mysqld)
    Status: "Taking your SQL requests now..."
     Tasks: 31 (limit: 4680)
    Memory: 63.0M
    CGroup: /system.slice/mariadb.service
            └─8185 /usr/sbin/mysqld

Aug 18 08:49:57 wordpress systemd[1]: Starting MariaDB 10.3.39 database server: mariadb.service.
Aug 18 08:49:57 wordpress systemd[1]: Started MariaDB 10.3.39 database server: mariadb.service.
Aug 18 08:49:57 wordpress /etc/mysql/debian-start[8224]: Looking for /etc/mysql/debian-start[8224]: This is the first time that you have started MariaDB. You should set the root password to a strong one immediately. You can do this either by using 'mysql_secure_installation' from the shell, or you can use the 'mysql_native_password' plugin which is already in the MySQL configuration file. To see the full text, press the escape key or the 'q' key immediately.
Aug 18 08:49:57 wordpress /etc/mysql/debian-start[8224]: There is a password file located at /etc/mysql/debian-start[8224]: You can use the password from the password file to connect to the MySQL daemon. You can use the 'mysql_secure_installation' script to set a new password for the root user. The script will help you determine the correct password file to use. It is important to set a password for the root user to make sure that nobody can log into the MySQL daemon without the proper authorisation.
Aug 18 08:49:57 wordpress /etc/mysql/debian-start[8232]: Check the password file for the root user.
Aug 18 08:49:57 wordpress /etc/mysql/debian-start[8236]: Trigger the 'mysql_secure_installation' script.
root@wordpress:~# sudo mysql_secure_installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MySQL
SERVERS IN PRODUCTION USE! PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current
password for the root user. If you've just installed MariaDB,
you haven't set the root password yet, the password will be blank,
so you should just press enter here.

Enter current password for root (enter for none):
OK, successfully used password, moving on...

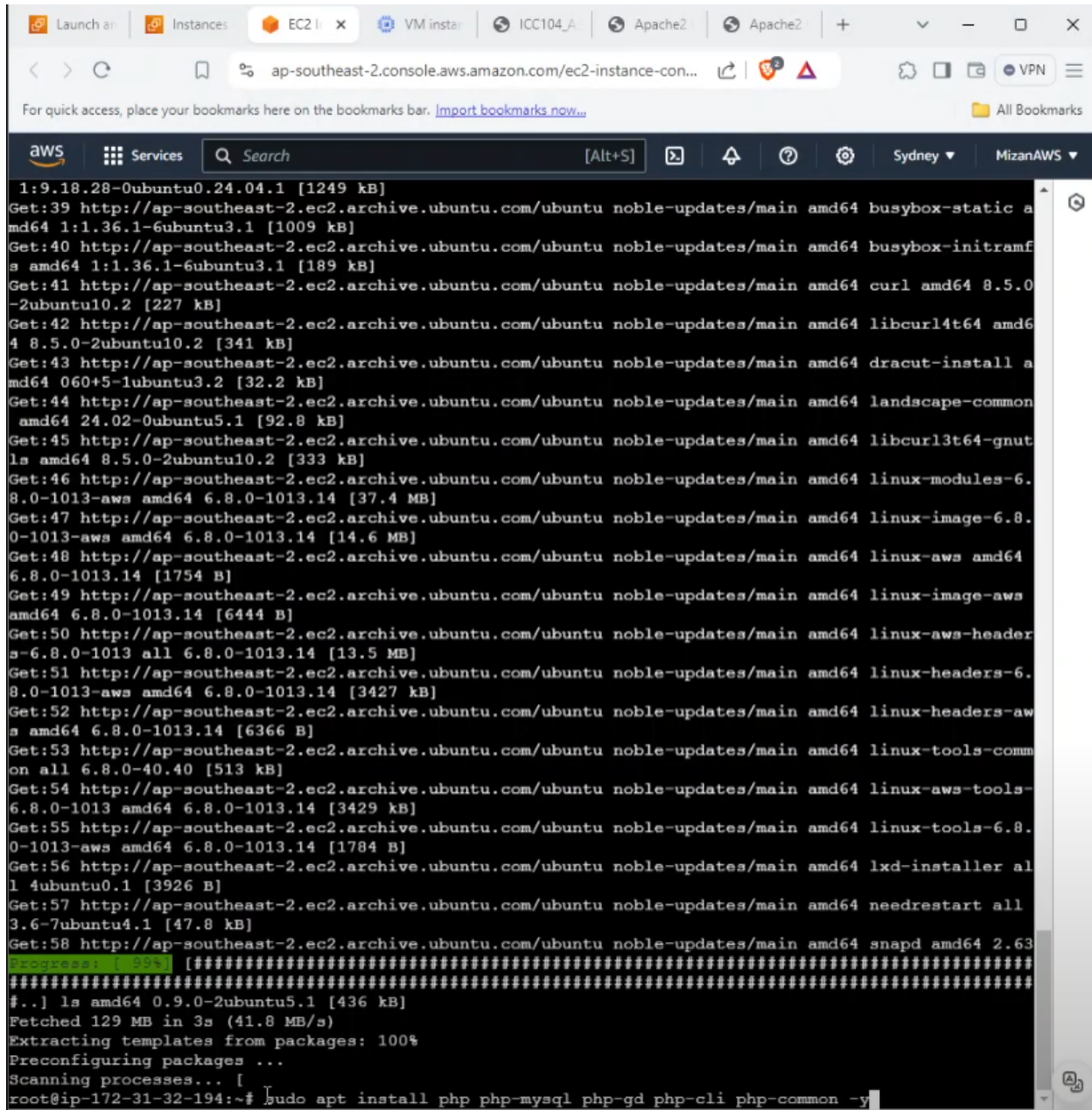
Setting the root password ensures that nobody can log into the
MySQL root user without the proper authorisation.

Set root password? [Y/n]
```

When I install MySQL with the following code;

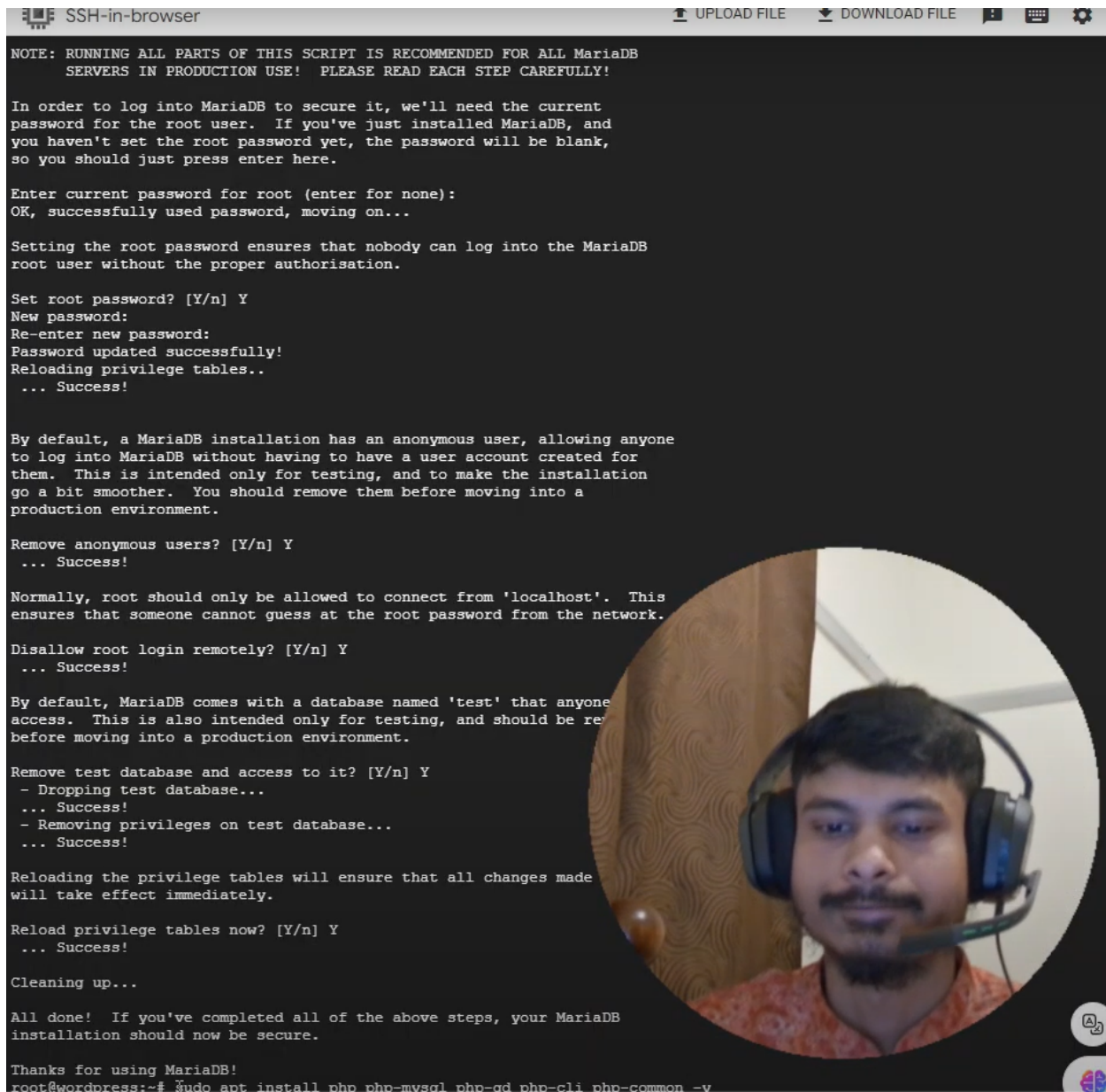
```
sudo mysql_secure_installation
```

It asked for root password, we must press enter to move to the next task, then it will ask to set a new root password, where I set my root password as “icc104”. It will ask some basic questions that need to be pressed as “yes” to move on.



The screenshot shows a terminal window within the AWS Management Console. The browser tabs at the top include 'Launch an...', 'Instances', 'EC2 I...', 'VM insta...', 'ICC104_A', 'Apache2', and another 'Apache2'. The address bar shows the URL 'ap-southeast-2.console.aws.amazon.com/ec2-instance-con...'. The terminal window has a dark background with white text. It displays a series of 'Get:' commands downloading various Ubuntu packages from the 'ap-southeast-2.archive.ubuntu.com' mirror. The packages include 'busybox-static', 'busybox-initramfs', 'curl', 'libcurl4t64', 'dracut-install', 'landscape-common', 'libcurl3t64-gnutls', 'linux-modules-6.8.0-1013-aws', 'linux-image-6.8.0-1013-aws', 'linux-aws', 'linux-aws-header', 'linux-headers-6.8.0-1013-aws', 'linux-headers-aws', 'linux-tools-common', 'linux-aws-tools', 'linux-tools-6.8.0-1013-aws', 'lxd-installer', 'needrestart', and 'snapd'. The progress for 'snapd' is highlighted in green, showing 'Progress: [99%]'. Below the package list, it shows 'Fetches 129 MB in 3s (41.8 MB/s)', 'Extracting templates from packages: 100%', and 'Preconfiguring packages ...'. The prompt 'root@ip-172-31-32-194:~#' is visible, followed by the command 'sudo apt install php php-mysql php-gd php-cli php-common -y'.

```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
amd64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
Get:41 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0
-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
amd64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: [ 99%] [#####]
#####
#..] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
root@ip-172-31-32-194:~# sudo apt install php php-mysql php-gd php-cli php-common -y
```



```
SSH-in-browser  UPLOAD FILE  DOWNLOAD FILE

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
SERVERS IN PRODUCTION USE!  PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current
password for the root user.  If you've just installed MariaDB, and
you haven't set the root password yet, the password will be blank,
so you should just press enter here.

Enter current password for root (enter for none):
OK, successfully used password, moving on...

Setting the root password ensures that nobody can log into the MariaDB
root user without the proper authorisation.

Set root password? [Y/n] Y
New password:
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
... Success!

By default, a MariaDB installation has an anonymous user, allowing anyone
to log into MariaDB without having to have a user account created for
them.  This is intended only for testing, and to make the installation
go a bit smoother.  You should remove them before moving into a
production environment.

Remove anonymous users? [Y/n] Y
... Success!

Normally, root should only be allowed to connect from 'localhost'.  This
ensures that someone cannot guess at the root password from the network.

Disallow root login remotely? [Y/n] Y
... Success!

By default, MariaDB comes with a database named 'test' that anyone
access.  This is also intended only for testing, and should be removed
before moving into a production environment.

Remove test database and access to it? [Y/n] Y
- Dropping test database...
... Success!
- Removing privileges on test database...
... Success!

Reloading the privilege tables will ensure that all changes made
will take effect immediately.

Reload privilege tables now? [Y/n] Y
... Success!

Cleaning up...

All done!  If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
root@wordpress:~# sudo apt install php php-mysql php-gd php-cli php-common -y
```

After MySQL secure installation I must install PHP to the console, for that I used:

```
sudo apt install php php-mysql php-gd php-cli php-common -y
```

After installing the PHP I restarted the MariaDB and installed an unzip software named wget then download the WordPress zip from their website and unzip it with wget.

Launch arInstancesEC2 li xVM instarICC104_AApache2Apache2+

<>C🔖ap-southeast-2.console.aws.amazon.com/ec2-instance-con...🔗🔒🚩VPN☰

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

All Bookmarks

awsServices🔍Search[Alt+S]🔍🔔🔗🔧SydneyMizanAWS

```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
amd64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
Get:41 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0
-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
amd64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: [ 39%] [#####]
#####
#..] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
root@ip-172-31-32-194:~# sudo apt install wget unzip
```

Launch Instance EC2 VM inst ICC104 Apache Apache Downl + - □ X

ap-southeast-2.console.aws.amazon.com/ec2-instance-con... VPN

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aws Services Search [Alt+S] Sydney MizanAWS

```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
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-2ubuntu10.2 [227 kB]
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4 8.5.0-2ubuntu10.2 [341 kB]
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Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
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0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
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6.8.0-1013.14 [1754 B]
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Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: 80% [#####]
#####
...] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
root@ip-172-31-32-194:~# wget https://en-au.wordpress.org/latest-en_AU.zip
```

```
SSH-in-browser

Setting up php7.4-json (7.4.3-4ubuntu2.23) ...

Creating config file /etc/php/7.4/mods-available/json.ini with new version
Setting up php-mysql (2:7.4+75) ...
Setting up fontconfig-config (2.13.1-2ubuntu3) ...
Setting up php7.4-cli (7.4.3-4ubuntu2.23) ...
update-alternatives: using /usr/bin/php7.4 to provide /usr/bin/php (php)
update-alternatives: using /usr/bin/phar7.4 to provide /usr/bin/phar (phar)
update-alternatives: using /usr/bin/phar.phar7.4 to provide /usr/bin/phar (phar)

Creating config file /etc/php/7.4/cli/php.ini with new version
Setting up php-cli (2:7.4+75) ...
Setting up libtiff5:amd64 (4.1.0+git191117-2ubuntu0.20.04.13) ...
Setting up libfontconfig1:amd64 (2.13.1-2ubuntu3) ...
Setting up libapache2-mod-php7.4 (7.4.3-4ubuntu2.23) ...

Creating config file /etc/php/7.4/apache2/php.ini with new version
Module mpm_event disabled.
Enabling module mpm_prefork.
apache2_switch mpm Switch to prefork
apache2_invoke: Enable module php7.4
Setting up php7.4 (7.4.3-4ubuntu2.23) ...
Setting up libgd3:amd64 (2.2.5-5.2ubuntu2.1) ...
Setting up php7.4-gd (7.4.3-4ubuntu2.23) ...

Creating config file /etc/php/7.4/mods-available/gd.ini with new version
Setting up php (2:7.4+75) ...
Setting up php-gd (2:7.4+75) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.16) ...
Processing triggers for php7.4-cli (7.4.3-4ubuntu2.23) ...
Processing triggers for libapache2-mod-php7.4 (7.4.3-4ubuntu2.23) ...
root@wordpress:~# sudo systemctl restart mariadb
root@wordpress:~# sudo apt install wget unzip
Reading package lists... Done
Building dependency tree
Reading state information... Done
wget is already the newest version (1.20.3-1ubuntu2.1).
wget set to manually installed.
Suggested packages:
  zip
The following NEW packages will be installed:
  unzip
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 169 kB of archives.
After this operation, 593 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://au.archive.ubuntu.com/ubuntu focal/main amd64 unzip amd64 6.0-25ubuntu1.2 [169 kB]
Fetched 169 kB in 0s (4229 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 64007 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-25ubuntu1.2_amd64.deb ...
Unpacking unzip (6.0-25ubuntu1.2) ...
Setting up unzip (6.0-25ubuntu1.2) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for man-db (2.9.1-1) ...
root@wordpress:~# wget https://en-au.wordpress.org/latest-en_AU.zip
```

To install wget software and download WordPress zip and to unzip the following code I used.

```
sudo apt install wget unzip
```

```
wget (paste WordPress download link)
```

```
unzip "latest-en_AU.zip"
```

Launch Instance EC2 VM inst ICC104 Apache Apache Download +

ap-southeast-2.console.aws.amazon.com/ec2-instance-con... VPN

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aws Services Search [Alt+S] Sydney MizanAWS

```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
amd64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
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-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
amd64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
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ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
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s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
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6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Preconfiguring packages... [#####]
...] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
root@ip-172-31-32-194:/var/www/html# chown www-data:www-data -R /var/www/html
```

```
SSH-in-browser
inflating: wordpress/wp-includes/ID3/module.tag.id3v1.php
inflating: wordpress/wp-includes/ID3/module.tag.id3v2.php
inflating: wordpress/wp-includes/ID3/module.audio.ac3.php
inflating: wordpress/wp-includes/ID3/module.audio-video.quicktime.php
inflating: wordpress/wp-includes/ID3/license.txt
inflating: wordpress/wp-includes/ID3/module.tag.apetag.php
inflating: wordpress/wp-includes/ID3/getid3.php
inflating: wordpress/wp-includes/ID3/module.audio.ogg.php
inflating: wordpress/wp-includes/ID3/module.audio-video.matroska.php
inflating: wordpress/wp-includes/ID3/module.audio-video.flv.php
inflating: wordpress/wp-includes/ID3/module.audio.flac.php
inflating: wordpress/wp-includes/theme.json
inflating: wordpress/wp-includes/spl-autoload-compat.php
creating: wordpress/wp-includes/assets/
inflating: wordpress/wp-includes/assets/script-loader-react-refresh-run
inflating: wordpress/wp-includes/assets/script-loader-packages.php
inflating: wordpress/wp-includes/assets/script-loader-packages.min.php
inflating: wordpress/wp-includes/assets/script-loader-react-refresh-run
inflating: wordpress/wp-includes/assets/script-loader-react-refresh-en
inflating: wordpress/wp-includes/assets/script-loader-react-refresh-en
creating: wordpress/wp-includes/html-api/
inflating: wordpress/wp-includes/html-api/class-wp-html-text-replaceme
inflating: wordpress/wp-includes/html-api/class-wp-html-processor.php
inflating: wordpress/wp-includes/html-api/class-wp-html-active-formatt
inflating: wordpress/wp-includes/html-api/class-wp-html-token.php
inflating: wordpress/wp-includes/html-api/class-wp-html-decoder.php
inflating: wordpress/wp-includes/html-api/class-wp-html-stack-event.ph
inflating: wordpress/wp-includes/html-api/class-wp-html-tag-processor.p
inflating: wordpress/wp-includes/html-api/html5-named-character-referen
inflating: wordpress/wp-includes/html-api/class-wp-html-open-elements.p
inflating: wordpress/wp-includes/html-api/class-wp-html-span.php
inflating: wordpress/wp-includes/html-api/class-wp-html-unsupported-ex
inflating: wordpress/wp-includes/html-api/class-wp-html-attribute-tok
inflating: wordpress/wp-includes/html-api/class-wp-html-processor-sta
inflating: wordpress/wp-includes/class-wp-query.php
inflating: wordpress/wp-includes/class-wp-block-type-registry.php
inflating: wordpress/wp-includes/class-wp-recovery-mode-email-ser
inflating: wordpress/wp-includes/class-wp-locale-switcher.php
inflating: wordpress/wp-includes/class-wp-recovery-mode-link-se
inflating: wordpress/wp-includes/class-wp-oembed-controller.php
inflating: wordpress/wp-includes/class-wp-block-supports.php
creating: wordpress/wp-includes/PHPMailer/
inflating: wordpress/wp-includes/PHPMailer/PHPMailer.php
inflating: wordpress/wp-includes/PHPMailer/Exception.php
inflating: wordpress/wp-includes/PHPMailer/SMTP.php
inflating: wordpress/wp-includes/class-wp-recovery-mode.php
inflating: wordpress/wp-includes/class-wp-simplepie-sanitize-k
inflating: wordpress/wp-includes/class-wp-date-query.php
inflating: wordpress/wp-includes/class-walker-comment.php
inflating: wordpress/wp-includes/nav-menu.php
inflating: wordpress/wp-includes/class-wp-paused-extensions-storag
inflating: wordpress/wp-includes/class.wp-dependencies.php
inflating: wordpress/wp-signup.php
inflating: wordpress/wp-links-opml.php
root@wordpress:~# cp -r wordpress/* var/www/html
cp: target 'var/www/html' is not a directory
root@wordpress:~# cp -r wordpress/* /var/www/html
root@wordpress:~# cd /var/www/html/
root@wordpress:/var/www/html# chown www-data:www-data -R /var/www/html/
```

When WordPress unzipping was done, I copied WordPress files to Apache directory and removed default Apache index. For that I used:

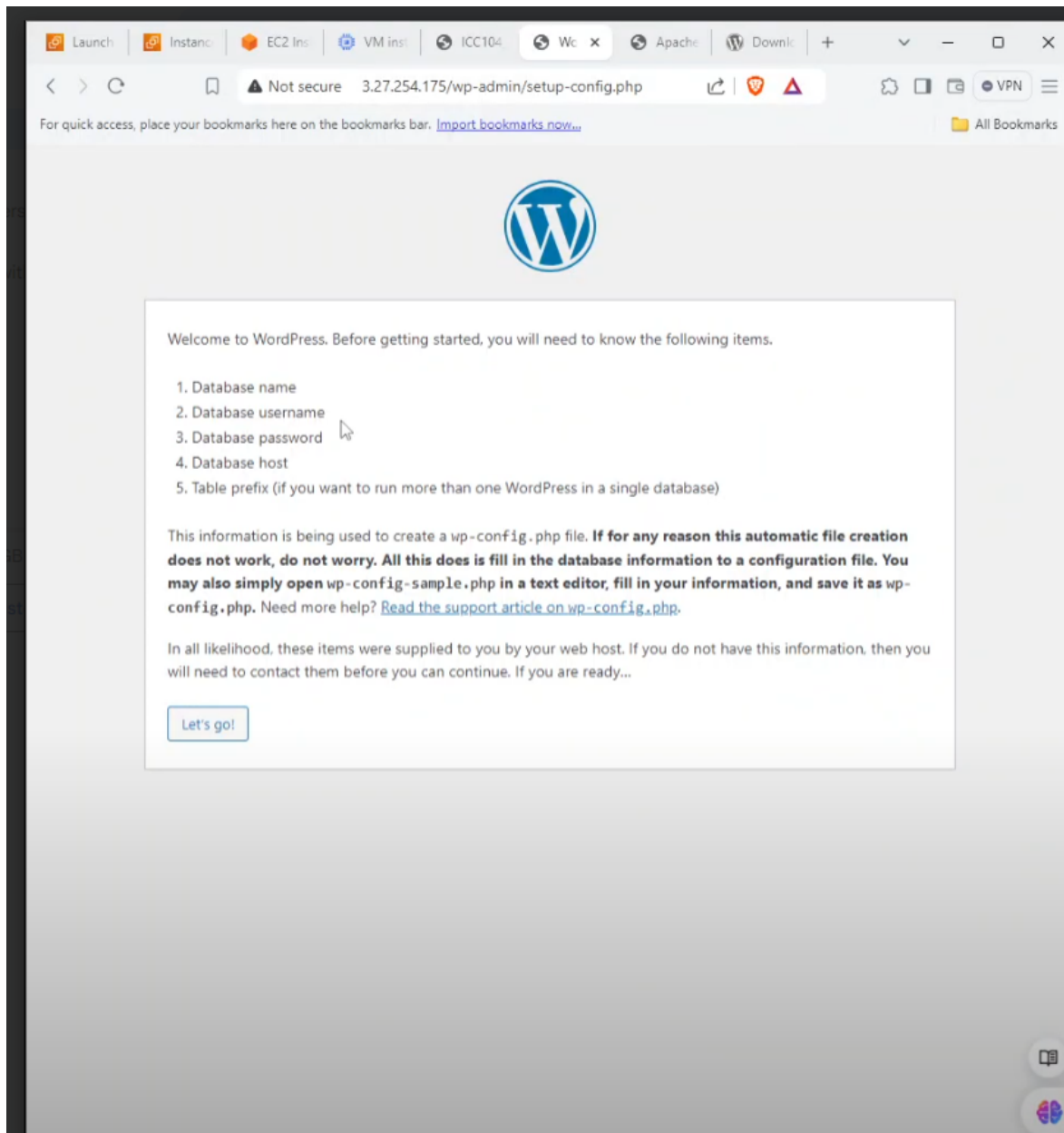
```
cp -r wordpress/* /var /www/html
```

```
cd /var /www/html/
```

```
chown www-data:www-data -R /var /www/html/
```

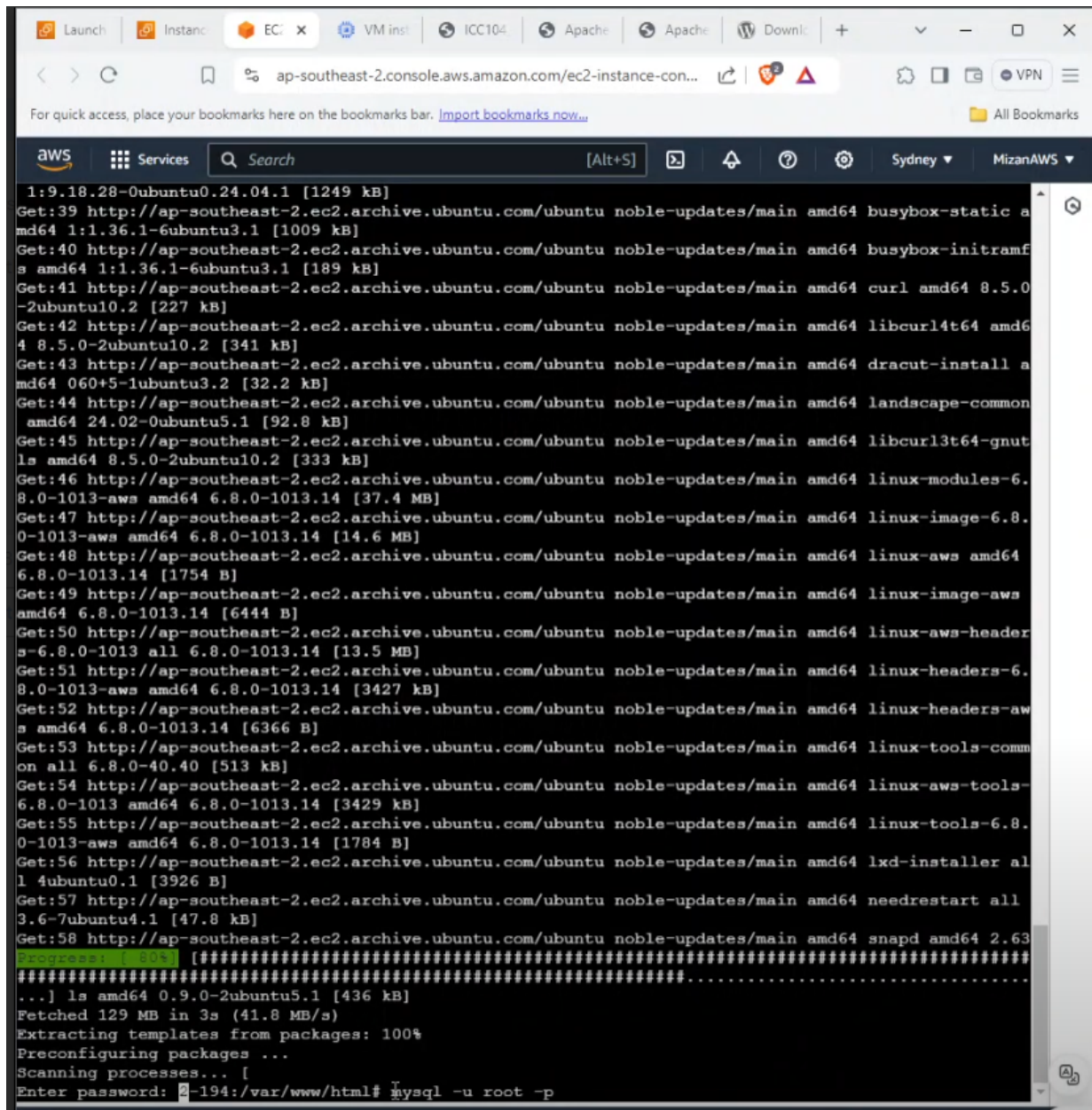
To remove default Apache Index:

```
rm -rf index.html
```



After setting up the downloaded zip file, and unzipping it, when I refresh the browser with public Ip, it accessed me to WordPress.

Then to set up WordPress database I logged in MariaDB, created database, username, and password, and granted all privileges to admin to access the WordPress.

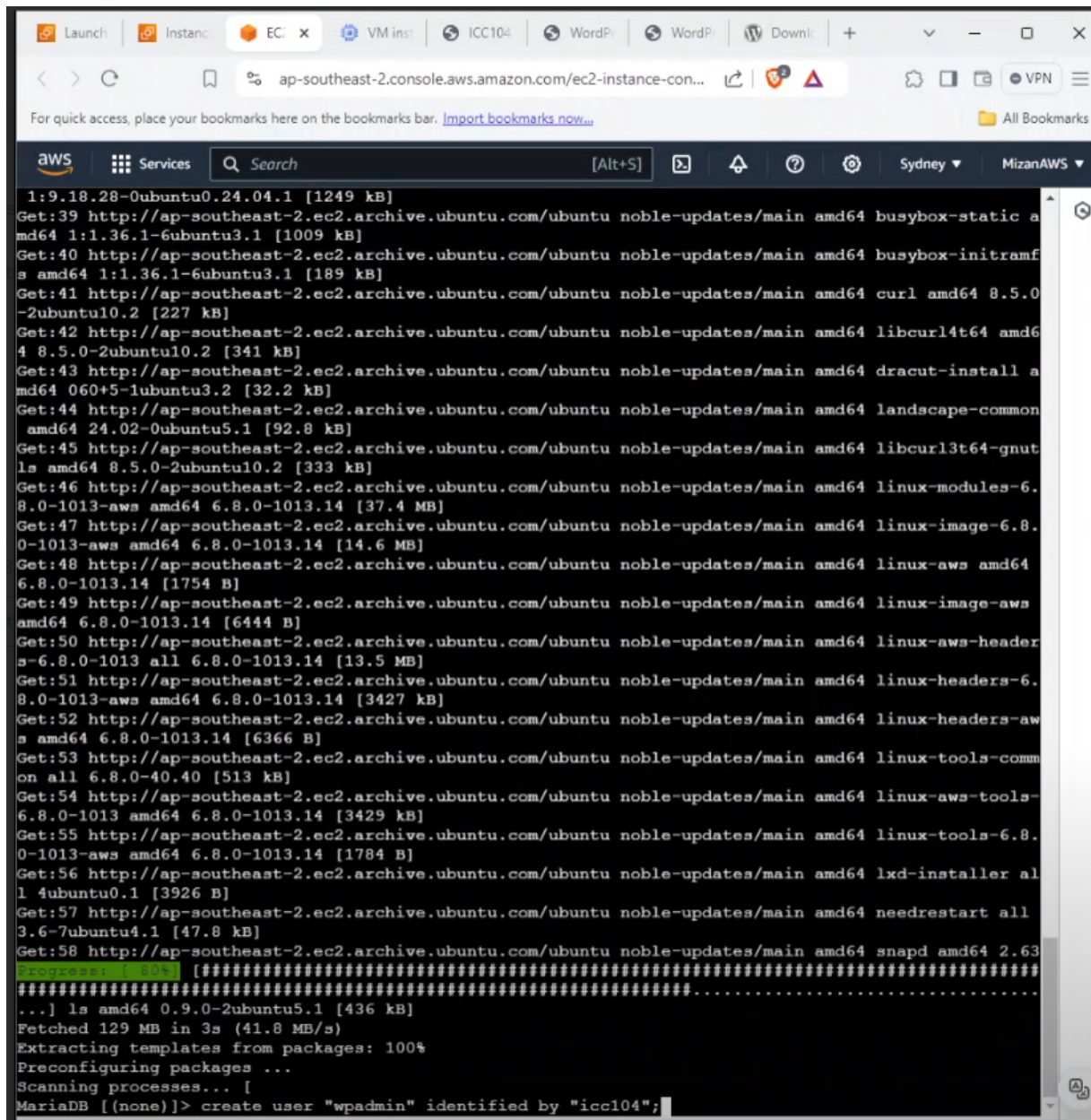


The screenshot shows a terminal window within the AWS Management Console. The terminal output displays the installation of MariaDB on an Ubuntu EC2 instance. It lists various packages being fetched from the Ubuntu archive, including busybox-static, busybox-initramfs, curl, libcurl4t64, dracut-install, landscape-common, libcurl3t64-gnutls, linux-modules-6.8.0-1013-aws, linux-image-6.8.0-1013-aws, linux-aws, linux-image-aws, linux-aws-header, linux-headers-6.8.0-1013-aws, linux-headers-aws, linux-tools-common, linux-aws-tools-6.8.0-1013, linux-tools-6.8.0-1013-aws, lxd-installer, needrestart, and snapd. The installation progress is shown as 100% completed. The terminal ends with the prompt 'Enter password:' and the command 'mysql -u root -p'.

```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
md64 1:1.36.1-6ubuntu3.1 [1009 kB]
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s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
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-2ubuntu10.2 [227 kB]
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4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
md64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
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6.8.0-1013.14 [1754 B]
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amd64 6.8.0-1013.14 [6444 B]
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s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: 100% [#####]
...] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
Enter password: [2]-194:/var/www/html# mysql -u root -p
```

To log in to MariaDB:

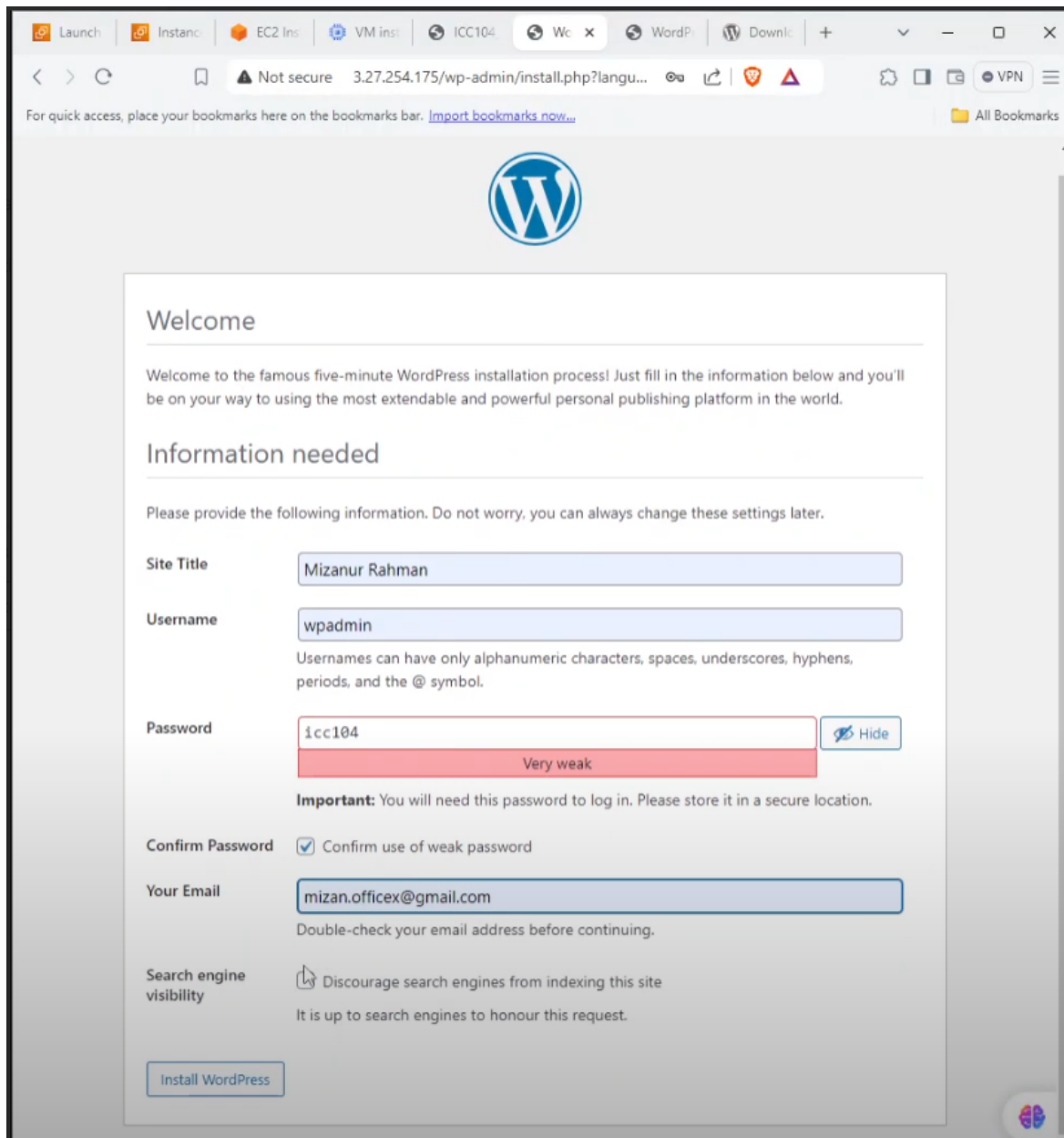
```
mysql -u root -p
```



```
1:9.18.28-0ubuntu0.24.04.1 [1249 kB]
Get:39 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-static a
md64 1:1.36.1-6ubuntu3.1 [1009 kB]
Get:40 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 busybox-initramf
s amd64 1:1.36.1-6ubuntu3.1 [189 kB]
Get:41 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0
-2ubuntu10.2 [227 kB]
Get:42 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl4t64 amd6
4 8.5.0-2ubuntu10.2 [341 kB]
Get:43 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dracut-install a
md64 060+5-1ubuntu3.2 [32.2 kB]
Get:44 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 landscape-common
amd64 24.02-0ubuntu5.1 [92.8 kB]
Get:45 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libcurl3t64-gnut
ls amd64 8.5.0-2ubuntu10.2 [333 kB]
Get:46 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-modules-6.
8.0-1013-aws amd64 6.8.0-1013.14 [37.4 MB]
Get:47 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-6.8.
0-1013-aws amd64 6.8.0-1013.14 [14.6 MB]
Get:48 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws amd64
6.8.0-1013.14 [1754 B]
Get:49 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-image-aws
amd64 6.8.0-1013.14 [6444 B]
Get:50 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-header
s-6.8.0-1013 all 6.8.0-1013.14 [13.5 MB]
Get:51 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-6.
8.0-1013-aws amd64 6.8.0-1013.14 [3427 kB]
Get:52 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-headers-aw
s amd64 6.8.0-1013.14 [6366 B]
Get:53 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-comm
on all 6.8.0-40.40 [513 kB]
Get:54 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-aws-tools-
6.8.0-1013 amd64 6.8.0-1013.14 [3429 kB]
Get:55 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 linux-tools-6.8.
0-1013-aws amd64 6.8.0-1013.14 [1784 B]
Get:56 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 lxd-installer al
l 4ubuntu0.1 [3926 B]
Get:57 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 needrestart all
3.6-7ubuntu4.1 [47.8 kB]
Get:58 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 snapd amd64 2.63
Progress: [ 80%] [#####]
#####
...] ls amd64 0.9.0-2ubuntu5.1 [436 kB]
Fetched 129 MB in 3s (41.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Scanning processes... [
MariaDB [(none)]> create user "wpadmin" identified by "icc104";
```

I created the database and named it as “wordpress” and created a user as “wpadmin” which can be accessed with “icc104” password. Then granted permission for wpadmin. The following query I wrote to create database and manage it on MariaDB.

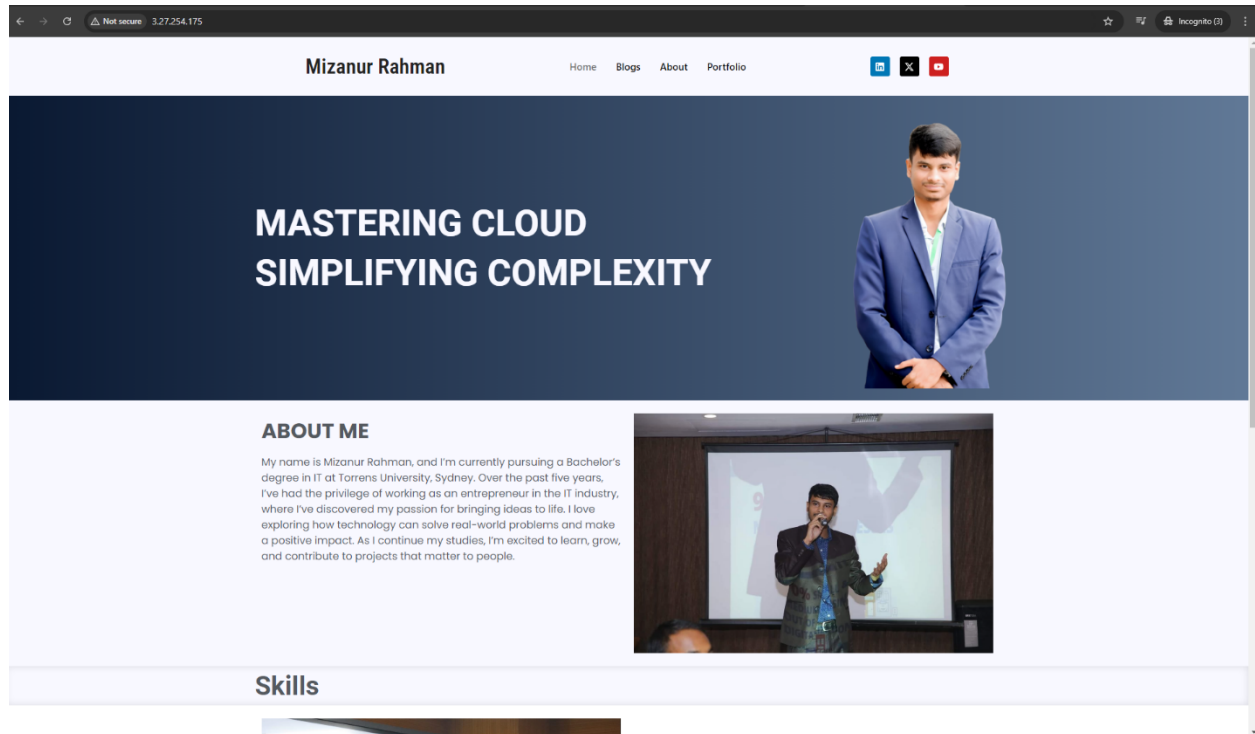
```
create database wordpress;
create user "wpadmin" identified by "icc104";
grant all privileges on wordpress.* to "wpadmin";
```



The screenshot displays the WordPress installation interface. On the left, the 'Welcome' screen shows the WordPress logo and a message: '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.' Below this is the 'Information needed' section, which prompts the user to provide site details. The 'Site Title' is 'Mizanur Rahman', the 'Username' is 'wpadmin', and the 'Password' is '1cc104'. A red bar indicates the password is 'Very weak'. The 'Confirm Password' section has a checkbox for 'Confirm use of weak password'. The 'Your Email' field is empty. The 'Search engine visibility' section has a checkbox for 'Discourage search engines from indexing this site'. On the right, the terminal output shows the installation progress, including the creation of the 'wordpress' directory and the installation of various WordPress files and themes. The terminal output ends with the message: 'Welcome to the MariaDB monitor. Commands end with ; or \g. Your MariaDB connection id is 36. Server version: 10.3.39-MariaDB-0ubuntu0.20.04.2 Ubuntu 20.04. Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and other. Type 'help;' or '\h' for help. Type '\q' to clear the current input statement.' The terminal output also shows the creation of the 'wordpress' database and the user 'wpadmin'.

After setting up the wordpress log on, I setup my site to look stunning. To access my AWS wordpress site the following Ip can be used: <http://3.27.254.175/>

And to access the Google cloud: <http://34.116.121.70/>



IMPROVEMENT SUGGESTIONS:

The project outlines only the basic WordPress website deployment, it has many potentialities to improve by enhancing its security, automation, implementation of CI/CD pipelines, implementation of load balancing and auto scaling, website responsiveness and user experience.

Firstly, with SSL certificate the IP can be secure and tested, then with domain integration the website can be fully accessible with brand image quality. Then with AWS cloud formation and

Google cloud deployment manager, we can automate the deployment of the LAMP stack and Wordpress.

Using elastic load balancer or Google cloud load balancing and with auto scaling group combination, we can distribute traffic and scale resources.

Moreover, for saving data and handling unwanted data diester, we can set up automated backups and create a disaster recovery plan. To get real-time insights, health of the application, and quick response to any issues, we can implement AWS's AWS cloud Watch and GCP's Google cloud monitoring.

Briefly, the project has a large scope to improve by using both platforms and other services and has potential to make the wordpress website to stand out the crowd.

COMPARISON OF PLATFORMS:

We can compare cloud providers based on services, prices, and advantages. For service providing amazon is the main provider for accessible could benefits and a pioneer in the global market. For design and monitoring, AWS is a dominant provider. [4]

Where Google Cloud is a hub for engineers of administrations for cloud solution collections. It has the supportive, adaptive, mobilize and discounts for its deals. [4]

For price, Amazon charges for the hourly installation, and provides a free year for the newcomer's tier, to utilize the platform before confirming the purchase. And Google Cloud offers a purchase as you go, where they charge per minute or per second. [4]

As a leading cloud company, AWS has the world's best developers, and architects, also it has competitive advantages over other cloud providers. Where Google Cloud is well known for cloud security, it has 500 security engineers to protect from cyber deals. [4]

VIRTUALIZATION AND ELASTIC RESOURCES:

In my project I used, AWS's Elastic Compute and GCP's virtual machine to get the benefit of virtualizing and elasticity, going on internet server and having the access to command line interface to control the computing services, I experienced the virtualization of cloud computing.

Where I benefited with scalability, resource efficiency, I did not have to pay for physical resources and hardware costs. The virtual machine owns an operating system and applications and can run applications.

On the other hand, elasticity refers to scale resources up and down based on demand, it adjusts the resources automatically to match the demand, it optimizes the performances during its peak hours.

Conclusion:

In this project, I utilized Amazon Web Services EC2 and Google Cloud Providers VMs to deploy WordPress website installing LAMP stack, where I compare Amazon Web Services and Google Cloud Provider regarding key services, price models, and virtual capabilities.

From the report, I can conclude that AWS is most popular for wider Services and flexibility, in most large businesses use AWS for their business solutions, on the other hand, GCP provides more affordability to the customer and mostly focus on Platform as a Service.

Although, the both platform is capable of providing efficiency and reliability to support cloud based solutions to the customers, between these two platforms can be chosen based on customer specific project needs, budget planning, and demanded features.

In conclusion, although the wordpress website deployment in each platform reflects the best utilization of AWS's elastic compute and GCP's virtual machine they have more potentialities to solve complex business, corporate and government problems with varieties features.

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