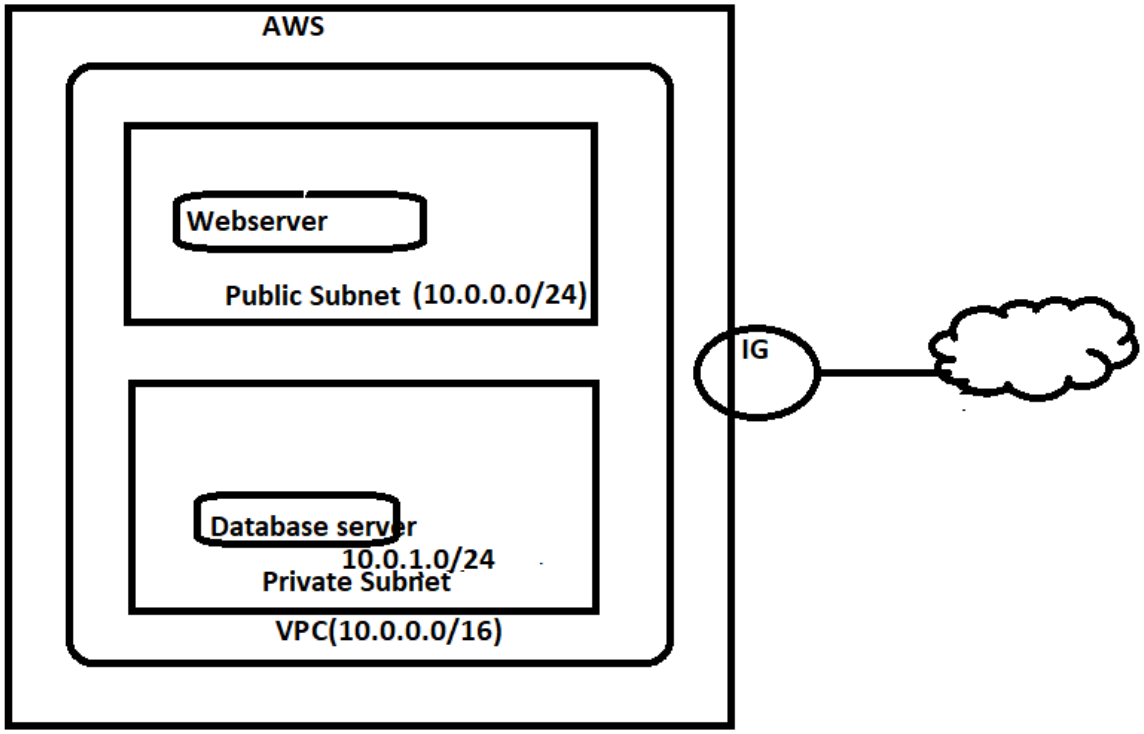
# How to Deploy a publically accessible webserver and its database (only accessible by the webserver) using AWS ?

Creating a Customize VPC named vpc_global with two Subnets(one accessible through Internet and other for Privately accessible).

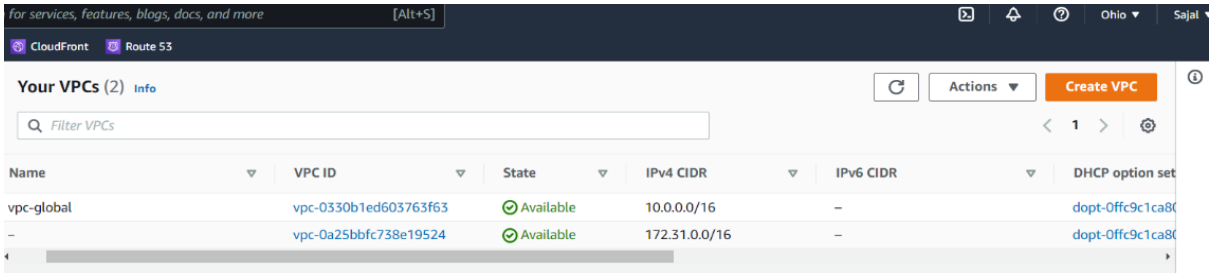
Also will take backup of application and database in s3 bucket.

Services/Tools used-

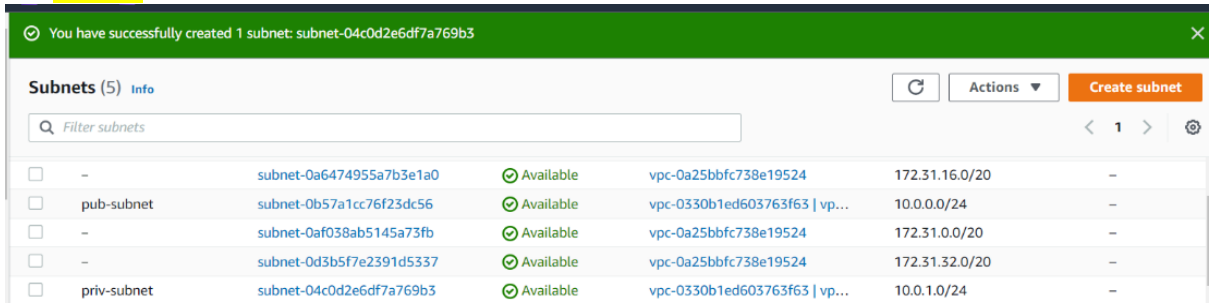
- Ec2
- VPC, Subnet, Routing Table, Internet Gateway
- MySQL



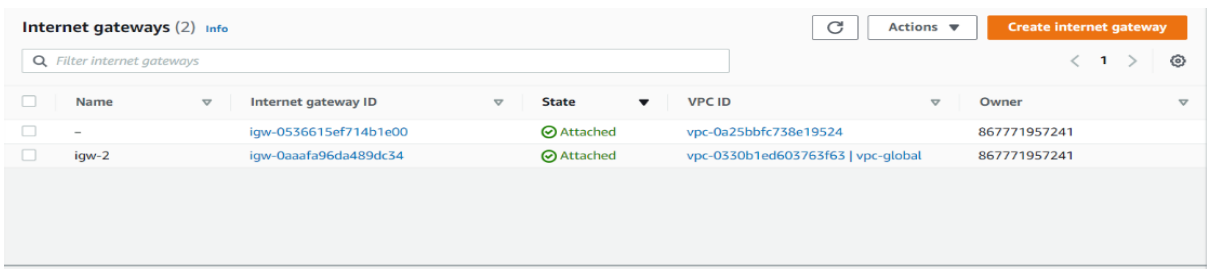
1) Created a custom VPC with IPv4 10.0.0.0/16 CIDR



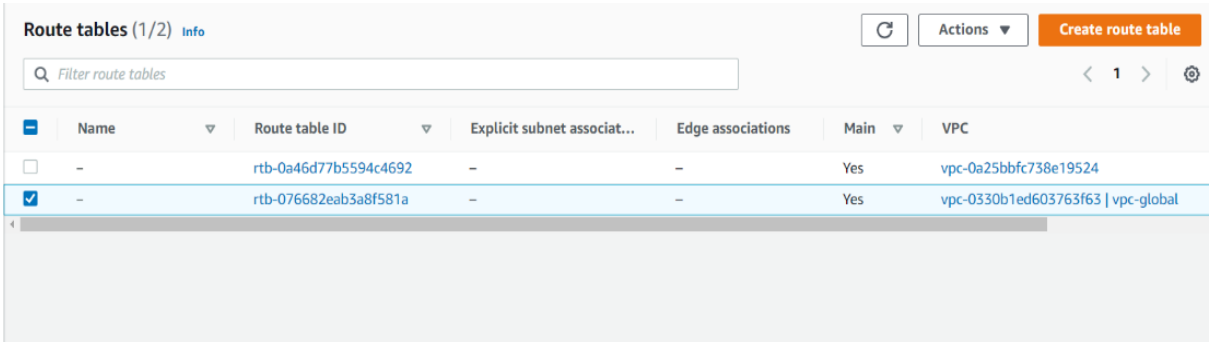

2) Created a private and a public accessible subnet in the VPC.



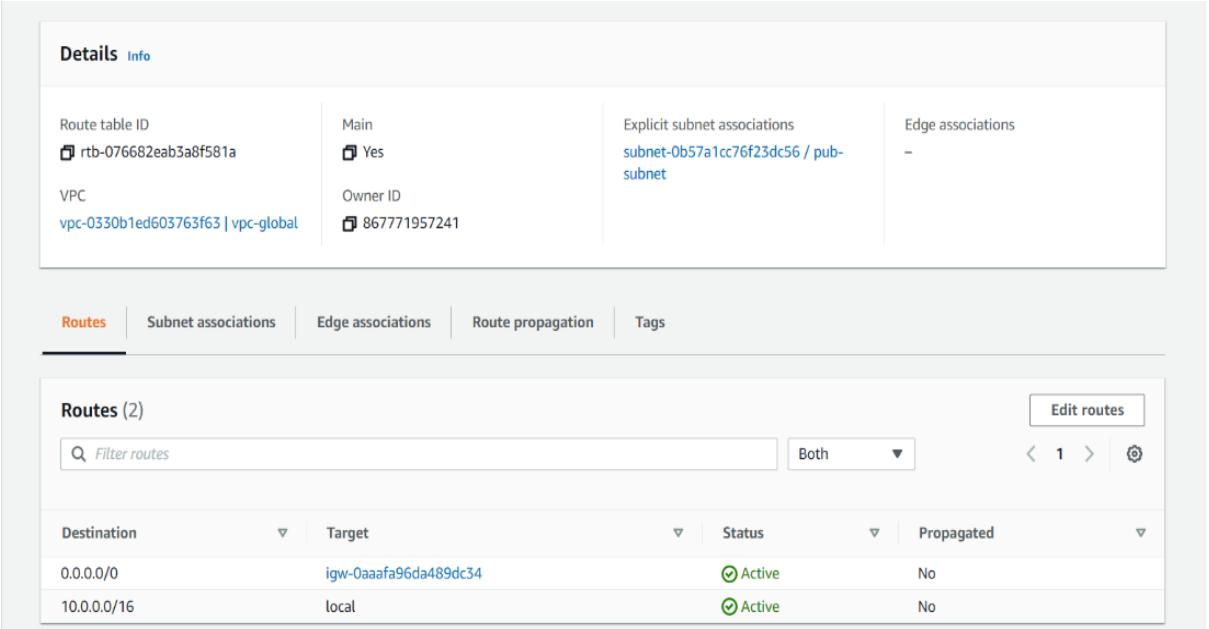

3) Created an Internet Gateway to connect the public subnet with the internet/public network.



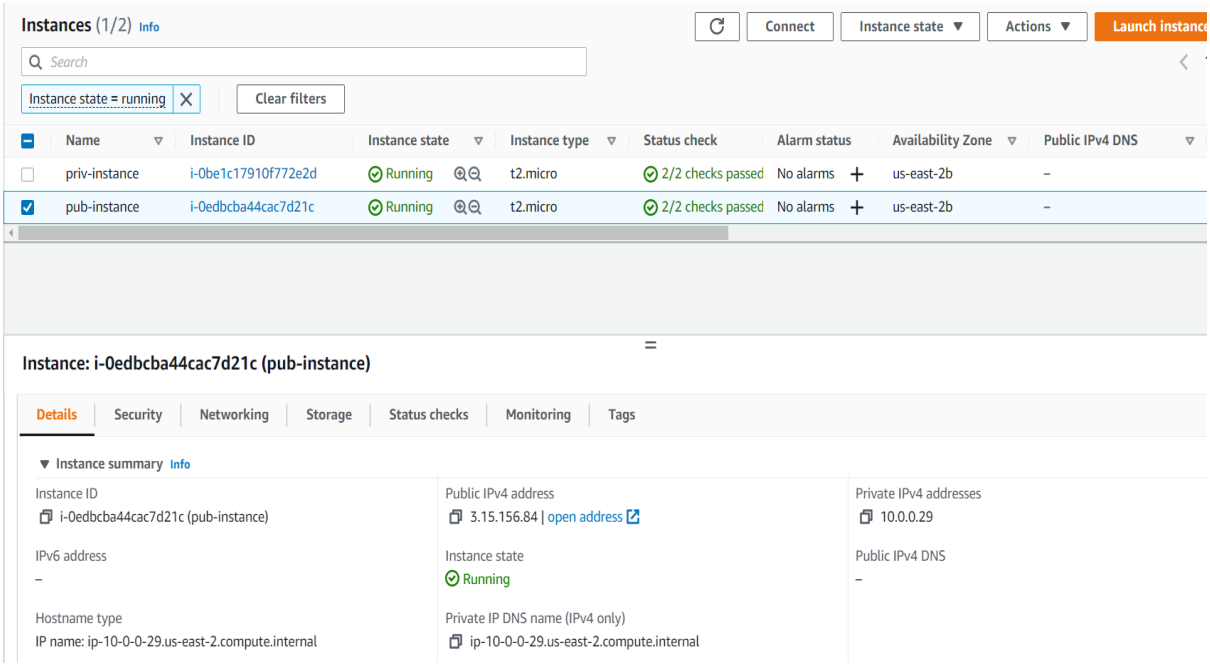
# 4) Route Table




# 5) Associated the Route Table with the internet gateway.



## 6) Created an Instance in Public subnet and an Instance in Private subnet.




## 7) Accessing The instance created in the Private subnet, through Public instance, by use of ssh command.

```
12 package(s) needed for security, out of 22 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-10-0-0-29 ~]$ sudo su
[root@ip-10-0-0-29 ec2-user]# cd
[root@ip-10-0-0-29 ~]# ping 10.0.1.188
PING 10.0.1.188 (10.0.1.188) 56(84) bytes of data.
64 bytes from 10.0.1.188: icmp_seq=1 ttl=255 time=0.465 ms
64 bytes from 10.0.1.188: icmp_seq=2 ttl=255 time=0.525 ms
64 bytes from 10.0.1.188: icmp_seq=3 ttl=255 time=0.512 ms
64 bytes from 10.0.1.188: icmp_seq=4 ttl=255 time=0.527 ms
^Z
[1]+  Stopped                 ping 10.0.1.188
[root@ip-10-0-0-29 ~]# sudo ec2-user
sudo: ec2-user: command not found
[root@ip-10-0-0-29 ~]# su ec2-user
[ec2-user@ip-10-0-0-29 root]$ cd
[ec2-user@ip-10-0-0-29 ~]$ vi Centoswebserverkey.pem
[ec2-user@ip-10-0-0-29 ~]$ ls
Centoswebserverkey.pem
[ec2-user@ip-10-0-0-29 ~]$ chmod 600 Centoswebserverkey.pem
[ec2-user@ip-10-0-0-29 ~]$ ssh 10.0.1.188 -i Centoswebserverkey.pem
The authenticity of host '10.0.1.188 (10.0.1.188)' can't be established.
ECDSA key fingerprint is SHA256:eiz2j3KAbQyaSQ/QBuCWmaoUyGpvZl2e5vHzTU+e2NU.
ECDSA key fingerprint is MD5:fa:34:1d:51:5c:d4:f0:5e:38:3e:b8:50:0c:40:fd:eb.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.0.1.188' (ECDSA) to the list of known hosts.

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https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-10-0-1-188 ~]$
```
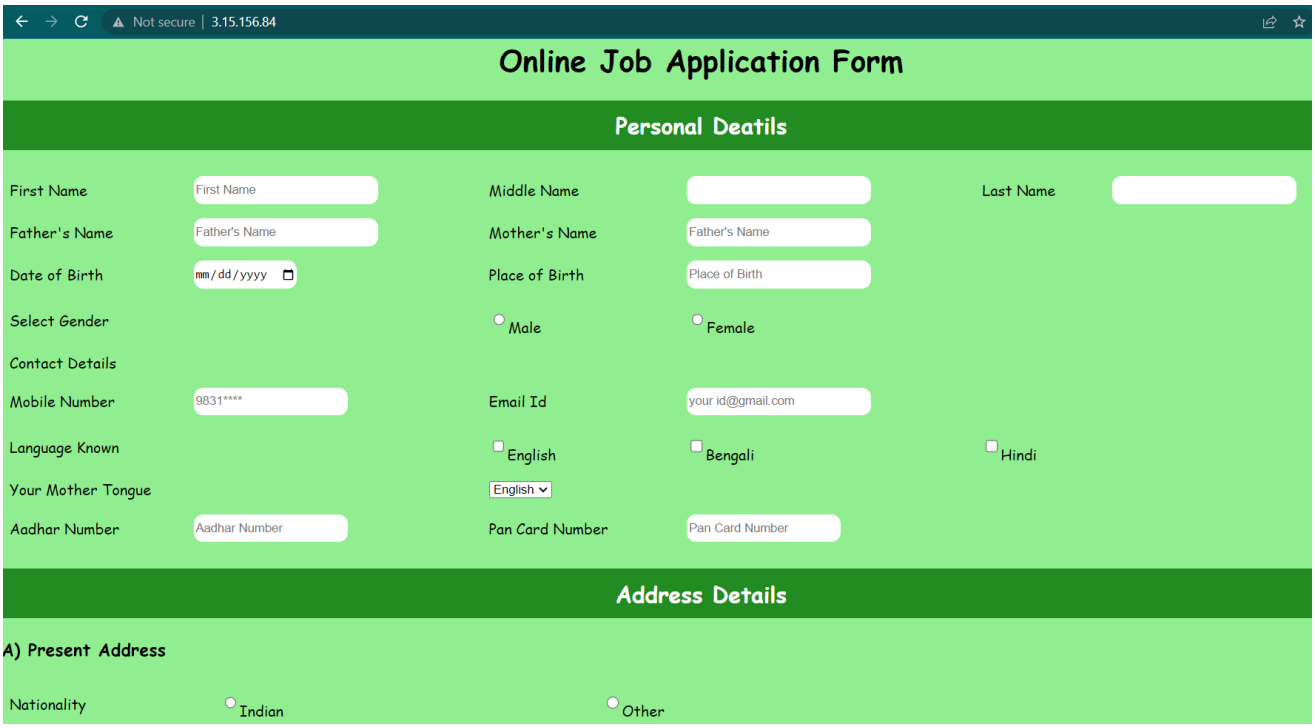

8) Creating an HTML webserver on the public subnet instance.

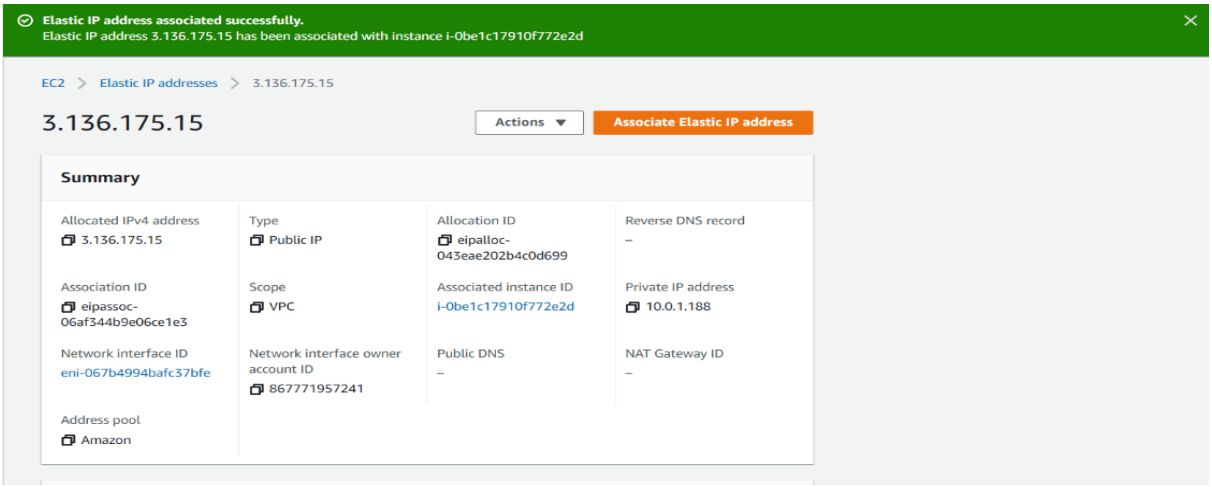
```
root@ip-10-0-0-29:/var/www/html
  httpd-manual.noarch 0:2.4.54-1.amzn2  httpd-tools.x86_64 0:2.4.54-1.amzn2

Dependency Installed:
  apr.x86_64 0:1.7.0-9.amzn2                              apr-devel.x86_64 0:1.7.0-9.amzn2
  apr-util.x86_64 0:1.6.1-5.amzn2.0.2                     apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2
  apr-util-devel.x86_64 0:1.6.1-5.amzn2.0.2               cyrus-sasl.x86_64 0:2.1.26-24.amzn2
  cyrus-sasl-devel.x86_64 0:2.1.26-24.amzn2               expat-devel.x86_64 0:2.1.0-14.amzn2.0.1
  generic-logos-httpd.noarch 0:18.0.0-4.amzn2             libdb-devel.x86_64 0:5.3.21-24.amzn2.0.3
  mailcap.noarch 0:2.1.41-2.amzn2                         mod_http2.x86_64 0:1.15.19-1.amzn2.0.1
  openldap-devel.x86_64 0:2.4.44-23.amzn2.0.4

Dependency Updated:
  expat.x86_64 0:2.1.0-14.amzn2.0.1

Complete!
[root@ip-10-0-0-29 var]# cd www/html
[root@ip-10-0-0-29 html]# ls
[root@ip-10-0-0-29 html]# vi index.html
[root@ip-10-0-0-29 html]# cat index.html
<html>
<head>
        <title>Online Job Application Form</title>
        <style>
                body{
                        font-family: "comic sans ms", sans serif;
                        background-color: lightgreen;
                        margin: 0;

                }

                h2{
                        background-color: forestgreen;
                        color: white;
```

```
                                        <td>
                                                <input type="checkbox">
                                        </td>
                                        <td colspan="2">All the above mentioned information is true as per my knowledg
e.
                                </tr>
                                <tr>
                                        <td></td>
                                        <td>
                                                <input type="Submit" value="Submit" class="button">
                                        </td>
                                        <td>
                                                <input type="Reset" value="Reset" class="button">
                                        </td>
                                        <td></td>
                                </tr>
                        </table>
                </div>
        </form>

        <!-- Main Footer -->

        <h3>BengalStudent.in </h3>
        <p>Thank you</p>

</body>

</html>
[root@ip-10-0-0-29 html]# systemctl start httpd
[root@ip-10-0-0-29 html]# systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.servic
e.
[root@ip-10-0-0-29 html]#
```

9) The webpage is accessible through public IP of webserver.



## 10) Created Elastic IP for private instance.




## 11 ) Installing MySQL packages and configuring database server.

```
--> Running transaction check
---> Package mariadb.x86_64 1:5.5.68-1.amzn2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package              Arch              Version                  Repository    Size
================================================================================
Installing:
 mariadb              x86_64            1:5.5.68-1.amzn2         amzn2-core   8.8 M

Transaction Summary
================================================================================
Install  1 Package

Total download size: 8.8 M
Installed size: 49 M
Is this ok [y/d/N]: y
Downloading packages:
mariadb-5.5.68-1.amzn2.x86_64.rpm                          | 8.8 MB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 1:mariadb-5.5.68-1.amzn2.x86_64                             1/1
  Verifying  : 1:mariadb-5.5.68-1.amzn2.x86_64                             1/1

Installed:
  mariadb.x86_64 1:5.5.68-1.amzn2

Complete!
[root@ip-10-0-1-188 ~]#
```

```
login as: ec2-user
Authenticating with public key "imported-openssh-key"
Last login: Fri Jul 29 19:15:55 2022

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https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-10-0-1-188 ~]$ sudo su
[root@ip-10-0-1-188 ec2-user]# cd
[root@ip-10-0-1-188 ~]# yum install mysql
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                               | 3.7 kB     00:00
amzn2extra-docker                                        | 3.0 kB     00:00
amzn2extra-kernel-5.10                                   | 3.0 kB     00:00
(1/7): amzn2-core/2/x86_64/group_gz                        | 2.5 kB   00:00
(2/7): amzn2-core/2/x86_64/updateinfo                      | 492 kB   00:00
(3/7): amzn2extra-docker/2/x86_64/updateinfo               | 6.4 kB   00:00
(4/7): amzn2extra-kernel-5.10/2/x86_64/updateinfo          |  17 kB   00:00
(5/7): amzn2extra-docker/2/x86_64/primary_db               |  89 kB   00:00
(6/7): amzn2extra-kernel-5.10/2/x86_64/primary_db          |  11 MB   00:00
(7/7): amzn2-core/2/x86_64/primary_db                      |  64 MB   00:01
Resolving Dependencies
--> Running transaction check
---> Package mariadb.x86_64 1:5.5.68-1.amzn2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved
```

## 12) Created an S3 bucket for keeping a backup of webserver.