

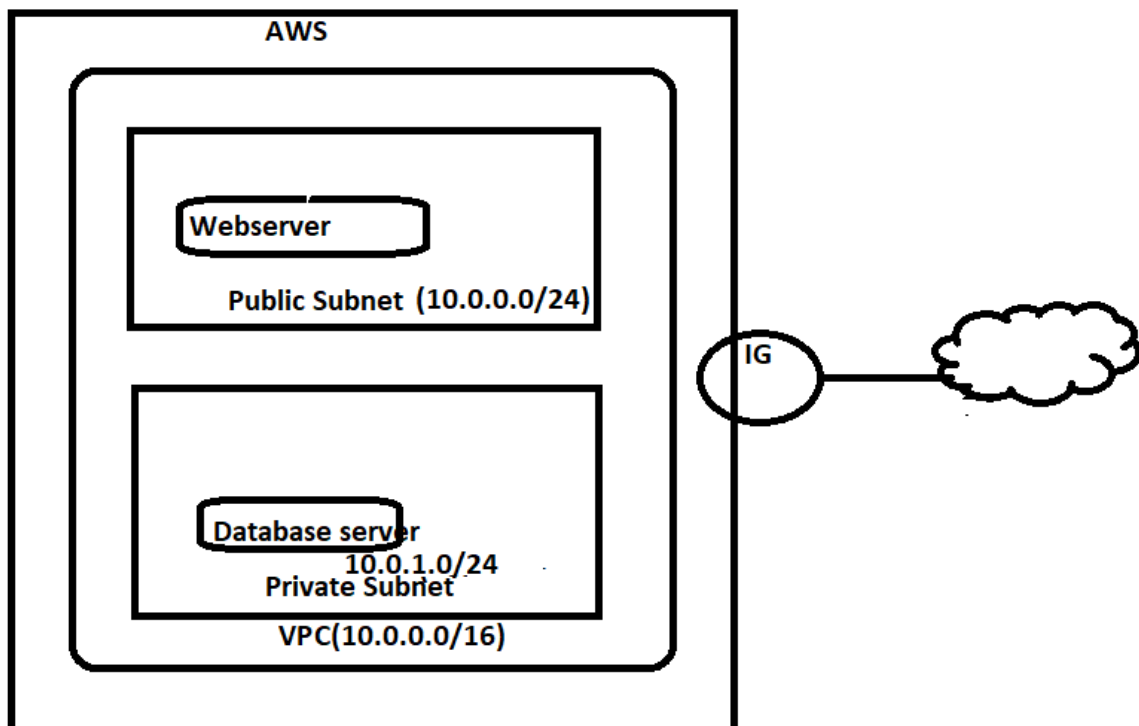
How to Deploy a publically accessible webserver and its database (only accessible by the webserver) using AWS ?

Creating a Customized 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

for services, features, blogs, docs, and more [Alt+S]

CloudFront Route 53

Your VPCs (2) Info

Filter VPCs

Actions Create VPC

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP option set
vpc-global	vpc-0330b1ed603763f63	Available	10.0.0.0/16	-	dopt-0ffc9c1ca8f
-	vpc-0a25bbfc738e19524	Available	172.31.0.0/16	-	dopt-0ffc9c1ca8f

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

You have successfully created 1 subnet: subnet-04c0d2e6df7a769b3

Subnets (5) Info

Filter subnets

Actions Create subnet

<input type="checkbox"/>	-	subnet-0a6474955a7b3e1a0	Available	vpc-0a25bbfc738e19524	172.31.16.0/20	-
<input type="checkbox"/>	pub-subnet	subnet-0b57a1cc76f23dc56	Available	vpc-0330b1ed603763f63 vp...	10.0.0.0/24	-
<input type="checkbox"/>	-	subnet-0af038ab5145a73fb	Available	vpc-0a25bbfc738e19524	172.31.0.0/20	-
<input type="checkbox"/>	-	subnet-0d3b5f7e2391d5337	Available	vpc-0a25bbfc738e19524	172.31.32.0/20	-
<input type="checkbox"/>	priv-subnet	subnet-04c0d2e6df7a769b3	Available	vpc-0330b1ed603763f63 vp...	10.0.1.0/24	-

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

Internet gateways (2) Info

Filter internet gateways

Actions Create internet gateway

<input type="checkbox"/>	-	igw-0536615ef714b1e00	Attached	vpc-0a25bbfc738e19524	867771957241
<input type="checkbox"/>	igw-2	igw-0aaafa96da489dc34	Attached	vpc-0330b1ed603763f63 vpc-global	867771957241

4) Route Table

Route tables (1/2) [Info](#)

< 1 > ⚙

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associat...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-0a46d77b5594c4692	-	-	Yes	vpc-0a25bbfc738e19524
<input checked="" type="checkbox"/>	-	rtb-076682eab3a8f581a	-	-	Yes	vpc-0330b1ed603763f63 vpc-global

5) Associated the Route Table with the internet gateway.

Details [Info](#)

Route table ID rtb-076682eab3a8f581a	Main Yes	Explicit subnet associations subnet-0b57a1cc76f23dc56 / pub-subnet	Edge associations -
VPC vpc-0330b1ed603763f63 vpc-global	Owner ID 867771957241		

[Routes](#) | [Subnet associations](#) | [Edge associations](#) | [Route propagation](#) | [Tags](#)

Routes (2) Edit routes

Both < 1 > ⚙

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0aaafa96da489dc34	Active	No
10.0.0.0/16	local	Active	No

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

Instances (1/2) [Info](#) Refresh Connect Instance state ▼ Actions ▼ Launch instance

Instance state = running X Clear filters

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	priv-instance	i-0be1c17910f772e2d	Running	t2.micro	2/2 checks passed	No alarms	us-east-2b	-
<input checked="" type="checkbox"/>	pub-instance	i-0edbcba44cac7d21c	Running	t2.micro	2/2 checks passed	No alarms	us-east-2b	-

Instance: i-0edbcba44cac7d21c (pub-instance)

[Details](#) [Security](#) [Networking](#) [Storage](#) [Status checks](#) [Monitoring](#) [Tags](#)

▼ Instance summary [Info](#)

Instance ID	Public IPv4 address	Private IPv4 addresses
i-0edbcba44cac7d21c (pub-instance)	3.15.156.84 open address	10.0.0.29
IPv6 address	Instance state	Public IPv4 DNS
-	Running	-
Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-10-0-0-29.us-east-2.compute.internal	ip-10-0-0-29.us-east-2.compute.internal	

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:eiz2j3KAbQyaSO/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.

  _ _ | ( _ _ |
  _ _ | \ _ _ |   Amazon Linux 2 AMI

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 knowledge
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.

← → ↻ ⚠ Not secure | 3.15.156.84

Online Job Application Form

Personal Deatils

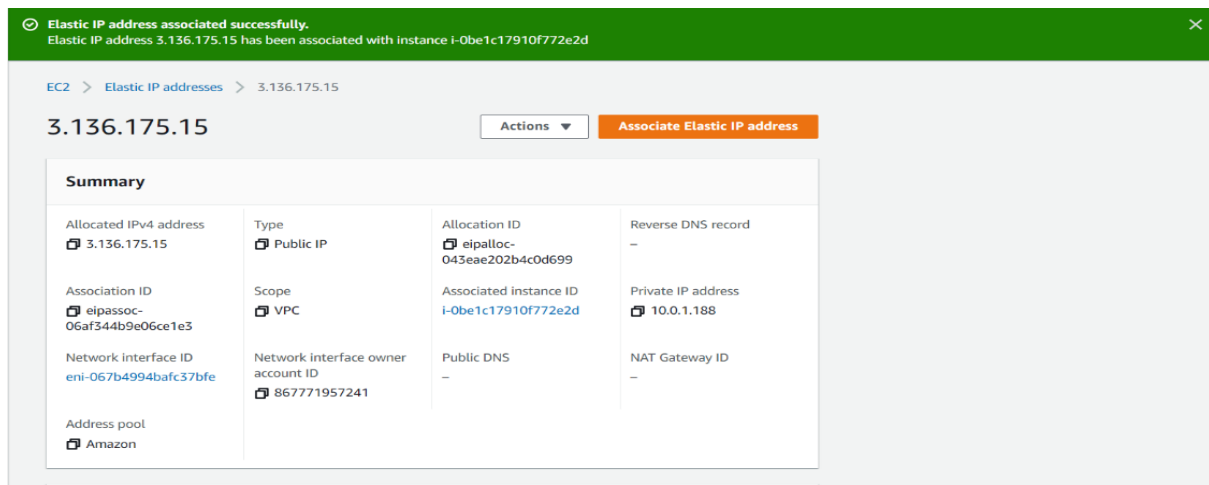
First Name	<input type="text" value="First Name"/>	Middle Name	<input type="text" value=""/>	Last Name	<input type="text" value=""/>
Father's Name	<input type="text" value="Father's Name"/>	Mother's Name	<input type="text" value="Father's Name"/>		
Date of Birth	<input type="text" value="mm/dd/yyyy"/>	Place of Birth	<input type="text" value="Place of Birth"/>		
Select Gender		<input type="radio"/> Male	<input type="radio"/> Female		
Contact Details					
Mobile Number	<input type="text" value="9831****"/>	Email Id	<input type="text" value="your id@gmail.com"/>		
Language Known		<input type="checkbox"/> English	<input type="checkbox"/> Bengali	<input type="checkbox"/> Hindi	
Your Mother Tongue		<input type="text" value="English"/>			
Aadhar Number	<input type="text" value="Aadhar Number"/>	Pan Card Number	<input type="text" value="Pan Card Number"/>		

Address Details

A) Present Address

Nationality ☐ Indian ☐ Other

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

    _ _ | _ _ | _ _
    _ _ | _ _ | _ _ /
    _ _ | _ _ | _ _ |

Amazon Linux 2 AMI

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.

Amazon S3 > Buckets > vpc-global

vpc-global [Info](#)

Objects Properties Permissions Metrics Management Access Points

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 Inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix ☐ Show versions < 1 >

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	Employee Registration Form.html	html	July 30, 2022, 01:23:20 (UTC+05:30)	11.6 KB	Standard