

Assignment Vpc

Production Network:

1. Design and build a 4-tier architecture.
2. Create 5 subnets out of which 4 should be private named app1, app2, dbcache and db and one should be public, named web.
3. Launch instances in all subnets and name them as per the subnet that they have been launched in.
4. Allow dbcache instance and app1 subnet to send internet requests.
5. Manage security groups and NACLs.

Development Network:

1. Design and build 2-tier architecture with two subnets named web and db and launch instances in both subnets and name them as per the subnet names.
2. Make sure only the web subnet can send internet requests.
3. Create peering connection between production network and development network.
4. Setup connection between db subnets of both production network and development network respectively.

Step1:Vpc creation with the name Prod and Dev and subnets routable

Internetgateway

aws Services Search [Alt+5] Hyderabad salman

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Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

Your VPCs (3) info

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Actions ▾ Create VPC

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<input type="checkbox"/>	Name ▾	VPC ID ▾	State ▾	IPv4 CIDR ▾	IPv6 CIDR ▾	DHCP opti ▾
<input type="checkbox"/>	-	vpc-0ec5c6cf825232a5b	Available	172.31.0.0/16	-	dopt-0a91
<input type="checkbox"/>	Prod-vpc	vpc-06b3060579841da6e	Available	10.0.0.0/16	-	dopt-0a91
<input type="checkbox"/>	Dev-Vpc	vpc-086772c93c7b1f317	Available	172.0.0.0/20	-	dopt-0a91

Select a VPC above

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Route tables

Internet gateways

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NAT gateways

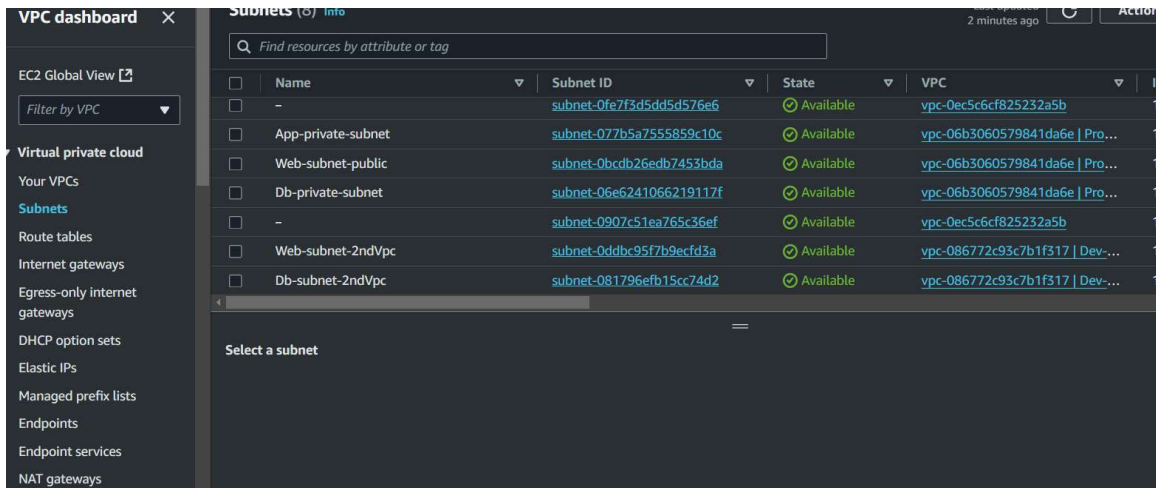
Peering connections

Route tables (3) info

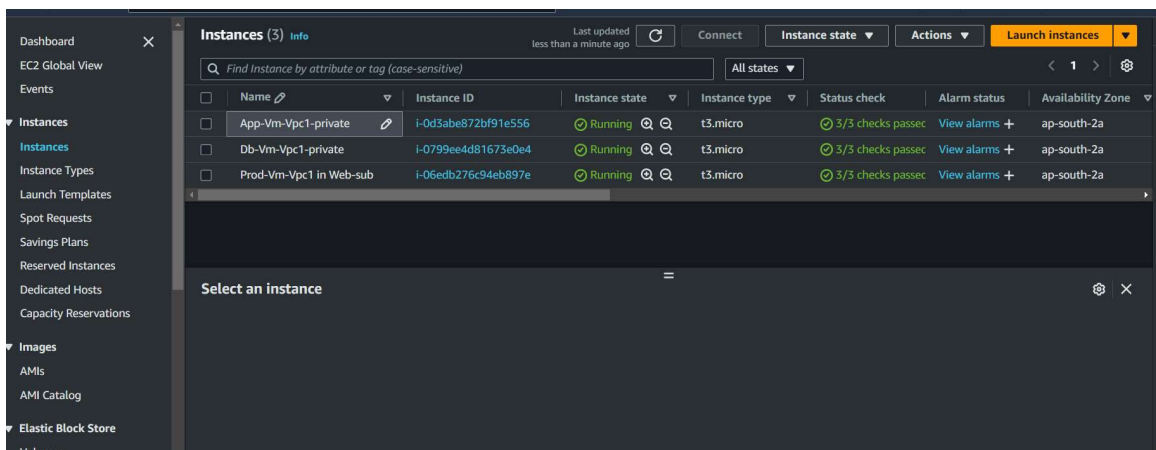
Find resources by attribute or tag

<input type="checkbox"/>	Name ▾	Route table ID ▾	Explicit subnet associ... ▾	Edge a ▾
<input type="checkbox"/>	-	rtb-0eec31ff664918810	-	-
<input type="checkbox"/>	App-private-RT	rtb-0a47270f5ec2af743	subnet-077b5a7555859c...	-
<input type="checkbox"/>	Db-private-RT	rtb-00b5882f3ff005762	subnet-06e62410662191...	-
<input type="checkbox"/>	Web-public-RT	rtb-06c8775acc12cd46	subnet-0bcdb26edb7453...	-
<input type="checkbox"/>	-	rtb-011cae4c67f1c3513	-	-
<input type="checkbox"/>	Web-2nd-Vpc-RT	rtb-02c438b8dae08dad2	subnet-0ddbc95f7b9ecfd...	-
<input type="checkbox"/>	Db-2nd-Vpc-RT	rtb-0e57b11b46668dd1e	subnet-081796efb15cc7...	-

Select a route table



Step2:virtual machines creation for vpc1 in one web public subnet and app, db two private subnets



Step3:And now we,ll see are we able to connect to our App instance which is private.

```
The authenticity of host '10.0.135.116 (10.0.135.116)' can't be established.
ED25519 key fingerprint is SHA256:mzXGIvscUWhheUdbtUqE2QOzTMV2iDDWluzIOE1tRlw.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.0.135.116' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1015-aws x86_64)

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

System information as of Tue Nov 19 09:57:16 UTC 2024

System load:  0.08           Processes:            103
Usage of /:   21.1% of 7.57GB Users logged in:      0
Memory usage: 24%          IPv4 address for ens5: 10.0.135.116
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.

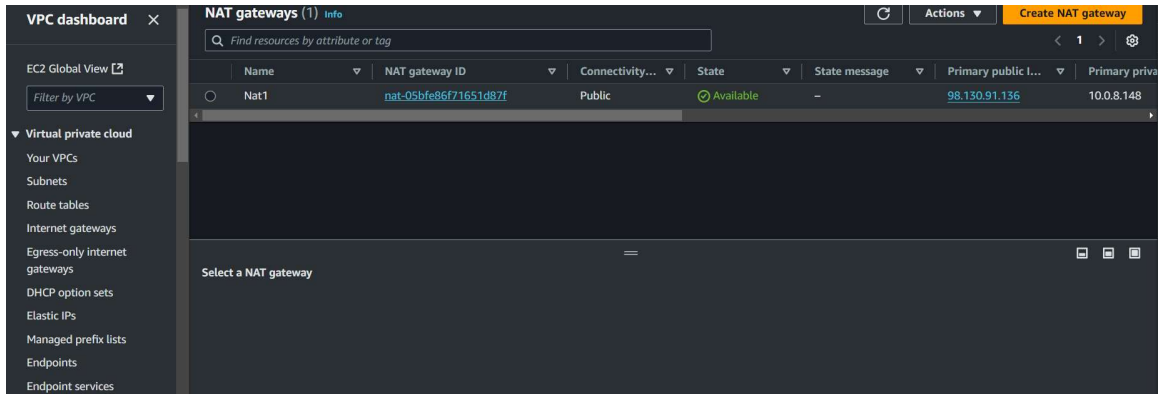
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-135-116:~$ █

i-06edb276c94eb897e (Prod-Vm-Vpc1 in Web-sub)
PublicIPs: 18.61.48.97 PrivateIPs: 10.0.8.112
```

As you can see above we're able to connect to the private Vm.

Step4: And now we'll create NAT gateway in order generate internet access in App instance.



```
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.
```

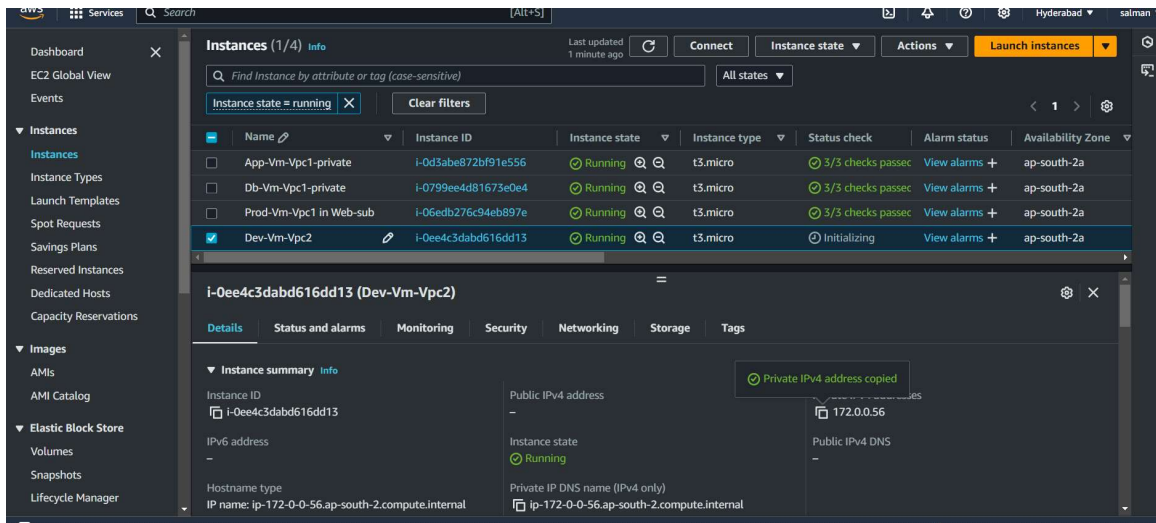
```
ubuntu@ip-10-0-135-116:~$ ping google.com
PING google.com (142.250.196.78) 56(84) bytes of data.
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=34 ttl=53 time=12.8 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=35 ttl=53 time=12.3 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=36 ttl=53 time=12.2 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=37 ttl=53 time=12.2 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=38 ttl=53 time=12.3 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=39 ttl=53 time=12.2 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=40 ttl=53 time=12.2 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=41 ttl=53 time=12.2 ms
^C
--- google.com ping statistics ---
41 packets transmitted, 8 received, 80.4878% packet loss, time 40801ms
rtt min/avg/max/mdev = 12.223/12.306/12.769/0.175 ms
ubuntu@ip-10-0-135-116:~$
```

```
i-06edb276c94eb897e (Prod-Vm-Vpc1 in Web-sub)
```

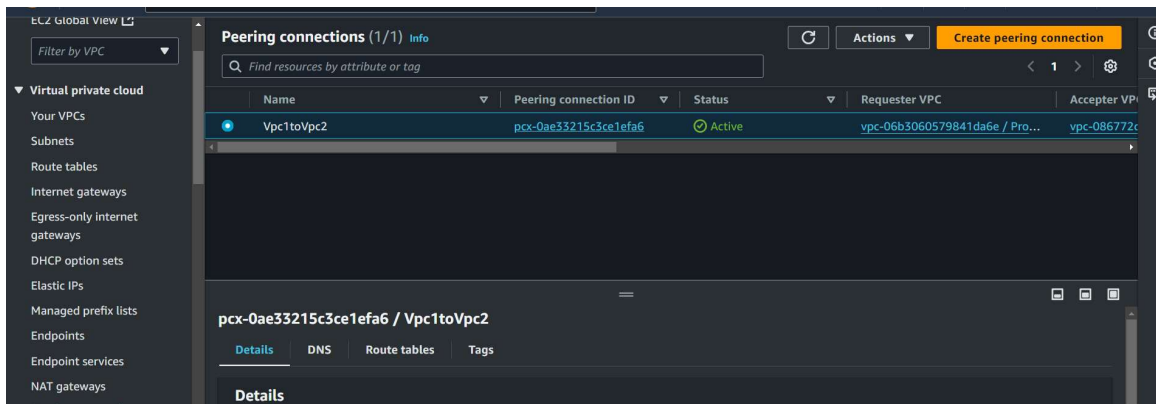
```
PublicIPs: 18.61.48.97 PrivateIPs: 10.0.8.112
```

As you can see we able to ping the packages in private instance.

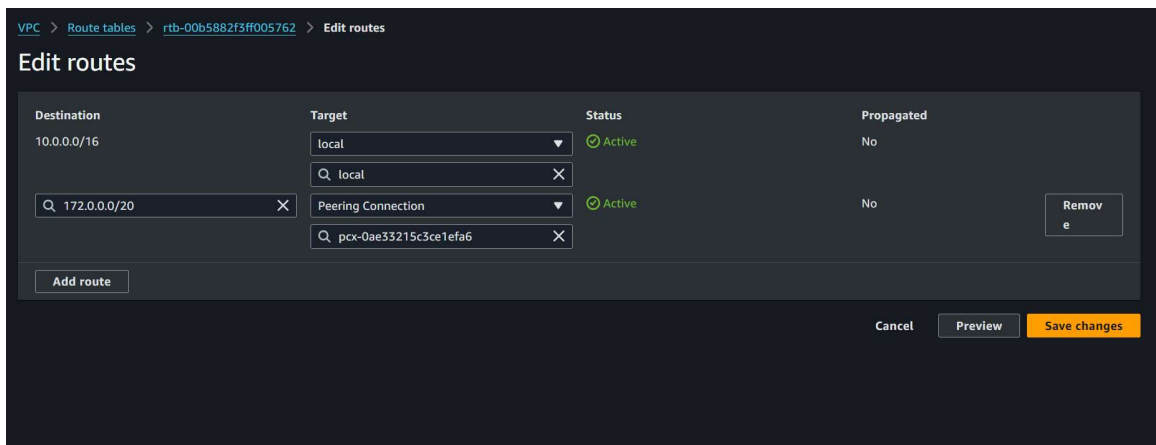
Step5:Now we,ll create Dev instance in order to make peering connection

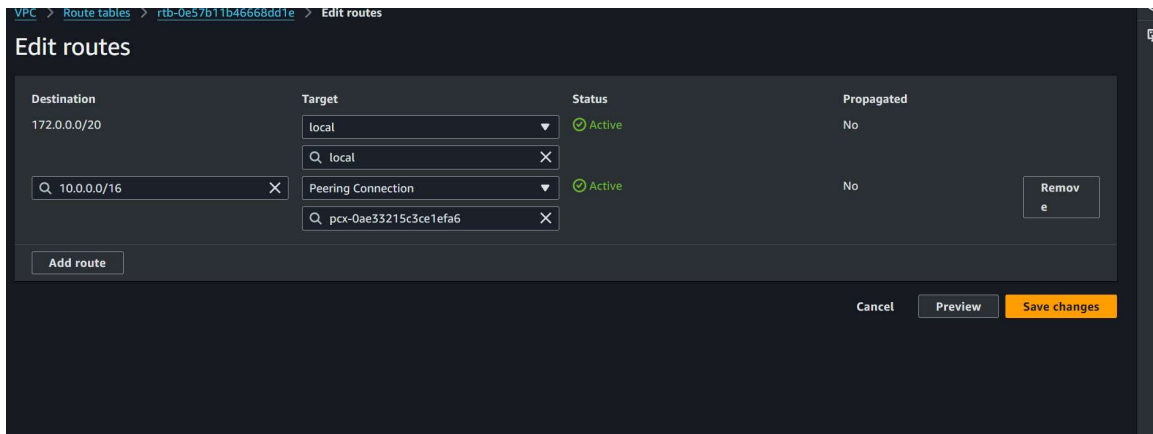


Step6:Creation of peering connection with the name vpc1 to vpc2.



Step7:Routeable entries in order talk one machine to another machine.





Final step: Checking Peering connection is successful or not.

We connected to Db instance of vpc1,


```
ubuntu@ip-10-0-8-112:~$ ssh -i key.pem ubuntu@10.0.154.53
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1015-aws x86_64)

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

System information as of Tue Nov 19 10:10:40 UTC 2024

System load:  0.0               Processes:           102
Usage of /:   21.1% of 7.57GB   Users logged in:    0
Memory usage: 24%              IPv4 address for ens5: 10.0.154.53
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

Last login: Tue Nov 19 10:10:41 2024 from 10.0.8.112
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-10-0-154-53:~$
```

i-06edb276c94eb897e (Prod-Vm-Vpc1 in Web-sub)
PublicIPs: 18.61.48.97 PrivateIPs: 10.0.8.112

And as you can see below we successfully able to make the connection and ping the messages.


```
ubuntu@ip-10-0-154-53:~$ ping 172.0.0.56
PING 172.0.0.56 (172.0.0.56) 56(84) bytes of data.
64 bytes from 172.0.0.56: icmp_seq=1 ttl=64 time=0.465 ms
64 bytes from 172.0.0.56: icmp_seq=2 ttl=64 time=0.163 ms
64 bytes from 172.0.0.56: icmp_seq=3 ttl=64 time=0.155 ms
64 bytes from 172.0.0.56: icmp_seq=4 ttl=64 time=0.149 ms
^C
--- 172.0.0.56 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3062ms
rtt min/avg/max/mdev = 0.149/0.233/0.465/0.134 ms
ubuntu@ip-10-0-154-53:~$
```

i-06edb276c94eb897e (Prod-Vm-Vpc1 in Web-sub)

PublicIPs: 18.61.48.97 PrivateIPs: 10.0.8.112

