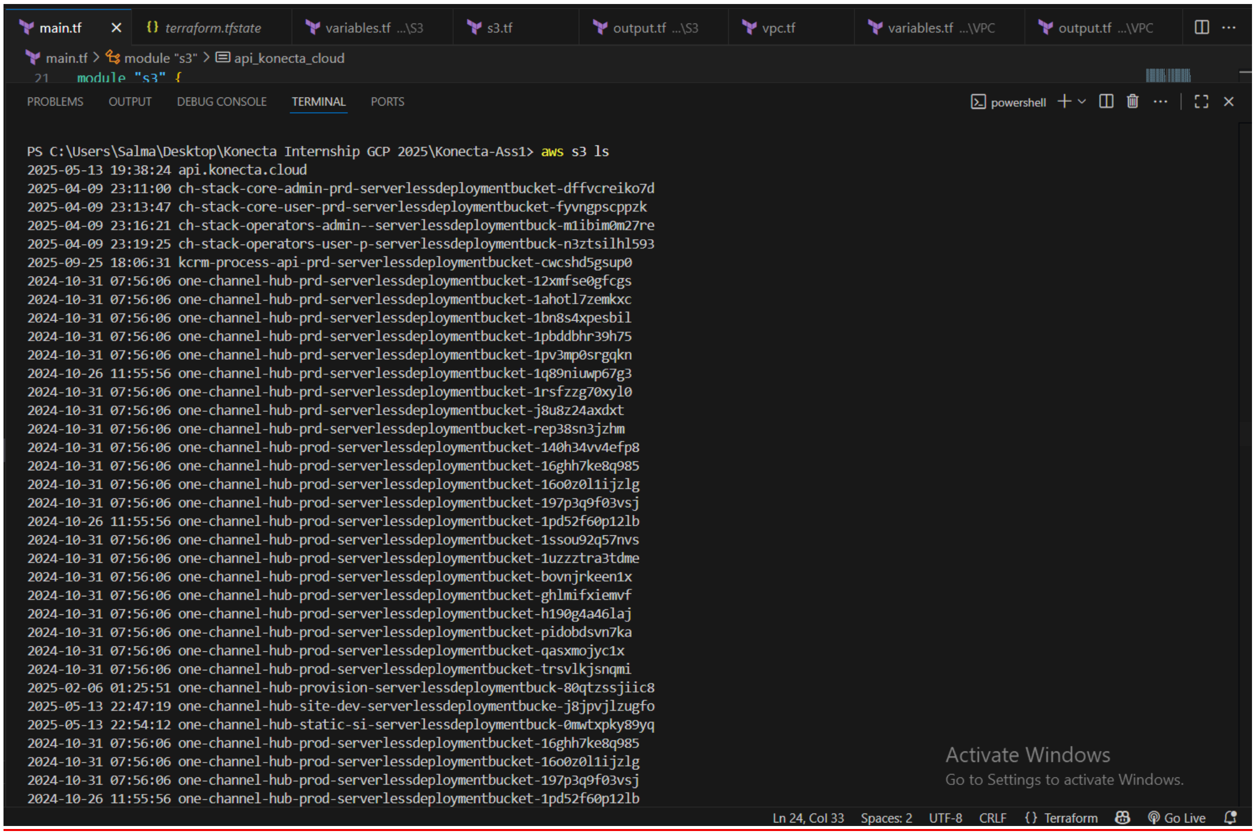
S3 Bucket Imports:

Amazon S3 (Simple Storage Service) is a scalable object storage service that allows you to store and retrieve any amount of data at any time.

In this project, S3 Buckets were used for importing and managing files. Each bucket provides a secure and durable environment for storing data.

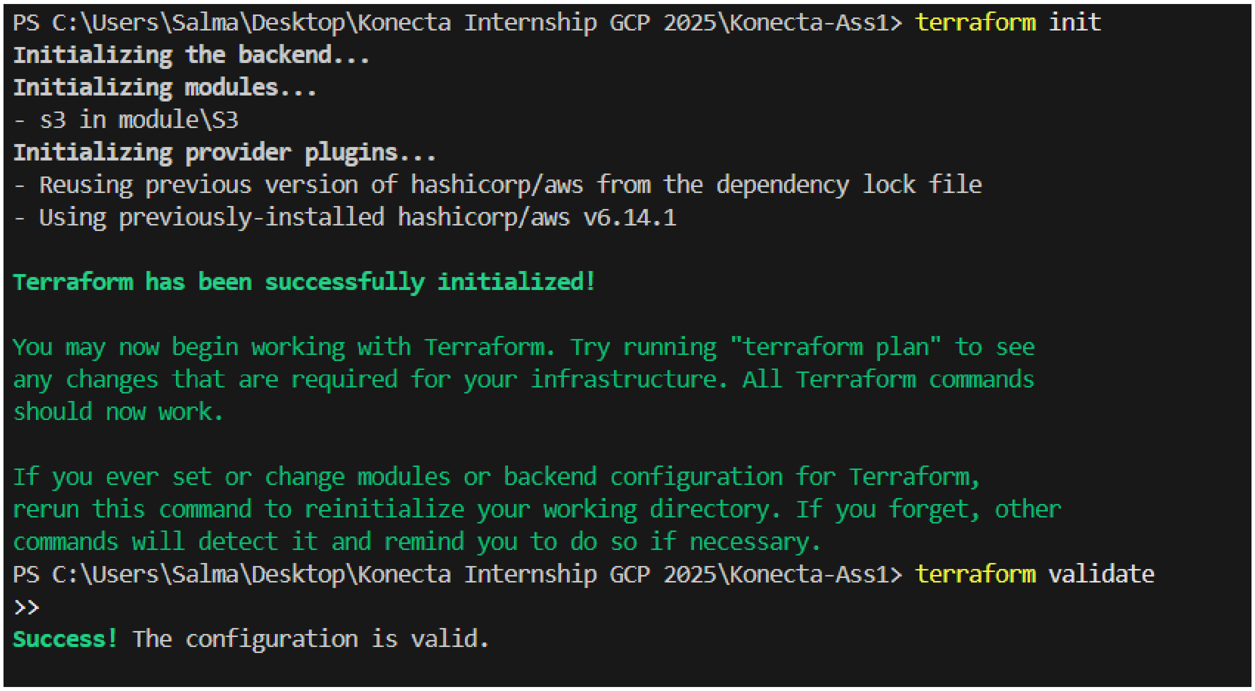
You can organize objects within buckets using folders and apply lifecycle rules for automatic management.

Typical use cases in this project include storing logs, backups, or application data for easy retrieval and integration with other AWS services.

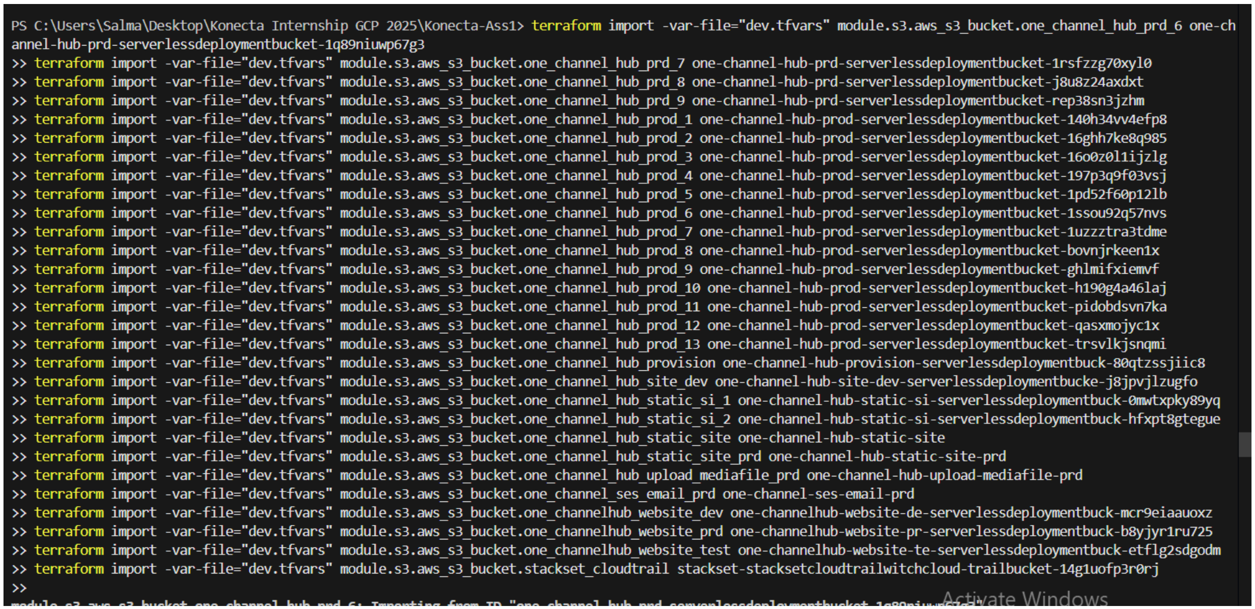


```
module "s3" {
```

```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws s3 ls
2025-05-13 19:38:24 api.konecta.cloud
2025-04-09 23:11:00 ch-stack-core-admin-prd-serverlessdeploymentbucket-dffvcreiko7d
2025-04-09 23:13:47 ch-stack-core-user-prd-serverlessdeploymentbucket-fyvngpscppzk
2025-04-09 23:16:21 ch-stack-operators-admin--serverlessdeploymentbuck-m1ibim0m27re
2025-04-09 23:19:25 ch-stack-operators-user-p-serverlessdeploymentbuck-n3ztsilhl593
2025-09-25 18:06:31 kcrm-process-api-prd-serverlessdeploymentbucket-cwcshd5gsup0
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-12xmfse0gfcgs
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-1ahotl7zemkxc
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-1bn8s4xpesbil
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-1pbddbhr39h75
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-1pv3mp0srgqkn
2024-10-26 11:55:56 one-channel-hub-prd-serverlessdeploymentbucket-1q89niuwp67g3
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-1rsfzzg70xyl0
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-j8u8z24axdxt
2024-10-31 07:56:06 one-channel-hub-prd-serverlessdeploymentbucket-rep38sn3jzhm
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-140h34vv4efp8
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-16ghh7ke8q985
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-16o0z0l1ijzlg
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-197p3q9f03vsj
2024-10-26 11:55:56 one-channel-hub-prod-serverlessdeploymentbucket-1pd52f60p12lb
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-1ssou92q57nvs
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-1uzzztra3tdme
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-bovnjrkeen1x
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-ghlmifxiemvf
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-h190g4a46laj
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-pidobdsvn7ka
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-qasxmojyc1x
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-trsvlkjsnqmi
2025-02-06 01:25:51 one-channel-hub-provision-serverlessdeploymentbuck-80qtzssjiic8
2025-05-13 22:47:19 one-channel-hub-site-dev-serverlessdeploymentbucke-j8jpvjlzugfo
2025-05-13 22:54:12 one-channel-hub-static-si-serverlessdeploymentbuck-0mwtxpky89yq
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-16ghh7ke8q985
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-16o0z0l1ijzlg
2024-10-31 07:56:06 one-channel-hub-prod-serverlessdeploymentbucket-197p3q9f03vsj
2024-10-26 11:55:56 one-channel-hub-prod-serverlessdeploymentbucket-1pd52f60p12lb
```

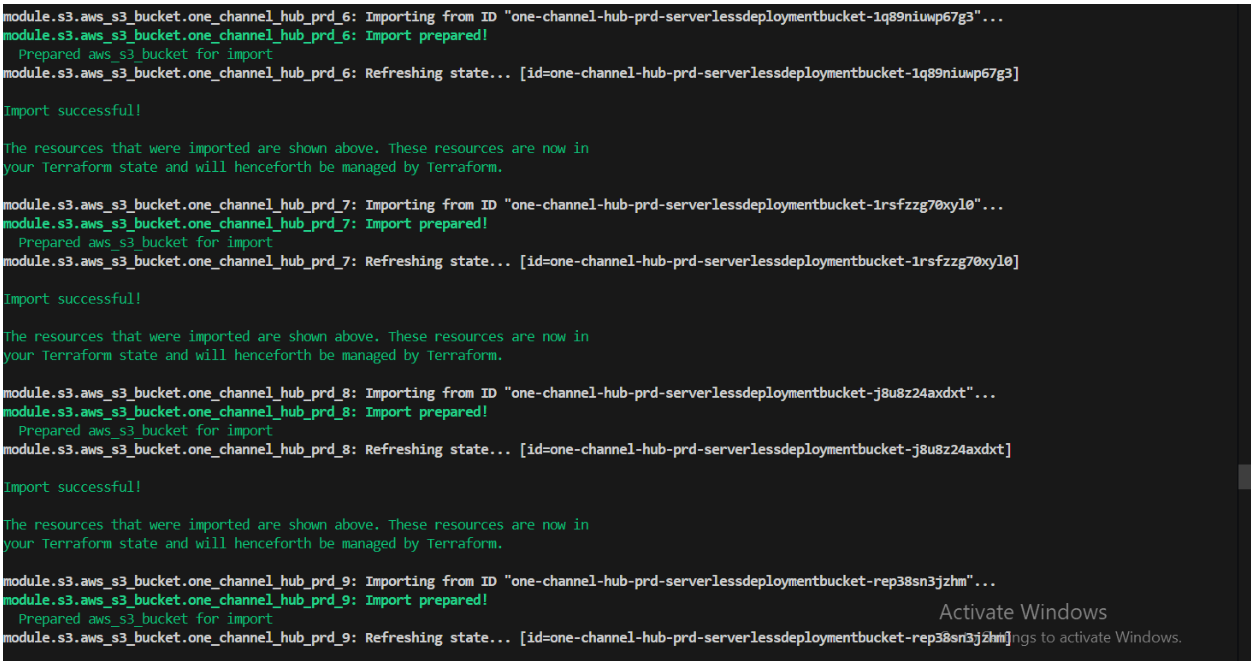


```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform init
Initializing the backend...
Initializing modules...
- s3 in module\S3
Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v6.14.1

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform validate
>>
Success! The configuration is valid.
```



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prd_6 one-ch
annel-hub-prd-serverlessdeploymentbucket-1q89niuwp67g3
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prd_7 one-channel-hub-prd-serverlessdeploymentbucket-1rsfzzg70xyl0
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prd_8 one-channel-hub-prd-serverlessdeploymentbucket-j8u8z24axdxt
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prd_9 one-channel-hub-prd-serverlessdeploymentbucket-rep38sn3jzhm
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_1 one-channel-hub-prod-serverlessdeploymentbucket-140h34vv4efp8
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_2 one-channel-hub-prod-serverlessdeploymentbucket-16ghh7ke8q985
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_3 one-channel-hub-prod-serverlessdeploymentbucket-16o0z0l1ijzlg
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_4 one-channel-hub-prod-serverlessdeploymentbucket-197p3q9f03vsj
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_5 one-channel-hub-prod-serverlessdeploymentbucket-1pd52f60p12lb
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_6 one-channel-hub-prod-serverlessdeploymentbucket-1ssou92q57nvs
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_7 one-channel-hub-prod-serverlessdeploymentbucket-1uzzztra3tdme
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_8 one-channel-hub-prod-serverlessdeploymentbucket-bovnjrkeen1x
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_9 one-channel-hub-prod-serverlessdeploymentbucket-ghlmifxiemvf
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_10 one-channel-hub-prod-serverlessdeploymentbucket-h190g4a46laj
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_11 one-channel-hub-prod-serverlessdeploymentbucket-pidobdsvn7ka
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_12 one-channel-hub-prod-serverlessdeploymentbucket-qasxmojyc1x
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_prod_13 one-channel-hub-prod-serverlessdeploymentbucket-trsvlkjsnqmi
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_provision one-channel-hub-provision-serverlessdeploymentbuck-80qtzssjiic8
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_site_dev one-channel-hub-site-dev-serverlessdeploymentbucke-j8jpvjlzugfo
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_static_si_1 one-channel-hub-static-si-serverlessdeploymentbuck-0mwtxpky89yq
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_static_si_2 one-channel-hub-static-si-serverlessdeploymentbuck-hfxpt8gtegue
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_static_site one-channel-hub-static-site
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_static_site_prd one-channel-hub-static-site-prd
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_hub_upload_mediafile_prd one-channel-hub-upload-mediafile-prd
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_ses_email_prd one-channel-ses-email-prd
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channelhub_website_dev one-channelhub-website-de-serverlessdeploymentbuck-mcr9eiaauoxz
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channelhub_website_prd one-channelhub-website-pr-serverlessdeploymentbuck-b8yjyr1ru725
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channelhub_website_test one-channelhub-website-te-serverlessdeploymentbuck-etflg2sdgodm
>> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.stackset_cloudtrail stackset-stacksetcloudtrailwitchcloud-trailbucket-14g1uofp3r0rj
>>
module.s3.aws_s3_bucket.one_channel_hub_prd_6: Importing from ID "one-channel-hub-prd-serverlessdeploymentbucket-1q89niuwp67g3"
```

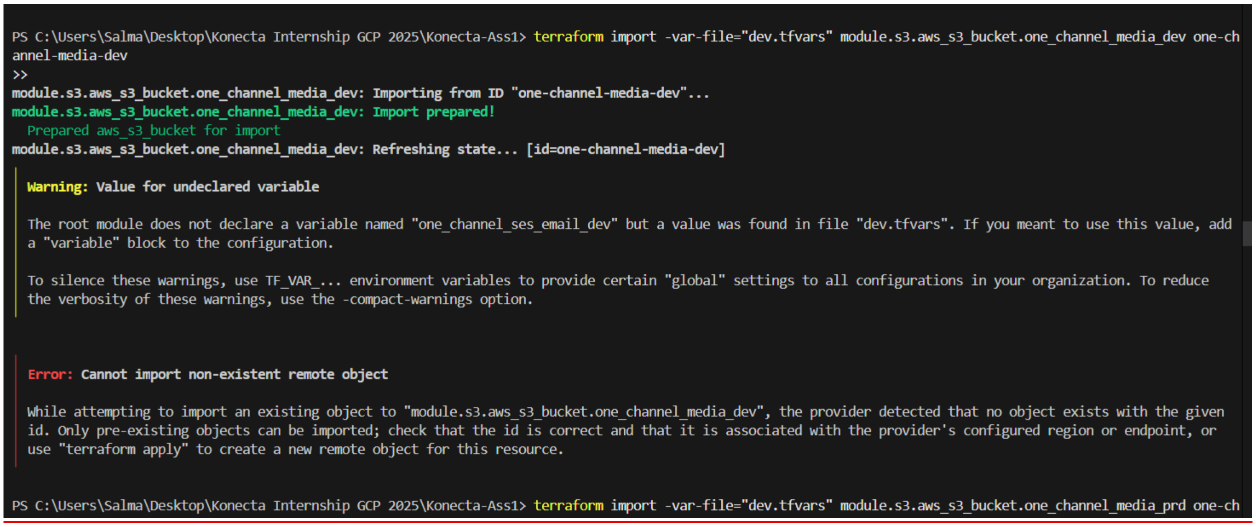
Activate Windows



```
module.s3.aws_s3_bucket.one_channel_hub_prd_6: Importing from ID "one-channel-hub-prd-serverlessdeploymentbucket-1q89niuwp67g3"...
module.s3.aws_s3_bucket.one_channel_hub_prd_6: Import prepared!
  Prepared aws_s3_bucket for import
module.s3.aws_s3_bucket.one_channel_hub_prd_6: Refreshing state... [id=one-channel-hub-prd-serverlessdeploymentbucket-1q89niuwp67g3]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.s3.aws_s3_bucket.one_channel_hub_prd_7: Importing from ID "one-channel-hub-prd-serverlessdeploymentbucket-1rsfzzg70xyl0"...
module.s3.aws_s3_bucket.one_channel_hub_prd_7: Import prepared!
  Prepared aws_s3_bucket for import
module.s3.aws_s3_bucket.one_channel_hub_prd_7: Refreshing state... [id=one-channel-hub-prd-serverlessdeploymentbucket-1rsfzzg70xyl0]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.s3.aws_s3_bucket.one_channel_hub_prd_8: Importing from ID "one-channel-hub-prd-serverlessdeploymentbucket-j8u8z24axdxt"...
module.s3.aws_s3_bucket.one_channel_hub_prd_8: Import prepared!
  Prepared aws_s3_bucket for import
module.s3.aws_s3_bucket.one_channel_hub_prd_8: Refreshing state... [id=one-channel-hub-prd-serverlessdeploymentbucket-j8u8z24axdxt]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.s3.aws_s3_bucket.one_channel_hub_prd_9: Importing from ID "one-channel-hub-prd-serverlessdeploymentbucket-rep38sn3jzhm"...
module.s3.aws_s3_bucket.one_channel_hub_prd_9: Import prepared!
  Prepared aws_s3_bucket for import
module.s3.aws_s3_bucket.one_channel_hub_prd_9: Refreshing state... [id=one-channel-hub-prd-serverlessdeploymentbucket-rep38sn3jzhm]
```

Activate Windows
Go to Settings to activate Windows.

Troubleshooting:



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_media_dev one-ch
annel-media-dev
>>
module.s3.aws_s3_bucket.one_channel_media_dev: Importing from ID "one-channel-media-dev"...
module.s3.aws_s3_bucket.one_channel_media_dev: Import prepared!
  Prepared aws_s3_bucket for import
module.s3.aws_s3_bucket.one_channel_media_dev: Refreshing state... [id=one-channel-media-dev]

│ Warning: Value for undeclared variable
│
│ The root module does not declare a variable named "one_channel_ses_email_dev" but a value was found in file "dev.tfvars". If you meant to use this value, add
│ a "variable" block to the configuration.
│
│ To silence these warnings, use TF_VAR_... environment variables to provide certain "global" settings to all configurations in your organization. To reduce
│ the verbosity of these warnings, use the -compact-warnings option.


│ Error: Cannot import non-existent remote object
│
│ While attempting to import an existing object to "module.s3.aws_s3_bucket.one_channel_media_dev", the provider detected that no object exists with the given
│ id. Only pre-existing objects can be imported; check that the id is correct and that it is associated with the provider's configured region or endpoint, or
│ use "terraform apply" to create a new remote object for this resource.

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" module.s3.aws_s3_bucket.one_channel_media_prd one-ch
```

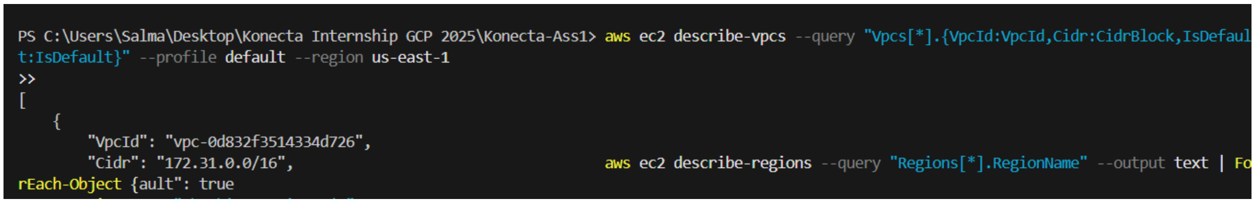
VPC Importing:

Amazon VPC (Virtual Private Cloud) enables you to launch AWS resources into a virtual network that you define.

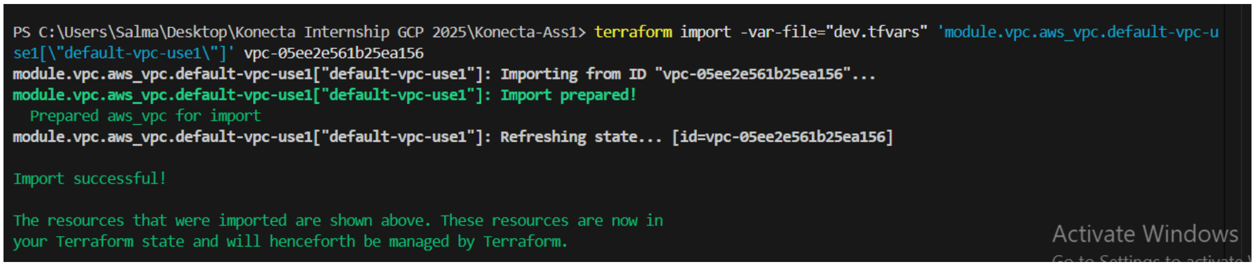
In this project, VPC importing was configured to ensure that all resources operate within a secure and isolated environment.

This includes setting up subnets, route tables, and gateways to manage traffic flow.

Importing a VPC ensures reusability of networking configurations and simplifies deployment across environments.

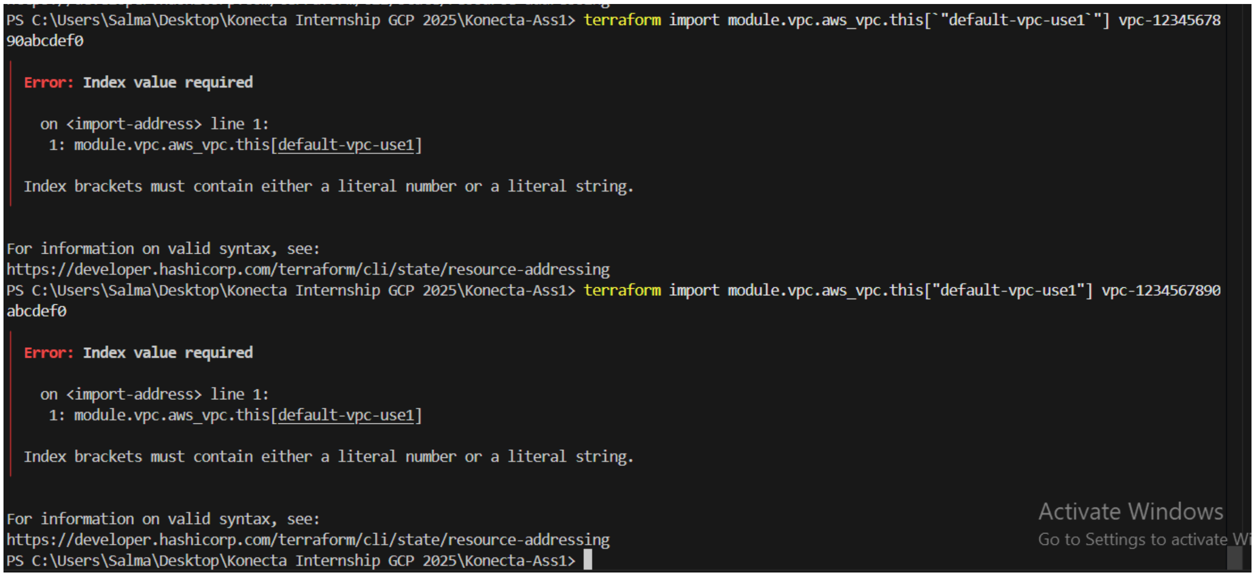


```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws ec2 describe-vpcs --query "Vpcs[*].{VpcId:VpcId,Cidr:CidrBlock,IsDefaul
t:IsDefault}" --profile default --region us-east-1
>>
[
    {
        "VpcId": "vpc-0d832f3514334d726",
        "Cidr": "172.31.0.0/16",                              aws ec2 describe-regions --query "Regions[*].RegionName" --output text | Fo
rEach-Object {ault": true
```



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.vpc.aws_vpc.default-vpc-u
se1[\"default-vpc-use1\"]' vpc-05ee2e561b25ea156
module.vpc.aws_vpc.default-vpc-use1["default-vpc-use1"]: Importing from ID "vpc-05ee2e561b25ea156"...
module.vpc.aws_vpc.default-vpc-use1["default-vpc-use1"]: Import prepared!
  Prepared aws_vpc for import
module.vpc.aws_vpc.default-vpc-use1["default-vpc-use1"]: Refreshing state... [id=vpc-05ee2e561b25ea156]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.
```

Troubleshooting:



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import module.vpc.aws_vpc.this[`"default-vpc-use1`"] vpc-12345678
90abcdef0

│ Error: Index value required
│
│   on <import-address> line 1:
│    1: module.vpc.aws_vpc.this[default-vpc-use1]
│
│ Index brackets must contain either a literal number or a literal string.


For information on valid syntax, see:
https://developer.hashicorp.com/terraform/cli/state/resource-addressing
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import module.vpc.aws_vpc.this["default-vpc-use1"] vpc-1234567890
abcdef0

│ Error: Index value required
│
│   on <import-address> line 1:
│    1: module.vpc.aws_vpc.this[default-vpc-use1]
│
│ Index brackets must contain either a literal number or a literal string.


For information on valid syntax, see:
https://developer.hashicorp.com/terraform/cli/state/resource-addressing
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1>
```

IAM:

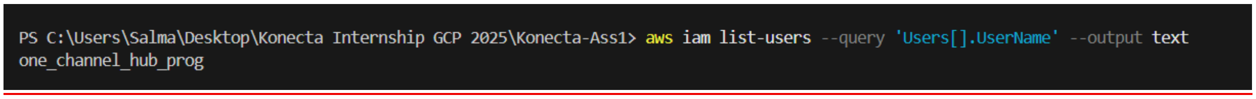
Identity and Access Management (IAM) allows you to securely control access to AWS services and resources.

In this project, IAM was essential for managing users, roles, and permissions.

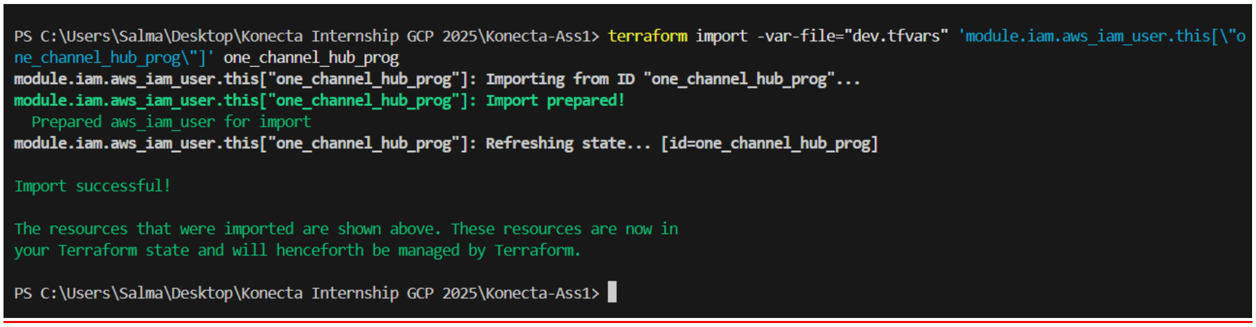
Best practices such as the principle of least privilege, use of groups for role-based access, and enabling MFA (Multi-Factor Authentication) were applied.

Users:

IAM Users represent individual identities with associated credentials.
In this project, separate users were created for administrators, developers, and testers to ensure accountability and secure access control.



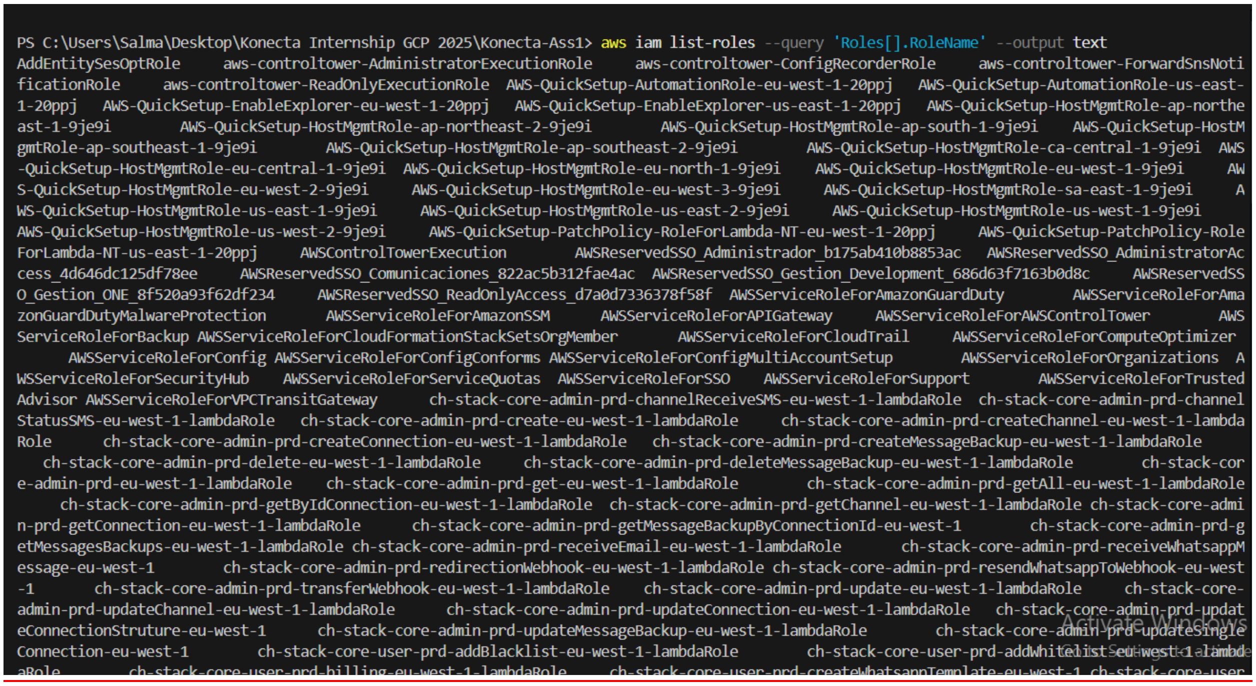
```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws iam list-users --query 'Users[].UserName' --output text
one_channel_hub_prog
```



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.iam.aws_iam_user.this[\"o
ne_channel_hub_prog\"]' one_channel_hub_prog
module.iam.aws_iam_user.this["one_channel_hub_prog"]: Importing from ID "one_channel_hub_prog"...
module.iam.aws_iam_user.this["one_channel_hub_prog"]: Import prepared!
  Prepared aws_iam_user for import
module.iam.aws_iam_user.this["one_channel_hub_prog"]: Refreshing state... [id=one_channel_hub_prog]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> 
```

Roles:

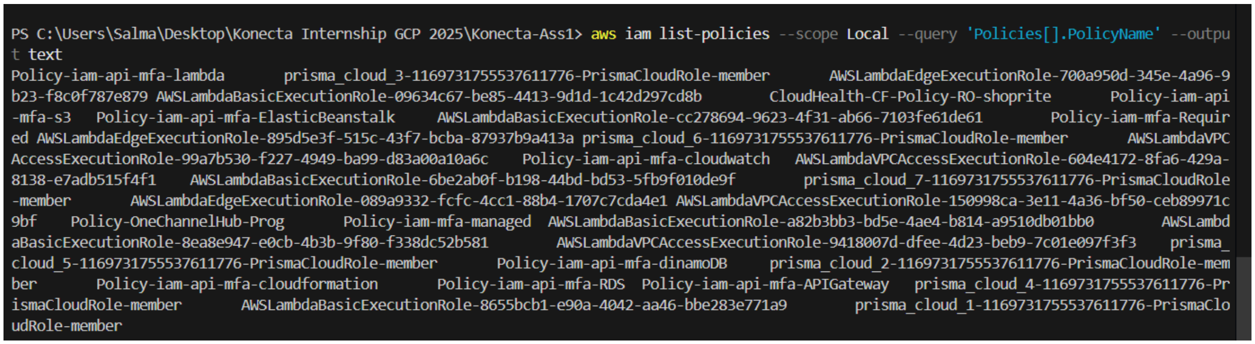
IAM Roles provide temporary access permissions to services or applications.
Roles were configured to allow services like EC2 instances to access S3 buckets without the need for long-term credentials.



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws iam list-roles --query 'Roles[].RoleName' --output text
AddEntitySesOptRole      aws-controltower-AdministratorExecutionRole      aws-controltower-ConfigRecorderRole      aws-controltower-ForwardSnsNoti
ficationRole      aws-controltower-ReadOnlyExecutionRole  AWS-QuickSetup-AutomationRole-eu-west-1-20ppj   AWS-QuickSetup-AutomationRole-us-east-
1-20ppj   AWS-QuickSetup-EnableExplorer-eu-west-1-20ppj   AWS-QuickSetup-EnableExplorer-us-east-1-20ppj   AWS-QuickSetup-HostMgmtRole-ap-northe
ast-1-9je9i        AWS-QuickSetup-HostMgmtRole-ap-northeast-2-9je9i        AWS-QuickSetup-HostMgmtRole-ap-south-1-9je9i    AWS-QuickSetup-HostM
gmtRole-ap-southeast-1-9je9i        AWS-QuickSetup-HostMgmtRole-ap-southeast-2-9je9i        AWS-QuickSetup-HostMgmtRole-ca-central-1-9je9i  AWS
-QuickSetup-HostMgmtRole-eu-central-1-9je9i  AWS-QuickSetup-HostMgmtRole-eu-north-1-9je9i    AWS-QuickSetup-HostMgmtRole-eu-west-1-9je9i     AW
S-QuickSetup-HostMgmtRole-eu-west-2-9je9i     AWS-QuickSetup-HostMgmtRole-eu-west-3-9je9i     AWS-QuickSetup-HostMgmtRole-sa-east-1-9je9i     A
WS-QuickSetup-HostMgmtRole-us-east-1-9je9i     AWS-QuickSetup-HostMgmtRole-us-east-2-9je9i     AWS-QuickSetup-HostMgmtRole-us-west-1-9je9i
AWS-QuickSetup-HostMgmtRole-us-west-2-9je9i     AWS-QuickSetup-PatchPolicy-RoleForLambda-NT-eu-west-1-20ppj     AWS-QuickSetup-PatchPolicy-Role
ForLambda-NT-us-east-1-20ppj     AWSControlTowerExecution        AWSReservedSSO_Administrador_b175ab410b8853ac   AWSReservedSSO_AdministratorAc
cess_4d646dc125df78ee     AWSReservedSSO_Comunicaciones_822ac5b312fae4ac  AWSReservedSSO_Gestion_Development_686d63f7163b0d8c     AWSReservedSS
O_Gestion_ONE_8f520a93f62df234     AWSReservedSSO_ReadOnlyAccess_d7a0d7336378f58f  AWSServiceRoleForAmazonGuardDuty        AWSServiceRoleForAma
zonGuardDutyMalwareProtection      AWSServiceRoleForAmazonSSM      AWSServiceRoleForAPIGateway     AWSServiceRoleForAWSControlTower        AWS
ServiceRoleForBackup AWSServiceRoleForCloudFormationStackSetsOrgMember       AWSServiceRoleForCloudTrail     AWSServiceRoleForComputeOptimizer
      AWSServiceRoleForConfig AWSServiceRoleForConfigConforms AWSServiceRoleForConfigMultiAccountSetup        AWSServiceRoleForOrganizations  A
WSServiceRoleForSecurityHub    AWSServiceRoleForServiceQuotas  AWSServiceRoleForSSO    AWSServiceRoleForSupport        AWSServiceRoleForTrusted
Advisor AWSServiceRoleForVPCTransitGateway      ch-stack-core-admin-prd-channelReceiveSMS-eu-west-1-lambdaRole  ch-stack-core-admin-prd-channel
StatusSMS-eu-west-1-lambdaRole   ch-stack-core-admin-prd-create-eu-west-1-lambdaRole     ch-stack-core-admin-prd-createChannel-eu-west-1-lambda
Role      ch-stack-core-admin-prd-createConnection-eu-west-1-lambdaRole   ch-stack-core-admin-prd-createMessageBackup-eu-west-1-lambdaRole
   ch-stack-core-admin-prd-delete-eu-west-1-lambdaRole     ch-stack-core-admin-prd-deleteMessageBackup-eu-west-1-lambdaRole        ch-stack-cor
e-admin-prd-eu-west-1-lambdaRole    ch-stack-core-admin-prd-get-eu-west-1-lambdaRole        ch-stack-core-admin-prd-getAll-eu-west-1-lambdaRole
     ch-stack-core-admin-prd-getByIdConnection-eu-west-1-lambdaRole  ch-stack-core-admin-prd-getChannel-eu-west-1-lambdaRole ch-stack-core-admi
n-prd-getConnection-eu-west-1-lambdaRole      ch-stack-core-admin-prd-getMessageBackupByConnectionId-eu-west-1        ch-stack-core-admin-prd-g
etMessagesBackups-eu-west-1-lambdaRole ch-stack-core-admin-prd-receiveEmail-eu-west-1-lambdaRole       ch-stack-core-admin-prd-receiveWhatsappM
essage-eu-west-1        ch-stack-core-admin-prd-redirectionWebhook-eu-west-1-lambdaRole ch-stack-core-admin-prd-resendWhatsappToWebhook-eu-west
-1       ch-stack-core-admin-prd-transferWebhook-eu-west-1-lambdaRole    ch-stack-core-admin-prd-update-eu-west-1-lambdaRole     ch-stack-core-
admin-prd-updateChannel-eu-west-1-lambdaRole      ch-stack-core-admin-prd-updateConnection-eu-west-1-lambdaRole   ch-stack-core-admin-prd-updat
eConnectionStruture-eu-west-1      ch-stack-core-admin-prd-updateMessageBackup-eu-west-1-lambdaRole        ch-stack-core-admin-prd-updateSingle
Connection-eu-west-1        ch-stack-core-user-prd-addBlacklist-eu-west-1-lambdaRole        ch-stack-core-user-prd-addWhitelist-eu-west-1-lambd
aRole      ch-stack-core-user-prd-billing-eu-west-1-lambdaRole     ch-stack-core-user-prd-createWhatsappTemplate-eu-west-1 ch-stack-core-user
```

Policies:

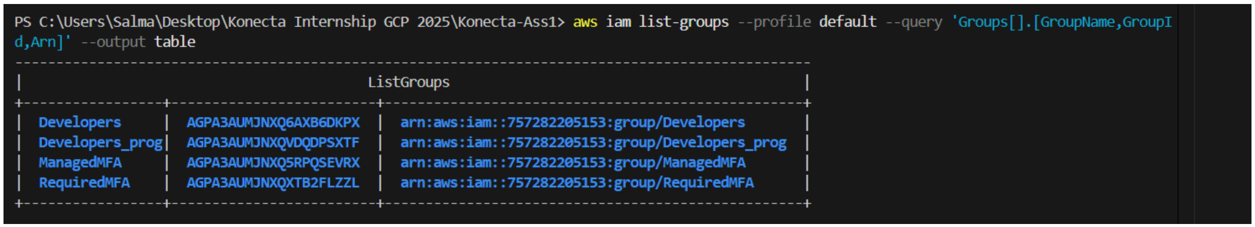
Policies define permissions in JSON format.
Custom policies were created in this project to restrict access to specific buckets, resources, or actions, while AWS managed policies were used for common tasks.



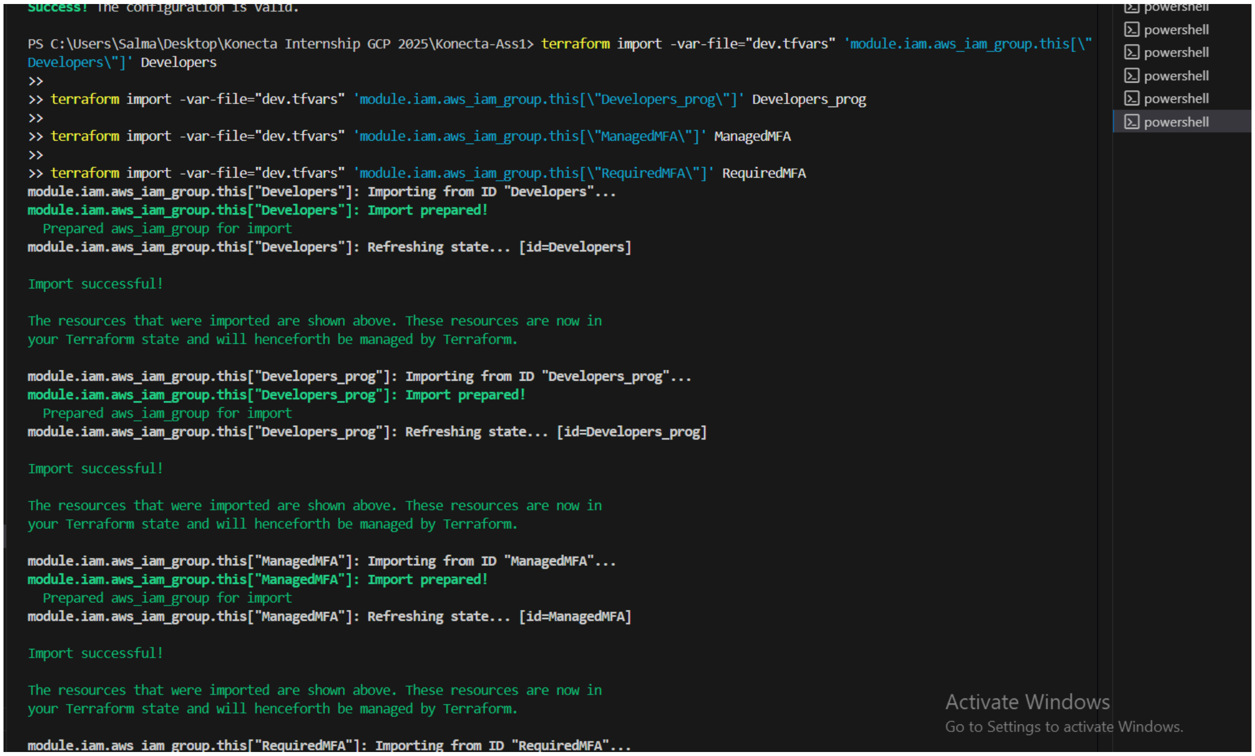
```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws iam list-policies --scope Local --query 'Policies[].PolicyName' --outpu
t text
Policy-iam-api-mfa-lambda       prisma_cloud_3-1169731755537611776-PrismaCloudRole-member       AWSLambdaEdgeExecutionRole-700a950d-345e-4a96-9
b23-f8c0f787e879 AWSLambdaBasicExecutionRole-09634c67-be85-4413-9d1d-1c42d297cd8b       CloudHealth-CF-Policy-RO-shoprite       Policy-iam-api
-mfa-s3   Policy-iam-api-mfa-ElasticBeanstalk     AWSLambdaBasicExecutionRole-cc278694-9623-4f31-ab66-7103fe61de61        Policy-iam-mfa-Requir
ed AWSLambdaEdgeExecutionRole-895d5e3f-515c-43f7-bcba-87937b9a413a prisma_cloud_6-1169731755537611776-PrismaCloudRole-member       AWSLambdaVPC
AccessExecutionRole-99a7b530-f227-4949-ba99-d83a00a10a6c    Policy-iam-api-mfa-cloudwatch   AWSLambdaVPCAccessExecutionRole-604e4172-8fa6-429a-
8138-e7adb515f4f1    AWSLambdaBasicExecutionRole-6be2ab0f-b198-44bd-bd53-5fb9f010de9f        prisma_cloud_7-1169731755537611776-PrismaCloudRole
-member       AWSLambdaEdgeExecutionRole-089a9332-fcfc-4cc1-88b4-1707c7cda4e1 AWSLambdaVPCAccessExecutionRole-150998ca-3e11-4a36-bf50-ceb89971c
9bf     Policy-OneChannelHub-Prog       Policy-iam-mfa-managed  AWSLambdaBasicExecutionRole-a82b3bb3-bd5e-4ae4-b814-a9510db01bb0        AWSLambd
aBasicExecutionRole-8ea8e947-e0cb-4b3b-9f80-f338dc52b581        AWSLambdaVPCAccessExecutionRole-9418007d-dfee-4d23-beb9-7c01e097f3f3    prisma_
cloud_5-1169731755537611776-PrismaCloudRole-member       Policy-iam-api-mfa-dinamoDB     prisma_cloud_2-1169731755537611776-PrismaCloudRole-mem
ber       Policy-iam-api-mfa-cloudformation       Policy-iam-api-mfa-RDS  Policy-iam-api-mfa-APIGateway   prisma_cloud_4-1169731755537611776-Pr
ismaCloudRole-member       AWSLambdaBasicExecutionRole-8655bcb1-e90a-4042-aa46-bbe283e771a9        prisma_cloud_1-1169731755537611776-PrismaClo
udRole-member
```

Groups:

Groups simplify permission management by assigning policies to multiple users at once. In this project, groups were created for different teams (Admin, Developer, Tester), each with tailored permissions.



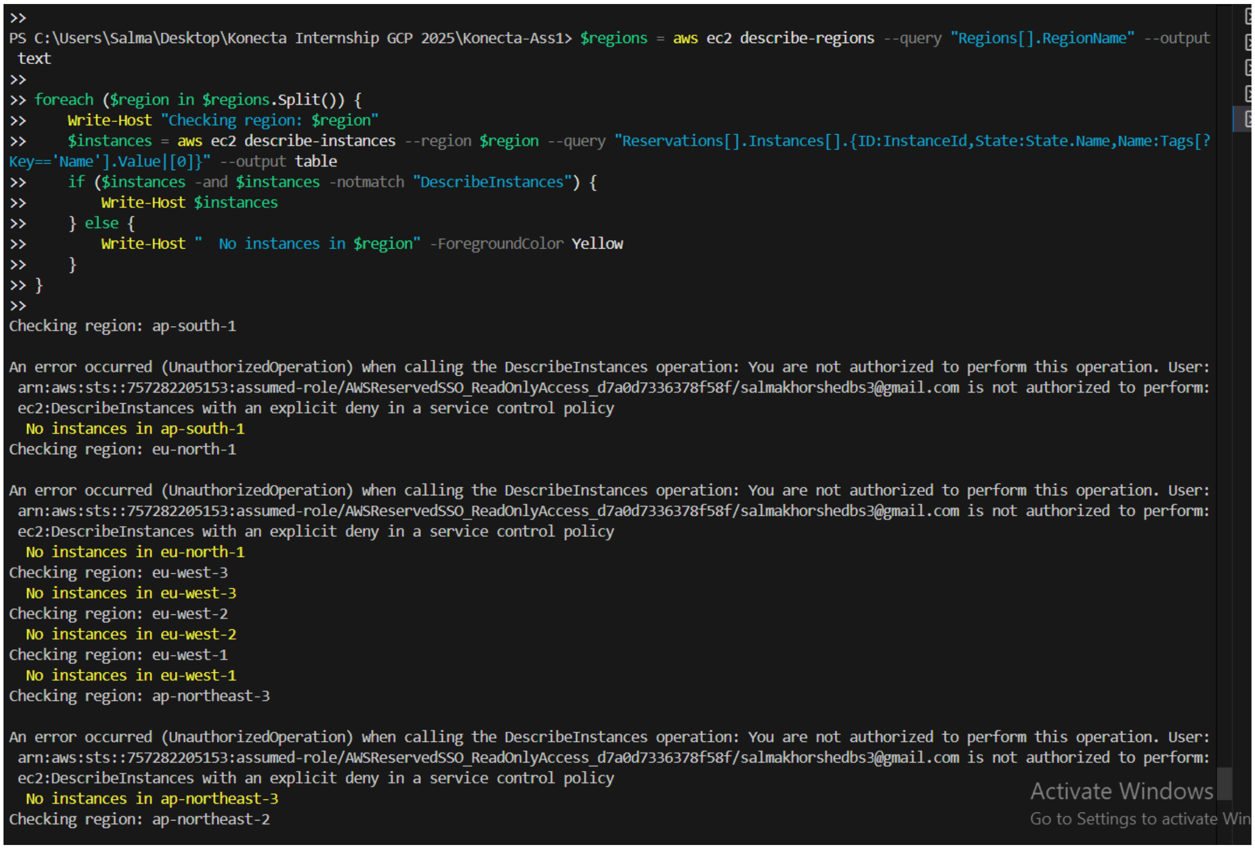
```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws iam list-groups --profile default --query 'Groups[].[GroupName,GroupI
d,Arn]' --output table
-------------------------------------------------------------------------------------------------
|                                          ListGroups                                           |
+----------------+------------------------+---------------------------------------------------+
|  Developers    |  AGPA3AUMJNXQ6AXB6DKPX  |  arn:aws:iam::757282205153:group/Developers      |
|  Developers_prog|  AGPA3AUMJNXQVDQDPSXTF  |  arn:aws:iam::757282205153:group/Developers_prog |
|  ManagedMFA    |  AGPA3AUMJNXQ5RPQSEVRX  |  arn:aws:iam::757282205153:group/ManagedMFA      |
|  RequiredMFA   |  AGPA3AUMJNXQXTB2FLZZL  |  arn:aws:iam::757282205153:group/RequiredMFA     |
+----------------+------------------------+---------------------------------------------------+
```



```
Success! The configuration is valid.

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.iam.aws_iam_group.this[\"
Developers\"]' Developers
>>
>> terraform import -var-file="dev.tfvars" 'module.iam.aws_iam_group.this[\"Developers_prog\"]' Developers_prog
>>
>> terraform import -var-file="dev.tfvars" 'module.iam.aws_iam_group.this[\"ManagedMFA\"]' ManagedMFA
>>
>> terraform import -var-file="dev.tfvars" 'module.iam.aws_iam_group.this[\"RequiredMFA\"]' RequiredMFA
module.iam.aws_iam_group.this["Developers"]: Importing from ID "Developers"...
module.iam.aws_iam_group.this["Developers"]: Import prepared!
  Prepared aws_iam_group for import
module.iam.aws_iam_group.this["Developers"]: Refreshing state... [id=Developers]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.iam.aws_iam_group.this["Developers_prog"]: Importing from ID "Developers_prog"...
module.iam.aws_iam_group.this["Developers_prog"]: Import prepared!
  Prepared aws_iam_group for import
module.iam.aws_iam_group.this["Developers_prog"]: Refreshing state... [id=Developers_prog]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.iam.aws_iam_group.this["ManagedMFA"]: Importing from ID "ManagedMFA"...
module.iam.aws_iam_group.this["ManagedMFA"]: Import prepared!
  Prepared aws_iam_group for import
module.iam.aws_iam_group.this["ManagedMFA"]: Refreshing state... [id=ManagedMFA]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.iam.aws_iam_group.this["RequiredMFA"]: Importing from ID "RequiredMFA"...
```

EC2:

Amazon EC2 (Elastic Compute Cloud) provides resizable compute capacity.
In this project, EC2 instances were used to host applications and services. Instance types were chosen based on workload requirements, with security groups and IAM roles ensuring secure and managed access.

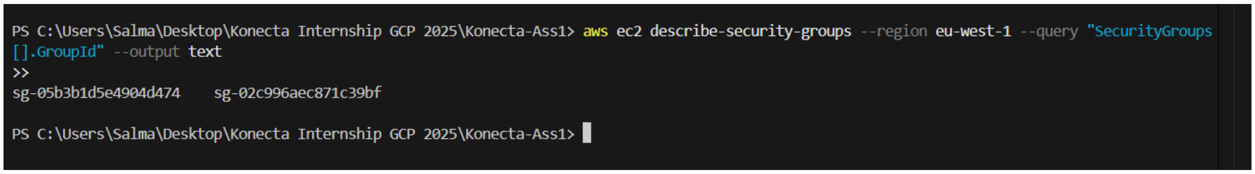


```
>>
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> $regions = aws ec2 describe-regions --query "Regions[].RegionName" --output
 text
>>
>> foreach ($region in $regions.Split()) {
>>     Write-Host "Checking region: $region"
>>     $instances = aws ec2 describe-instances --region $region --query "Reservations[].Instances[].{ID:InstanceId,State:State.Name,Name:Tags[?
Key=='Name'].Value|[0]}" --output table
>>     if ($instances -and $instances -notmatch "DescribeInstances") {
>>         Write-Host $instances
>>     } else {
>>         Write-Host "  No instances in $region" -ForegroundColor Yellow
>>     }
>> }
>>
Checking region: ap-south-1

An error occurred (UnauthorizedOperation) when calling the DescribeInstances operation: You are not authorized to perform this operation. User:
 arn:aws:sts::757282205153:assumed-role/AWSReservedSSO_ReadOnlyAccess_d7a0d7336378f58f/salmakhorshedbs3@gmail.com is not authorized to perform:
 ec2:DescribeInstances with an explicit deny in a service control policy
  No instances in ap-south-1
Checking region: eu-north-1

An error occurred (UnauthorizedOperation) when calling the DescribeInstances operation: You are not authorized to perform this operation. User:
 arn:aws:sts::757282205153:assumed-role/AWSReservedSSO_ReadOnlyAccess_d7a0d7336378f58f/salmakhorshedbs3@gmail.com is not authorized to perform:
 ec2:DescribeInstances with an explicit deny in a service control policy
  No instances in eu-north-1
Checking region: eu-west-3
  No instances in eu-west-3
Checking region: eu-west-2
  No instances in eu-west-2
Checking region: eu-west-1
  No instances in eu-west-1
Checking region: ap-northeast-3

An error occurred (UnauthorizedOperation) when calling the DescribeInstances operation: You are not authorized to perform this operation. User:
 arn:aws:sts::757282205153:assumed-role/AWSReservedSSO_ReadOnlyAccess_d7a0d7336378f58f/salmakhorshedbs3@gmail.com is not authorized to perform:
 ec2:DescribeInstances with an explicit deny in a service control policy
  No instances in ap-northeast-3
Checking region: ap-northeast-2
```

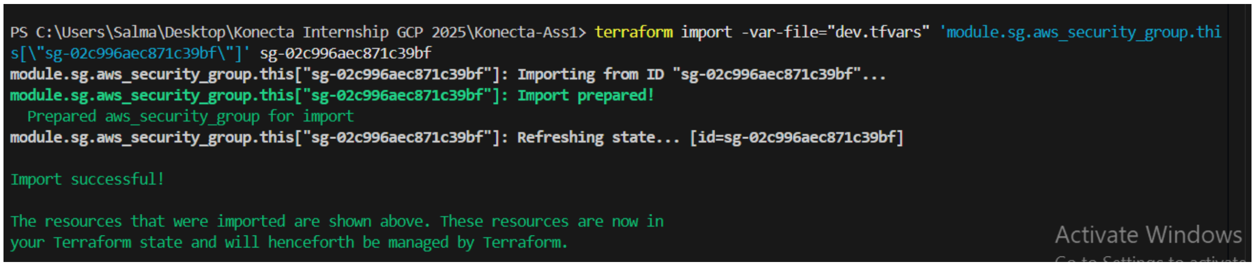
Security Group:

Security Groups act as virtual firewalls for EC2 instances.

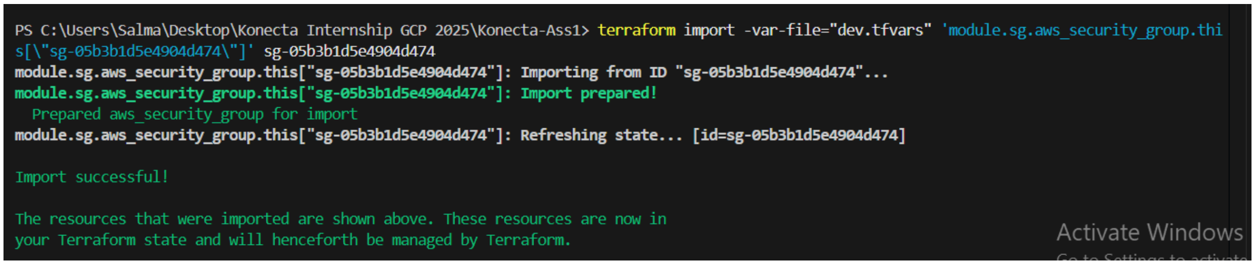
In this project, inbound and outbound rules were carefully configured to allow necessary traffic (e.g., HTTP, HTTPS, SSH) while blocking unauthorized access.



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws ec2 describe-security-groups --region eu-west-1 --query "SecurityGroups
[].GroupId" --output text
>>
sg-05b3b1d5e4904d474    sg-02c996aec871c39bf

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> █
```



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.sg.aws_security_group.thi
s[\"sg-02c996aec871c39bf\"]' sg-02c996aec871c39bf
module.sg.aws_security_group.this["sg-02c996aec871c39bf"]: Importing from ID "sg-02c996aec871c39bf"...
module.sg.aws_security_group.this["sg-02c996aec871c39bf"]: Import prepared!
  Prepared aws_security_group for import
module.sg.aws_security_group.this["sg-02c996aec871c39bf"]: Refreshing state... [id=sg-02c996aec871c39bf]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.
```

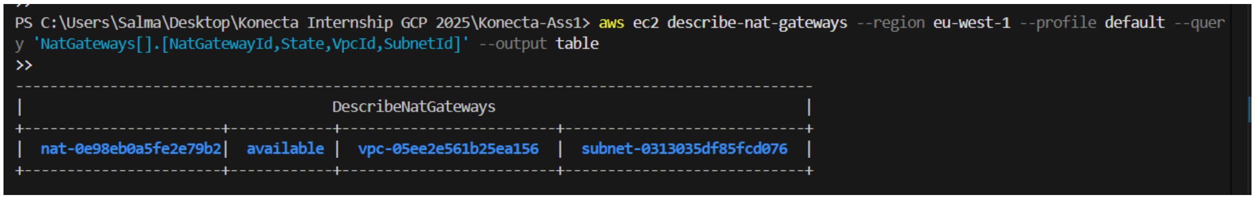


```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.sg.aws_security_group.thi
s[\"sg-05b3b1d5e4904d474\"]' sg-05b3b1d5e4904d474
module.sg.aws_security_group.this["sg-05b3b1d5e4904d474"]: Importing from ID "sg-05b3b1d5e4904d474"...
module.sg.aws_security_group.this["sg-05b3b1d5e4904d474"]: Import prepared!
  Prepared aws_security_group for import
module.sg.aws_security_group.this["sg-05b3b1d5e4904d474"]: Refreshing state... [id=sg-05b3b1d5e4904d474]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.
```

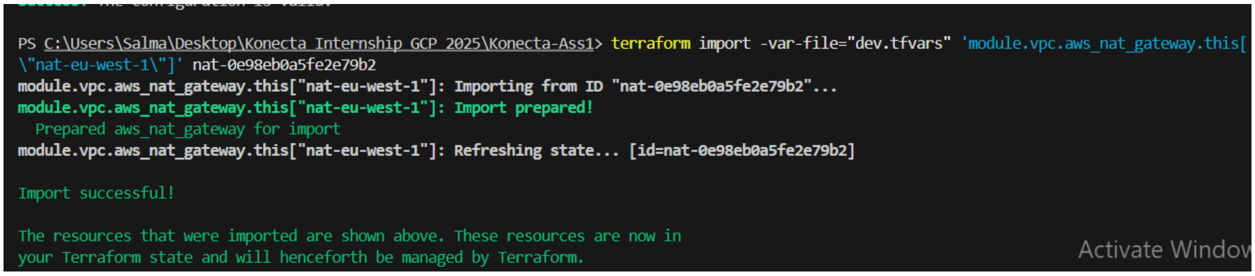
NAT Gatway:

A NAT (Network Address Translation) Gateway enables private subnet instances to access the internet without exposing them to incoming traffic.

This was used in the project to allow instances in private subnets to download updates or access external resources securely.



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws ec2 describe-nat-gateways --region eu-west-1 --profile default --quer
y 'NatGateways[].[NatGatewayId,State,VpcId,SubnetId]' --output table
>>
---------------------------------------------------------------------------------------------
|                                   DescribeNatGateways                                     |
+-----------------------+------------+-------------------------+---------------------------+
|  nat-0e98eb0a5fe2e79b2|  available |  vpc-05ee2e561b25ea156  |  subnet-0313035df85fcd076 |
+-----------------------+------------+-------------------------+---------------------------+
```

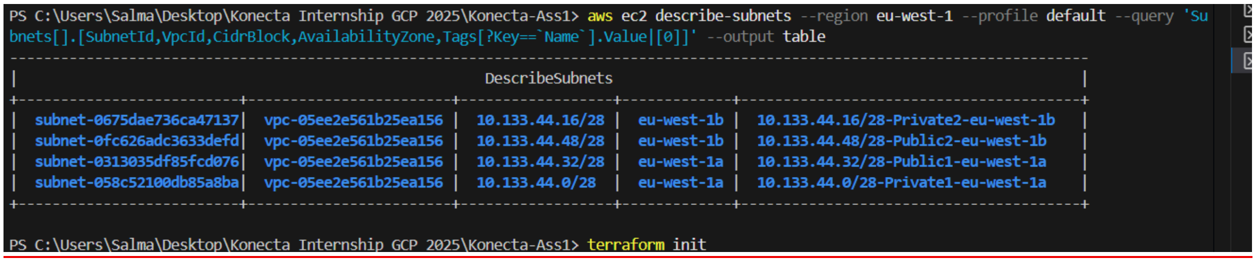


```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.vpc.aws_nat_gateway.this[
\"nat-eu-west-1\"]' nat-0e98eb0a5fe2e79b2
module.vpc.aws_nat_gateway.this["nat-eu-west-1"]: Importing from ID "nat-0e98eb0a5fe2e79b2"...
module.vpc.aws_nat_gateway.this["nat-eu-west-1"]: Import prepared!
  Prepared aws_nat_gateway for import
module.vpc.aws_nat_gateway.this["nat-eu-west-1"]: Refreshing state... [id=nat-0e98eb0a5fe2e79b2]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.
```

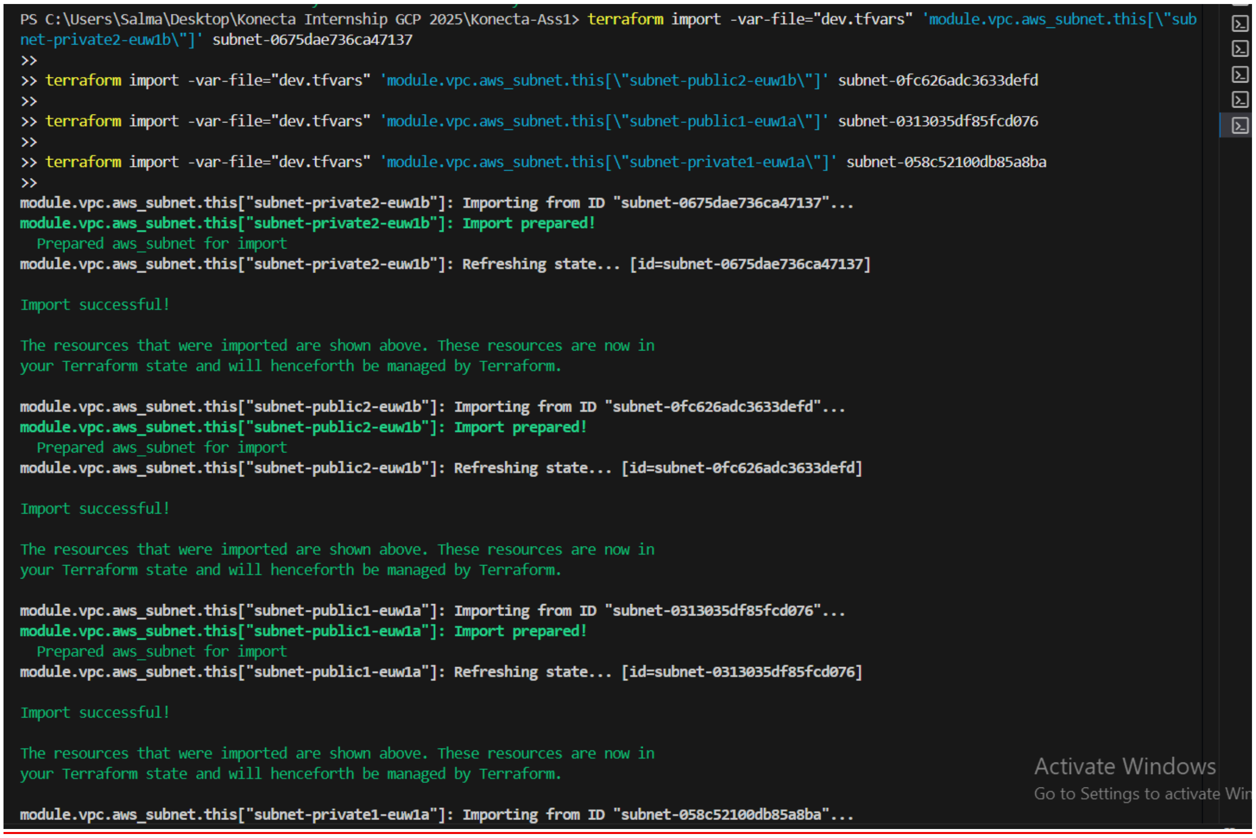
Subnets:

Subnets divide a VPC into smaller segments, either public or private.

Public subnets hosted internet-facing resources, while private subnets were used for databases and backend services in this project.



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws ec2 describe-subnets --region eu-west-1 --profile default --query 'Su
bnets[].[SubnetId,VpcId,CidrBlock,AvailabilityZone,Tags[?Key==`Name`].Value|[0]]' --output table
------------------------------------------------------------------------------------------------------------------------------------
|                                                         DescribeSubnets                                                          |
+--------------------------+-------------------------+-------------------+--------------+----------------------------------------+
|  subnet-0675dae736ca47137|  vpc-05ee2e561b25ea156  |  10.133.44.16/28  |  eu-west-1b  |  10.133.44.16/28-Private2-eu-west-1b   |
|  subnet-0fc626adc3633defd|  vpc-05ee2e561b25ea156  |  10.133.44.48/28  |  eu-west-1b  |  10.133.44.48/28-Public2-eu-west-1b    |
|  subnet-0313035df85fcd076|  vpc-05ee2e561b25ea156  |  10.133.44.32/28  |  eu-west-1a  |  10.133.44.32/28-Public1-eu-west-1a    |
|  subnet-058c52100db85a8ba|  vpc-05ee2e561b25ea156  |  10.133.44.0/28   |  eu-west-1a  |  10.133.44.0/28-Private1-eu-west-1a    |
+--------------------------+-------------------------+-------------------+--------------+----------------------------------------+

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform init
```

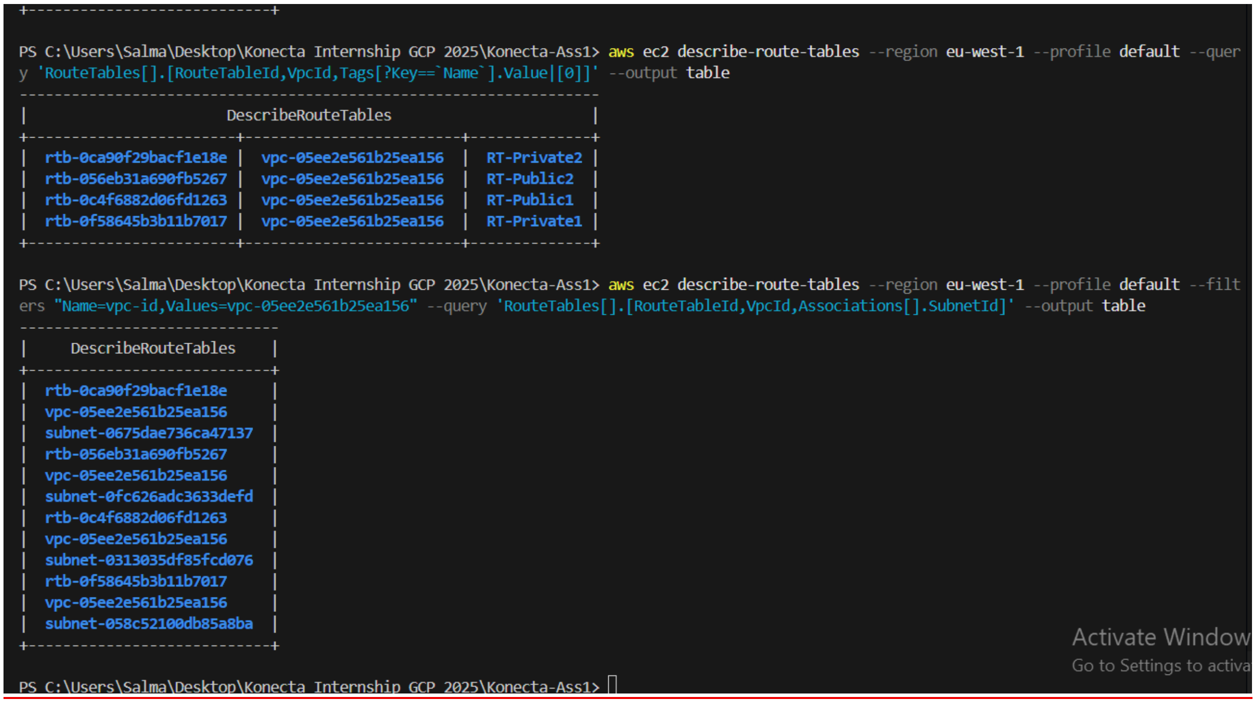


```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.vpc.aws_subnet.this[\"sub
net-private2-euw1b\"]' subnet-0675dae736ca47137
>>
>> terraform import -var-file="dev.tfvars" 'module.vpc.aws_subnet.this[\"subnet-public2-euw1b\"]' subnet-0fc626adc3633defd
>>
>> terraform import -var-file="dev.tfvars" 'module.vpc.aws_subnet.this[\"subnet-public1-euw1a\"]' subnet-0313035df85fcd076
>>
>> terraform import -var-file="dev.tfvars" 'module.vpc.aws_subnet.this[\"subnet-private1-euw1a\"]' subnet-058c52100db85a8ba
>>
module.vpc.aws_subnet.this["subnet-private2-euw1b"]: Importing from ID "subnet-0675dae736ca47137"...
module.vpc.aws_subnet.this["subnet-private2-euw1b"]: Import prepared!
  Prepared aws_subnet for import
module.vpc.aws_subnet.this["subnet-private2-euw1b"]: Refreshing state... [id=subnet-0675dae736ca47137]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.vpc.aws_subnet.this["subnet-public2-euw1b"]: Importing from ID "subnet-0fc626adc3633defd"...
module.vpc.aws_subnet.this["subnet-public2-euw1b"]: Import prepared!
  Prepared aws_subnet for import
module.vpc.aws_subnet.this["subnet-public2-euw1b"]: Refreshing state... [id=subnet-0fc626adc3633defd]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.vpc.aws_subnet.this["subnet-public1-euw1a"]: Importing from ID "subnet-0313035df85fcd076"...
module.vpc.aws_subnet.this["subnet-public1-euw1a"]: Import prepared!
  Prepared aws_subnet for import
module.vpc.aws_subnet.this["subnet-public1-euw1a"]: Refreshing state... [id=subnet-0313035df85fcd076]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.vpc.aws_subnet.this["subnet-private1-euw1a"]: Importing from ID "subnet-058c52100db85a8ba"...
```

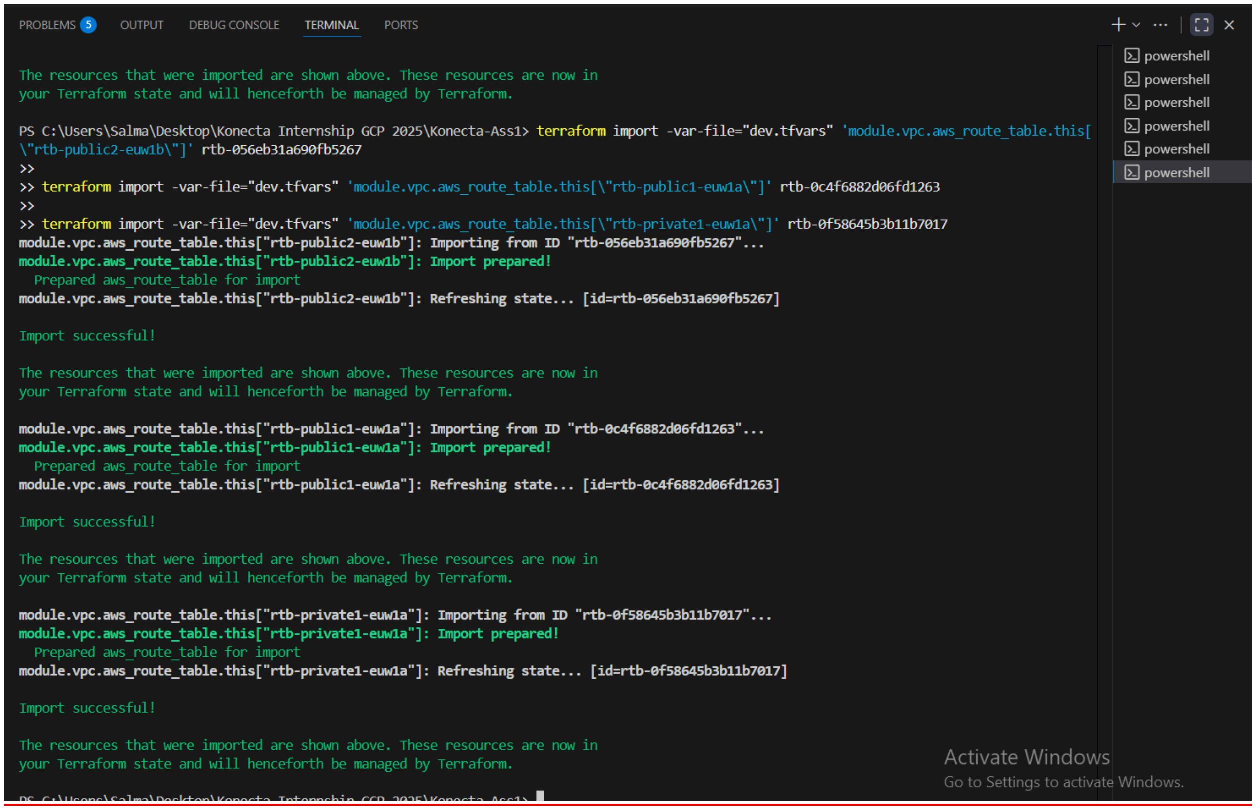
Activate Windows
Go to Settings to activate Wi

Routing Tables:

Routing tables determine how traffic is directed within the VPC.
In this project, routing tables were configured to connect subnets with the internet gateway and NAT gateway, ensuring proper routing of both internal and external traffic.



```
+----------------------------+

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws ec2 describe-route-tables --region eu-west-1 --profile default --quer
y 'RouteTables[].[RouteTableId,VpcId,Tags[?Key==`Name`].Value|[0]]' --output table
-------------------------------------------------------------------
|                        DescribeRouteTables                      |
+------------------------+-------------------------+--------------+
|  rtb-0ca90f29bacf1e18e |  vpc-05ee2e561b25ea156  |  RT-Private2 |
|  rtb-056eb31a690fb5267 |  vpc-05ee2e561b25ea156  |  RT-Public2  |
|  rtb-0c4f6882d06fd1263 |  vpc-05ee2e561b25ea156  |  RT-Public1  |
|  rtb-0f58645b3b11b7017 |  vpc-05ee2e561b25ea156  |  RT-Private1 |
+------------------------+-------------------------+--------------+

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> aws ec2 describe-route-tables --region eu-west-1 --profile default --filt
ers "Name=vpc-id,Values=vpc-05ee2e561b25ea156" --query 'RouteTables[].[RouteTableId,VpcId,Associations[].SubnetId]' --output table
----------------------------
|    DescribeRouteTables   |
+--------------------------+
|  rtb-0ca90f29bacf1e18e   |
|  vpc-05ee2e561b25ea156   |
|  subnet-0675dae736ca47137|
|  rtb-056eb31a690fb5267   |
|  vpc-05ee2e561b25ea156   |
|  subnet-0fc626adc3633defd|
|  rtb-0c4f6882d06fd1263   |
|  vpc-05ee2e561b25ea156   |
|  subnet-0313035df85fcd076|
|  rtb-0f58645b3b11b7017   |
|  vpc-05ee2e561b25ea156   |
|  subnet-058c52100db85a8ba|
+--------------------------+

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1>
```

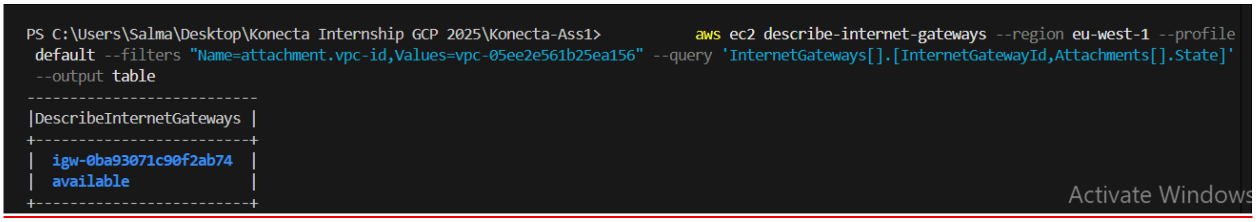


```
The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.vpc.aws_route_table.this[
\"rtb-public2-euw1b\"]' rtb-056eb31a690fb5267
>>
>> terraform import -var-file="dev.tfvars" 'module.vpc.aws_route_table.this[\"rtb-public1-euw1a\"]' rtb-0c4f6882d06fd1263
>>
>> terraform import -var-file="dev.tfvars" 'module.vpc.aws_route_table.this[\"rtb-private1-euw1a\"]' rtb-0f58645b3b11b7017
module.vpc.aws_route_table.this["rtb-public2-euw1b"]: Importing from ID "rtb-056eb31a690fb5267"...
module.vpc.aws_route_table.this["rtb-public2-euw1b"]: Import prepared!
  Prepared aws_route_table for import
module.vpc.aws_route_table.this["rtb-public2-euw1b"]: Refreshing state... [id=rtb-056eb31a690fb5267]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.vpc.aws_route_table.this["rtb-public1-euw1a"]: Importing from ID "rtb-0c4f6882d06fd1263"...
module.vpc.aws_route_table.this["rtb-public1-euw1a"]: Import prepared!
  Prepared aws_route_table for import
module.vpc.aws_route_table.this["rtb-public1-euw1a"]: Refreshing state... [id=rtb-0c4f6882d06fd1263]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

module.vpc.aws_route_table.this["rtb-private1-euw1a"]: Importing from ID "rtb-0f58645b3b11b7017"...
module.vpc.aws_route_table.this["rtb-private1-euw1a"]: Import prepared!
  Prepared aws_route_table for import
module.vpc.aws_route_table.this["rtb-private1-euw1a"]: Refreshing state... [id=rtb-0f58645b3b11b7017]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1>
```

Internet Gateway:

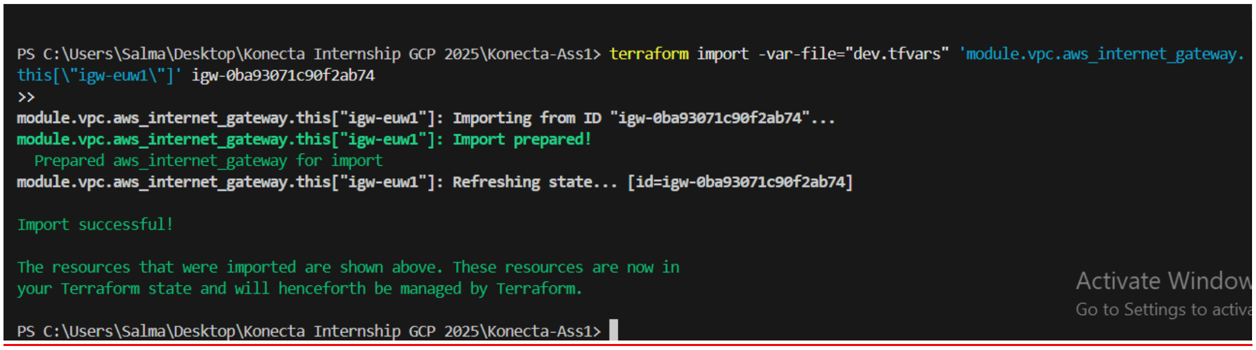
An Internet Gateway allows communication between VPC resources and the internet.

In this project, the internet gateway was attached to the VPC to allow resources in public subnets (like web servers) to be accessible externally.



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1>         aws ec2 describe-internet-gateways --region eu-west-1 --profile
 default --filters "Name=attachment.vpc-id,Values=vpc-05ee2e561b25ea156" --query 'InternetGateways[].[InternetGatewayId,Attachments[].State]'
 --output table
--------------------------
|DescribeInternetGateways |
+------------------------+
|  igw-0ba93071c90f2ab74  |
|  available              |
+------------------------+
```

Activate Windows



```
PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1> terraform import -var-file="dev.tfvars" 'module.vpc.aws_internet_gateway.
this[\"igw-euw1\"]' igw-0ba93071c90f2ab74
>>
module.vpc.aws_internet_gateway.this["igw-euw1"]: Importing from ID "igw-0ba93071c90f2ab74"...
module.vpc.aws_internet_gateway.this["igw-euw1"]: Import prepared!
  Prepared aws_internet_gateway for import
module.vpc.aws_internet_gateway.this["igw-euw1"]: Refreshing state... [id=igw-0ba93071c90f2ab74]

Import successful!

The resources that were imported are shown above. These resources are now in
your Terraform state and will henceforth be managed by Terraform.

PS C:\Users\Salma\Desktop\Konecta Internship GCP 2025\Konecta-Ass1>
```

Activate Window
Go to Settings to activa