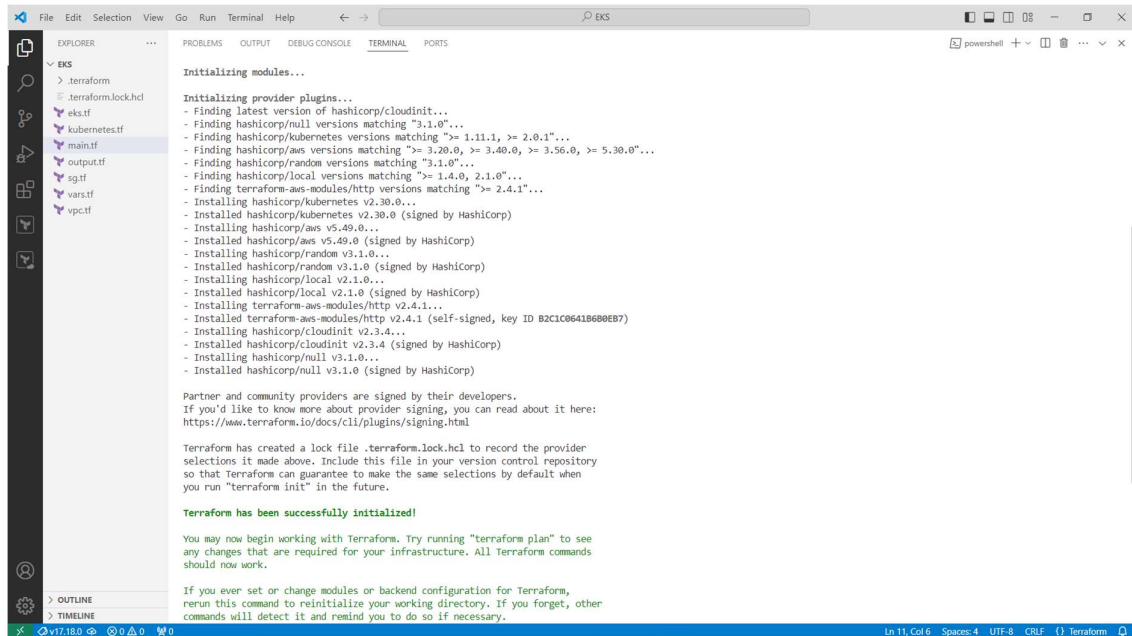


Terraform init: Run the following command in our VS Code inside the working directory and then it'll download all the necessary providers and all the other required modules. Run



The screenshot shows the VS Code interface with the terminal window open. The terminal displays the output of the 'terraform init' command. It starts with 'Initializing modules...' followed by a list of providers being found and installed, including aws, kubernetes, random, local, http, cloudinit, and null. It also mentions the creation of a lock file and the successful initialization of Terraform.

```
Initializing modules...

Initializing provider plugins...
- Finding latest version of hashicorp/cloudinit...
- Finding hashicorp/null versions matching "3.1.0"...
- Finding hashicorp/kubernetes versions matching ">= 1.11.1, >= 2.0.1"...
- Finding hashicorp/aws versions matching ">= 3.20.0, >= 3.40.0, >= 3.56.0, >= 5.30.0"...
- Finding hashicorp/random versions matching "3.1.0"...
- Finding hashicorp/local versions matching ">= 1.4.0, 2.1.0"...
- Finding terraform-aws-modules/http versions matching ">= 2.4.1"...
- Installing hashicorp/kubernetes v2.30.0...
- Installing hashicorp/kubernetes v2.30.0 (signed by HashiCorp)
- Installing hashicorp/aws v5.49.0...
- Installing hashicorp/aws v5.49.0 (signed by HashiCorp)
- Installing hashicorp/random v3.1.0...
- Installing hashicorp/random v3.1.0 (signed by HashiCorp)
- Installing hashicorp/local v2.1.0...
- Installing hashicorp/local v2.1.0 (signed by HashiCorp)
- Installing terraform-aws-modules/http v2.4.1...
- Installing terraform-aws-modules/http v2.4.1 (self-signed, key ID B2C1C0641B680EB7)
- Installing hashicorp/cloudinit v2.3.4...
- Installing hashicorp/cloudinit v2.3.4 (signed by HashiCorp)
- Installing hashicorp/null v3.1.0...
- Installing hashicorp/null v3.1.0 (signed by HashiCorp)

Partner and community providers are signed by their developers.
If you'd like to know more about provider signing, you can read about it here:
https://www.terraform.io/docs/cli/plugins/signing.html

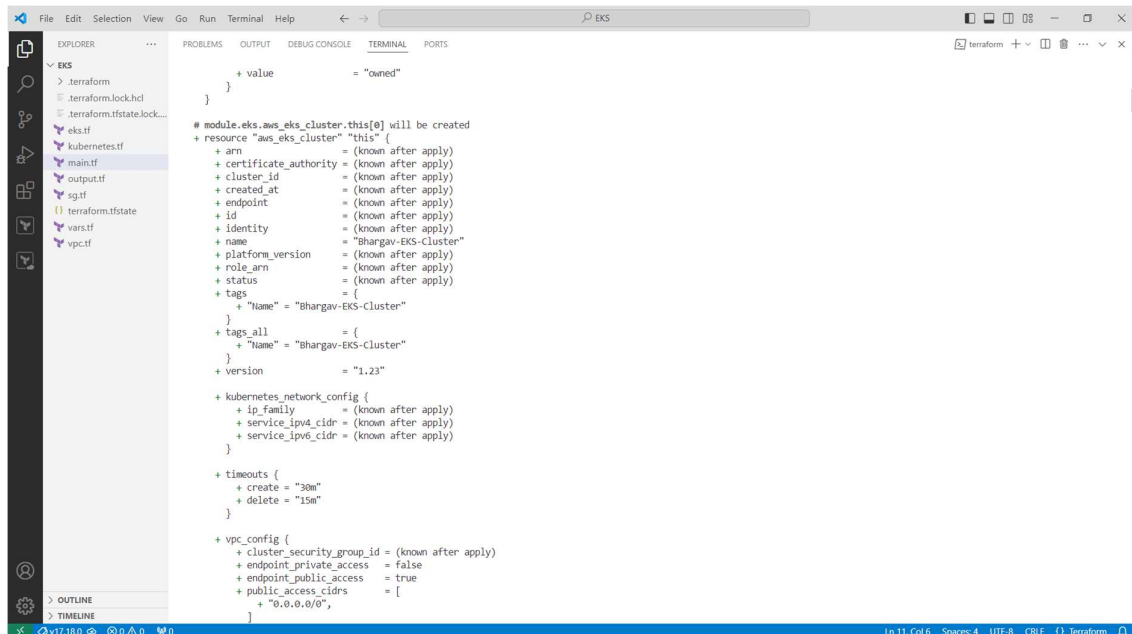
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

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.
```

Terraform Plan: Run terraform plan command in the working directory and it'll give you the execution plan.

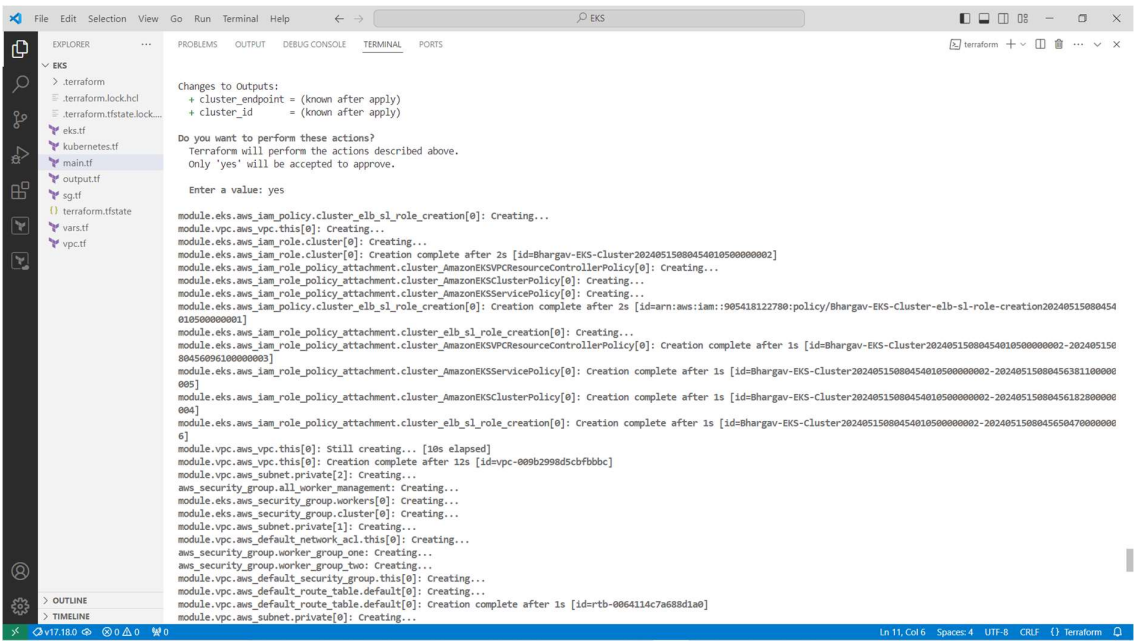


The screenshot shows the VS Code interface with the terminal window open. The terminal displays the output of the 'terraform plan' command. It shows the configuration for an AWS EKS cluster, including resource definitions for the cluster, network configuration, timeouts, and VPC configuration.

```
+ value = "owned"
}

# module.eks.aws_eks_cluster.this[0] will be created
+ resource "aws_eks_cluster" "this" {
+   arn = (known after apply)
+   certificate_authority = (known after apply)
+   cluster_id = (known after apply)
+   created_at = (known after apply)
+   endpoint = (known after apply)
+   id = (known after apply)
+   identity = (known after apply)
+   name = "Bhargav-EKS-Cluster"
+   platform_version = (known after apply)
+   role_arn = (known after apply)
+   status = (known after apply)
+   tags = {
+     "Name" = "Bhargav-EKS-Cluster"
+   }
+   tags_all = {
+     "Name" = "Bhargav-EKS-Cluster"
+   }
+   version = "1.23"
+   kubernetes_network_config {
+     ip_family = (known after apply)
+     service_ipv4_cidr = (known after apply)
+     service_ipv6_cidr = (known after apply)
+   }
+   timeouts {
+     create = "30m"
+     delete = "15m"
+   }
+   vpc_config {
+     cluster_security_group_id = (known after apply)
+     endpoint_private_access = false
+     endpoint_public_access = true
+     public_access_cidrs = [
+       "0.0.0.0/0",
+     ]
+   }
}
```

Terraform apply: Run terraform apply command and it will create the entire Kubernetes Cluster on AWS i.e; AWS EKS cluster.



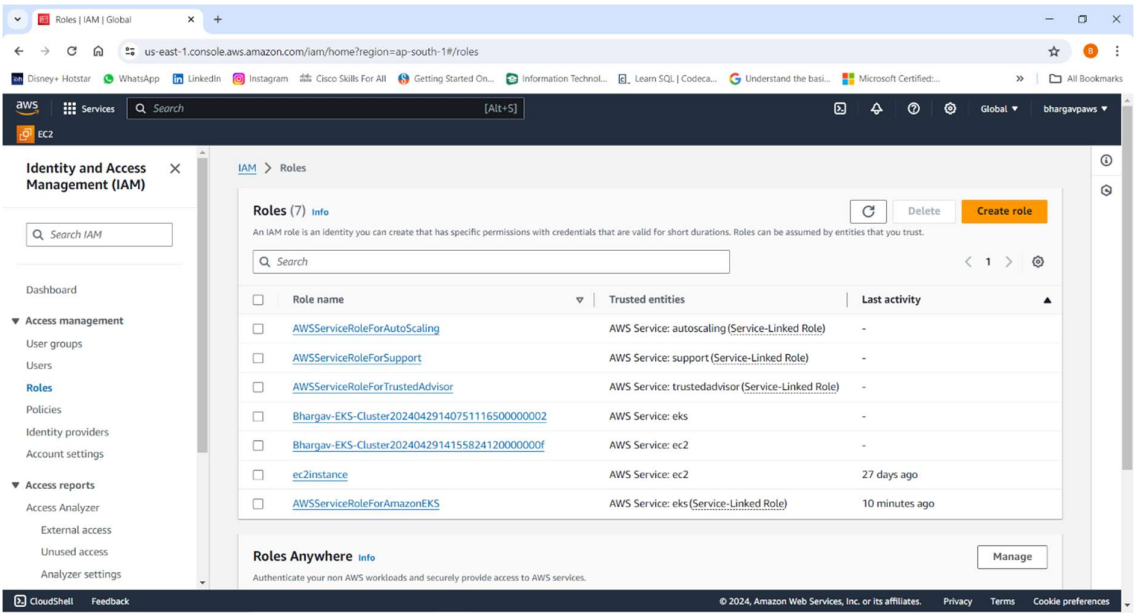
```
Changes to Outputs:
+ cluster_endpoint = (known after apply)
+ cluster_id       = (known after apply)

Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

module.eks.aws_iam_policy.cluster_elb_sl_role_creation[0]: Creating...
module.vpc.aws_vpc.this[0]: Creating...
module.eks.aws_iam_role.cluster[0]: Creating...
module.eks.aws_iam_role.cluster[0]: Creation complete after 2s [id=Bhargav-EKS-Cluster20240515080454010500000002]
module.eks.aws_iam_policy_attachment.cluster_AmazonEKSVPCResourceControllerPolicy[0]: Creating...
module.eks.aws_iam_role_policy_attachment.cluster_AmazonEKSClusterPolicy[0]: Creating...
module.eks.aws_iam_role_policy_attachment.cluster_AmazonEKSServicePolicy[0]: Creating...
module.eks.aws_iam_policy.cluster_elb_sl_role_creation[0]: Creation complete after 2s [id=arn:aws:iam::905418122780:policy/Bhargav-EKS-Cluster-elb-sl-role-creation20240515080454010500000001]
module.eks.aws_iam_role_policy_attachment.cluster_elb_sl_role_creation[0]: Creating...
module.eks.aws_iam_role_policy_attachment.cluster_AmazonEKSVPCResourceControllerPolicy[0]: Creation complete after 1s [id=Bhargav-EKS-Cluster20240515080454010500000002-20240515080456381100000003]
module.eks.aws_iam_role_policy_attachment.cluster_AmazonEKSClusterPolicy[0]: Creation complete after 1s [id=Bhargav-EKS-Cluster20240515080454010500000002-20240515080456381100000004]
module.eks.aws_iam_role_policy_attachment.cluster_AmazonEKSServicePolicy[0]: Creation complete after 1s [id=Bhargav-EKS-Cluster20240515080454010500000002-20240515080456381100000005]
module.vpc.aws_vpc.this[0]: Still creating... [10s elapsed]
module.vpc.aws_vpc.this[0]: Creation complete after 12s [id=vpc-009b2998d9c9fb0bc]
module.vpc.aws_subnet.private[2]: Creating...
aws_security_group.all_worker_management: Creating...
module.eks.aws_security_group.workers[0]: Creating...
module.eks.aws_security_group.cluster[0]: Creating...
module.vpc.aws_subnet.private[1]: Creating...
module.vpc.aws_default_network_acl.this[0]: Creating...
aws_security_group.worker_group_one: Creating...
aws_security_group.worker_group_two: Creating...
module.vpc.aws_default_security_group.this[0]: Creating...
module.vpc.aws_default_route_table.default[0]: Creating...
module.vpc.aws_default_route_table.default[0]: Creation complete after 1s [id=rtb-0064114c7a688d1a0]
module.vpc.aws_subnet.private[0]: Creating...
```

IAM Roles:



VPC:

ap-south-1.console.aws.amazon.com/vpconsole/home?region=ap-south-1#vpcs:

VPC dashboard

EC2 Global View

Filter by VPC: Select a VPC

Virtual private cloud

Security

DNS firewall

Network Firewall

Your VPCs (1/2) info

Name	VPC ID	State	IPv4 CIDR	IPv6 ...	DHCP option set	Main route table
Bhargav-EKS-VPC	vpc-0b961cb2cfa306ce2	Available	10.0.0.0/16	-	dopt-05dfc90cedc40b6a9	rtb-01497611fb55dc44b
-	vpc-02c974a3ee6906814	Available	172.31.0.0/16	-	dopt-05dfc90cedc40b6a9	rtb-07fe3bfae17af5438

vpc-0b961cb2cfa306ce2 / Bhargav-EKS-VPC

Details

VPC ID	State	DNS hostnames	DNS resolution
vpc-0b961cb2cfa306ce2	Available	Enabled	Enabled
Tenancy	DHCP option set	Main route table	Main network ACL
Default	dopt-05dfc90cedc40b6a9	rtb-01497611fb55dc44b	acl-0676233a48ed377ad
Default VPC	IPv4 CIDR	IPv6 pool	IPv6 CIDR (Network border group)
No	10.0.0.0/16	-	-
Network Address Usage metrics	Route 53 Resolver DNS Firewall rule groups	Owner ID	
Disabled	-	905418122780	

Subnets:

subnets | VPC Console

ap-south-1.console.aws.amazon.com/vpconsole/home?region=ap-south-1#subnets:sort=state

VPC dashboard

EC2 Global View

Filter by VPC: Select a VPC

Virtual private cloud

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

Subnets (6/9) info

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 ...	Avail...
EKS-Private-Subnet	subnet-057114c64d8f08d78	Available	vpc-028397604bd69bfb9 Bhargav-EKS-VPC	10.0.1.0/24	-	249
EKS-Private-Subnet	subnet-0139b30d8d19516a0	Available	vpc-028397604bd69bfb9 Bhargav-EKS-VPC	10.0.2.0/24	-	249
-	subnet-0a3001ae41464c5b6	Available	vpc-02c974a3ee6906814	172.31.16...	-	4091
EKS-Public-Subnet	subnet-074bb341ce1b64108	Available	vpc-028397604bd69bfb9 Bhargav-EKS-VPC	10.0.4.0/24	-	250
EKS-Public-Subnet	subnet-07268d7bc0969fd80	Available	vpc-028397604bd69bfb9 Bhargav-EKS-VPC	10.0.6.0/24	-	251
EKS-Public-Subnet	subnet-0ae43195815406d16	Available	vpc-028397604bd69bfb9 Bhargav-EKS-VPC	10.0.5.0/24	-	251
-	subnet-0ddcdcd4d2e79bc3f	Available	vpc-02c974a3ee6906814	172.31.32...	-	4090
EKS-Private-Subnet	subnet-05750e60c86e69980	Available	vpc-028397604bd69bfb9 Bhargav-EKS-VPC	10.0.3.0/24	-	250

Subnets: subnet-057114c64d8f08d78, subnet-0139b30d8d19516a0, subnet-074bb341ce1b64108, subnet-07268d7bc0969fd80, subnet-0ae43195815406d16, subnet-05750e60c86e69980

Internet gateways:

Internet gateways (1/2) Info

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-024f78cbcf684bdf	Attached	vpc-02c974a3ee6906814	905418122780
Bhargav-EKS-VPC	igw-0a5de29947745ba6f	Attached	vpc-028397604bd69bfb9 Bhargav-EK...	905418122780

igw-0a5de29947745ba6f / Bhargav-EKS-VPC

Details

Internet gateway ID	State	VPC ID	Owner
igw-0a5de29947745ba6f	Attached	vpc-028397604bd69bfb9 Bhargav-EKS-VPC	905418122780

NAT Gateway:

NAT gateways (1/1) Info

Name	NAT gateway ID	Connectivity...	State	Stat...	Primary public I...	Primary private I...
Bhargav-EKS-VPC	nat-0768581fc168338f2	Public	Available	-	13.200.87.126	10.0.4.232

nat-0768581fc168338f2 / Bhargav-EKS-VPC

Details

NAT gateway ID	Connectivity type	State	State message
nat-0768581fc168338f2	Public	Available	-
NAT gateway ARN	Primary public IPv4 address	Primary private IPv4 address	Primary network interface ID
arn:aws:ec2:ap-south-1:905418122780:natgateway/nat-0768581fc168338f2	13.200.87.126	10.0.4.232	eni-0c077528d923eaa52
VPC	Subnet	Created	Deleted
vpc-028397604bd69bfb9 / Bhargav-EKS-VPC	subnet-074bb341ce1b64108 / EKS-Public-Subnet	Monday, April 29, 2024 at 19:38:07 GMT+5:30	-

Route Tables:

Route Tables | VPC Console

ap-south-1.console.aws.amazon.com/vpcconsole/home?region=ap-south-1#RouteTables:

Services Search [Alt+S]

EC2

VPC dashboard
EC2 Global View

Filter by VPC:
Select a VPC

Virtual private cloud
Your VPCs
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
CloudShell Feedback

Route tables (1/4) info

Find resources by attribute or tag

Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
Bhargav-EKS-VPC	rtb-0da5357edda7101c3	-	-	Yes	vpc-028397604bd69bfb9
Bhargav-EKS-VPC	rtb-082dacc5ee7d40b33	3 subnets	-	No	vpc-028397604bd69bfb9
Bhargav-EKS-VPC	rtb-018dc8f1da13a5c39	3 subnets	-	No	vpc-028397604bd69bfb9
-	rtb-07fe3bfae17af5438	-	-	Yes	vpc-02c974a3ee6906814

rtb-018dc8f1da13a5c39 / Bhargav-EKS-VPC

Details Routes Subnet associations Edge associations Route propagation Tags

Explicit subnet associations (3)

Find subnet association

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
EKS-Public-Subnet	subnet-074bb341ce1b64108	10.0.4.0/24	-
EKS-Public-Subnet	subnet-07268d7bc0969fd80	10.0.6.0/24	-
EKS-Public-Subnet	subnet-0ae43195815406d16	10.0.5.0/24	-

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EC2 instances:

Instances | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#instances:instanceState=running:v=3;case=tags:true%5C,client:false,\$regex=tags:false%5C,client:false

Services Search [Alt+S]

EC2

EC2 Dashboard
EC2 Global View
Events

Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity
Reservations New

Images
AMIs
AMI Catalog

Elastic Block Store
Volumes
EBS Snapshots

CloudShell Feedback

Instances (3) info

Find Instance by attribute or tag (case-sensitive)

Instance state = running X Clear filters

All states

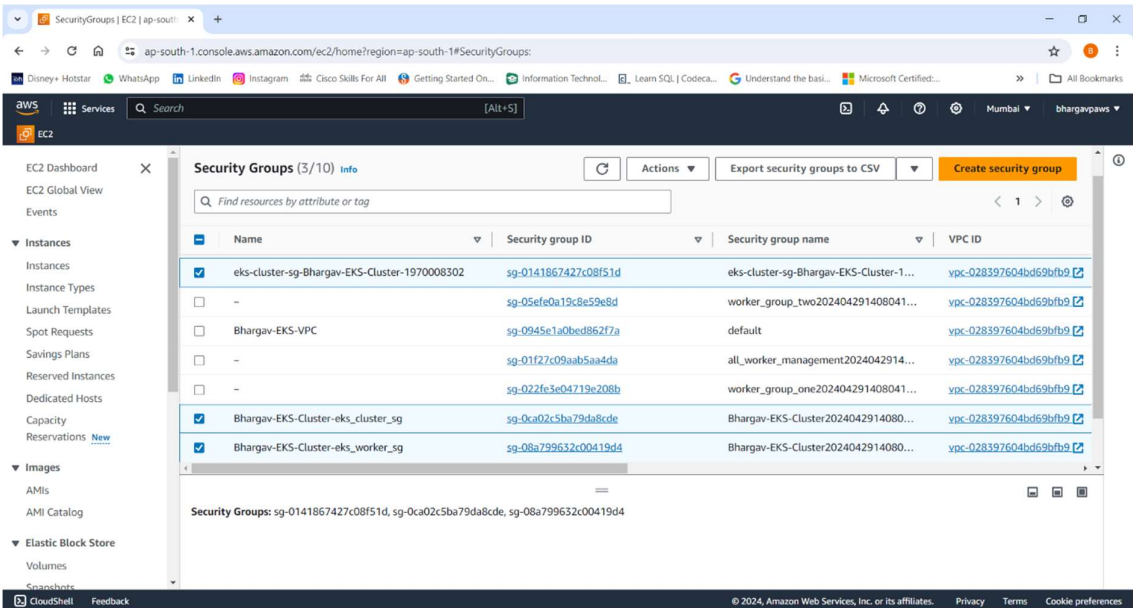
Connect Instance state Actions Launch instances

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
Bhargav-EKS-Cluster-Worker-Group-1-eks_asg	i-06f5ec90a96d93c67	Running	t2.medium	2/2 checks pi	View alarms +	ap-south-1b
Bhargav-EKS-Cluster-Worker-Group-2-eks_asg	i-07c6662923c616430	Running	t2.medium	2/2 checks pi	View alarms +	ap-south-1a
Bhargav-EKS-Cluster-Worker-Group-1-eks_asg	i-0d2130a785e5f2748	Running	t2.medium	2/2 checks pi	View alarms +	ap-south-1a

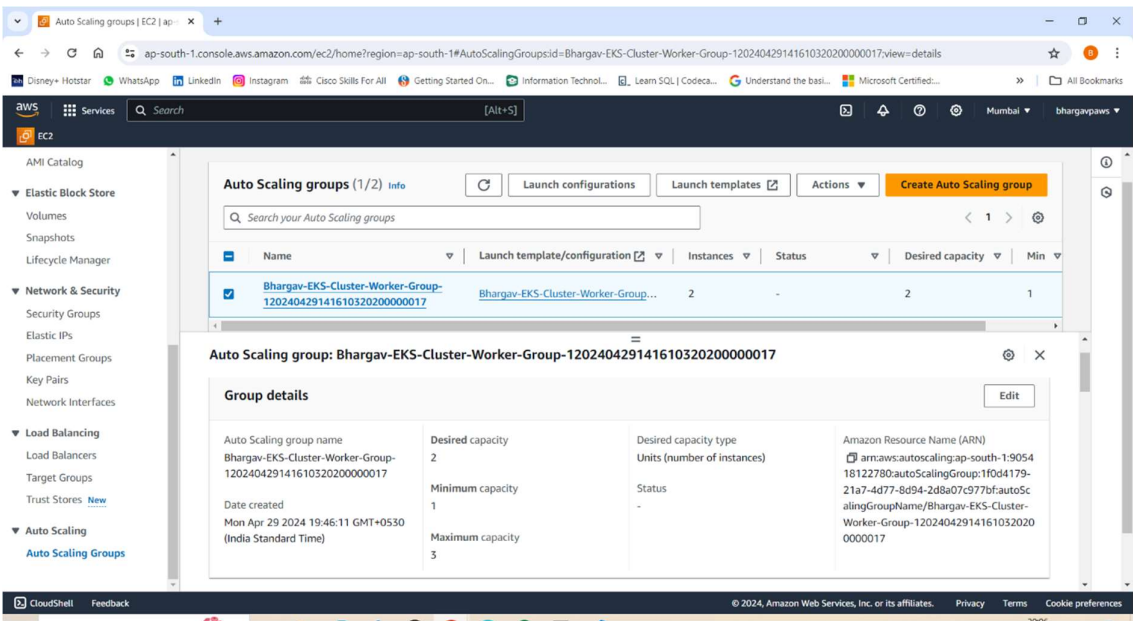
Select an instance

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Security groups:



Auto Scaling group:



Auto Scaling groups | EC2 | ap-south-1

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#AutoScalingGroups:id=Bhargav-EKS-Cluster-Worker-Group-220240429141610320300000018;view=details

ServicesSearch [Alt+S]

EC2

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Load Balancing

Load Balancers

Target Groups

Trust Stores [New](#)

Auto Scaling

Auto Scaling Groups

Search your Auto Scaling groups

	Name	Launch template/configuration	Instances	Status	Desired capacity	Min. capacity
<input type="checkbox"/>	Bhargav-EKS-Cluster-Worker-Group-120240429141610320200000017	Bhargav-EKS-Cluster-Worker-Group-1202...	2	-	2	1
<input checked="" type="checkbox"/>	Bhargav-EKS-Cluster-Worker-Group-220240429141610320300000018	Bhargav-EKS-Cluster-Worker-Group-2202...	1	-	1	1

Auto Scaling group: Bhargav-EKS-Cluster-Worker-Group-220240429141610320300000018

Launch configuration

Edit

Launch configuration	AMI ID	Instance type	Create time
Bhargav-EKS-Cluster-Worker-Group-220240429141604085600000015	ami-0c76a4376e6c850ed	t2.medium	Mon Apr 29 2024 19:46:09 GMT+0530 (India Standard Time)
Storage (volumes)	Security groups	Key pair name	
/dev/xvda	sg-05efe0a19c8e59e8d sg-08a799632c00419d4	-	

View details in the launch configuration console

CloudShellFeedback

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