12 - Infrastructure as Code with Terraform

Exercises for Module "Infrastructure as Code with Terraform"

Your K8s cluster on AWS is successfully running and used as a production environment. Your team wants to have additional K8s environments for development, test and staging with the same exact configuration and setup, so they can properly test and try out new features before releasing to production. So you must create 3 more EKS clusters.
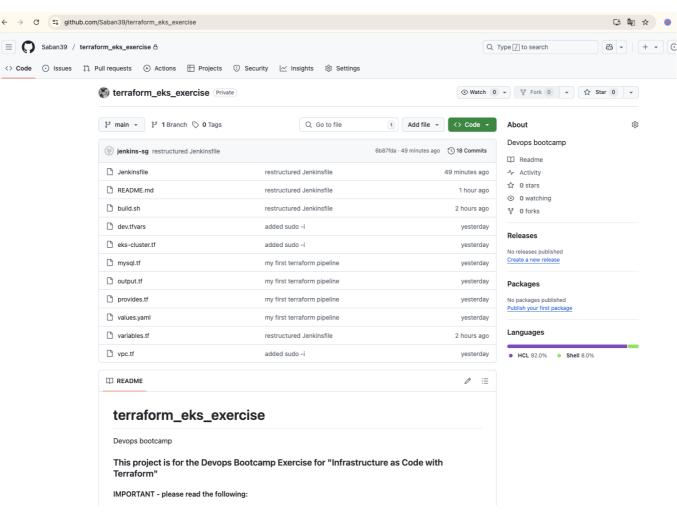
But you don't want to do that manually 3 times, so you decide it would be much more efficient to script creating the EKS cluster and execute that same script 3 times to create 3 more identical environments.

▶ Solution 1: Create Terraform project to spin up EKS cluster

> EXERCISE 1: Create Terraform project to spin up EKS cluster

- Create a Terraform project that spins up an EKS cluster with the exact same setup that you created in the previous exercise, for the same Java Gradle application:

- Create EKS cluster with 3 Nodes and 1 Fargate profile only for your java application Deploy Mysql with 3 replicas with volumes for data persistence using helm

- Create a separate git repository for your Terraform project, separate from the Java application, so that changes to the EKS cluster can be made by a separate team independent of the application changes themselves.

Step 1: In the first step, i created the following GitHub repository to provision a test EKS cluster using Terraform: https://github.com/Saban39/terraform_eks_exercise.git

eks-cluster.tf

```
module "eks" {
  source  = "terraform-aws-modules/eks/aws"
  version = "19.20.0"

  cluster_name                  = var.cluster_name
  cluster_version               = var.k8s_version
  cluster_endpoint_public_access = true

  subnet_ids = module.vpc.private_subnets
  vpc_id     = module.vpc.vpc_id
  tags = {
    environment = "bootcamp-sg"
  }
  # starting from EKS 1.23 CSI plugin is needed for volume provisioning.
  cluster_addons = {
    aws-ebs-csi-driver = {}
  }

  # worker nodes
  eks_managed_node_groups = {
    nodegroup = {
      use_custom_templates = false
      instance_types       = ["t3.small"]
      node_group_name      = var.env_prefix

      min_size     = 1
      max_size     = 3
      desired_size = 3

      tags = {
        Name = "${var.env_prefix}"
      }
      # EBS CSI Driver policy
      iam_role_additional_policies = {
        AmazonEBSCSIDriverPolicy = "arn:aws:iam::aws:policy/service-
role/AmazonEBSCSIDriverPolicy"
      }
    }
  }
  fargate_profiles = {
    profile = {
      name = "sg-fargate-profile"
      selectors = [
        {
          namespace = "app-sg"
        }
      ]
    }
  }
}
```

mysql.tf

```
# This gives back object with certificate-authority among other
attributes:
https://registry.terraform.io/providers/hashicorp/aws/latest/docs/data-
sources/eks_cluster#attributes-reference
data "aws_eks_cluster" "cluster" {
  name = module.eks.cluster_name
  depends_on = [module.eks.cluster_name]
}

# This gives us object with token:
https://registry.terraform.io/providers/hashicorp/aws/latest/docs/data-
sources/eks_cluster_auth#attributes-reference
data "aws_eks_cluster_auth" "cluster" {
  name = module.eks.cluster_name
  depends_on = [module.eks.cluster_name]
}

provider "kubernetes" {
# load_config_file        = "false"
  host                    = data.aws_eks_cluster.cluster.endpoint
  token                   = data.aws_eks_cluster_auth.cluster.token
  cluster_ca_certificate =
base64decode(data.aws_eks_cluster.cluster.certificate_authority.0.data)
}

provider "helm" {
  kubernetes {
    host = data.aws_eks_cluster.cluster.endpoint
    token = data.aws_eks_cluster_auth.cluster.token
    cluster_ca_certificate =
base64decode(data.aws_eks_cluster.cluster.certificate_authority.0.data)
  }
}

resource "helm_release" "mysql" {
  name       = "my-release"
  repository = "https://charts.bitnami.com/bitnami"
  chart      = "mysql"
  version    = "9.14.0"
  timeout    = "1000" # seconds

  values = [
    "${file("values.yaml")}"
  ]

  # Set chart values individually
  set {
    name  = "volumePermissions.enabled"
    value = true
  }
}
```

output.tf

```
output "cluster_id" {
  description = "EKS cluster ID."
  value       = module.eks.cluster_id
}

output "cluster_endpoint" {
  description = "Endpoint for EKS control plane."
  value       = module.eks.cluster_endpoint
}

output "cluster_security_group_id" {
  description = "Security group ids attached to the cluster control
plane."
  value       = module.eks.cluster_security_group_id
}

output "kubectl_config" {
  description = "kubectl config as generated by the module."
  value       = module.eks.aws_auth_configmap_yaml
}

output "config_map_aws_auth" {
  description = "A kubernetes configuration to authenticate to this EKS
cluster."
  value       = module.eks.aws_auth_configmap_yaml
}

output "cluster_name" {
  description = "Kubernetes Cluster Name"
  value       = local.cluster_name
}
```

provider.tf

```
terraform {
  required_providers {
    aws = {
      source = "hashicorp/aws"
      version = "~> 5.0"
    }
  }
}
```

values.yaml

```yaml
architecture: replication
auth:
  rootPassword: secret-root-pass
  database: my-app-db
  username: my-user
  password: my-pass

# enable init container that changes the owner and group of the persistent
volume mountpoint to runAsUser:fsGroup
volumePermissions:
  enabled: true

secondary:
  # 1 primary and 2 secondary replicas
  replicaCount: 2
  persistence:
    accessModes: ["ReadWriteOnce"]
    # storage class for EKS volumes
    storageClass: gp2
```

variables.tf

```hcl
variable env_prefix {
  default = "dev"
}

variable k8s_version {
  default = "1.28"
}

variable cluster_name {
  default = "cluster-sg"
}

variable region {
  default = "eu-central-1"
}
```

vpc.tf

```hcl
terraform {
  backend "s3" {
    bucket = "sg-bucket-twn-exercise"
    key    = "sgapp/state.tfstate"
```

```terraform
    region  = "eu-central-1"
  }
}

provider "aws" {
  region  = var.region
}

data "aws_availability_zones" "available" {}

locals {
  cluster_name = var.cluster_name
}

resource "random_string" "suffix" {
  length  = 8
  special = false
}

module "vpc" {
  source  = "terraform-aws-modules/vpc/aws"
  version = "5.2.0"

  name                = "vpc-sg"
  cidr                = "10.0.0.0/16"
  azs                 = data.aws_availability_zones.available.names
  private_subnets     = ["10.0.1.0/24", "10.0.2.0/24", "10.0.3.0/24"]
  public_subnets      = ["10.0.4.0/24", "10.0.5.0/24", "10.0.6.0/24"]
  enable_nat_gateway  = true
  single_nat_gateway  = true
  enable_dns_hostnames = true

  tags = {
    "kubernetes.io/cluster/${local.cluster_name}" = "shared"
  }

  public_subnet_tags = {
    "kubernetes.io/cluster/${local.cluster_name}" = "shared"
    "kubernetes.io/role/elb"                      = "1"
  }

  private_subnet_tags = {
    "kubernetes.io/cluster/${local.cluster_name}" = "shared"
    "kubernetes.io/role/internal-elb"             = "1"
  }
}
```

Since the creation of the EKS cluster was taking too long, the terraform apply operation failed. Therefore, I split the apply commands using the -target option.

```
terraform apply —target=module.vpc —target=module.eks —auto—approve
aws eks wait cluster—active ——name cluster—sg ——region eu—central—1
terraform apply —auto—approve
```

▶ My Terraform Destroy Output

Enter a value: yes

helm_release.mysql: Destroying... [id=my-release] random_string.suffix: Destroying... [id=wcdZdqlj]
random_string.suffix: Destruction complete after 0s module.vpc.aws_route_table_association.private[2]:
Destroying... [id=rtbassoc-0d01df538bbf7e0f7] module.vpc.aws_route_table_association.private[1]:
Destroying... [id=rtbassoc-00ead463eef21c563] module.vpc.aws_route_table_association.private[0]:
Destroying... [id=rtbassoc-0518714dbee89bbbb]
module.eks.aws_iam_role_policy_attachment.cluster_encryption[0]: Destroying... [id=cluster-sg-cluster-
2025061312004929950000003-20250613120111770300000012]
module.vpc.aws_default_route_table.default[0]: Destroying... [id=rtb-09d21b8df50128d89]
module.vpc.aws_route.private_nat_gateway[0]: Destroying... [id=r-rtb-0c9859564cfc946bc1080289494]
module.vpc.aws_default_security_group.this[0]: Destroying... [id=sg-0af01004acdac2e83]
module.eks.aws_eks_addon.this["aws-ebs-csi-driver"]: Destroying... [id=cluster-sg:aws-ebs-csi-driver]
module.vpc.aws_default_route_table.default[0]: Destruction complete after 0s
module.vpc.aws_default_security_group.this[0]: Destruction complete after 0s
module.vpc.aws_default_network_acl.this[0]: Destroying... [id=acl-091fd52e7296af4d4]
module.vpc.aws_route_table_association.public[2]: Destroying... [id=rtbassoc-088b5463246b08dad]
module.eks.aws_iam_openid_connect_provider.oidc_provider[0]: Destroying...
[id=arn:aws:iam::524196012679:oidc-provider/oidc.eks.eu-central-
1.amazonaws.com/id/5B42FDAF9695D7E2B9A0EA3128866AB9]
module.vpc.aws_default_network_acl.this[0]: Destruction complete after 0s
module.eks.module.kms.aws_kms_alias.this["cluster"]: Destroying... [id=alias/eks/cluster-sg]
module.eks.module.kms.aws_kms_alias.this["cluster"]: Destruction complete after 0s
module.vpc.aws_route_table_association.public[0]: Destroying... [id=rtbassoc-03dc1fb38c161d900]
helm_release.mysql: Destruction complete after 1s module.vpc.aws_route_table_association.public[1]:
Destroying... [id=rtbassoc-08ae82c6d44d4aaa0] module.vpc.aws_route_table_association.private[1]:
Destruction complete after 0s module.vpc.aws_route_table_association.private[2]: Destruction complete
after 0s module.eks.aws_ec2_tag.cluster_primary_security_group["environment"]: Destroying... [id=sg-
00eec42a6f54fe4fb,environment] module.vpc.aws_route.public_internet_gateway[0]: Destroying... [id=r-
rtb-0f62b0837282312101080289494] module.vpc.aws_route_table_association.private[0]: Destruction
complete after 0s module.vpc.aws_route_table_association.public[2]: Destruction complete after 0s
module.vpc.aws_route.private_nat_gateway[0]: Destruction complete after 1s
module.vpc.aws_nat_gateway.this[0]: Destroying... [id=nat-04e5629f5b4e8c58c]
module.vpc.aws_route_table.private[0]: Destroying... [id=rtb-0c9859564cfc946bc]
module.vpc.aws_route_table_association.public[0]: Destruction complete after 1s
module.eks.aws_iam_role_policy_attachment.cluster_encryption[0]: Destruction complete after 1s
module.eks.aws_iam_policy.cluster_encryption[0]: Destroying...
[id=arn:aws:iam::524196012679:policy/cluster-sg-cluster-
ClusterEncryption20250613120111174000000011]
module.eks.aws_ec2_tag.cluster_primary_security_group["environment"]: Destruction complete after 1s

module.eks.aws_iam_openid_connect_provider.oidc_provider[0]: Destruction complete after 1s

module.vpc.aws_route_table_association.public[1]: Destruction complete after 1s

module.vpc.aws_route.public_internet_gateway[0]: Destruction complete after 1s

module.vpc.aws_route_table.public[0]: Destroying... [id=rtb-0f62b083728231210]

module.eks.aws_iam_policy.cluster_encryption[0]: Destruction complete after 0s

module.vpc.aws_route_table.private[0]: Destruction complete after 0s

module.vpc.aws_route_table.public[0]: Destruction complete after 0s

module.eks.aws_eks_addon.this["aws-ebs-csi-driver"]: Destruction complete after 7s

module.eks.module.fargate_profile["profile"].aws_iam_role_policy_attachment.this["arn:aws:iam::aws:polic
y/AmazonEKS_CNI_Policy"]: Destroying... [id=sg-fargate-profile-20250613120049297600000002-
20250613120050466000000004]

module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.additional[
"AmazonEBSCSIDriverPolicy"]: Destroying... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050787000000009]

module.eks.module.fargate_profile["profile"].aws_iam_role_policy_attachment.this["arn:aws:iam::aws:polic
y/AmazonEKSFargatePodExecutionRolePolicy"]: Destroying... [id=sg-fargate-profile-
20250613120049297600000002-20250613120050486600000005]

module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Destroying... [id=cluster-
sg:sg-fargate-profile]

module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Destroying...
[id=cluster-sg:nodegroup-20250613122535165000000004]

module.eks.module.fargate_profile["profile"].aws_iam_role_policy_attachment.this["arn:aws:iam::aws:polic
y/AmazonEKS_CNI_Policy"]: Destruction complete after 0s

module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.additional[
"AmazonEBSCSIDriverPolicy"]: Destruction complete after 0s

module.eks.module.fargate_profile["profile"].aws_iam_role_policy_attachment.this["arn:aws:iam::aws:polic
y/AmazonEKSFargatePodExecutionRolePolicy"]: Destruction complete after 1s

module.vpc.aws_nat_gateway.this[0]: Still destroying... [id=nat-04e5629f5b4e8c58c, 10s elapsed]

module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-
sg:sg-fargate-profile, 10s elapsed]

module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 10s elapsed]

module.vpc.aws_nat_gateway.this[0]: Still destroying... [id=nat-04e5629f5b4e8c58c, 20s elapsed]

module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-
sg:sg-fargate-profile, 20s elapsed]

module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 20s elapsed]

module.vpc.aws_nat_gateway.this[0]: Still destroying... [id=nat-04e5629f5b4e8c58c, 30s elapsed]

module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-
sg:sg-fargate-profile, 30s elapsed]

module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 30s elapsed]

module.vpc.aws_nat_gateway.this[0]: Still destroying... [id=nat-04e5629f5b4e8c58c, 40s elapsed]

module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 40s elapsed]

module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-

sg:sg-fargate-profile, 40s elapsed] module.vpc.aws_nat_gateway.this[0]: Still destroying... [id=nat-04e5629f5b4e8c58c, 50s elapsed] module.vpc.aws_nat_gateway.this[0]: Destruction complete after 50s
module.vpc.aws_subnet.public[1]: Destroying... [id=subnet-0ecd018b60e48e4c1]
module.vpc.aws_eip.nat[0]: Destroying... [id=eipalloc-01c6a47c03daf5c3d]
module.vpc.aws_subnet.public[0]: Destroying... [id=subnet-015807c8aef8b5450]
module.vpc.aws_subnet.public[2]: Destroying... [id=subnet-01eda53e42f63e5cd]
module.vpc.aws_subnet.public[0]: Destruction complete after 1s module.vpc.aws_subnet.public[2]: Destruction complete after 1s module.vpc.aws_subnet.public[1]: Destruction complete after 1s module.vpc.aws_eip.nat[0]: Destruction complete after 1s module.vpc.aws_internet_gateway.this[0]: Destroying... [id=igw-015d0172dfa75ac88] module.vpc.aws_internet_gateway.this[0]: Destruction complete after 1s
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 50s elapsed]
module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-sg:sg-fargate-profile, 50s elapsed]
module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-sg:sg-fargate-profile, 1m0s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 1m0s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 1m10s elapsed]
module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-sg:sg-fargate-profile, 1m10s elapsed]
module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-sg:sg-fargate-profile, 1m20s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 1m20s elapsed]
module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Still destroying... [id=cluster-sg:sg-fargate-profile, 1m30s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 1m30s elapsed]
module.eks.module.fargate_profile["profile"].aws_eks_fargate_profile.this[0]: Destruction complete after 1m35s module.eks.module.fargate_profile["profile"].aws_iam_role.this[0]: Destroying... [id=sg-fargate-profile-20250613120049297600000002]
module.eks.module.fargate_profile["profile"].aws_iam_role.this[0]: Destruction complete after 1s
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 1m40s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 1m50s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 2m0s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 2m10s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 2m20s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still

destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 2m30s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 2m40s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 2m50s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 3m0s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 3m10s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 3m20s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 3m30s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 3m40s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 3m50s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 4m0s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 4m10s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 4m20s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 4m30s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 4m40s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 4m50s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 5m0s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 5m10s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 5m20s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 5m30s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 5m40s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 5m50s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 6m0s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Still
destroying... [id=cluster-sg:nodegroup-20250613122535165000000004, 6m10s elapsed]
module.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_group.this[0]: Destruction

complete after 6m19s
module.eks.module.eks_managed_node_group["nodegroup"].aws_launch_template.this[0]: Destroying...
[id=lt-04682095139f03b4e]
module.eks.module.eks_managed_node_group["nodegroup"].aws_launch_template.this[0]: Destruction
complete after 0s
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.this["arn:a
ws:iam::aws:policy/AmazonEC2ContainerRegistryReadOnly"]: Destroying... [id=nodegroup-eks-node-
group-20250613120049297600000001-20250613120050636900000006]
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.this["arn:a
ws:iam::aws:policy/AmazonEKS_CNI_Policy"]: Destroying... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050686900000008]
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.this["arn:a
ws:iam::aws:policy/AmazonEKSWorkerNodePolicy"]: Destroying... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050643400000007] module.eks.time_sleep.this[0]:
Destroying... [id=2025-06-13T12:25:29Z] module.eks.time_sleep.this[0]: Destruction complete after 0s
module.eks.aws_eks_cluster.this[0]: Destroying... [id=cluster-sg]
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.this["arn:a
ws:iam::aws:policy/AmazonEC2ContainerRegistryReadOnly"]: Destruction complete after 0s
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.this["arn:a
ws:iam::aws:policy/AmazonEKS_CNI_Policy"]: Destruction complete after 0s
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_policy_attachment.this["arn:a
ws:iam::aws:policy/AmazonEKSWorkerNodePolicy"]: Destruction complete after 0s
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role.this[0]: Destroying...
[id=nodegroup-eks-node-group-20250613120049297600000001]
module.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role.this[0]: Destruction complete
after 1s module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 10s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 20s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 30s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 40s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 50s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 1m0s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 1m10s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 1m20s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 1m30s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 1m40s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 1m50s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 2m0s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 2m10s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 2m20s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 2m30s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 2m40s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 2m50s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 3m0s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 3m10s elapsed]
module.eks.aws_eks_cluster.this[0]: Still destroying... [id=cluster-sg, 3m20s elapsed]
module.eks.aws_eks_cluster.this[0]: Destruction complete after 3m24s

module.eks.aws_security_group_rule.node["ingress_cluster_kubelet"]: Destroying... [id=sgrule-2172602283] module.eks.aws_security_group_rule.node["ingress_cluster_443"]: Destroying... [id=sgrule-485000510] module.eks.aws_security_group_rule.node["egress_all"]: Destroying... [id=sgrule-2331104781] module.eks.aws_security_group_rule.node["ingress_cluster_8443_webhook"]: Destroying... [id=sgrule-3145822388] module.eks.aws_security_group_rule.node["ingress_cluster_4443_webhook"]: Destroying... [id=sgrule-1637821187]

module.eks.aws_security_group_rule.node["ingress_cluster_9443_webhook"]: Destroying... [id=sgrule-3743433599] module.vpc.aws_subnet.private[2]: Destroying... [id=subnet-04d78a276a5d1de20]

module.eks.module.kms.aws_kms_key.this[0]: Destroying... [id=41a588e5-1790-4192-8a01-201e2eb3608b] module.vpc.aws_subnet.private[1]: Destroying... [id=subnet-0d032311ec0f425f3]

module.vpc.aws_subnet.private[0]: Destroying... [id=subnet-06341af8f80200ebb]

module.eks.module.kms.aws_kms_key.this[0]: Destruction complete after 0s

module.eks.aws_security_group_rule.node["ingress_self_coredns_tcp"]: Destroying... [id=sgrule-1880332386] module.vpc.aws_subnet.private[2]: Destruction complete after 0s

module.eks.aws_security_group_rule.node["ingress_nodes_ephemeral"]: Destroying... [id=sgrule-3134631952] module.eks.aws_security_group_rule.node["ingress_cluster_kubelet"]: Destruction complete after 0s module.eks.aws_cloudwatch_log_group.this[0]: Destroying... [id=/aws/eks/cluster-sg/cluster]

module.vpc.aws_subnet.private[0]: Destruction complete after 0s

module.eks.aws_iam_role_policy_attachment.this["AmazonEKSVPCResourceController"]: Destroying... [id=cluster-sg-cluster-20250613120049299500000003-20250613120050956700000000b]

module.vpc.aws_subnet.private[1]: Destruction complete after 0s

module.eks.aws_iam_role_policy_attachment.this["AmazonEKSClusterPolicy"]: Destroying... [id=cluster-sg-cluster-20250613120049299500000003-20250613120050913500000000a]

module.eks.aws_cloudwatch_log_group.this[0]: Destruction complete after 1s

module.eks.aws_security_group_rule.cluster["ingress_nodes_443"]: Destroying... [id=sgrule-1191843991]

module.eks.aws_security_group_rule.node["ingress_cluster_443"]: Destruction complete after 1s

module.eks.aws_security_group_rule.node["ingress_self_coredns_udp"]: Destroying... [id=sgrule-3561765773] module.eks.aws_iam_role_policy_attachment.this["AmazonEKSVPCResourceController"]: Destruction complete after 1s

module.eks.aws_security_group_rule.node["ingress_cluster_6443_webhook"]: Destroying... [id=sgrule-2833075349] module.eks.aws_iam_role_policy_attachment.this["AmazonEKSClusterPolicy"]: Destruction complete after 1s module.eks.aws_iam_role.this[0]: Destroying... [id=cluster-sg-cluster-20250613120049299500000003] module.eks.aws_security_group_rule.cluster["ingress_nodes_443"]: Destruction complete after 0s module.eks.aws_security_group_rule.node["egress_all"]: Destruction complete after 1s module.eks.aws_iam_role.this[0]: Destruction complete after 1s

module.eks.aws_security_group_rule.node["ingress_cluster_8443_webhook"]: Destruction complete after 2s module.eks.aws_security_group_rule.node["ingress_cluster_9443_webhook"]: Destruction complete after 3s module.eks.aws_security_group_rule.node["ingress_cluster_4443_webhook"]: Destruction complete after 3s module.eks.aws_security_group_rule.node["ingress_self_coredns_tcp"]: Destruction complete after 4s module.eks.aws_security_group_rule.node["ingress_nodes_ephemeral"]: Destruction complete after 4s module.eks.aws_security_group_rule.node["ingress_self_coredns_udp"]: Destruction complete after 4s module.eks.aws_security_group_rule.node["ingress_cluster_6443_webhook"]: Destruction complete after 4s module.eks.aws_security_group.cluster[0]: Destroying... [id=sg-061dfc8d603975811] module.eks.aws_security_group.node[0]: Destroying... [id=sg-07b8e1d172bb165c2]

module.eks.aws_security_group.cluster[0]: Destruction complete after 1s

module.eks.aws_security_group.node[0]: Destruction complete after 1s module.vpc.aws_vpc.this[0]: Destroying... [id=vpc-0990fd42b5c05b8d2] module.vpc.aws_vpc.this[0]: Destruction complete after 0s
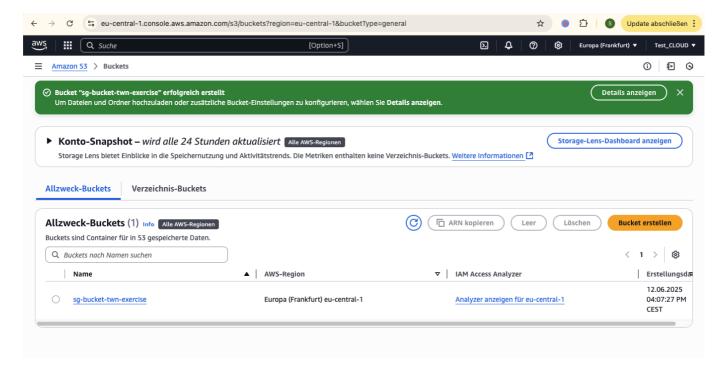
Destroy complete! Resources: 62 destroyed.

▶ Solution 2: Configure remote state

> EXERCISE 2: Configure remote state By default, TF stores state locally. You know that this is not practical when working in a team, because each user must make sure they always have the latest state data before running Terraform. To fix that, you

- Configure remote state with a remote data store for your terraform project You can use e.g. S3 bucket for storage.

- Now, the platform team that manages K8s clusters want to make changes to the cluster configurations based on the Infrastructure as Code best practices:

- They collaborate and commit changes to git repository and those changes get applied to the cluster through a CI/CD pipeline.

- So the AWS infrastructure and K8s cluster changes will be deployed the same way as the application changes, using a CI/CD pipeline.

- So the team asks you to help them create a separate Jenkins pipeline for the Terraform project, in addition to your java-app pipeline from the previous module.

I created the following S3 bucket and successfully configured the Terraform remote state.

▶ Solution 3: CI/CD pipeline for Terraform project

EXERCISE 3: CI/CD pipeline for Terraform project

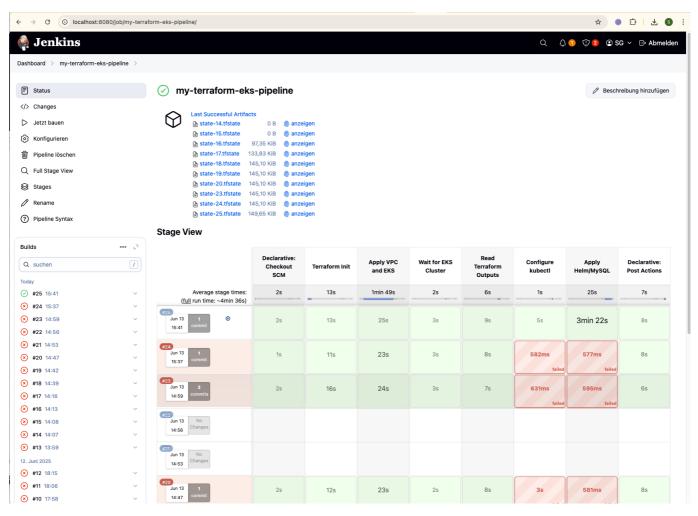- Create a separate Jenkins pipeline for Terraform provisioning the EKS cluster

I had to extend the Jenkinsfile with the following stage because the build failed:

```groovy
stage('Wait for EKS Cluster') {
  steps {
    echo "⏳  Waiting for EKS Cluster status ACTIVE"
    sh """
      export PATH=\$PATH:/usr/local/bin
      aws eks wait cluster-active \\
        --name \${TF_VAR_cluster_name} \\
        --region \${TF_VAR_region}
    """
  }
}
```

I have created the following Jenkinsfile:

```groovy
#!/usr/bin/env groovy

pipeline {
  agent any

  environment {
    AWS_ACCESS_KEY_ID = credentials('jenkins_aws_access_key_id')
    AWS_SECRET_ACCESS_KEY = credentials('jenkins_aws_secret_access_key')
    TERRAFORM_BIN          = '/usr/local/bin/terraform'
    KUBECTL_BIN         = '/usr/local/bin/kubectl'
    TF_VAR_env_prefix     = "dev"
    TF_VAR_k8s_version    = "1.28"
    TF_VAR_cluster_name   = "cluster-sg"
    TF_VAR_region         = "eu-central-1"
  }

  stages {
    stage('Terraform Init') {
      steps {
        sh "${TERRAFORM_BIN} init -input=false"
      }
    }

    stage('Apply VPC and EKS') {
      steps {
        echo "🌐  Provisioniere VPC und EKS (ohne Helm)"
        sh "${TERRAFORM_BIN} apply -target=module.vpc -target=module.eks -auto-approve"
      }
    }

    stage('Wait for EKS Cluster') {
      steps {
        echo "⏳  Warte auf EKS Cluster Status ACTIVE"
```

```
        sh """
          export PATH=$PATH:/usr/local/bin
          aws eks wait cluster-active \
            --name ${TF_VAR_cluster_name} \
            --region ${TF_VAR_region}
        """
      }
    }

    stage('Read Terraform Outputs') {
    steps {
        script {
            echo "📦 Lese Terraform Outputs"
            env.K8S_CLUSTER_ENDPOINT = sh(
            script: "${TERRAFORM_BIN} output -raw cluster_endpoint",
            returnStdout: true
            ).trim()

        echo "✅ Cluster Endpoint: ${env.K8S_CLUSTER_ENDPOINT}"
        }
    }
    }


    stage('Configure kubectl') {
  steps {
    echo "🔧 Konfiguriere Kubeconfig"
    sh '''
      export PATH=$PATH:/usr/local/bin
      export KUBECONFIG=/var/root/.kube/config

      aws eks update-kubeconfig \
        --name ${TF_VAR_cluster_name} \
        --region ${TF_VAR_region} \
        --kubeconfig $KUBECONFIG

      ${KUBECTL_BIN} --kubeconfig=$KUBECONFIG get nodes
    '''
  }
}

    stage('Apply Helm/MySQL') {
      steps {
        echo "🚀 Helm/MySQL installieren"
        sh "${TERRAFORM_BIN} apply -auto-approve"
      }
    }
  }

  post {
    always {
      sh "${TERRAFORM_BIN} state pull > state-${BUILD_NUMBER}.tfstate"
      archiveArtifacts artifacts: "state-*.tfstate", onlyIfSuccessful:
true
```

```
        }
      }
    }
```



```
Started by user SG
Obtained Jenkinsfile from git
https://github.com/Saban39/terraform_eks_exercise.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/root/.jenkins/workspace/my-terraform-eks-
pipeline
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
using credential jenkins-access
 > git rev-parse --resolve-git-dir /var/root/.jenkins/workspace/my-
terraform-eks-pipeline/.git # timeout=10
```

```
Fetching changes from the remote Git repository
 > git config remote.origin.url
https://github.com/Saban39/terraform_eks_exercise.git # timeout=10
Fetching upstream changes from
https://github.com/Saban39/terraform_eks_exercise.git
 > git --version # timeout=10
 > git --version # 'git version 2.39.5 (Apple Git-154)'
using GIT_ASKPASS to set credentials
 > git fetch --tags --force --progress --
https://github.com/Saban39/terraform_eks_exercise.git
+refs/heads/*:refs/remotes/origin/* # timeout=10
 > git rev-parse refs/remotes/origin/main^{commit} # timeout=10
Checking out Revision 6b87fda8aded9a1a1008e12c8af4505d71c682b7
(refs/remotes/origin/main)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f 6b87fda8aded9a1a1008e12c8af4505d71c682b7 # timeout=10
Commit message: "restructured Jenkinsfile"
 > git rev-list --no-walk b52760320c395256b63b22db7621099e26d262bb #
timeout=10
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] withCredentials
Masking supported pattern matches of $AWS_ACCESS_KEY_ID or
$AWS_SECRET_ACCESS_KEY
[Pipeline] {
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Terraform Init)
[Pipeline] sh
+ /usr/local/bin/terraform init -input=false

 [0m [1mInitializing the backend... [0m
 [0m [1mInitializing modules... [0m

 [0m [1mInitializing provider plugins... [0m
- Reusing previous version of hashicorp/tls from the dependency lock file
- Reusing previous version of hashicorp/time from the dependency lock file
- Reusing previous version of hashicorp/cloudinit from the dependency lock
file
- Reusing previous version of hashicorp/aws from the dependency lock file
- Reusing previous version of hashicorp/helm from the dependency lock file
- Reusing previous version of hashicorp/random from the dependency lock
file
- Reusing previous version of hashicorp/kubernetes from the dependency
lock file
- Using previously-installed hashicorp/cloudinit v2.3.7
- Using previously-installed hashicorp/aws v5.99.1
- Using previously-installed hashicorp/helm v2.17.0
- Using previously-installed hashicorp/random v3.7.2
- Using previously-installed hashicorp/kubernetes v2.37.1
- Using previously-installed hashicorp/tls v4.1.0
```

```
- Using previously-installed hashicorp/time v0.13.1

 [0m [1m [32mTerraform has been successfully initialized! [0m [32m [0m
 [0m [32m
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. [0m
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Apply VPC and EKS)
[Pipeline] echo
🌐 Provisioniere VPC und EKS (ohne Helm)
[Pipeline] sh
+ /usr/local/bin/terraform apply -target=module.vpc -target=module.eks -
auto-approve
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_caller_identi
ty.current: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_partition.current: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_caller_identity.current: Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_partition.cur
rent: Reading... [0m [0m
 [0m [1mmodule.eks.module.kms.data.aws_partition.current[0]:
Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_partition.current: Read complete after 0s
[id=aws] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_partition.cur
rent: Read complete after 0s [id=aws] [0m
 [0m [1mmodule.eks.module.kms.data.aws_caller_identity.current[0]:
Reading... [0m [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_part
ition.current: Reading... [0m [0m
 [0m [1mmodule.eks.module.kms.data.aws_partition.current[0]: Read complete
after 0s [id=aws] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_call
er_identity.current: Reading... [0m [0m
 [0m [1mmodule.eks.aws_cloudwatch_log_group.this[0]: Refreshing state...
[id=/aws/eks/cluster-sg/cluster] [0m
 [0m [1mmodule.vpc.aws_vpc.this[0]: Refreshing state... [id=vpc-
0990fd42b5c05b8d2] [0m
 [0m [1mdata.aws_availability_zones.available: Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_iam_policy_do
cument.assume_role_policy[0]: Reading... [0m [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_part
ition.current: Read complete after 0s [id=aws] [0m
 [0m [1mmodule.eks.data.aws_iam_policy_document.assume_role_policy[0]:
Reading... [0m [0m
```

```
[0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_iam_
policy_document.assume_role_policy[0]: Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_iam_policy_do
cument.assume_role_policy[0]: Read complete after 0s [id=3016102342] [0m
 [0m [1mmodule.eks.data.aws_iam_policy_document.assume_role_policy[0]: Read
complete after 0s [id=2764486067] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_iam_
policy_document.assume_role_policy[0]: Read complete after 0s
[id=2560088296] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_iam_role.this[0]:
Refreshing state... [id=sg-fargate-profile-20250613120049297600000002] [0m
 [0m [1mmodule.eks.aws_iam_role.this[0]: Refreshing state... [id=cluster-
sg-cluster-20250613120049299500000003] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role.
this[0]: Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_caller_identi
ty.current: Read complete after 0s [id=524196012679] [0m
 [0m [1mmodule.eks.data.aws_caller_identity.current: Read complete after 0s
[id=524196012679] [0m
 [0m [1mmodule.eks.data.aws_iam_session_context.current: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_iam_session_context.current: Read complete
after 0s [id=arn:aws:iam::524196012679:user/admin] [0m
 [0m [1mmodule.eks.module.kms.data.aws_caller_identity.current[0]: Read
complete after 0s [id=524196012679] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_call
er_identity.current: Read complete after 0s [id=524196012679] [0m
 [0m [1mdata.aws_availability_zones.available: Read complete after 0s
[id=eu-central-1] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.this["arn:aws:iam::aws:policy/AmazonEKS_CNI_Policy"]:
Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050686900000008] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.this["arn:aws:iam::aws:policy/AmazonEC2ContainerRegistry
ReadOnly"]: Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050636900000006] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.additional["AmazonEBSCSIDriverPolicy"]: Refreshing
state... [id=nodegroup-eks-node-group-20250613120049297600000001-
20250613120050787000000009] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.this["arn:aws:iam::aws:policy/AmazonEKSWorkerNodePolicy"
]: Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050643400000007] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_iam_role_policy_at
tachment.this["arn:aws:iam::aws:policy/AmazonEKS_CNI_Policy"]: Refreshing
state... [id=sg-fargate-profile-20250613120049297600000002-
20250613120050466000000004] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_iam_role_policy_at
tachment.this["arn:aws:iam::aws:policy/AmazonEKSFargatePodExecutionRolePol
icy"]: Refreshing state... [id=sg-fargate-profile-
20250613120049297600000002-20250613120050486600000005] [0m
 [0m [1mmodule.vpc.aws_default_security_group.this[0]: Refreshing state...
```

```
[id=sg-0af01004acdac2e83] [0m
 [0m [1mmodule.vpc.aws_default_route_table.default[0]: Refreshing state...
[id=rtb-09d21b8df50128d89] [0m
 [0m [1mmodule.vpc.aws_default_network_acl.this[0]: Refreshing state...
[id=acl-091fd52e7296af4d4] [0m
 [0m [1mmodule.vpc.aws_subnet.private[2]: Refreshing state... [id=subnet-
04d78a276a5d1de20] [0m
 [0m [1mmodule.vpc.aws_subnet.private[0]: Refreshing state... [id=subnet-
06341af8f80200ebb] [0m
 [0m [1mmodule.vpc.aws_subnet.private[1]: Refreshing state... [id=subnet-
0d032311ec0f425f3] [0m
 [0m [1mmodule.vpc.aws_route_table.private[0]: Refreshing state... [id=rtb-
0c9859564cfc946bc] [0m
 [0m [1mmodule.vpc.aws_internet_gateway.this[0]: Refreshing state...
[id=igw-015d0172dfa75ac88] [0m
 [0m [1mmodule.vpc.aws_subnet.public[1]: Refreshing state... [id=subnet-
0ecd018b60e48e4c1] [0m
 [0m [1mmodule.vpc.aws_subnet.public[0]: Refreshing state... [id=subnet-
015807c8aef8b5450] [0m
 [0m [1mmodule.vpc.aws_subnet.public[2]: Refreshing state... [id=subnet-
01eda53e42f63e5cd] [0m
 [0m [1mmodule.vpc.aws_route_table.public[0]: Refreshing state... [id=rtb-
0f62b083728231210] [0m
 [0m [1mmodule.eks.aws_iam_role_policy_attachment.this["AmazonEKSClusterPol
icy"]: Refreshing state... [id=cluster-sg-cluster-
2025061312004929950000000003-2025061312005091350000000a] [0m
 [0m [1mmodule.eks.aws_security_group.cluster[0]: Refreshing state...
[id=sg-061dfc8d603975811] [0m
 [0m [1mmodule.eks.aws_security_group.node[0]: Refreshing state... [id=sg-
07b8e1d172bb165c2] [0m
 [0m [1mmodule.eks.aws_iam_role_policy_attachment.this["AmazonEKSVPCResourc
eController"]: Refreshing state... [id=cluster-sg-cluster-
2025061312004929950000000003-2025061312005095670000000b] [0m
 [0m [1mmodule.vpc.aws_eip.nat[0]: Refreshing state... [id=eipalloc-
01c6a47c03daf5c3d] [0m
 [0m [1mmodule.vpc.aws_route_table_association.private[0]: Refreshing
state... [id=rtbassoc-0518714dbee89bbbb] [0m
 [0m [1mmodule.vpc.aws_route_table_association.private[2]: Refreshing
state... [id=rtbassoc-0d01df538bbf7e0f7] [0m
 [0m [1mmodule.vpc.aws_route_table_association.private[1]: Refreshing
state... [id=rtbassoc-00ead463eef21c563] [0m
 [0m [1mmodule.eks.module.kms.data.aws_iam_policy_document.this[0]:
Reading... [0m [0m
 [0m [1mmodule.eks.module.kms.data.aws_iam_policy_document.this[0]: Read
complete after 0s [id=3254987187] [0m
 [0m [1mmodule.vpc.aws_route.public_internet_gateway[0]: Refreshing
state... [id=r-rtb-0f62b0837282312101080289494] [0m
 [0m [1mmodule.vpc.aws_route_table_association.public[0]: Refreshing
state... [id=rtbassoc-03dc1fb38c161d900] [0m
 [0m [1mmodule.eks.module.kms.aws_kms_key.this[0]: Refreshing state...
[id=41a588e5-1790-4192-8a01-201e2eb3608b] [0m
 [0m [1mmodule.vpc.aws_route_table_association.public[2]: Refreshing
state... [id=rtbassoc-088b5463246b08dad] [0m
 [0m [1mmodule.vpc.aws_route_table_association.public[1]: Refreshing
```

```
state... [id=rtbassoc-08ae82c6d44d4aaa0] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_6443_webho
ok"]: Refreshing state... [id=sgrule-2833075349] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_443"]:
Refreshing state... [id=sgrule-485000510] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_nodes_ephemeral"]:
Refreshing state... [id=sgrule-3134631952] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_self_coredns_udp"]
: Refreshing state... [id=sgrule-3561765773] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_4443_webho
ok"]: Refreshing state... [id=sgrule-1637821187] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_self_coredns_tcp"]
: Refreshing state... [id=sgrule-1880332386] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_8443_webho
ok"]: Refreshing state... [id=sgrule-3145822388] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_kubelet"]:
Refreshing state... [id=sgrule-2172602283] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["egress_all"]: Refreshing
state... [id=sgrule-2331104781] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_9443_webho
ok"]: Refreshing state... [id=sgrule-3743433599] [0m
 [0m [1mmodule.eks.aws_security_group_rule.cluster["ingress_nodes_443"]:
Refreshing state... [id=sgrule-1191843991] [0m
 [0m [1mmodule.vpc.aws_nat_gateway.this[0]: Refreshing state... [id=nat-
04e5629f5b4e8c58c] [0m
 [0m [1mmodule.eks.module.kms.aws_kms_alias.this["cluster"]: Refreshing
state... [id=alias/eks/cluster-sg] [0m
 [0m [1mmodule.eks.aws_iam_policy.cluster_encryption[0]: Refreshing
state... [id=arn:aws:iam::524196012679:policy/cluster-sg-cluster-
ClusterEncryption20250613120111174000000011] [0m
 [0m [1mmodule.vpc.aws_route.private_nat_gateway[0]: Refreshing state...
[id=r-rtb-0c9859564cfc946bc1080289494] [0m
 [0m [1mmodule.eks.aws_eks_cluster.this[0]: Refreshing state...
[id=cluster-sg] [0m
 [0m [1mmodule.eks.aws_iam_role_policy_attachment.cluster_encryption[0]:
Refreshing state... [id=cluster-sg-cluster-20250613120049299500000003-
20250613120111770300000012] [0m
 [0m [1mmodule.eks.aws_ec2_tag.cluster_primary_security_group["environment"
]: Refreshing state... [id=sg-00eec42a6f54fe4fb,environment] [0m
 [0m [1mmodule.eks.data.tls_certificate.this[0]: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_eks_addon_version.this["aws-ebs-csi-driver"]:
Reading... [0m [0m
 [0m [1mdata.aws_eks_cluster.cluster: Reading... [0m [0m
 [0m [1mdata.aws_eks_cluster_auth.cluster: Reading... [0m [0m
 [0m [1mmodule.eks.time_sleep.this[0]: Refreshing state... [id=2025-06-
13T12:25:29Z] [0m
 [0m [1mdata.aws_eks_cluster_auth.cluster: Read complete after 0s
[id=cluster-sg] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_eks_fargate_profil
e.this[0]: Refreshing state... [id=cluster-sg:sg-fargate-profile] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_launch_te
mplate.this[0]: Refreshing state... [id=lt-04682095139f03b4e] [0m
 [0m [1mdata.aws_eks_cluster.cluster: Read complete after 0s [id=cluster-
sg] [0m
```

```
 [0m [1mmodule.eks.data.tls_certificate.this[0]: Read complete after 0s
[id=efc5619605e4300447be4c860675ff76c35033c7] [0m
 [0m [1mmodule.eks.data.aws_eks_addon_version.this["aws-ebs-csi-driver"]:
Read complete after 0s [id=aws-ebs-csi-driver] [0m
 [0m [1mmodule.eks.aws_iam_openid_connect_provider.oidc_provider[0]:
Refreshing state... [id=arn:aws:iam::524196012679:oidc-
provider/oidc.eks.eu-central-
1.amazonaws.com/id/5B42FDAF9695D7E2B9A0EA3128866AB9] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_
group.this[0]: Refreshing state... [id=cluster-sg:nodegroup-
20250613122535165000000004] [0m
 [0m [1mmodule.eks.aws_eks_addon.this["aws-ebs-csi-driver"]: Refreshing
state... [id=cluster-sg:aws-ebs-csi-driver] [0m


 [0m [1m [32mNo changes. [0m [1m Your infrastructure matches the
configuration. [0m

 [0mTerraform has compared your real infrastructure against your
configuration
and found no differences, so no changes are needed.
 [33m⌐ [0m [0m
 [33m│ [0m  [0m [1m [33mWarning:  [0m [0m [1mResource targeting is in
effect [0m
 [33m│ [0m  [0m
 [33m│ [0m  [0m [0mYou are creating a plan with the -target option, which
means that the
 [33m│ [0m  [0mresult of this plan may not represent all of the changes
requested by the
 [33m│ [0m  [0mcurrent configuration.
 [33m│ [0m  [0m
 [33m│ [0m  [0mThe -target option is not for routine use, and is provided
only for
 [33m│ [0m  [0mexceptional situations such as recovering from errors or
mistakes, or when
 [33m│ [0m  [0mTerraform specifically suggests to use it as part of an error
message.
 [33m⌐ [0m [0m
 [33m⌐ [0m [0m
 [33m│ [0m  [0m [1m [33mWarning:  [0m [0m [1mApplied changes may be
incomplete [0m
 [33m│ [0m  [0m
 [33m│ [0m  [0m [0mThe plan was created with the -target option in effect,
so some changes
 [33m│ [0m  [0mrequested in the configuration may have been ignored and the
output values
 [33m│ [0m  [0mmay not be fully updated. Run the following command to verify
that no other
 [33m│ [0m  [0mchanges are pending:
 [33m│ [0m  [0m     terraform plan
 [33m│ [0m  [0m
 [33m│ [0m  [0mNote that the -target option is not suitable for routine use,
and is
 [33m│ [0m  [0mprovided only for exceptional situations such as recovering
from errors or
```

```
[33m│ [0m  [0mmistakes, or when Terraform specifically suggests to use it
as part of an
[33m│ [0m  [0merror message.
[33m│ [0m [0m
[33m│ [0m [0m
[33m│ [0m  [0m [1m [33mWarning:  [0m [0m [1mArgument is deprecated [0m
[33m│ [0m  [0m
[33m│ [0m  [0m [0m  with module.eks.aws_iam_role.this[0],
[33m│ [0m  [0m  on .terraform/modules/eks/main.tf line 292, in resource
"aws_iam_role" "this":
[33m│ [0m  [0m 292: resource "aws_iam_role" "this"  [4m{ [0m [0m
[33m│ [0m  [0m
[33m│ [0m  [0minline_policy is deprecated. Use the aws_iam_role_policy
resource instead.
[33m│ [0m  [0mIf Terraform should exclusively manage all inline policy
associations (the
[33m│ [0m  [0mcurrent behavior of this argument), use the
aws_iam_role_policies_exclusive
[33m│ [0m  [0mresource as well.
[33m│ [0m  [0m
[33m│ [0m  [0m(and one more similar warning elsewhere)
[33m│ [0m [0m
 [0m [1m [32m
Apply complete! Resources: 0 added, 0 changed, 0 destroyed.
 [0m [0m [1m [32m
Outputs:

 [0mcluster_endpoint = "https://5B42FDAF9695D7E2B9A0EA3128866AB9.sk1.eu-
central-1.eks.amazonaws.com"
cluster_name = "cluster-sg"
cluster_security_group_id = "sg-061dfc8d603975811"
config_map_aws_auth = <<EOT
apiVersion: v1
kind: ConfigMap
metadata:
  name: aws-auth
  namespace: kube-system
data:
  mapRoles: |
    - rolearn: arn:aws:iam::524196012679:role/nodegroup-eks-node-group-
20250613120049297600000001
      username: system:node:{{EC2PrivateDNSName}}
      groups:
        - system:bootstrappers
        - system:nodes
    - rolearn: arn:aws:iam::524196012679:role/sg-fargate-profile-
20250613120049297600000002
      username: system:node:{{SessionName}}
      groups:
        - system:bootstrappers
        - system:nodes
        - system:node-proxier

EOT
```

```
kubectl_config = <<EOT
apiVersion: v1
kind: ConfigMap
metadata:
  name: aws-auth
  namespace: kube-system
data:
  mapRoles: |
    - rolearn: arn:aws:iam::524196012679:role/nodegroup-eks-node-group-
20250613120049297600000001
        username: system:node:{{EC2PrivateDNSName}}
        groups:
          - system:bootstrappers
          - system:nodes
    - rolearn: arn:aws:iam::524196012679:role/sg-fargate-profile-
20250613120049297600000002
        username: system:node:{{SessionName}}
        groups:
          - system:bootstrappers
          - system:nodes
          - system:node-proxier

EOT
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Wait for EKS Cluster)
[Pipeline] echo
⏳ Warte auf EKS Cluster Status ACTIVE
[Pipeline] sh
+ export PATH=/usr/bin:/bin:/usr/sbin:/sbin:/usr/local/bin
+ PATH=/usr/bin:/bin:/usr/sbin:/sbin:/usr/local/bin
+ aws eks wait cluster-active --name cluster-sg --region eu-central-1
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Read Terraform Outputs)
[Pipeline] script
[Pipeline] {
[Pipeline] echo
📦 Lese Terraform Outputs
[Pipeline] sh
+ /usr/local/bin/terraform output -raw cluster_endpoint
[Pipeline] echo
✅ Cluster Endpoint: https://5B42FDAF9695D7E2B9A0EA3128866AB9.sk1.eu-
central-1.eks.amazonaws.com
[Pipeline] }
[Pipeline] // script
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Configure kubectl)
[Pipeline] echo
🔧 Konfiguriere Kubeconfig
```

```
[Pipeline] sh
+ export PATH=/usr/bin:/bin:/usr/sbin:/sbin:/usr/local/bin
+ PATH=/usr/bin:/bin:/usr/sbin:/sbin:/usr/local/bin
+ export KUBECONFIG=/var/root/.kube/config
+ KUBECONFIG=/var/root/.kube/config
+ aws eks update-kubeconfig --name cluster-sg --region eu-central-1 --
kubeconfig /var/root/.kube/config
Updated context arn:aws:eks:eu-central-1:524196012679:cluster/cluster-sg
in /var/root/.kube/config
+ /usr/local/bin/kubectl --kubeconfig=/var/root/.kube/config get nodes
NAME                                        STATUS   ROLES    AGE
VERSION
ip-10-0-1-98.eu-central-1.compute.internal    Ready    <none>   75m
v1.28.15-eks-473151a
ip-10-0-2-145.eu-central-1.compute.internal   Ready    <none>   75m
v1.28.15-eks-473151a
ip-10-0-3-110.eu-central-1.compute.internal   Ready    <none>   75m
v1.28.15-eks-473151a
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Apply Helm/MySQL)
[Pipeline] echo
🚀 Helm/MySQL installieren
[Pipeline] sh
+ /usr/local/bin/terraform apply -auto-approve
 [0m [1mrandom_string.suffix: Refreshing state... [id=wcdZdqlj] [0m
 [0m [1mdata.aws_availability_zones.available: Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_partition.cur
rent: Reading... [0m [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_part
ition.current: Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_partition.cur
rent: Read complete after 0s [id=aws] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_part
ition.current: Read complete after 0s [id=aws] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_call
er_identity.current: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_partition.current: Reading... [0m [0m
 [0m [1mmodule.eks.aws_cloudwatch_log_group.this[0]: Refreshing state...
[id=/aws/eks/cluster-sg/cluster] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_caller_identi
ty.current: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_caller_identity.current: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_partition.current: Read complete after 0s
[id=aws] [0m
 [0m [1mmodule.vpc.aws_vpc.this[0]: Refreshing state... [id=vpc-
0990fd42b5c05b8d2] [0m
 [0m [1mmodule.eks.module.kms.data.aws_partition.current[0]:
Reading... [0m [0m
 [0m [1mmodule.eks.module.kms.data.aws_caller_identity.current[0]:
Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_iam_policy_do
cument.assume_role_policy[0]: Reading... [0m [0m
```

```
[0m [1mmodule.eks.module.kms.data.aws_partition.current[0]: Read complete
after 0s [id=aws] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_iam_
policy_document.assume_role_policy[0]: Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_iam_policy_do
cument.assume_role_policy[0]: Read complete after 0s [id=3016102342] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_iam_
policy_document.assume_role_policy[0]: Read complete after 0s
[id=2560088296] [0m
 [0m [1mmodule.eks.data.aws_iam_policy_document.assume_role_policy[0]:
Reading... [0m [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_iam_role.this[0]:
Refreshing state... [id=sg-fargate-profile-20250613120049297600000002] [0m
 [0m [1mmodule.eks.data.aws_iam_policy_document.assume_role_policy[0]: Read
complete after 0s [id=2764486067] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role.
this[0]: Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001] [0m
 [0m [1mmodule.eks.aws_iam_role.this[0]: Refreshing state... [id=cluster-
sg-cluster-20250613120049299500000003] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].data.aws_call
er_identity.current: Read complete after 0s [id=524196012679] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].data.aws_caller_identi
ty.current: Read complete after 0s [id=524196012679] [0m
 [0m [1mmodule.eks.data.aws_caller_identity.current: Read complete after 0s
[id=524196012679] [0m
 [0m [1mmodule.eks.data.aws_iam_session_context.current: Reading... [0m [0m
 [0m [1mmodule.eks.data.aws_iam_session_context.current: Read complete
after 0s [id=arn:aws:iam::524196012679:user/admin] [0m
 [0m [1mmodule.eks.module.kms.data.aws_caller_identity.current[0]: Read
complete after 0s [id=524196012679] [0m
 [0m [1mdata.aws_availability_zones.available: Read complete after 0s
[id=eu-central-1] [0m
 [0m [1mmodule.vpc.aws_default_route_table.default[0]: Refreshing state...
[id=rtb-09d21b8df50128d89] [0m
 [0m [1mmodule.vpc.aws_default_security_group.this[0]: Refreshing state...
[id=sg-0af01004acdac2e83] [0m
 [0m [1mmodule.eks.aws_security_group.cluster[0]: Refreshing state...
[id=sg-061dfc8d603975811] [0m
 [0m [1mmodule.vpc.aws_internet_gateway.this[0]: Refreshing state...
[id=igw-015d0172dfa75ac88] [0m
 [0m [1mmodule.vpc.aws_default_network_acl.this[0]: Refreshing state...
[id=acl-091fd52e7296af4d4] [0m
 [0m [1mmodule.vpc.aws_route_table.public[0]: Refreshing state... [id=rtb-
0f62b083728231210] [0m
 [0m [1mmodule.eks.aws_security_group.node[0]: Refreshing state... [id=sg-
07b8e1d172bb165c2] [0m
 [0m [1mmodule.vpc.aws_subnet.private[1]: Refreshing state... [id=subnet-
0d032311ec0f425f3] [0m
 [0m [1mmodule.vpc.aws_subnet.private[0]: Refreshing state... [id=subnet-
06341af8f80200ebb] [0m
 [0m [1mmodule.vpc.aws_route_table.private[0]: Refreshing state... [id=rtb-
0c9859564cfc946bc] [0m
 [0m [1mmodule.vpc.aws_subnet.private[2]: Refreshing state... [id=subnet-
```

```
04d78a276a5d1de20] [0m
 [0m [1mmodule.vpc.aws_subnet.public[2]: Refreshing state... [id=subnet-
01eda53e42f63e5cd] [0m
 [0m [1mmodule.vpc.aws_subnet.public[0]: Refreshing state... [id=subnet-
015807c8aef8b5450] [0m
 [0m [1mmodule.vpc.aws_subnet.public[1]: Refreshing state... [id=subnet-
0ecd018b60e48e4c1] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.additional["AmazonEBSCSIDriverPolicy"]: Refreshing
state... [id=nodegroup-eks-node-group-20250613120049297600000001-
20250613120050787000000009] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.this["arn:aws:iam::aws:policy/AmazonEKS_CNI_Policy"]:
Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050686900000008] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.this["arn:aws:iam::aws:policy/AmazonEKSWorkerNodePolicy"
]: Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050643400000007] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_iam_role_
policy_attachment.this["arn:aws:iam::aws:policy/AmazonEC2ContainerRegistry
ReadOnly"]: Refreshing state... [id=nodegroup-eks-node-group-
20250613120049297600000001-20250613120050636900000006] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_iam_role_policy_at
tachment.this["arn:aws:iam::aws:policy/AmazonEKSFargatePodExecutionRolePol
icy"]: Refreshing state... [id=sg-fargate-profile-
20250613120049297600000002-20250613120050486600000005] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_iam_role_policy_at
tachment.this["arn:aws:iam::aws:policy/AmazonEKS_CNI_Policy"]: Refreshing
state... [id=sg-fargate-profile-20250613120049297600000002-
20250613120050466000000004] [0m
 [0m [1mmodule.vpc.aws_eip.nat[0]: Refreshing state... [id=eipalloc-
01c6a47c03daf5c3d] [0m
 [0m [1mmodule.vpc.aws_route.public_internet_gateway[0]: Refreshing
state... [id=r-rtb-0f62b083728231210108 0289494] [0m
 [0m [1mmodule.eks.aws_iam_role_policy_attachment.this["AmazonEKSClusterPol
icy"]: Refreshing state... [id=cluster-sg-cluster-
20250613120049299500000003-20250613120050913500000 0a] [0m
 [0m [1mmodule.eks.aws_iam_role_policy_attachment.this["AmazonEKSVPCResourc
eController"]: Refreshing state... [id=cluster-sg-cluster-
20250613120049299500000003-20250613120050956700000 0b] [0m
 [0m [1mmodule.vpc.aws_route_table_association.private[0]: Refreshing
state... [id=rtbassoc-0518714dbee89bbbb] [0m
 [0m [1mmodule.vpc.aws_route_table_association.private[1]: Refreshing
state... [id=rtbassoc-00ead463eef21c563] [0m
 [0m [1mmodule.vpc.aws_route_table_association.private[2]: Refreshing
state... [id=rtbassoc-0d01df538bbf7e0f7] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_4443_webho
ok"]: Refreshing state... [id=sgrule-1637821187] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_9443_webho
ok"]: Refreshing state... [id=sgrule-3743433599] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_6443_webho
ok"]: Refreshing state... [id=sgrule-2833075349] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_443"]:
```

```
Refreshing state... [id=sgrule-485000510] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_8443_webho
ok"]: Refreshing state... [id=sgrule-3145822388] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_self_coredns_tcp"]
: Refreshing state... [id=sgrule-1880332386] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["egress_all"]: Refreshing
state... [id=sgrule-2331104781] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_self_coredns_udp"]
: Refreshing state... [id=sgrule-3561765773] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_nodes_ephemeral"]:
Refreshing state... [id=sgrule-3134631952] [0m
 [0m [1mmodule.eks.aws_security_group_rule.node["ingress_cluster_kubelet"]:
Refreshing state... [id=sgrule-2172602283] [0m
 [0m [1mmodule.vpc.aws_route_table_association.public[0]: Refreshing
state... [id=rtbassoc-03dc1fb38c161d900] [0m
 [0m [1mmodule.vpc.aws_route_table_association.public[1]: Refreshing
state... [id=rtbassoc-08ae82c6d44d4aaa0] [0m
 [0m [1mmodule.vpc.aws_route_table_association.public[2]: Refreshing
state... [id=rtbassoc-088b5463246b08dad] [0m
 [0m [1mmodule.eks.aws_security_group_rule.cluster["ingress_nodes_443"]:
Refreshing state... [id=sgrule-1191843991] [0m
 [0m [1mmodule.vpc.aws_nat_gateway.this[0]: Refreshing state... [id=nat-
04e5629f5b4e8c58c] [0m
 [0m [1mmodule.eks.module.kms.data.aws_iam_policy_document.this[0]:
Reading... [0m [0m
 [0m [1mmodule.eks.module.kms.data.aws_iam_policy_document.this[0]: Read
complete after 0s [id=3254987187] [0m
 [0m [1mmodule.eks.module.kms.aws_kms_key.this[0]: Refreshing state...
[id=41a588e5-1790-4192-8a01-201e2eb3608b] [0m
 [0m [1mmodule.vpc.aws_route.private_nat_gateway[0]: Refreshing state...
[id=r-rtb-0c9859564cfc946bc1080289494] [0m
 [0m [1mmodule.eks.module.kms.aws_kms_alias.this["cluster"]: Refreshing
state... [id=alias/eks/cluster-sg] [0m
 [0m [1mmodule.eks.aws_iam_policy.cluster_encryption[0]: Refreshing
state... [id=arn:aws:iam::524196012679:policy/cluster-sg-cluster-
ClusterEncryption20250613120111174000000011] [0m
 [0m [1mmodule.eks.aws_eks_cluster.this[0]: Refreshing state...
[id=cluster-sg] [0m
 [0m [1mmodule.eks.data.aws_eks_addon_version.this["aws-ebs-csi-driver"]:
Reading... [0m [0m
 [0m [1mmodule.eks.time_sleep.this[0]: Refreshing state... [id=2025-06-
13T12:25:29Z] [0m
 [0m [1mmodule.eks.data.tls_certificate.this[0]: Reading... [0m [0m
 [0m [1mmodule.eks.aws_ec2_tag.cluster_primary_security_group["environment"
]: Refreshing state... [id=sg-00eec42a6f54fe4fb,environment] [0m
 [0m [1mdata.aws_eks_cluster_auth.cluster: Reading... [0m [0m
 [0m [1mdata.aws_eks_cluster.cluster: Reading... [0m [0m
 [0m [1mdata.aws_eks_cluster_auth.cluster: Read complete after 0s
[id=cluster-sg] [0m
 [0m [1mmodule.eks.module.fargate_profile["profile"].aws_eks_fargate_profil
e.this[0]: Refreshing state... [id=cluster-sg:sg-fargate-profile] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_launch_te
mplate.this[0]: Refreshing state... [id=lt-04682095139f03b4e] [0m
 [0m [1mmodule.eks.aws_iam_role_policy_attachment.cluster_encryption[0]:
```

```
Refreshing state... [id=cluster-sg-cluster-20250613120049299500000003-
20250613120111770300000012] [0m
 [0m [1mmodule.eks.data.tls_certificate.this[0]: Read complete after 0s
[id=efc5619605e4300447be4c860675ff76c35033c7] [0m
 [0m [1mmodule.eks.aws_iam_openid_connect_provider.oidc_provider[0]:
Refreshing state... [id=arn:aws:iam::524196012679:oidc-
provider/oidc.eks.eu-central-
1.amazonaws.com/id/5B42FDAF9695D7E2B9A0EA3128866AB9] [0m
 [0m [1mdata.aws_eks_cluster.cluster: Read complete after 0s [id=cluster-
sg] [0m
 [0m [1mmodule.eks.data.aws_eks_addon_version.this["aws-ebs-csi-driver"]:
Read complete after 0s [id=aws-ebs-csi-driver] [0m
 [0m [1mmodule.eks.module.eks_managed_node_group["nodegroup"].aws_eks_node_
group.this[0]: Refreshing state... [id=cluster-sg:nodegroup-
20250613122535165000000004] [0m
 [0m [1mmodule.eks.aws_eks_addon.this["aws-ebs-csi-driver"]: Refreshing
state... [id=cluster-sg:aws-ebs-csi-driver] [0m


Terraform used the selected providers to generate the following execution
plan. Resource actions are indicated with the following symbols:
   [32m+ [0m create [0m


Terraform will perform the following actions:

 [1m  # helm_release.mysql [0m will be created
 [0m   [32m+ [0m [0m resource "helm_release" "mysql" {
      [32m+ [0m [0m atomic                     = false
      [32m+ [0m [0m chart                      = "mysql"
      [32m+ [0m [0m cleanup_on_fail            = false
      [32m+ [0m [0m create_namespace           = false
      [32m+ [0m [0m dependency_update          = false
      [32m+ [0m [0m disable_crd_hooks          = false
      [32m+ [0m [0m disable_openapi_validation = false
      [32m+ [0m [0m disable_webhooks           = false
      [32m+ [0m [0m force_update               = false
      [32m+ [0m [0m id                         = (known after apply)
      [32m+ [0m [0m lint                       = false
      [32m+ [0m [0m manifest                   = (known after apply)
      [32m+ [0m [0m max_history                = 0
      [32m+ [0m [0m metadata                   = (known after apply)
      [32m+ [0m [0m name                       = "my-release"
      [32m+ [0m [0m namespace                  = "default"
      [32m+ [0m [0m pass_credentials           = false
      [32m+ [0m [0m recreate_pods              = false
      [32m+ [0m [0m render_subchart_notes      = true
      [32m+ [0m [0m replace                    = false
      [32m+ [0m [0m repository                 =
"https://charts.bitnami.com/bitnami"
      [32m+ [0m [0m reset_values               = false
      [32m+ [0m [0m reuse_values               = false
      [32m+ [0m [0m skip_crds                  = false
      [32m+ [0m [0m status                     = "deployed"
      [32m+ [0m [0m timeout                    = 1000
      [32m+ [0m [0m values                     = [
```

```
              [32m+ [0m [0m <<-EOT
                  architecture: replication
                  auth:
                    rootPassword: secret-root-pass
                    database: my-app-db
                    username: my-user
                    password: my-pass

                  # enable init container that changes the owner and group
of the persistent volume mountpoint to runAsUser:fsGroup
                  volumePermissions:
                    enabled: true

                  secondary:
                    # 1 primary and 2 secondary replicas
                    replicaCount: 2
                    persistence:
                      accessModes: ["ReadWriteOnce"]
                      # storage class for EKS volumes
                      storageClass: gp2
              EOT,
          ]
        [32m+ [0m [0m verify                        = false
        [32m+ [0m [0m version                       = "9.14.0"
        [32m+ [0m [0m wait                          = true
        [32m+ [0m [0m wait_for_jobs                 = false

        [32m+ [0m [0m set {
            [32m+ [0m [0m name  = "volumePermissions.enabled"
            [32m+ [0m [0m value = "true"
          }
      }
    }

  [1mPlan: [0m 1 to add, 0 to change, 0 to destroy.
  [0m [0m [1mhelm_release.mysql: Creating... [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [10s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [20s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [30s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [40s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [50s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [1m0s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [1m10s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [1m20s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [1m30s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [1m40s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [1m50s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [2m0s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [2m10s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [2m20s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Still creating... [2m30s elapsed] [0m [0m
  [0m [1mhelm_release.mysql: Creation complete after 2m34s [id=my-
  release] [0m
  [33m  [0m [0m
  [33m  [0m  [0m [1m [33mWarning:  [0m [0m [1mArgument is deprecated [0m
```

```
 [33m| [0m  [0m
 [33m| [0m  [0m [0m  with module.eks.aws_iam_role.this[0],
 [33m| [0m  [0m  on .terraform/modules/eks/main.tf line 292, in resource
"aws_iam_role" "this":
 [33m| [0m  [0m 292: resource "aws_iam_role" "this"  [4m{ [0m [0m
 [33m| [0m  [0m
 [33m| [0m  [0minline_policy is deprecated. Use the aws_iam_role_policy
resource instead.
 [33m| [0m  [0mIf Terraform should exclusively manage all inline policy
associations (the
 [33m| [0m  [0mcurrent behavior of this argument), use the
aws_iam_role_policies_exclusive
 [33m| [0m  [0mresource as well.
 [33m| [0m  [0m
 [33m| [0m  [0m(and one more similar warning elsewhere)
 [33m| [0m [0m
 [0m [1m [32m
Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
 [0m [0m [1m [32m
Outputs:

 [0mcluster_endpoint = "https://5B42FDAF9695D7E2B9A0EA3128866AB9.sk1.eu-
central-1.eks.amazonaws.com"
cluster_name = "cluster-sg"
cluster_security_group_id = "sg-061dfc8d603975811"
config_map_aws_auth = <<EOT
apiVersion: v1
kind: ConfigMap
metadata:
  name: aws-auth
  namespace: kube-system
data:
  mapRoles: |
    - rolearn: arn:aws:iam::524196012679:role/nodegroup-eks-node-group-
20250613120049297600000001
      username: system:node:{{EC2PrivateDNSName}}
      groups:
        - system:bootstrappers
        - system:nodes
    - rolearn: arn:aws:iam::524196012679:role/sg-fargate-profile-
20250613120049297600000002
      username: system:node:{{SessionName}}
      groups:
        - system:bootstrappers
        - system:nodes
        - system:node-proxier

EOT
kubectl_config = <<EOT
apiVersion: v1
kind: ConfigMap
metadata:
  name: aws-auth
  namespace: kube-system
```

```
data:
  mapRoles: |
    - rolearn: arn:aws:iam::524196012679:role/nodegroup-eks-node-group-
20250613120049297600000001
      username: system:node:{{EC2PrivateDNSName}}
      groups:
        - system:bootstrappers
        - system:nodes
    - rolearn: arn:aws:iam::524196012679:role/sg-fargate-profile-
20250613120049297600000002
      username: system:node:{{SessionName}}
      groups:
        - system:bootstrappers
        - system:nodes
        - system:node-proxier

EOT
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Declarative: Post Actions)
[Pipeline] sh
+ /usr/local/bin/terraform state pull
[Pipeline] archiveArtifacts
Archiving artifacts
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withCredentials
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```