

EXPLORE

DEVOPS-CHALLENGE

Minikube

all-resources.yaml

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Screenshots.pdf

Terraform

terraform

terraform.lock.hcl

backend.tf

data.tf

main.tf

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PROBLEMS

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For more help on using this command, run:
terraform apply -help

MacBook-Pro:terraform zolatech\$ terraform apply -lock=false --auto-approve

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

Terraform will perform the following actions:

aws_instance.example will be created
+ resource "aws_instance" "example" {
+ ami = "ami-085ad6ae776d8f09c"
+ arn = (known after apply)
+ associate_public_ip_address = (known after apply)
+ availability_zone = (known after apply)
+ cpu_core_count = (known after apply)
+ cpu_threads_per_core = (known after apply)
+ disable_api_stop = (known after apply)
+ disable_api_termination = (known after apply)
+ ebs_optimized = (known after apply)
+ enable_primary_ipv6 = (known after apply)
+ get_password_data = false
+ host_id = (known after apply)
+ host_resource_group_arn = (known after apply)
+ iam_instance_profile = (known after apply)
+ id = (known after apply)
+ instance_initiated_shutdown_behavior = (known after apply)
+ instance_lifecycle = (known after apply)
+ instance_state = (known after apply)
+ instance_type = "t2.micro"
+ ipv6_address_count = (known after apply)
+ ipv6_addresses = (known after apply)
+ key_name = (known after apply)
+ monitoring = (known after apply)
+ outpost_arn = (known after apply)
+ password_data = (known after apply)
+ placement_group = (known after apply)
+ placement_partition_number = (known after apply)
+ primary_network_interface_id = (known after apply)
+ private_dns = (known after apply)
+ private_ip = (known after apply)
+ public_dns = (known after apply)
+ public_ip = (known after apply)
+ secondary_private_ips = (known after apply)
+ security_groups = (known after apply)
+ source_dest_check = true
+ spot_instance_request_id = (known after apply)
+ subnet_id = (known after apply)
+ tags = {
+ "Name" = "ExampleInstance"
}
+ tags_all = {
+ "Name" = "ExampleInstance"
}
+ tenancy = (known after apply)

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```
+ tenancy = (known after apply)
+ user_data = (known after apply)
+ user_data_base64 = (known after apply)
+ user_data_replace_on_change = false
+ vpc_security_group_ids = (known after apply)
}

# aws_internet_gateway.example_igw will be created
+ resource "aws_internet_gateway" "example_igw" {
+   arn = (known after apply)
+   id = (known after apply)
+   owner_id = (known after apply)
+   tags = {
+     "Name" = "ExampleIGW"
+   }
+   tags_all = {
+     "Name" = "ExampleIGW"
+   }
+   vpc_id = (known after apply)
+ }

# aws_route_table.example_route_table will be created
+ resource "aws_route_table" "example_route_table" {
+   arn = (known after apply)
+   id = (known after apply)
+   owner_id = (known after apply)
+   propagating_vgws = (known after apply)
+   route = [
+     {
+       carrier_gateway_id = ""
+       cidr_block = "0.0.0.0/0"
+       core_network_arn = ""
+       destination_prefix_list_id = ""
+       egress_only_gateway_id = ""
+       gateway_id = (known after apply)
+       ipv6_cidr_block = ""
+       local_gateway_id = ""
+       nat_gateway_id = ""
+       network_interface_id = ""
+       transit_gateway_id = ""
+       vpc_endpoint_id = ""
+       vpc_peering_connection_id = ""
+     },
+   ]
+   tags = {
+     "Name" = "ExampleRouteTable"
+   }
+   tags_all = {
+     "Name" = "ExampleRouteTable"
+   }
+   vpc_id = (known after apply)
+ }

# aws_route_table_association.example_association will be created
+ resource "aws_route_table_association" "example_association" {
+   id = (known after apply)
+ }
```

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Terraform

> .terraform

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aws

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```
+ route_table_id = (known after apply)
+ subnet_id      = (known after apply)
}

# aws_security_group.example_sg will be created
+ resource "aws_security_group" "example_sg" {
+   arn                = (known after apply)
+   description        = "Managed by Terraform"
+   egress              = [
+     {
+       + cidr_blocks = [
+         + "0.0.0.0/0",
+       ]
+       + description = ""
+       + from_port   = 0
+       + ipv6_cidr_blocks = []
+       + prefix_list_ids = []
+       + protocol     = "-1"
+       + security_groups = []
+       + self          = false
+       + to_port       = 0
+     },
+   ]
+   id                = (known after apply)
+   ingress            = [
+     {
+       + cidr_blocks = [
+         + "0.0.0.0/0",
+       ]
+       + description = ""
+       + from_port   = 22
+       + ipv6_cidr_blocks = []
+       + prefix_list_ids = []
+       + protocol     = "tcp"
+       + security_groups = []
+       + self          = false
+       + to_port       = 22
+     },
+     {
+       + cidr_blocks = [
+         + "0.0.0.0/0",
+       ]
+       + description = ""
+       + from_port   = 80
+       + ipv6_cidr_blocks = []
+       + prefix_list_ids = []
+       + protocol     = "tcp"
+       + security_groups = []
+       + self          = false
+       + to_port       = 80
+     },
+   ]
+   name                = (known after apply)
+   name_prefix          = (known after apply)
+   owner_id             = (known after apply)
+   revoke_rules_on_delete = false
```

Go

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```
+ revoke_rules_on_delete = false
+ tags                    = {
  + "Name" = "ExampleSecurityGroup"
}
+ tags_all                = {
  + "Name" = "ExampleSecurityGroup"
}
+ vpc_id                  = (known after apply)
}

# aws_subnet.example_subnet will be created
+ resource "aws_subnet" "example_subnet" {
  + arn                                = (known after apply)
  + assign_ipv6_address_on_creation   = false
  + availability_zone                 = "us-east-1a"
  + availability_zone_id              = (known after apply)
  + cidr_block                        = "10.0.1.0/24"
  + enable_dns64                      = false
  + enable_resource_name_dns_a_record_on_launch = false
  + enable_resource_name_dns_aaaa_record_on_launch = false
  + id                                = (known after apply)
  + ipv6_cidr_block_association_id    = (known after apply)
  + ipv6_native                       = false
  + map_public_ip_on_launch           = true
  + owner_id                          = (known after apply)
  + private_dns_hostname_type_on_launch = (known after apply)
  + tags                              = {
    + "Name" = "ExampleSubnet"
  }
  + tags_all                          = {
    + "Name" = "ExampleSubnet"
  }
  + vpc_id                            = (known after apply)
}

# aws_vpc.example_vpc will be created
+ resource "aws_vpc" "example_vpc" {
  + arn                                = (known after apply)
  + cidr_block                        = "10.0.0.0/16"
  + default_network_acl_id            = (known after apply)
  + default_route_table_id            = (known after apply)
  + default_security_group_id         = (known after apply)
  + dhcp_options_id                   = (known after apply)
  + enable_dns_hostnames              = true
  + enable_dns_support                = true
  + enable_network_address_usage_metrics = (known after apply)
  + id                                = (known after apply)
  + instance_tenancy                  = "default"
  + ipv6_association_id               = (known after apply)
  + ipv6_cidr_block                   = (known after apply)
  + ipv6_cidr_block_network_border_group = (known after apply)
  + main_route_table_id               = (known after apply)
  + owner_id                          = (known after apply)
  + tags                              = {
    + "Name" = "ExampleVPC"
  }
}
```

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```
+ owner_id = (known after apply)
+ tags = {
+   "Name" = "ExampleVPC"
+ }
+ tags_all = {
+   "Name" = "ExampleVPC"
+ }
}
```

Plan: 7 to add, 0 to change, 0 to destroy.

Changes to Outputs:

```
+ instance_id = (known after apply)
+ instance_public_ip = (known after apply)
+ subnet_id = (known after apply)
+ vpc_id = (known after apply)
```

aws_vpc.example_vpc: Creating...
aws_vpc.example_vpc: Still creating... [10s elapsed]
aws_vpc.example_vpc: Creation complete after 13s [id=vpc-0708f360703416f47]
aws_internet_gateway.example_igw: Creating...
aws_subnet.example_subnet: Creating...
aws_security_group.example_sg: Creating...
aws_internet_gateway.example_igw: Creation complete after 1s [id=igw-06dd9b069b2a07c0c]
aws_route_table.example_route_table: Creating...
aws_route_table.example_route_table: Creation complete after 1s [id=rtb-042428f0f45a564da]
aws_security_group.example_sg: Creation complete after 4s [id=sg-0dd577be91a70e066]
aws_subnet.example_subnet: Still creating... [10s elapsed]
aws_subnet.example_subnet: Creation complete after 12s [id=subnet-081261477a7e92aaa]
aws_route_table_association.example_association: Creating...
aws_instance.example: Creating...
aws_route_table_association.example_association: Creation complete after 0s [id=rtbassoc-02682ff7635f02ee2]
aws_instance.example: Still creating... [10s elapsed]
aws_instance.example: Creation complete after 13s [id=i-0c19ed936cb866cfd]

Apply complete! Resources: 7 added, 0 changed, 0 destroyed.

Outputs:

```
instance_id = "i-0c19ed936cb866cfd"
instance_public_ip = "3.83.252.171"
subnet_id = "subnet-081261477a7e92aaa"
vpc_id = "vpc-0708f360703416f47"
```

MacBook-Pro:terraform zolatech\$
MacBook-Pro:terraform zolatech\$

AWS

Containers

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:

Dashboard

EC2 Global View

Events

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

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

Auto Scaling

Auto Scaling Groups

Settings

Instances (1)

Find instance by attribute or tag (case-sensitive)

All states

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4	Elastic IP	IPv6 IPs	Monitoring	Security group name	Key name
<input type="checkbox"/>	ExampleInstance	i-0c19ed936cb866cfd	Running	t2.micro	3/2 checks passed	View alarms	us-east-1a	ec2-3-83-252-171.com...	3.83.252.171	--	--	disabled	terraform-2025021000...	--

Select an instance

```
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-10-0-1-240 ~]$ sudo su
[root@ip-10-0-1-240 ec2-user]# touch example.txt
[root@ip-10-0-1-240 ec2-user]# nano example.txt
[root@ip-10-0-1-240 ec2-user]# cat example.txt
This instance is created using terraform as IaC.
[root@ip-10-0-1-240 ec2-user]#
```

i-0c19ed936cb866cfd (ExampleInstance)

PublicIPs: 3.83.252.171 PrivateIPs: 10.0.1.240

Dashboard

EC2 Global View

Events

Instances

- Instances
- Instance Types
- Launch Templates
- Spot Requests
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- Reserved Instances
- Dedicated Hosts
- Capacity Reservations

Images

- AMIs
- AMI Catalog

Elastic Block Store

- Volumes
- Snapshots
- Lifecycle Manager

Network & Security

Instances (1/1) Info

Last updated 4 minutes ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	
<input checked="" type="checkbox"/>	ExampleInstance	i-0c19ed936cb866cfd	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	

i-0c19ed936cb866cfd (ExampleInstance)

Details

Status and alarms

Monitoring

Security

Networking

Storage

Tags

Instance summary

Instance ID

i-0c19ed936cb866cfd

Public IPv4 address

3.83.252.171 | open address

Private IPv4 addresses

10.0.1.240

IPv6 address

-

Instance state

Running

Public IPv4 DNS

ec2-3-83-252-171.compute-1.amazonaws.com | open address

EC2 > Security Groups > sg-0dd577be91a70e066 - terraform-20250210004612274000000001

Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

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Network & Security

CloudShell

Feedback

sg-0dd577be91a70e066 - terraform-20250210004612274000000001

Details

Security group name

terraform-

20250210004612274000000001

Security group ID

sg-0dd577be91a70e066

Description

Managed by Terraform

VPC ID

vpc-0708f360703416f47

Owner

277707097694

Inbound rules count

2 Permission entries

Outbound rules count

1 Permission entry

Inbound rules

Outbound rules

Sharing - new

VPC associations - new

Tags

Inbound rules (2)

Search

Name

Security group rule ID

IP version

Type

Protocol

Port range

-

sgr-0ee6c75759f0cc815

IPv4

HTTP

TCP

80

-

sgr-0f8d30544343c2b61

IPv4

SSH

TCP

22

CloudShell

Feedback

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VPC dashboard

EC2 Global View

Filter by VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP option sets

Elastic IPs

Managed prefix lists

NAT gateways

Peering connections

Security

Network ACLs

Security groups

Your VPCs (1/2) info

Search

Name

VPC ID

State

Block Public...

IPv4 CIDR

IPv6 CIDR

-

vpc-0e2496ef7bb237873

Available

Off

172.31.0.0/16

-

ExampleVPC

vpc-0708f360703416f47

Available

Off

10.0.0.0/16

-

vpc-0708f360703416f47 / ExampleVPC

Details

Resource map

CIDRs

Flow logs

Tags

Integrations

Details

VPC ID

vpc-0708f360703416f47

DNS resolution

Enabled

Main network ACL

acl-01fef7cbc9657ac89

IPv6 CIDR (Network border group)

-

State

Available

Tenancy

default

Default VPC

No

Network Address Usage metrics

Disabled

Block Public Access

Off

DHCP option set

dopt-078e69c515ba49515

IPv4 CIDR

10.0.0.0/16

Route 53 Resolver DNS Firewall rule groups

-

DNS hostnames

Enabled

Main route table

rtb-0893625b74433c087

IPv6 pool

-

Owner ID

277707097694

CloudShell

Feedback

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aws

Search

[Option+S]

United States (N. Virginia)

SuperAdmin @ global-tek-pros

Amazon S3

Buckets

terraform-state-300

terraform/

state

state

Info

Copy S3 URI

Download

Open

Object actions

Properties

Permissions

Versions

Object overview

Owner

globaltekpros

AWS Region

US East (N. Virginia) us-east-1

Last modified

February 9, 2025, 16:46:39 (UTC-08:00)

Size

14.4 KB

Type

Key

terraform/state

S3 URI

s3://terraform-state-300/terraform/state

Amazon Resource Name (ARN)

arn:aws:s3:::terraform-state-300/terraform/state

Entity tag (Etag)

7a8ea9539b54360773c314b1cbecaedc

Object URL

https://terraform-state-300.s3.us-east-1.amazonaws.com/terraform/state

Object management overview