

Workspace Assignment

You are managing infrastructure for multiple environments (dev, staging, and prod) using Terraform workspaces.

Your goal is to create an S3 bucket and an EC2 instance, where:

The S3 bucket name should be prefixed with the workspace name.

The EC2 instance type should vary based on the workspace (t2.micro for dev, t3.small for staging, and t3.medium for prod).

Store Terraform state in an S3 backend with state locking enabled using a DynamoDB table.

Use variables for flexibility, locals for calculated values, and functions to dynamically construct names.

S3 Bucket creation

Amazon S3 > Buckets

Account snapshot - updated every 24 hours All AWS Regions [View Storage Lens dashboard](#)

Storage lens provides visibility into storage usage and activity trends. Metrics don't include directory buckets. [Learn more](#)

General purpose buckets | Directory buckets

General purpose buckets (1) All AWS Regions [Copy ARN](#) [Empty](#) [Delete](#) [Create bucket](#)

Buckets are containers for data stored in S3.

Find buckets by name

Name	AWS Region	IAM Access Analyzer	Creation date
workspace-assignment-terraform-state	US East (N. Virginia) us-east-1	View analyzer for us-east-1	March 5, 2025, 18:23:12 (UTC+05:30)

Create a table in dynamoDB

DynamoDB > Tables

Tables (1) Info [Actions](#) [Delete](#) [Create table](#)

Find tables

Name	Status	Partition key	Sort key	Indexes	Replication Regions	Deletion protection	Favorite	Read capacity mode	Write capacity
workspace-assignment-lock	Active	LockID (S)	-	0	0	Off	☆	On-demand	On-demand

Create workspace - dev , staging , prod

```
PS C:\Users\HP\Downloads\workspace-assignment> terraform workspace new staging
Created and switched to workspace "staging"!
```

You're now on a new, empty workspace. Workspaces isolate their state, so if you run "terraform plan" Terraform will not see any existing state for this configuration.

```
PS C:\Users\HP\Downloads\workspace-assignment> terraform workspace new dev
Created and switched to workspace "dev"!
```

You're now on a new, empty workspace. Workspaces isolate their state, so if you run "terraform plan" Terraform will not see any existing state for this configuration.

```
PS C:\Users\HP\Downloads\workspace-assignment> terraform workspace list
  default
*  dev
   prod
   staging
```

```
PS C:\Users\HP\Downloads\workspace-assignment> terraform workspace select staging
Switched to workspace "staging".
```

```
PS C:\Users\HP\Downloads\workspace-assignment> terraform init
```

Initializing the backend...

Initializing provider plugins...

- Reusing previous version of hashicorp/aws from the dependency lock file
- Reusing previous version of hashicorp/random from the dependency lock file
- Using previously-installed hashicorp/random v3.7.1
- Using previously-installed hashicorp/aws v5.89.0

Terraform has been successfully initialized!

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

If you ever set or change modules or backend configuration for Terraform, rerun this command to reinitialize your working directory. If you forget, other commands will detect it and remind you to do so if necessary.

```
PS C:\Users\HP\Downloads\workspace-assignment> █
```

Acquiring State lock

DynamoDB

- Dashboard
- Tables
- Explore items**
- PartiQL editor
- Backups
- Exports to S3
- Imports from S3
- Integrations [New](#)
- Reserved capacity
- Settings

DAX

- Clusters
- Subnet groups
- Parameter groups
- Events

workspace-assignment-lock

☒ Scan
 ☐ Query

Select a table or index
 Table - workspace-assignment-lock

Select attribute projection
 All attributes

Filters

[Reset](#)

Completed. Read capacity units consumed: 2

Items returned (3)

<input type="checkbox"/>	LockID (<i>String</i>)	Digest	Info
<input type="checkbox"/>	workspace-assignmen...	366eeba0a...	
<input type="checkbox"/>	workspace-assignmen...	92ecdfe10...	
<input type="checkbox"/>	workspace-assignmen...		{ "ID": "e9adc767-8631-7d71-df58-4c1b9ffc60da", "Operation": "OperationTypeApply", "Info": "" }

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS
powershell + v [icon] [icon] ... ^

Acquiring state lock. This may take a few moments...

Error: Error acquiring the state lock

Error message: operation error DynamoDB: PutItem, https response error StatusCode: 400, RequestID:
9GNJAV1RJVL1EAKPTJ8KK9TT7VV4KQNSO5AEMVJF66Q9ASUAJG, ConditionalCheckFailedException: The conditional request failed
Lock Info:
ID: 3bcd12ee-bef1-ccc7-5c66-ab4a96e79db0
Path: workspace-assignment-terraform-state/env:/staging/envs/PLACEHOLDER/terraform.tfstate
Operation: OperationTypeApply
Who: DESKTOP-CMVH2VMVHP@DESKTOP-CMVH2VM
Version: 1.10.5
Created: 2025-03-05 14:03:33.2784483 +0000 UTC
Info:

Terraform acquires a state lock to protect the state from being written
by multiple users at the same time. Please resolve the issue above and try
again. For most commands, you can disable locking with the "-lock=false"

```

State file

Amazon S3 > Buckets > workspace-assignment-terraform-state > env:/

env:/

Copy S3 URI

Objects | Properties

Objects (3)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 Inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

Show versions

< 1 >

	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	dev/	Folder	-		-
<input type="checkbox"/>	prod/	Folder	-		-
<input type="checkbox"/>	staging/	Folder	-		-

Pretty print

```
{
  "version": 4,
  "terraform_version": "1.10.5",
  "serial": 3,
  "lineage": "ed4e73ee-4dd4-ad08-3ea1-be09c0574ad5",
  "outputs": {},
  "resources": [
    {
      "mode": "managed",
      "type": "aws_instance",
      "name": "workspace_instance",
      "provider": "provider[\"registry.terraform.io/hashicorp/aws\"]",
      "instances": [
        {
          "schema_version": 1,
          "attributes": {
            "ami": "ami-04b4f1a9cf54c11d0",
            "arn": "arn:aws:ec2:us-east-1:741448948407:instance/1-0ed5dd8734752074f",
            "associate_public_ip_address": true,
            "availability_zone": "us-east-1b",
            "capacity_reservation_specification": [
              {
                "capacity_reservation_preference": "open",
                "capacity_reservation_target": []
              }
            ],
            "cpu_core_count": 1,
            "cpu_options": [
              {
                "amd_sev_snp": "",
                "core_count": 1,
                "threads_per_core": 1
              }
            ],
            "cpu_threads_per_core": 1,
            "credit_specification": [
              {
                "cpu_credits": "standard"
              }
            ]
          }
        }
      ]
    }
  ]
}
```

EC2 creation

aws

EC2 > Instances

Instances (1/3)

Find instance by attribute or tag (case-sensitive)

All states

Last updated 1 minute ago

Connect

Instance state

Actions

Launch instances

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
<input type="checkbox"/>	dev-workspace-instance	i-0ed5dd8734752074f	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b	ec2-54-174-174-79.co...	54.174.174.
<input checked="" type="checkbox"/>	staging-workspace-instance	i-008daa4ed5df243ea	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	ec2-3-86-227-74.comp...	3.86.227.74
<input type="checkbox"/>	prod-workspace-instance	i-036398842f1d01210	Running	t3.medium	3/3 checks passed	View alarms +	us-east-1c	ec2-3-84-244-57.comp...	3.84.244.57

i-008daa4ed5df243ea (default-workspace-instance)

Details | Status and alarms | Monitoring | Security | Networking | Storage | Tags

Instance summary

Instance ID i-008daa4ed5df243ea

IPv4 address 3.86.227.74 | open address

Public IPv4 address 172.31.90.103

Private IPv4 addresses 172.31.90.103

Public IPv4 DNS ec2-3-86-227-74.compute-1.amazonaws.com | open address