

# Cloud Computing Lab

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BSE-V B

2023-BSE-056

## LAB 13

### Task 0 Lab Setup (Codespace & GH CLI)

- task0\_codespace\_create\_and\_list.png

```
C:\Users\ Laptop>gh codespace create --repo SafaJahangir09/CC_Safa_056
? Codespaces usage for this repository is paid for by SafaJahangir09
? Choose Machine Type: 2 cores, 8 GB RAM, 32 GB storage
super-space-enigma-jrrpj9qpwxwhqxxj

C:\Users\ Laptop>gh codespace list
NAME          DISPLAY NAME      REPOSITORY
BRANCH STATE   CREATED AT
curly-goldfish-jjjpj5j6w7vgjcqp5x curly goldfish      SafaJahangir09/Lab12
  main* Shutdown about 13 days ago
super-space-enigma-jrrpj9qpwx... super space enigma  SafaJahangir09/CC_Sa...
..  main  Available less than a minute ago
```

- task0\_codespace\_ssh\_connected.png

```
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-1030-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

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the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

@SafaJahangir09 ② /workspaces/CC_Safa_056 (main) $ cd Lab13
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $
```

# Task 1 — Create IAM Group and Output Details

- task1\_project\_directory.png

```
@SafaJahangir09 ② /workspaces/CC_Safa_056 (main) $ cd Lab13
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ -
```

- task1\_file\_created.png

```
SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ touch main.tf
SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ ls
EADME.md  main.tf
```

- task1\_main\_tf.png

```
SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ cat main.tf
provider "aws" {
  shared_config_files      = ["~/.aws/config"]
  shared_credentials_files = ["~/.aws/credentials"]

resource "aws_iam_group" "developers" {
  name = "developers"
  path = "/groups/"

output "group_details" {
  value = {
    group_name = aws_iam_group.developers.name
    group_arn  = aws_iam_group.developers.arn
    unique_id  = aws_iam_group.developers.unique_id
  }
}

SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $
```

- task1\_terraform\_init.png

```
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ terraform init
Initializing the backend...
Initializing provider plugins...                                     e- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v6.28.0...
- Installed hashicorp/aws v6.28.0 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

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

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

- task1\_terraform\_apply.png

```

        ]
Plan: 1 to add, 0 to change, 0 to destroy.

Changes to Outputs:
+ group_details = {
    + group_arn  = (known after apply)
    + group_name = "developers"
    + unique_id  = (known after apply)
}
aws_iam_group.developers: Creating...
aws_iam_group.developers: Creation complete after 2s [id=developers]
:
Apply complete! Resources: 1 added, 0 changed, 0 destroyed.

Outputs:

group_details = {
  "group_arn" = "arn:aws:iam::624150768830:group/groups/developers"
  "group_name" = "developers"
  "unique_id" = "AGPAZCUSI5S7AOCKZMXY3"
}

```

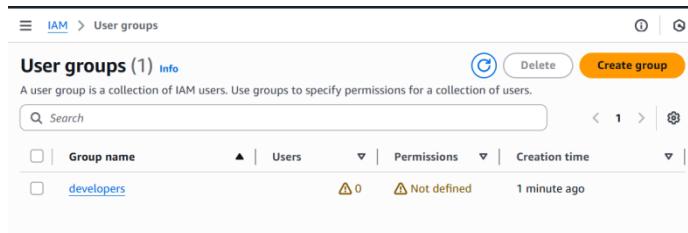
- task1\_terraform\_output.png

```

@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ terraform output
group_details = {
  "group_arn" = "arn:aws:iam::624150768830:group/groups/developers"
  "group_name" = "developers"
  "unique_id" = "AGPAZCUSI5S7AOCKZMXY3"
}

```

- task1\_aws\_console\_group.png



## Task 2 — Create IAM User with Group Membership

- task2\_main\_tf\_user.png

```

output "group_details" {
  value = {
    group_name = aws_iam_group.developers.name
    group_arn  = aws_iam_group.developers.arn
    unique_id  = aws_iam_group.developers.unique_id
  }
}

resource "aws_iam_user" "lb" {
  name   = "loadbalancer"
  path   = "/users/"
  force_destroy = true
  tags = {
    DisplayName = "Load Balancer"
  }
}

resource "aws_iam_user_group_membership" "lb_membership" {
  user = aws_iam_user.lb.name
  groups = [
    aws_iam_group. developers.name
  ]
}

output "user_details" {
  value = {
    user_name = aws_iam_user.lb.name
    user_arn  = aws_iam_user.lb.arn
    unique_id = aws_iam_user.lb.unique_id
  }
}

-- TNSFRT --

```

- task2\_terraform\_apply.png

```

        }
aws_iam_user.lb: Creating...
aws_iam_user.lb: Creation complete after 1s [id=loadbalancer]
aws_iam_user_group_membership.lb_membership: Creating...
aws_iam_user_group_membership.lb_membership: Creation complete after 1s [i
d=terraform-20260112140940444400000001]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

Outputs:

```

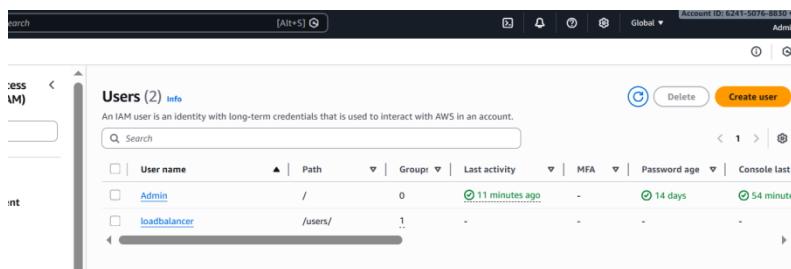
- task2\_terraform\_output.png

```

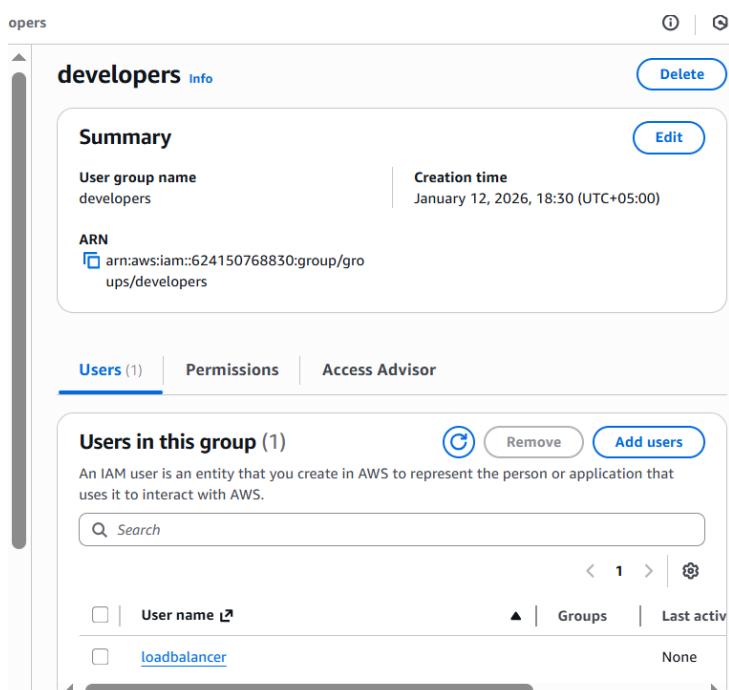
@safaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ terraform output
group_details = {
  "group_arn" = "arn:aws:iam::624150768830:group/groups/developers"
  "group_name" = "developers"
  "unique_id" = "AGPAZCUSI5S7AOCKZMXY3"
}
user_details = {
  "unique_id" = "AIDAZCUSI5S7FQSZOE3YF"
  "user_arn" = "arn:aws:iam::624150768830:user/users/loadbalancer"
  "user_name" = "loadbalancer"
}

```

- task2\_aws\_console\_user.png



- task2\_aws\_console\_user\_groups.png



## Task 3 — Attach Policies to IAM Group

- task3\_main\_tf\_policies.png

```
unique_id = aws_iam_user.id.unique_id
}

resource "aws_iam_group_policy_attachment" "developer_ec2_fullaccess" {
    group = aws_iam_group.developers.name
    policy_arn = "arn:aws:iam::aws:policy/AmazonEC2FullAccess"
}

resource "aws_iam_group_policy_attachment" "change_password" {
    group = aws_iam_group.developers.name
    policy_arn = "arn:aws:iam::aws:policy/IAMUserChangePassword"
}

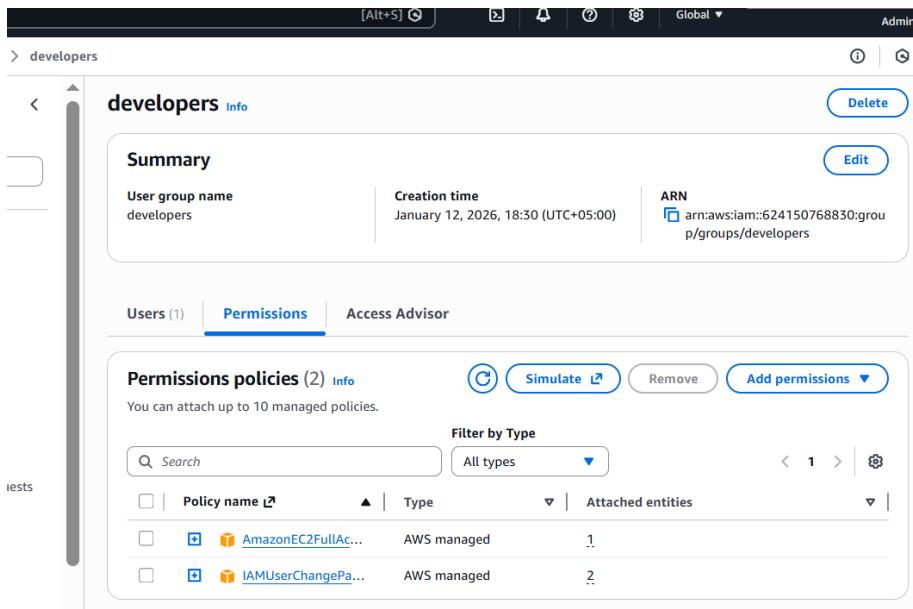
:wd,
```

- task3\_terraform\_apply.png

```
Plan: 2 to add, 0 to change, 0 to destroy.
aws_iam_group_policy_attachment.change_password: Creating...
aws_iam_group_policy_attachment.developer_ec2_fullaccess: Creating...
aws_iam_group_policy_attachment.developer_ec2_fullaccess: Creation complete after
1s [id=developers-20260112142454533200000001]
aws_iam_group_policy_attachment.change_password: Creation complete after 1s [id=de
velopers-20260112142454646500000002]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.
```

- task3\_aws\_console\_policies.png



## Task 4 — Create Login Profile for IAM User

- task4\_variables\_tf.png

```
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ cat variables.tf
variable "iam_password" {
  description = "Temporary password for the IAM user"
  type        = string
  sensitive   = true
  default     = "IdontKnow"
}
```

- task4\_create\_login\_script.png

```
GNU nano 7.2                                         create-login-profile.sh
#!/usr/bin/env bash
set -euo pipefail

USERNAME="$1"
PASSWORD="$2"

# Check if login profile already exists
if aws iam get-login-profile --user-name "$USERNAME" >/dev/null 2>&1; then
  echo "Login profile already exists for $USERNAME. Skipping."
else
  echo "Creating login profile for $USERNAME"
  aws iam create-login-profile \
    --user-name "$USERNAME" \
    --password "$PASSWORD" \
    --password-reset-required
fi
```

- task4\_chmod\_script.png

```
_056/Lab13 (main) $
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ chmod +x create-login-profile.sh
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $
```

- task4\_main\_tf\_login\_profile.png

```
resource "null_resource" "create_login_profile" {
  triggers = {
    password_hash = sha256(var.iam_password)
    user         = aws_iam_user.lb.name
  }

  depends_on = [aws_iam_user.lb]

  provisioner "local-exec" {
    command = "${path.module}/create-login-profile.sh ${aws_iam_user.lb.name} '${var.iam_password}'"
  }
}
```

- task4\_terraform\_apply.png

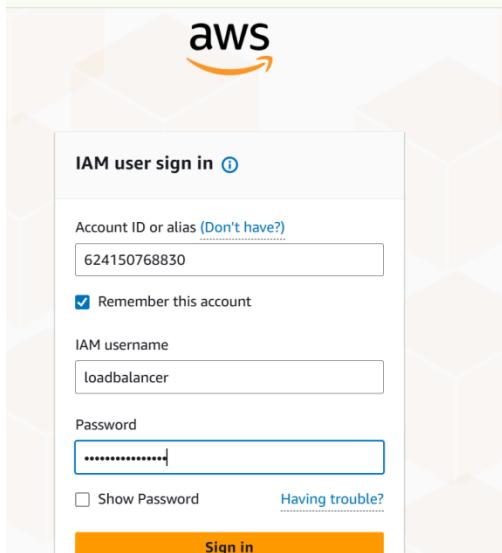
```
? Plan: 1 to add, 0 to change, 0 to destroy.
null_resource.create_login_profile: Creating...
null_resource.create_login_profile: Provisioning with 'local-exec'...
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profile (local-exec): Creation complete after 7s [id=1355112466946589324]

? Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
```

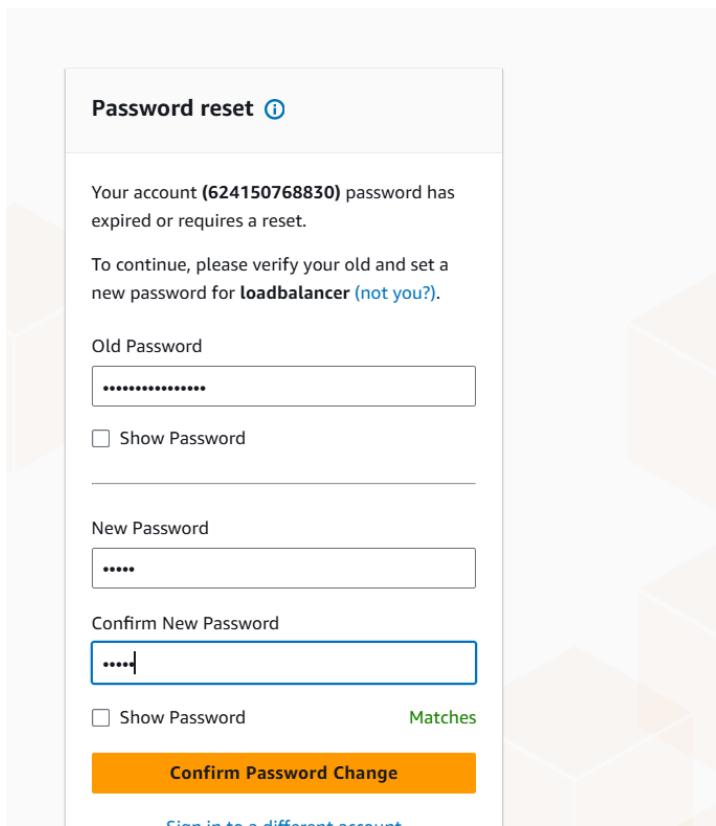
- task4\_aws\_cli\_verify.png

```
@SafaJahangir09 ~ /workspaces/CC_Safa_056/Lab13 (main) $ aws iam get-login-profile --user-name loadbalancer
{
    "LoginProfile": {
        "UserName": "loadbalancer",
        "CreateDate": "2026-01-13T04:20:43+00:00",
        "PasswordResetRequired": true
    }
}
```

- task4\_aws\_console\_login.png



- task4\_aws\_console\_password\_reset.png



## Task 5 — Generate Access Keys for IAM User

- task5\_main\_tf\_access\_keys.png

```
        command = "$[path.module]/create-login-profile.sh $[aws_iam_
        ]
      }

resource "aws_iam_access_key" "lb_access_key" {
  user = aws_iam_user.lb.name
}

output "access_key_id" {
  value = aws_iam_access_key.lb_access_key.id
}

output "access_key_secret" {
  value    = aws_iam_access_key.lb_access_key.secret
  sensitive = true
}

:wq
```

- task5\_terraform\_apply.png

```
Plan: 1 to add, 0 to change, 0 to destroy.

Changes to Outputs:
+ access_key_id      = (known after apply)
+ access_key_secret  = (sensitive value)
aws_iam_access_key.lb_access_key: Creating...
aws_iam_access_key.lb_access_key: Creation complete after 1s [id=AKIAZCUSI5S7HDDJJD6J]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
```

- task5\_terraform\_output.png

```
@SafaJahangir09 eworkspaces/CC_Safa_056/Lab13 (main) $ terraform output
access_key_id = "AKIAZCUSI5S7HDDJJD6J"
access_key_secret = <sensitive>
group_details = {
  "group_arn" = "arn:aws:iam::624150768830:group/groups/developers"
  "group_name" = "developers"
  "unique_id" = "AGPAZCUSI5S7AOCKZMXY3"
}
```

- task5\_tfstate\_secret. Png

```
@SafaJahangir09 eworkspaces/CC_Safa_056/Lab13 (main) $ cat terraform.tfstate
"access_key_secret": {
  "value": "6jTDuQi0350TPaRCwhzWQwGUHBkenlIRjZeNjy9Q",
  "type": "string",
  "sensitive": true
},
"group_details": {
  "value": {
    "group_arn": "arn:aws:iam::624150768830:group/groups/developers",
    "group_name": "developers",
    "unique_id": "AGPAZCUSI5S7AOCKZMXY3"
  },
}
```

- task5\_aws\_console\_access\_keys. Png

Entity and Access Management (IAM)

No MFA devices. Assign an MFA device to improve the security of your AWS environment

Access keys (1)

Create access key

**AKIAZCUS15S7HDDJJD6J**

Description	Status
-	Active
Last used	Created 2 minutes ago
Last used region	Last used service
N/A	N/A

## Task 6 — Implement Terraform Remote State with S3

- task6\_s3\_bucket\_create.png

Create bucket [Info](#)

Buckets are containers for data stored in S3.

**General configuration**

**AWS Region**  
Middle East (UAE) me-central-1

**Bucket name** [Info](#)  
myapp-s3-bucket-05d

**Copy settings from existing bucket - optional**  
Only the bucket settings in the following configuration are copied.  
[Choose bucket](#)  
Format: s3://bucket/prefix

**Object Ownership** [Info](#)

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

**Object Ownership**

**ACLs disabled (recommended)**  
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

**ACLs enabled**  
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

**Object Ownership**  
Bucket owner enforced

**Block Public Access settings for this bucket**

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to the bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

**Block all public access**  
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

- Block public access to buckets and objects granted through new access control lists (ACLs)**  
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
- Block public access to buckets and objects granted through any access control lists (ACLs)**  
S3 will ignore all ACLs that grant public access to buckets and objects.
- Block public access to buckets and objects granted through new public bucket or access point policies**  
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.
- Block public and cross-account access to buckets and objects through any public bucket or access point policies**  
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

**Bucket Versioning**

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

**Bucket Versioning**

Disable  
 Enable

- task6\_s3\_bucket\_versioning.png

Bucket overview

AWS Region: Middle East (UAE) me-central-1

Amazon Resource Name (ARN): arn:aws:s3:::myapp-s3-bucket-056

Creation date: January 13, 2026, 09:47:24 (UTC+05:00)

**Bucket Versioning**

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

Bucket Versioning: Enabled

**Multi-factor authentication (MFA) delete**

An additional layer of security that requires multi-factor authentication for changing Bucket Versioning settings and permanently deleting object versions. To modify MFA delete settings, use the AWS CLI, AWS SDK, or the Amazon S3 REST API. [Learn more](#)

MFA delete: Disabled

**Bucket ABAC**

Attribute-based access control (ABAC) is an authorization strategy that defines permissions based on attributes. With ABAC, you can attach tags to your general purpose buckets and AWS Identity and Access Management (IAM) entities (users or roles), then access objects in your S3 general purpose buckets using tag-based policies. [Learn more](#)

- task6\_main\_tf\_backend.png

```
terraform {
  backend "s3" {
    bucket = "myapp-s3-bucket-056"
    key    = "myapp/terraform.tfstate"
    region = "me-central-1"
    encrypt = true
    use_lockfile = true
  }
}

provider "aws" {
```

- task6\_terraform\_init\_migrate.png

```
@SafaJahangir09 ~/workspaces/CC_Safa_056/Lab13 (main) $ terraform init -migrate-state
Initializing the backend...
Do you want to copy existing state to the new backend?
Pre-existing state was found while migrating the previous "local" backend to the
newly configured "s3" backend. No existing state was found in the newly
configured "s3" backend. Do you want to copy this state to the new "s3"
backend? Enter "yes" to copy and "no" to start with an empty state.

Enter a value: yes

Successfully configured the backend "s3"! Terraform will automatically
use this backend unless the backend configuration changes.
Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Reusing previous version of hashicorp/null from the dependency lock file
- Using previously-installed hashicorp/aws v6.28.0
- Using previously-installed hashicorp/null v3.2.4

Terraform has been successfully initialized!
```

- task6\_terraform\_apply.png

```
aws_iam_user_group_membership.lb_membership: Refreshing state... [id=terraform-20260112140940444400000001]
aws_iam_access_key.lb_access_key: Refreshing state... [id=AKIAZCUSI5S7HDDJJD6J]

No changes. Your infrastructure matches the configuration.

Terraform has compared your real infrastructure against your configuration and found no differences, so no changes are needed.

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

- task6\_s3\_tfstate\_file.png

The screenshot shows the AWS S3 console interface. At the top, there's a navigation bar with 'Account ID: 6241-5076-8830' and 'Middle East (UAE)'. Below it, the path 'Buckets > myapp-s3-bucket-056 > myapp/' is shown. The main area is titled 'myapp/' and has tabs for 'Objects' and 'Properties'. Under 'Objects', it says '(1)' and lists a single item: 'terraform.tfstate' (type: tfstate). The file was last modified on January 13, 2026, at 09:51:59 (UTC+05:00), has a size of 6.7 KB, and is stored in the Standard storage class. There are buttons for 'Actions' (with options like 'Copy S3 URI', 'Copy URL', 'Download', 'Open', and 'Delete'), 'Create folder', and 'Upload'.

- task6\_local\_state\_backup.png

```
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ ls -la terraform.tfstate*
-rw-rw-rw- 1 codespace codespace 0 Jan 13 04:51 terraform.tfstate
-rw-rw-rw- 1 codespace codespace 6882 Jan 13 04:51 terraform.tfstate.backup
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $
```

- task6\_terraform\_destroy.png

```
aws_iam_group_policy_attachment.change_password: Destruction complete after 1s
aws_iam_group_policy_attachment.developer_ec2_fullaccess: Destruction complete after 1s
aws_iam_user_group_membership.lb_membership: Destruction complete after 1s
aws_iam_user.lb: Destroying... [id=loadbalancer]
aws_iam_group.developers: Destroying... [id=developers]
aws_iam_group.developers: Destruction complete after 0s
aws_iam_user.lb: Destruction complete after 3s

Destroy complete! Resources: 7 destroyed.
```

- task6\_s3\_tfstate\_destroyed. Png

The screenshot shows a browser window with the URL 'myapp-s3-bucket-056.s3.me-central-1.amazonaws.com/m...'. The page displays the JSON content of the destroyed 'terraform.tfstate' file:

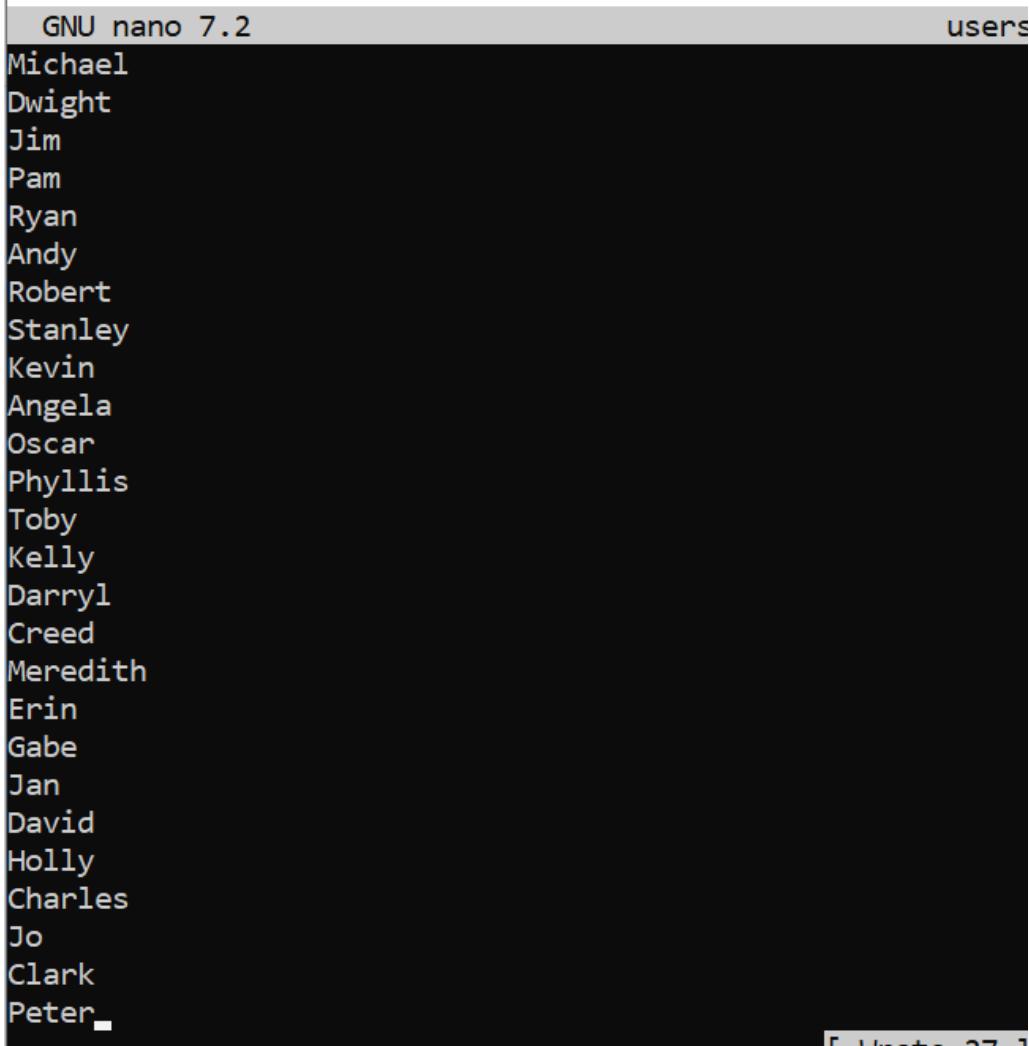
```
[
  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 2,
  "lineage": "46f2a50a-befd-1786-5486-911df1a43971",
  "outputs": {},
  "resources": [],
  "check_results": null
]
```

## Task 7 — Create Multiple Users from CSV File

- task7\_locals\_tf.png

```
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ vim locals.tf
@SafaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ cat locals.tf
locals {
    users = csvdecode(file("users.csv"))
}
```

- task7\_users\_csv.png



```
GNU nano 7.2                               users
Michael
Dwight
Jim
Pam
Ryan
Andy
Robert
Stanley
Kevin
Angela
Oscar
Phyllis
Toby
Kelly
Darryl
Creed
Meredith
Erin
Gabe
Jan
David
Holly
Charles
Jo
Clark
Peter
```

- task7\_main\_tf\_multiple\_users.png

```

@safaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ cat main.tf
terraform {
  backend "s3" {
    bucket = "myapp-s3-bucket-056"
    key    = "myapp/terraform.tfstate"
    region = "me-central-1"
    encrypt = true
    use_lockfile = true
  }
}

provider "aws" {
  shared_config_files      = ["~/.aws/config"]
  shared_credentials_files = ["~/.aws/credentials"]
}

resource "aws_iam_group" "developers" {
  name = "developers"
  path = "/groups/"
}

output "group_details" {
  value = {
    group_name = aws_iam_group.developers.name
    group_arn  = aws_iam_group.developers.arn
    unique_id  = aws_iam_group.developers.unique_id
  }
}

# Create multiple IAM users from CSV
resource "aws_iam_user" "users" {
  for_each = { for user in local.users : user.user_name => user }

  name          = each.value.user_name
  path          = "/users/"
  force_destroy = true
}

```

- task7\_terraform\_init.png

```

@safaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of hashicorp/null from the dependency lock file
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/null v3.2.4
- Using previously-installed hashicorp/aws v6.28.0

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.

```

- task7\_terraform\_apply.png

```

null_resource.create_login_profiles["Meredith"] (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profiles["Meredith"] (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profiles["Meredith"] (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profiles["Meredith"] (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profiles["Meredith"] (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profiles["Meredith"] (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profiles["Meredith"] (local-exec): (output suppressed due to sensitive value in configuration)
null_resource.create_login_profiles["Meredith"] (local-exec): Creation complete after 10s [id=8521261764303816648]

Apply complete! Resources: 26 added, 0 changed, 26 destroyed.

```

- task7\_terraform\_output.png

```

@safaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ terraform output
all_access_key_secrets = <sensitive>
all_users_details = {
  "Andy" = {
    "access_key_id" = "AKIAZCUSI5S7DTWGSAXQ"
    "user_arn" = "arn:aws:iam::624150768830:user/users/Andy"
    "user_unique_id" = "AIDAZCUSI5S7EU66BIZMN"
  }
  "Angela" = {
    "access_key_id" = "AKIAZCUSI5S7JFJMRV6"
    "user_arn" = "arn:aws:iam::624150768830:user/users/Angela"
    "user_unique_id" = "AIDAZCUSI5S7MJHZDLXE"
  }
  "Charles" = {
    "access_key_id" = "AKIAZCUSI5S7DCMWLCW2"
    "user_arn" = "arn:aws:iam::624150768830:user/users/Charles"
    "user_unique_id" = "AIDAZCUSI5S7II2DWP4H"
  }
  "Clark" = {
    "access_key_id" = "AKIAZCUSI5S7CF4EMTBO"
    "user_arn" = "arn:aws:iam::624150768830:user/users/Clark"
    "user_unique_id" = "AIDAZCUSI5S7DOBR3VI4X"
  }
}

```

- task7\_tfstate\_secrets. Png

```

@safaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $ terraform state pull | grep -A 5 "all_access_key_secrets"
  "all_access_key_secrets": {
    "value": {
      "Andy": "xSH56b/f9rl28TKyZkVHLqBx80+HCCJSA+bDB/1A",
      "Angela": "EQVFQjetu7FkIEdaVdnbt21wZ8xdm73flaxug7dP",
      "Charles": "vNbQvIth16w3qsLVSq1SXWL8nLvJQIbEineNCise",
      "Clark": "bY8ye5Ya762nEcnuEK2Z8UmCrgGa2q6NuOExsTTz",
    }
  }
@safaJahangir09 ② /workspaces/CC_Safa_056/Lab13 (main) $

```

- task7\_aws\_console\_all\_users. Png

Account ID: 6241-5076-8830 ▾ Global Admin

[Alt+S] ⌘

**Users (27) Info**  
An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

Search

1 2 > ⌂

User name	Path	Groups	Last activity	MFA	Password age	Console last sign-in	Access key ID	Actions
Admin	/	0	5 minutes ago	-	15 days	33 minutes ago	Active - AKIAZCUSI557...	⋮ 7
Andy	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 7
Angela	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 7
Charles	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 7
Clark	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 6
Creed	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 6
Darryl	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 7
David	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 6
Dwight	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 6
Erin	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 7
Gabe	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 6
Holly	/users/	1	-	-	4 minutes	-	Active - AKIAZCUSI557...	⋮ 6

- task7\_aws\_console\_group\_members.png

Users

developers Info

**Summary**

User group name: developers

Creation time: January 13, 2026, 10:09 (UTC+05:00)

ARN: arn:aws:iam::624150768830:group/groups

Users (26) Permissions Access Advisor

**Users in this group (26)**

An IAM user is an entity that you create in AWS to represent the person or application that uses it to interact with AWS.

Search

User name	Groups	Last activity	Creation time
Andy	-	None	7 minutes ago
Angela	-	None	7 minutes ago
Charles	-	None	7 minutes ago
Clark	-	None	7 minutes ago
Creed	-	None	7 minutes ago
Darryl	-	None	7 minutes ago

- task7\_aws\_console\_user\_access\_key.png

Access keys (1)

No MFA devices. Assign an MFA device to improve the security of your AWS environment

Assign MFA device

**AKIAZCUSI557K3BWG7FZ**

Description: -

Status: Active

Created: 10 minutes ago

Last used: None

Last used region: N/A

Last used service: N/A

- task7\_s3\_tfstate\_multiple\_users.png

```
{
  "version": 4,
  "terraform_version": "1.14.3",
  "serial": 5,
  "lineage": "46f2a50a-befd-1786-5486-911df1a43971",
  "outputs": {
    "all_access_key_secrets": {
      "value": {
        "Andy": "xSH56b/f9r128TKyZkVHLqBx80+HCCJSA+bDB/1A",
        "Angela": "EQVFQJetu7FkIEDaVdNbt21wZ8xdm73flaXug7dP",
        "Charles": "vNbQvIth16w3qsLVSqlSXWL8nLvJQIBEineNCise",
        "Clark": "bY8ye5Ya762nEcnuEK2Z8UmCrgGa2q6NuOExsTTz",
        "Creed": "LhNNTtlgCCIHWToBUP/w8Y7WDRubMGzvDf3JOLiQ",
        "Darryl": "+TIBY0xlo4VJaA54JESfsqsMG+168fun2EODLzR+",
        "David": "/NjUr5QyVoxBRuYc0vvJf+HCXYX+u11IAU04dmTb",
        "Dwight": "1Ca+g3uuSA+Pb7T3ubaEnDeEEkjTJ1G90eNgsJge",
        "Erin": "DPK9wN03vios1Un/Gu+MSoOE7tXnhcpwsq1sSFqy",
        "Gabe": "omPpczXRMwqN0rTPifxYRsZ8u1/RYUXk4nkH/f5L",
        "Holly": "tsRO0ybcSvx4nD/5MXotSwNnhvIM/Uw3bwNZUNVq",
        "Jan": "K6SN+yFTygBK9qtvrBm9Iav2MhU0by2WTcv1bQQ2",
        "Jim": "Xe9oyCqW+ebleUEqD3cDZC4NXEm3aMQMcDt/Hbx",
        "Jo": "YVe4Ljr2hkFx6dmjxtzxj2phshkF4jwgmk0vdAOA",
        "Kelly": "iaQ3HM1RZkyIFRkByNucoGiL2dqeBmFNo0vJGcT",
        "Kevin": "Aedm3PKPd1EBQGe1C5kzgRrUyRF1oTvyl0B1z4vp",
        "Meredith": "a61ZiBMxF20gMeI2Z1C50ThLur6UMXUt8AxRI7lh",
        "Michael": "PVsO2R+oP8B190enn0uShc3HyNGkQupmpUDq0gn",
        "Oscar": "z3VtCwkSvTo3k23XZA5hmtOgZbsgWiwoY5XmK55",
        "Pam": "Miw9nmV1XmMUfxQxwmmQc6FwH+XcwIFINCgs4PO5",
        "Peter": "YkNKnpcolu4kk04UR2iv25ZGIQ6SlgySWQHgWN1w",
        "Phyllis": "f86kJun03jRhpYu+0Femj0V/4Q8/DT9+FBF2sG5",
        "Robert": "vxvOK0beJ7hP9mGHTdXpZXOUS/9JazR+K2ROCR5a",
        "Ryan": "10pFHRRpapvOvgveJUG4fxtvWGgiPRvL54pdLmio".
      }
    }
  }
}
```

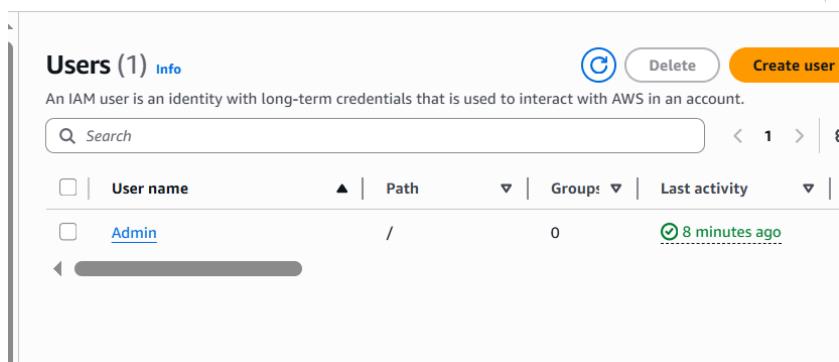
## Cleanup

- cleanup\_destroy\_complete.png

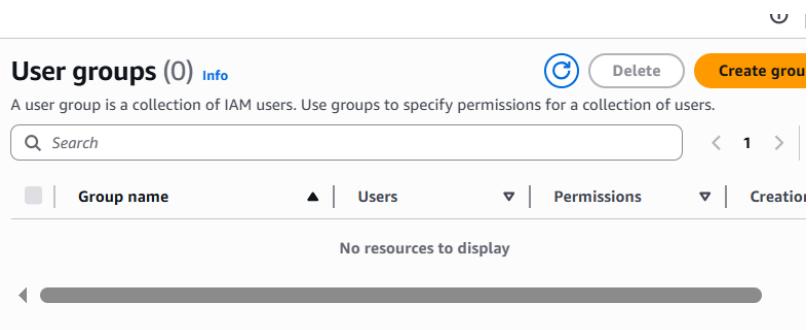
```
aws_iam_user.users["Clark"].Destroying... [id=Clark]
aws_iam_user.users["Jan"]: Destruction complete after 8s
aws_iam_user.users["Andy"]: Destroying... [id=Andy]
aws_iam_user.users["Jo"]: Destruction complete after 2s
aws_iam_user.users["Gabe"]: Destruction complete after 8s
aws_iam_user.users["David"]: Destruction complete after 3s
aws_iam_user.users["Creed"]: Destruction complete after 4s
aws_iam_user.users["Michael"]: Destruction complete after 5s
aws_iam_user.users["Holly"]: Destruction complete after 4s
aws_iam_user.users["Andy"]: Destruction complete after 2s
aws_iam_user.users["Oscar"]: Destruction complete after 5s
aws_iam_user.users["Pam"]: Destruction complete after 4s
aws_iam_user.users["Clark"]: Destruction complete after 5s

Destroy complete! Resources: 107 destroyed.
```

- cleanup\_aws\_console\_users\_deleted.png



- cleanup\_aws\_console\_group\_deleted.png



- cleanup\_s3\_empty\_state.png

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
▼<Error>
<Code>AccessDenied</Code>
<Message>Access Denied</Message>
<RequestId>FJJH1VJEQ1ZCP910</RequestId>
<HostId>XpGVya1jGgR52SDDh2i6HTAbco2VmEVZ6u5pTbk080MB525CPjZM9E3iuBbj7/9ACP7c2fN+A3oas4z66vSgI+N9+fTiaES</HostId>
</Error>
```

- cleanup\_final\_files.png

```
@SafaJahangir09 eworkspaces/CC_Safa_056/Lab13 (main) $ ls -la
total 65324
drwxrwxrwx+ 4 codespace root      4096 Jan 13 05:10 .
drwxrwxrwx+ 17 codespace root     4096 Jan 12 14:05 ..
drwxr-xr-x+ 3 codespace codespace  4096 Jan 13 04:51 .terraform
-rw-r--r--  1 codespace codespace   2422 Jan 13 04:20 .terraform.lock.hcl
-rw-rw-rw-  1 codespace root       0 Jan 12 13:05 README.md
drwxr-xr-x+ 3 codespace codespace  4096 Jan  9 19:14 aws
-rw-rw-rw-  1 codespace codespace 66842323 Jan 12 13:21 awscli2.zip
-rwrxrwxrwx 1 codespace codespace   423 Jan 13 04:17 create-login-profile.sh
-rw-rw-rw-  1 codespace codespace    50 Jan 13 05:00 locals.tf
-rw-rw-rw-  1 codespace codespace  2509 Jan 13 05:10 main.tf
-rw-rw-rw-  1 codespace codespace      0 Jan 13 04:51 terraform.tfstate
-rw-rw-rw-  1 codespace codespace 6882 Jan 13 04:51 terraform.tfstate.backup
-rw-rw-rw-  1 codespace codespace   167 Jan 13 05:02 users.csv
-rw-rw-rw-  1 codespace codespace   150 Jan 13 04:15 variables.tf
```