

Steps:

Set Up Your Terraform Environment

- **Install Terraform:** If you haven't already installed Terraform, download it from Terraform's official site and follow the installation steps.
- **Configure AWS CLI:** Make sure the AWS CLI is installed and configured with the necessary permissions.

Create a Terraform Project

- Create a directory for your project and navigate to it

```
main.tf
1 provider "aws" {
2   access_key = "ASIAZS40FYUJU2C3DE7L"
3   secret_key = "0VE/jdclc9HmleCVTZ4s5aU2bxrGchVe3dir02mu"
4   token      = "IQo7b3jp22luX2VjEFoaCXVZLXd1c3QtMiJHMEUCIFyuS4w3pMkF8TkexGp7Xy2PhlbaMvS9MI10/xPNh3nAiEAxrG2EiPQorUcoTNDikumsHpa/CRW6bhkz0ji
   +KXkCwsqtWIIYxABGgw2NTkwMzg30DI3MzkiDJI8JlFshQSHKf6oBSquArgGXVveqQCcb1+kzitNDjs3SmNynYJ4kUN9G31iZfsEylwC21CPPZ+ZADSusrosb0pL/
   fq5pxDlGn1Klie5FO1VX4KLW1/FbFCinVz1s277bwvcSdcBX0IhZ5JN2DIYRgwwXaovPFPJ1n3tN6Vn8lsg0+tnZzELK8sDKww1KI/FitoAJKHYLQ/
   PEiDAdzuw1tX58HxMJKElDkD5wpIXsPOXFy26ImLecb6pKvA4Dz/KMcFjYmkrG0BNJAGzq6EPdul7baz7MzLIx1NeF6EnIDX
   +sVIHDDd8EiXhLLVw9YtTUuEv94f4M9QfnV57wf47W9ASVN0gnE7g9wJ05k1MwBZ91cSX/LICjE07VfUQGRStEu0p1zDVq502BjqdAUOAOQsnB5o2pkjebJ6+6Gbg/
   39SktfLF5v6jUToFUM4YoxQUR7/YnDd9z
   +TYSMvUeOb0jvPYhxV3cEPrr093BNBLwLDfahFSjJE5I0bqr1Ho9s0mdPiS6ExcrkGkt9sFGf2pgcJCSl0otx2Ljiw2nNtHm20pGji0LLWzBz3wRliT80s/
   2XMnF7DnW4Ai31IPCoQ1bpQUadxc1UQ8="
   region      = "us-east-1"
5 }
6
7
8 resource "random_pet" "nidhibucket12" {
9   length = 3
10  prefix = "fdp"
11 }
12
13 resource "aws_s3_bucket" "nidhibucket12" {
14   bucket = "${random_pet.nidhibucket12.id}-bucket"
15 }
16
17 resource "aws_s3_bucket_acl" "nidhibucket12_acl" {
18   bucket = aws_s3_bucket.nidhibucket12.id
19   acl    = "private"
20 }
```

Define the Provider

- In `main.tf`, start by defining the provider (AWS)

```

terraform.tf
1 terraform {
2   required_providers {
3     aws = {
4       source = "hashicorp/aws"
5     }
6     random = {
7       source = "hashicorp/random"
8     }
9     archive = {
10      source = "hashicorp/archive"
11    }
12  }
13 }

```

```

variable.tf
1 variable "myregion" {
2   type = string
3   default = "us-east-1"
4 }

```

Create an S3 Bucket

- Next, define an S3 bucket where Lambda can receive file uploads.

```

C:\Terraform>terraform init
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/archive...
- Finding latest version of hashicorp/aws...
- Finding latest version of hashicorp/random...
- Installing hashicorp/archive v2.5.0...
- Installed hashicorp/archive v2.5.0 (signed by HashiCorp)
- Installing hashicorp/aws v5.63.1...
- Installed hashicorp/aws v5.63.1 (signed by HashiCorp)
- Installing hashicorp/random v3.6.2...
- Installed hashicorp/random v3.6.2 (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 working directory. If you forget, other
commands will detect it and remind you to do so if necessary.

```

```
C:\Terraform>terraform plan
```

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_s3_bucket.nidhibucket12 will be created

```
+ resource "aws_s3_bucket" "nidhibucket12" {
  + acceleration_status      = (known after apply)
  + acl                      = (known after apply)
  + arn                     = (known after apply)
  + bucket                  = (known after apply)
  + bucket_domain_name      = (known after apply)
  + bucket_prefix           = (known after apply)
  + bucket_regional_domain_name = (known after apply)
  + force_destroy           = false
  + hosted_zone_id          = (known after apply)
  + id                      = (known after apply)
  + object_lock_enabled     = (known after apply)
  + policy                  = (known after apply)
  + region                  = (known after apply)
  + request_payer           = (known after apply)
  + tags_all                = (known after apply)
  + website_domain          = (known after apply)
  + website_endpoint        = (known after apply)
```

```
+ cors_rule (known after apply)
```

```
+ grant (known after apply)
```

```
+ lifecycle_rule (known after apply)
```

```
+ logging (known after apply)
```

```
+ object_lock_configuration (known after apply)
```

```
+ replication_configuration (known after apply)
```

```
+ server_side_encryption_configuration (known after apply)
```

```
+ versioning (known after apply)
```

```
+ website (known after apply)
```

```
}
```

aws_s3_bucket_acl.nidhibucket12_acl will be created

```
+ resource "aws_s3_bucket_acl" "nidhibucket12_acl" {
  + acl      = "private"
  + bucket   = (known after apply)
  + id       = (known after apply)
```

```
+ access_control_policy (known after apply)
```

```
}
```

random_pet.nidhibucket12 will be created

```
+ resource "random_pet" "nidhibucket12" {
  + id          = (known after apply)
  + length      = 3
  + prefix      = "fdp"
  + separator   = "-"
}
```

Plan: 3 to add, 0 to change, 0 to destroy.

```
C:\Terraform>terraform apply
random_pet.nidhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly]
aws_s3_bucket.nidhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly-bucket]
```

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.

Amazon S3

► Account snapshot - updated every 24 hours All AWS Regions View Storage Lens dashboard

Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

General purpose buckets | Directory buckets

General purpose buckets (1) Info All AWS Regions Refresh Copy ARN Empty Delete Create bucket

Buckets are containers for data stored in S3.

	Name ▲	AWS Region ▼	IAM Access Analyzer	Creation date ▼
<input type="radio"/>	fdp-mistakenly-vast-mayfly-bucket	US East (N. Virginia) us-east-1	View analyzer for us-east-1	August 20, 2024, 23:46:52 (UTC+05:30)

```
C:\Terraform>terraform apply
random_pet.nidhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly]
aws_s3_bucket.nidhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly-bucket]
```

Changes to Outputs:

```
+ s3_arn = "arn:aws:s3:::fdp-mistakenly-vast-mayfly-bucket"
```

You can apply this plan to save these new output values to the Terraform state, without changing any real infrastructure.

Do you want to perform these actions?

Terraform will perform the actions described above.

Only 'yes' will be accepted to approve.

Enter a value: yes

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

Outputs:

```
s3_arn = "arn:aws:s3:::fdp-mistakenly-vast-mayfly-bucket"
```

```
output "s3_region" {
  value = var.myregion
}
```

```

C:\Terraform>terraform apply
random_pet.nidhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly]
aws_s3_bucket.nidhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly-bucket]

Changes to Outputs:
  + s3_region = "us-east-1"

You can apply this plan to save these new output values to the Terraform state, without changing any real
infrastructure.

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

  Enter a value: yes

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

Outputs:
s3_arn = "arn:aws:s3:::fdp-mistakenly-vast-mayfly-bucket"
s3_region = "us-east-1"

```

Create an SQS Queue

- Add an SQS queue that will receive events from the S3 bucket when a new object is uploaded.

```

resource "aws_sqs_queue" "myqueue" {
  name = "mySQSqueue"
}

```

```

C:\Terraform>terraform plan
random_pet.abhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly]
aws_s3_bucket.abhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly-bucket]

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

Terraform will perform the following actions:

# aws_sqs_queue.myqueue will be created
+ resource "aws_sqs_queue" "myqueue" {
  + arn                               = (known after apply)
  + content_based_deduplication       = false
  + deduplication_scope               = (known after apply)
  + delay_seconds                     = 0
  + fifo_queue                        = false
  + fifo_throughput_limit             = (known after apply)
  + id                                = (known after apply)
  + kms_data_key_reuse_period_seconds = (known after apply)
  + max_message_size                  = 262144
  + message_retention_seconds         = 345600
  + name                              = "mySQSqueue"
  + name_prefix                       = (known after apply)
  + policy                            = (known after apply)
  + receive_wait_time_seconds         = 0
  + redrive_allow_policy              = (known after apply)
  + redrive_policy                    = (known after apply)
  + sqs_managed_sse_enabled           = (known after apply)
  + tags_all                          = (known after apply)
  + url                               = (known after apply)
  + visibility_timeout_seconds        = 30
}

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

```


Terraform used the selected providers to generate the following execution plan.
following symbols:
+ create

Terraform will perform the following actions:

```
# aws_sqs_queue.myqueue will be created
+ resource "aws_sqs_queue" "myqueue" {
  + arn                               = (known after apply)
  + content_based_deduplication       = false
  + deduplication_scope               = (known after apply)
  + delay_seconds                     = 0
  + fifo_queue                        = false
  + fifo_throughput_limit             = (known after apply)
  + id                                = (known after apply)
  + kms_data_key_reuse_period_seconds = (known after apply)
  + max_message_size                  = 262144
  + message_retention_seconds         = 345600
  + name                              = "mySQSqueue"
  + name_prefix                       = (known after apply)
  + policy                            = (known after apply)
  + receive_wait_time_seconds         = 0
  + redrive_allow_policy              = (known after apply)
  + redrive_policy                    = (known after apply)
  + sqs_managed_sse_enabled           = (known after apply)
  + tags_all                          = (known after apply)
  + url                               = (known after apply)
  + visibility_timeout_seconds        = 30
}
```

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

Do you want to perform these actions?

Terraform will perform the actions described above.

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

Do you want to perform these actions?

Terraform will perform the actions described above.

Only 'yes' will be accepted to approve.

Enter a value: yes

aws_sqs_queue.myqueue: Creating...

aws_sqs_queue.myqueue: Still creating... [10s elapsed]

aws_sqs_queue.myqueue: Still creating... [20s elapsed]

aws_sqs_queue.myqueue: Creation complete after 28s [id=https://sqs.us-east-1.amazonaws.com/659038782739/mySQSqueue]

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

Outputs:

s3_arn = "arn:aws:s3:::fdp-mistakenly-vast-mayfly-bucket"

s3_region = "us-east-1"

Services Search [Alt+S] N. Virginia voclabs/user3402843~d2022-abhishek.chaurasiya@ves.ac.in @ 6590-3878...

Amazon SQS > Queues

Queues (1)



Edit

Delete

Send and receive messages

Actions

Create queue

Search queues by prefix

< 1 > ⚙

	Name	Type	Created	Messages available	Messages in flight	Encryption	Content-based deduplication
<input type="radio"/>	mySQSqueue	Standard	2024-08-21T00:17+05:30	0	0	Amazon SQS key (SSE-SQS)	-

```
data "archive_file" "zip" {
  type           = "zip"
  source_file    = "lambda_function.py"
  output_path    = "lambda_function.zip"
}
```

```
data.archive_file.zip: Reading...
data.archive_file.zip: Read complete after 1s [id=8bf3069f9c57671063f5ad7ee3fbc97f62f9460c]
aws_sqs_queue.myqueue: Refreshing state... [id=https://sqs.us-east-1.amazonaws.com/659038782739/mySQSqueue]
aws_s3_bucket.nidhibucket12: Refreshing state... [id=fdp-mistakenly-vast-mayfly-bucket]
```

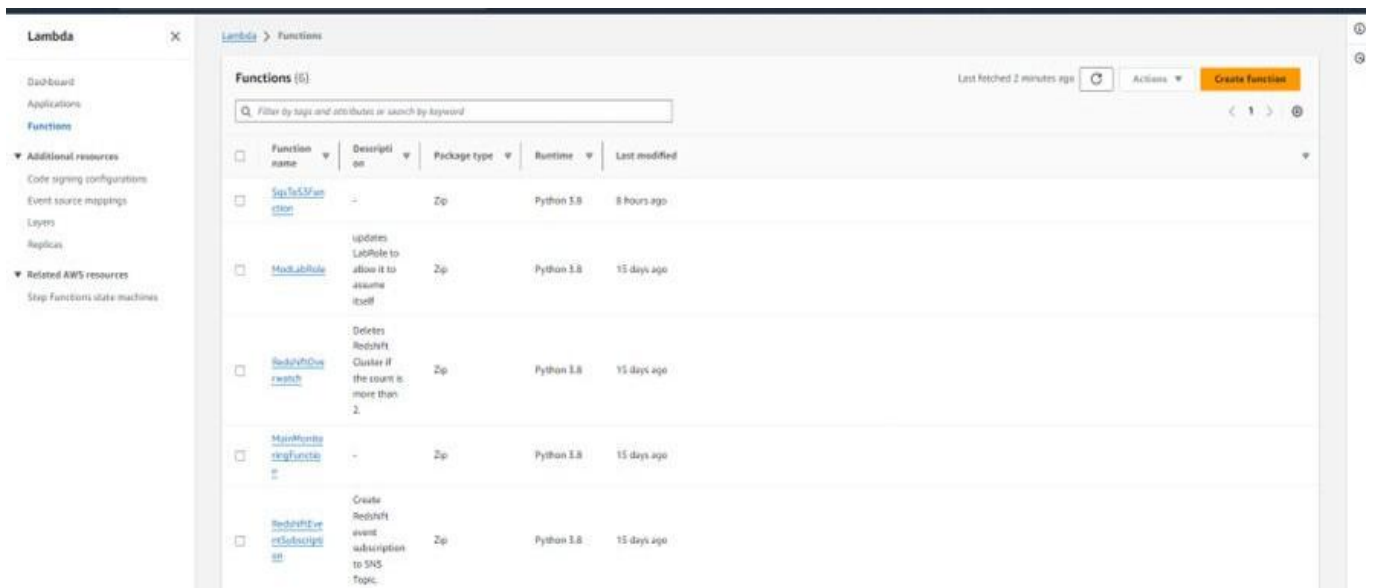
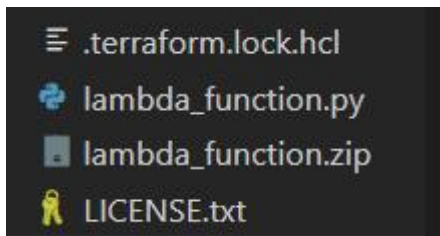
No changes. Your infrastructure matches the configuration.

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.

Outputs:

```
s3_arn = "arn:aws:s3::fdp-mistakenly-vast-mayfly-bucket"
s3_region = "us-east-1"
```



Create a Lambda Function

- Define the Lambda function that will be triggered by S3 events and send messages to SQS. You need a ZIP file containing your Lambda function code, which you can upload to the S3 bucket.

Create IAM Role for Lambda

- Lambda needs permissions to read from S3 and send messages to SQS. Define an IAM role and policy for the Lambda function.

SqsToS3Function

Throttle Copy ARN Actions

Function overview Info

Export to Application Composer Download

Diagram Template

SqsToS3Function Layers (0)

SQS + Add trigger

+ Add destination

Description

Last modified 8 hours ago

Function ARN [arn:aws:lambda:us-east-1:678726468212:function:SqsToS3Function](#)

Function URL [Info](#)

Code Test Monitor Configuration Aliases Versions

Code source Info Upload from

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

Environment

SqsToS3Function

lambda_function.py

```
1 import os
2
3 s3 = boto3.client('s3')
4
5
6
7
8
9 def handler(event, context):
10     bucket_name = os.environ['S3_BUCKET']
11     for record in event['Records']:
12         # Get the body of the message which was sent to SQS (now received by Lambda)
13         file_content = record['body']
14
15
16         # Define a unique filename, for example using the message ID
17         filename = f'{record["messageId"]}.txt'
18
19         # Upload the message content to an S3 bucket
20         s3.put_object(Bucket=bucket_name, Key=filename, Body=file_content)
21
22
23     return {
24         'statusCode': 200,
25         'body': json.dumps('Success')
26     }
```

Code Test Monitor Configuration Aliases Versions

General configuration

Triggers

Permissions

Destinations

Function URL

Environment variables

Tags

VPC

RDS databases

Monitoring and operations tools

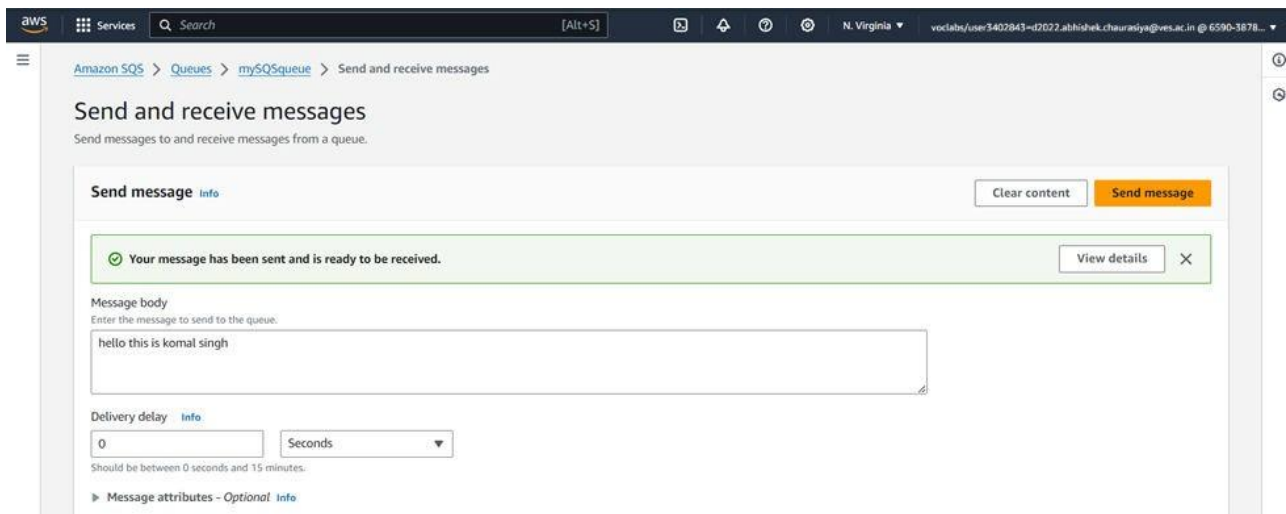
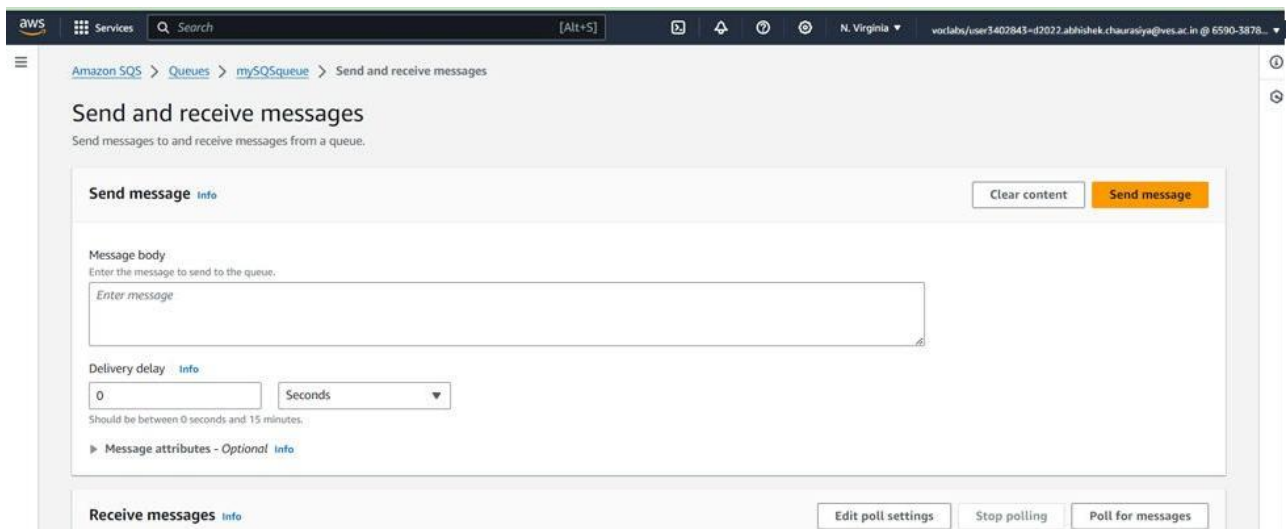
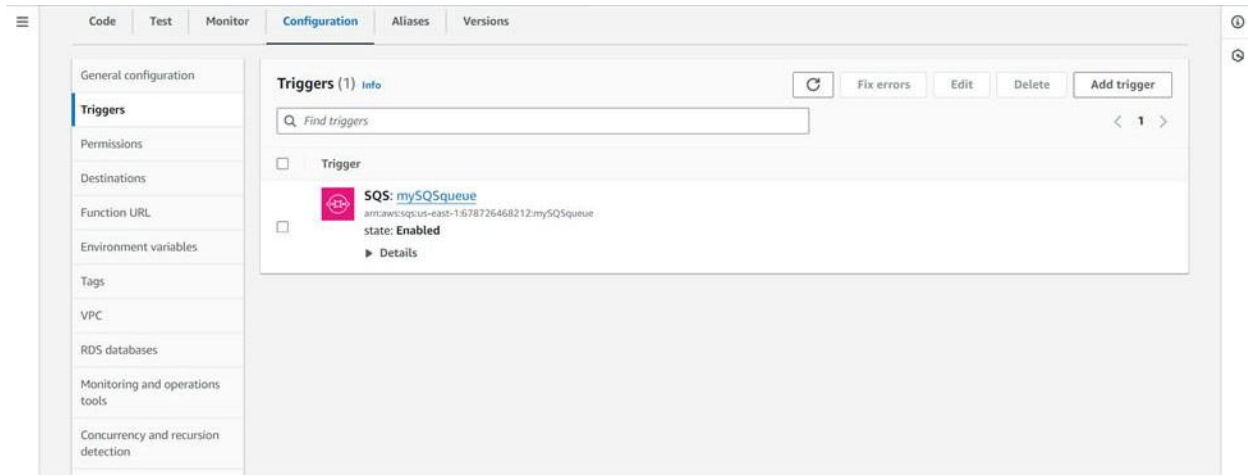
Concurrency and recursion detection

Environment variables (1) Edit

The environment variables below are encrypted at rest with the default Lambda service key.

Find environment variables

Key	Value
S3_BUCKET	fdp-likely-native-kingfish-bucket



Add S3 Event Notification for Lambda Trigger

- Define a bucket notification to trigger the Lambda function when objects are uploaded to the S3 bucket.

aws

Services

Search

[Alt+S]

N. Virginia

voclabs/user3402843-d2022.abhishek.chaurasiya@ves.ac.in @ 6590-3878...

Amazon S3

Buckets

Access Grants

Access Points

Object Lambda Access Points

Multi-Region Access Points

Batch Operations

IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens

Dashboards

Storage Lens groups

AWS Organizations settings

Feature spotlight

Amazon S3 > Buckets > fdp-likely-native-kingfish-bucket

fdp-likely-native-kingfish-bucket

Info

Objects Properties Permissions Metrics Management Access Points

Objects (1) Info

Copy S3 URI

Copy URL

Download

Open

Delete

Actions

Create folder

Upload

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

	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt	txt	August 16, 2024, 11:37:03 (UTC+05:30)	25.0 B	Standard

aws

Services

Search

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voclabs/user3402843-d2022.abhishek.chaurasiya@ves.ac.in @ 6590-3878...

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Feature spotlight

Amazon S3 > Buckets > fdp-likely-native-kingfish-bucket > 8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

Info

Copy S3 URI Download Open Object actions

Properties Permissions Versions

Object overview

Owner

awslabs0w4521471t1665103599

AWS Region

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

Last modified

August 16, 2024, 11:37:03 (UTC+05:30)

Size

25.0 B

S3 URI

s3://fdp-likely-native-kingfish-bucket/8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

Amazon Resource Name (ARN)

arn:aws:s3::fdp-likely-native-kingfish-bucket/8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

Entity tag (Etag)

8bf695db3e0c0550d7dd01c16b76b89b

aws

Services

Search

[Alt+S]

N. Virginia

voclabs/user3402843-d2022.abhishek.chaurasiya@ves.ac.in @ 6590-3878...

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8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

Info

Copy S3 URI Download Open Object actions

Properties Permissions Versions

Object overview

Owner

awslabs0w4521471t1665103599

AWS Region

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

Last modified

August 16, 2024, 11:37:03 (UTC+05:30)

Size

25.0 B

S3 URI

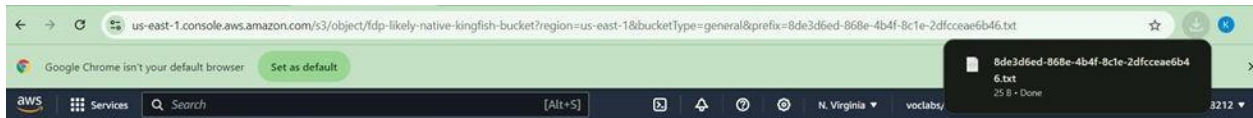
s3://fdp-likely-native-kingfish-bucket/8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

Amazon Resource Name (ARN)

arn:aws:s3::fdp-likely-native-kingfish-bucket/8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

Entity tag (Etag)

8bf695db3e0c0550d7dd01c16b76b89b



Amazon S3

Buckets

Access Grants

Access Points

Object Lambda Access Points

Multi-Region Access Points

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Dashboards

Storage Lens groups

AWS Organizations settings

Amazon S3 > Buckets > fdp-likely-native-kingfish-bucket > 8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt

Copy S3 URI Download Open Object actions

Properties Permissions Versions

Object overview

Owner aws:labsc0w4521471t1665103599	S3 URI s3://fdp-likely-native-kingfish-bucket/8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt
AWS Region US East (N. Virginia) us-east-1	Amazon Resource Name (ARN) arn:aws:s3::fdp-likely-native-kingfish-bucket/8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt
Last modified August 16, 2024, 11:37:03 (UTC+05:30)	



Amazon S3

Buckets

Access Grants

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Storage Lens

Dashboards

Storage Lens groups

AWS Organizations settings

Amazon S3 > Buckets > fdp-likely-native-kingfish-bucket

fdp-likely-native-kingfish-bucket

Objects Properties Permissions Metrics Management Access Points

Objects (1)

Copy S3 URI Copy URL Download Open Delete Actions Create folder Upload

Find objects by prefix Show versions

Name	Type	Last modified	Size	Storage class
8de3d6ed-868e-4b4f-8c1e-2dfccea6b46.txt	txt	August 16, 2024, 11:37:03 (UTC+05:30)	25.0 B	Standard

Empty bucket

Emptying the bucket deletes all objects in the bucket and cannot be undone.

- Objects added to the bucket while the empty bucket action is in progress might be deleted.
- To prevent new objects from being added to this bucket while the empty bucket action is in progress, you might need to update your bucket policy to stop objects from being added to the bucket.

[Learn more](#)

If your bucket contains a large number of objects, creating a lifecycle rule to delete all objects in the bucket might be a more efficient way of emptying your bucket. [Learn more](#)

[Go to lifecycle rule configuration](#)

Permanently delete all objects in bucket "fdp-likely-native-kingfish-bucket"?

To confirm deletion, type *permanently delete* in the text input field.

Cancel Empty