

Zadnia lab 8 Przemysław Kawa

1. Zaprojektuj i zastosuj funkcję lambda, która posłuży do wczytanie danych z pliku tekstowego w formacie *.csv, *.txt do odpowiedniej tabeli w bazie danych, w reakcji na zdarzenie związane z wgraniem pliku wejściowego do zasobu S3,

Tworzymy Politykę

Create policy

12

A policy defines the AWS permissions that you can assign to a user, group, or role. You can create and edit a policy in the visual editor and using JSON. [Learn more](#)

Visual editorJSON

Import managed policy

Expand allCollapse all

S3 (All actions)CloneRemove

ServiceS3

ActionsManual actions

ResourcesAll resources

Request conditions

☐ MFA required

Requires console users and those with temporary credentials to authenticate with an MFA device for these actions. [Learn more](#)

☐ Source IP

Allow access to the specified actions only when the request comes from the specified IP address range.

Add condition

Name*All_Lambda

Use alphanumeric and '+=, @, _' characters. Maximum 128 characters.

Description

Maximum 1000 characters. Use alphanumeric and '+=, @, _' characters.

Summary

Filter

Service	Access level	Resource	Request condition
Allow (3 of 264 services) Show remaining 261			
CloudWatch Logs	Full access	All resources	None
DynamoDB	Full access	All resources	None
S3	Full access	All resources	None

Tworzymy rolę:

Create role

- 1
- 2
- 3
- 4

▼ Attach permissions policies

Choose one or more policies to attach to your new role.

Create policy↻

Filter policies ▾

Q All

Showing 4 results

	Policy name ▾	Used as
<input checked="" type="checkbox"/>	▶ All_Lambda	None
<input type="checkbox"/>	▶ AWSDenyAll	None
<input type="checkbox"/>	▶ AWSNetworkFirewallServiceRolePolicy	None
<input type="checkbox"/>	▶ WAFRegionalLoggingServiceRolePolicy	None

Roles > lambda_role

Summary

Delete role

Role ARN

arn:aws:iam::138084980886:role/lambda_role

Role description

Allows Lambda functions to call AWS services on your behalf. | [Edit](#)

Instance Profile ARNs

Path

/

Creation time

2021-01-07 16:04 UTC+0100

Last activity

Not accessed in the tracking period

Maximum session duration

1 hour [Edit](#)

Permissions

Trust relationships

Tags

Access Advisor

Revoke sessions

▼ Permissions policies (1 policy applied)

Attach policies

[+ Add inline policy](#)

Policy name ▾	Policy type ▾	
▶ All_Lambda	Managed policy	✕

▶ Permissions boundary (not set)

Tworzymy S3

	name	region	Access
<input type="radio"/>	dane2142	US East (N. Virginia) us-east-1	Bucket and objects not public

DynamoDB

Create DynamoDB table

Tutorial ?

DynamoDB is a schema-less database that only requires a table name and primary key. The table's primary key is made up of one or two attributes that uniquely identify items, partition the data, and sort data within each partition.

Table name* dane_lambda ?

Primary key* Partition key

nazwa String ?

☒ Add sort key

wartosc String ?

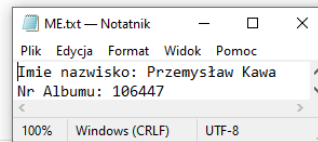


Table settings

Default settings provide the fastest way to get started with your table. You can modify these default settings now or after your table has been created.

☒ Use default settings

- No secondary indexes.
- Provisioned capacity set to 5 reads and 5 writes.
- Basic alarms with 80% upper threshold using SNS topic "dynamodb".
- Encryption at Rest with DEFAULT encryption type.

? You do not have the required role to enable Auto Scaling by default.
Please refer to [documentation](#).

+ Add tags **NEW!**

Additional charges may apply if you exceed the AWS Free Tier levels for CloudWatch or Simple Notification Service. Advanced alarm settings are available in the CloudWatch management console.

Cancel **Create**

Table details

Table name	dane_lambda
Primary partition key	nazwa (String)
Primary sort key	wartosc (String)
Point-in-time recovery	DISABLED Enable
Encryption Type	DEFAULT Manage Encryption
KMS Master Key ARN	Not Applicable
Encryption Status	

Tworzymy funkcje lambda

Create function [Info](#)

Choose one of the following options to create your function.

Author from scratch

Start with a simple Hello World example.

Use a blueprint

Build a Lambda application from sample code and configuration presets for common use cases.

Container image

Select a container image to deploy for your function.

Browse

Deploy AWS S

Basic information

Function name

Enter a name that describes the purpose of your function.

dane_2142_bucket

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime [Info](#)

Choose the language to use to write your function.

Python 2.7

Permissions [Info](#)

By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ Change default execution role

Execution role

Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).

- ☐ Create a new role with basic Lambda permissions
- ☒ Use an existing role
- ☐ Create a new role from AWS policy templates

Existing role

Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

lambda_role

[View the lambda_role role](#) on the IAM console.

Configuration

Permissions

Execution role

Role name

lambda_role [↗](#)

Trigger:

Add trigger

Trigger configuration



S3
aws storage

Bucket

Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.

dane2142

Event type

Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. However, for each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the same object key.

All object create events

Prefix - optional

Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.

e.g. images/

Suffix - optional

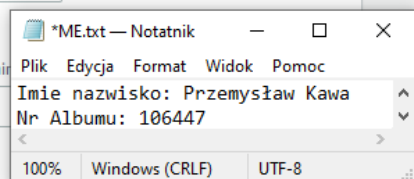
Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.

.csv

Lambda will add the necessary permissions for Amazon S3 to invoke your Lambda function from this trigger. [Learn more](#) about the Lambda permissions model.



The Lambda console no longer supports disabling S3 and CloudWatch Logs triggers. Delete these triggers to stop further actions.



^ tworzymy taki sam dla .txt

Basic test:

The area below shows the result returned by your function execution. [Learn more](#) about returning results from your function.

```
{
  "stackTrace": [
    [
      "/var/task/lambda_function.py",
      13,
      "lambda_handler",
      "obj = s3.get_object(Bucket=bucket,Key=key)"
    ],
    [
      "/var/runtime/botocore/client.py",
```

Try fix:

Role ARN

arn:aws:iam::138084980886:role/lambda_role

Role description

Allows Lambda functions to call AWS services on your behalf. | [Edit](#)

Instance Profile ARNs

Path

/

Creation time

2021-01-07 16:04 UTC+0100

Last activity

2021-01-07 16:41 UTC+0100 (Today)

Maximum session duration

1 hour [Edit](#)

Permissions

Trust relationships

Tags

Access Advisor

Revoke sessions

▼ Permissions policies (5 policies applied)

Attach policies

	Policy name ▼
▶	AmazonS3FullAccess
▶	AmazonDynamoDBFullAccess
▶	All_Lambda
▶	AWSLambda_ReadOnlyAccess
▶	AWSLambda_FullAccess

After File dane.csv upload

dane_labmda [Close](#)

Overview

Items

Metrics

Alarm

Create item

Actions ▾

Scan: [Table] dane_labmda: nazwa, wartosc

Scan ▾

[Table] dane_labmda: nazwa

+ Add filter

Start search

<input type="checkbox"/>	nazwa ⓘ ▲	wartosc ▼
<input type="checkbox"/>	A	12
<input type="checkbox"/>	B	13
<input type="checkbox"/>	C	14

Txt next test

index.php × upload.php × add2path.c × dane.txt ×

```
1 A;12
2 B;13
3 k;14
```

dane_labmda Close

Overview

Items

Metrics

Create item

Actions ▼

Scan: [Table] dane_labmda: nazwa, v



Scan ▼

[Table] dane_labmda


+ Add filter

Start search

<input type="checkbox"/>	nazwa ? ▲	wartosc
<input type="checkbox"/>	A	12
<input type="checkbox"/>	B	13
<input type="checkbox"/>	C	14
<input type="checkbox"/>	k	14

<input type="checkbox"/>	Name ▲	Type ▼	Last modified ▼	Size ▼
<input type="checkbox"/>	 dane.csv	csv	January 7, 2021, 17:43:24 (UTC+01:00)	18.0 B
<input type="checkbox"/>	 dane.txt	txt	January 7, 2021, 17:46:32 (UTC+01:00)	18.0 B

Wszystko działa zamykamy

 *dane.txt — Notatnik

Plik Edycja Format Widok Pomoc

```
import json
import boto3

s3 = boto3.client('s3')
dynamodb = boto3.resource('dynamodb')

def lambda_handler(event, context):
    # TODO implement
    # print(event)
    bucket = event['Records'][0]['s3']['bucket']['name'];
    key = event['Records'][0]['s3']['object']['key'];

    obj = s3.get_object(Bucket=bucket, Key=key)
    rows = obj['Body'].read().split('\r\n');
    table = dynamodb.Table('dane_lambda');
    print(rows)
    with table.batch_writer() as batch:
        for row in rows:

            batch.put_item(Item={
                'nazwa': row.split(';')[0],
                'wartosc': row.split(';')[1]
            })

    return {
        'statusCode': 200,
        'body': json.dumps('Hello from Przemek!')
    }
```

2. Zaprojektuj funkcję lambda, która monitoruje wybrany katalog w zasobie S3, i przenosi wybrane pliki (np. o ustalonym rozszerzeniu), do katalogu archiwum również w zasobie S3. W sprawozdaniu należy dodatkowo umieścić kod źródłowy odpowiednich funkcji lambda.

Uwagi:

1 Należy prześledzić nagranie z lab8 w celu konfiguracji roli wykorzystane poniżej lub wczytać się zadanie powyżej

2 Zadziała tylko jeśli wrzucimy do Warchfolder pliktxt w celu innych konfiguracji sprawdź kod i trigger!

Lambda > Functions > Lambdawatcher

Lambdawatcher

Configuration

Permissions

Monitoring

Execution role

Role name

lambda_role [↗](#)

jamjestwiadro

Objects

Properties

Permissions

Metrics

Management

Access points

Objects (2)

Objects are the fundamental entities stored in Amazon S3. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)



Delete

Actions ▼

Create folder

Upload



Find objects by prefix

<input type="checkbox"/>	Name ▲	Type ▼	Last modified ▼
<input type="checkbox"/>	archiwum/	Folder	-
<input type="checkbox"/>	Watchfolder/	Folder	-

Trigger configuration



S3
aws storage



Bucket

Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.

jamjestwiadro



Event type

Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. However, for each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the same object key.

PUT



Prefix - optional

Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.

Watchfolder/

Suffix - optional

Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.

.txt

Click on "Test" to see the event configuration for Amazon S3. You can also click on "Test" to see the event configuration for Amazon S3.

archiwum/

Objects

Folder properties

Objects (1)

Objects are the fundamental entities stored in Amazon S3. For others to access your objects, you'll need to export them to a public location.



Delete

Actions



Create folder

Upload

Find objects by prefix



Name



Type



Last modified



ME.txt

txt

January 8, 2021, 11:42:22 (UTC+)

```
► 2021-01-08T11:42:21.046+01:00 START RequestId: 878615b0-6116-4587-a9f3-9aa2fade3dde Version: $LATEST
► 2021-01-08T11:42:21.048+01:00 {'Records': [{'eventVersion': '2.1', 'eventSource': 'aws:s3', 'awsRegion': 'us-east-1', 'eventTime': '2021-01-08T10:42:15.449Z', 'eventName': 'ObjectCreated', 'bucket': 'archiwum', 'key': 'ME.txt'}]}
► 2021-01-08T11:42:21.048+01:00 archiwum/ME.txt
► 2021-01-08T11:42:21.048+01:00 ME.txt
► 2021-01-08T11:42:21.288+01:00 END RequestId: 878615b0-6116-4587-a9f3-9aa2fade3dde
► 2021-01-08T11:42:21.288+01:00 REPORT RequestId: 878615b0-6116-4587-a9f3-9aa2fade3dde Duration: 240.85 ms Billed Duration: 241 ms Memory Size: 128 MB Max Memory Used: 79 MB
```

Kod (Sprawdzić wcięcia po skopiowaniu!):

```
import json
import boto3

s3 = boto3.client('s3')

def lambda_handler(event, context):
    # TODO implement
    print(event)

    bucket = event['Records'][0]['s3']['bucket']['name'];
    key = event['Records'][0]['s3']['object']['key'];
    dest = "archiwum/";
    source = "Watchfolder/";
    filename = key.replace(source, "");
    newkey = key.replace(source, dest);
    print(newkey);
    print(filename);
    # Copy Source Object
    ourtxt = {'Bucket': bucket, 'Key': key}

    # S3 copy object operation
    s3.copy_object(CopySource=ourtxt, Bucket=bucket, Key=newkey);
    s3.delete_object(Bucket=bucket, Key=key);
    return {
        'statusCode': 200,
        'body': json.dumps('Hello from Jam jest Wiadro Przemek!')
    }
```

Wnioski:

- Lambda pozwala na integracje kilku usług AWS na własnych zasadach (sami piszemy kod)
- Wymaga jednak znajomości funkcji AWS dla danego języka by z niego korzystać

- Powyższe programy miały problemy z przetworzeniem utf-16. Nie przeprowadziłem dalszych testów niż utf-8 i utf16