

# These are my screenshots for my Wk9: ACA Module 13 Guided Lab - Implementing a Serverless Architecture with AWS Lambda

The first screenshot shows the 'Create function - Lambda' page in the AWS console. The function name is 'Load-Inventory'. The runtime is set to 'Python 3.7'. The architecture is set to 'x86\_64'. The permissions are set to 'Use an existing role' with the role 'Lambda-Load-Inventory-Role'.

The second screenshot shows the 'Code source' tab for the 'Load-Inventory' function. The code is as follows:

```
10 inventoryTable = dynamodb.Table('Inventory')
11 # This handler is run every time the Lambda function is triggered
12 def lambda_handler(event, context):
13     # Show the incoming event in the debug log
14     print("Event received by Lambda function: " + json.dumps(event, indent=2))
15     # Get the bucket and object key from the event
16     bucket = event['Records'][0]['s3']['bucket']['name']
17     key = urllib.parse.unquote_plus(event['Records'][0]['s3']['object']['key'])
18     localFilename = f"/tmp/{event['Records'][0]['s3']['object']['key']}"
19     # Download the file from S3 to the local filesystem
20     try:
21         s3.meta.client.download_file(bucket, key, localFilename)
22     except Exception as e:
23         print(e)
24     # Read the Inventory CSV file
25     raise e
26 # Read the Inventory CSV file
27 with open(localFilename) as csvFile:
28     reader = csv.DictReader(csvFile, delimiter=',')
29     # Read each row in the file
30     rowCount = 0
31     for row in reader:
32         rowCount += 1
33         # Show the row in the debug log
34         print(row['store'], row['item'], row['count'])
35     try:
36         # Insert Store, Item and Count into the Inventory table
37         inventoryTable.put_item(
38             Item={
39                 'store': row['store'],
40                 'item': row['item'],
41                 'count': int(row['count'])
42             })
43     except Exception as e:
44         print(e)
45         print("Unable to insert data into DynamoDB table".format(e))
46     # Finished
47     return "No counts inserted" * rowCount
```

WV9: ACA Module 13 Guided L... x Module 13 Guided Lab - Imple... x S3 Management Console x WV9: ACA Module 13 Guided L... x +

s3.console.aws.amazon.com/s3/buckets?region=us-east-1

Services Search [Alt+S]

Global voclabs/user2555392~104177513@student.swin.edu.au @ 6947-2311...

Successfully created bucket "inventory-14072023"  
To upload files and folders, or to configure additional bucket settings choose [View details](#).

Amazon S3 Buckets

Account snapshot  
Storage lens provides visibility into storage usage and activity trends. [Learn more](#) [View Storage Lens dashboard](#)

Buckets (1) Info  
Buckets are containers for data stored in S3. [Learn more](#)

Find buckets by name

Name	AWS Region	Access	Creation date
inventory-14072023	US East (N. Virginia) us-east-1	Bucket and objects not public	July 14, 2023, 23:34:48 (UTC+07:00)

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WV9: ACA Module 13 Guided L... x Module 13 Guided Lab - Imple... x inventory-14072023 - S3 bucket x WV9: ACA Module 13 Guided L... x +

s3.console.aws.amazon.com/s3/bucket/inventory-14072023/property/notification/create?region=us-east-1

Services Search [Alt+S]

Global voclabs/user2555392~104177513@student.swin.edu.au @ 6947-2311...

s3LifecycleExpiration\*  
Delete marker added by Lifecycle for a versioned object  
s3LifecycleExpirationDeleteMarkerCreated

Intelligent-Tiering  
Intelligent-Tiering archive events  
s3IntelligentTiering

Destination

Before Amazon S3 can publish messages to a destination, you must grant the Amazon S3 principal the necessary permissions to call the relevant API to publish messages to an SNS topic, an SQS queue, or a Lambda function. [Learn more](#)

Destination  
Choose a destination to publish the event. [Learn more](#)

Lambda function  
Run a Lambda function script based on S3 events.

SNS topic  
Fanout messages to systems for parallel processing or directly to people.

SQS queue  
Send notifications to an SQS queue to be read by a server.

Specify Lambda function  
Choose from your Lambda functions  
Enter Lambda function ARN

Lambda function  
Load-Inventory

Cancel Save changes

W9: ACA Module 13 Guided L... x Module 13 Guided Lab - Imple... x inventory-14072023 - S3 bucket x W9: ACA Module 13 Guided L... x +

s3.console.aws.amazon.com/s3/buckets/inventory-14072023?region=us-east-1&tab=properties

Services Search [Alt+S]

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Successfully created event notification "Load-Inventory".  
Operation successfully completed.

Amazon S3 Buckets inventory-14072023

inventory-14072023 info

Objects Properties Permissions Metrics Management Access Points

Bucket overview

AWS Region US East (N. Virginia) us-east-1	Amazon Resource Name (ARN) arn:aws:s3::inventory-14072023	Creation date July 14, 2023, 23:34:48 (UTC+07:00)
---	--	--

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](#)

Edit

Bucket Versioning  
Disabled

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](#)

Disabled

Tags (0)

You can use bucket tags to track storage costs and organize buckets. [Learn more](#)

Edit

Key Value

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W9: ACA Module 13 Guided L... x Module 13 Guided Lab - Imple... x S3 Management Console x W9: ACA Module 13 Guided L... x +

s3.console.aws.amazon.com/s3/upload/inventory-14072023?region=us-east-1

Services Search [Alt+S]

Global voclabs/user2555392~104177513@student.swin.edu.au @ 6947-2311...

Upload info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose [Add files](#) or [Add folder](#).

Files and folders (1 Total, 140.0 B)

[Remove](#) [Add files](#) [Add folder](#)

All files and folders in this table will be uploaded.

Find by name < 1 >

<input type="checkbox"/>	Name	Folder	Type	Size
<input type="checkbox"/>	labs.vocareum.com_we b_2555392_1795497.0 _ASNLIB_public_scripts _inventory-berlin.csv	-	text/csv	140.0 B

Destination

Destination  
s3://inventory-14072023

Destination details  
Bucket settings that impact new objects stored in the specified destination.

Permissions  
Grant public access and access to other AWS accounts.

Properties  
Specify storage class, encryption settings, tags, and more.

Cancel Upload

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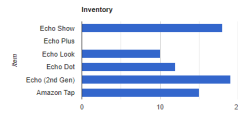
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<https://aws-tc-largeobjects.s3-us-west-2.amazonaws.com/ILT-TF-200-ACACAD-20-EN/mod13-guided/web/inventory.htm?region=us-east-1&poolId=us-east-1:6ee87ea7-6951-4e4d-babe-9f9d2970b20e>

# Inventory Dashboard

Choose a store to view current inventory levels.

Store:	Store	Item	Count
All Stores	All Stores	Echo Show	18
All Stores	All Stores	Echo Plus	0
All Stores	All Stores	Echo Look	10
All Stores	All Stores	Echo Dot	12
All Stores	All Stores	Echo (2nd Gen)	19
All Stores	All Stores	Amazon Tap	15



This page uses an Amazon Cognito identity to retrieve data directly from Amazon DynamoDB.

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Wk9: ACA Module 13 Guided Lab - x Module 13 Guided Lab - Implem - x Items | Amazon DynamoDB Mai - x Inventory System x Wk9: ACA Module 13 Guided Lab - x +

us-east-1.console.aws.amazon.com/dynamodbv2/home?region=us-east-1#item-explorer/table=Inventory&maximize=true

Gmail YouTube Maps

**DynamoDB** x

Find tables by table name

< 1 >

Inventory

Scan Query

Select a table or index

Table - Inventory

Select attribute projection

All attributes

Filters

Run Reset

Completed. Read capacity units consumed: 0.5

Items returned (6)

Actions Create item

	Store	Item	Count
<input type="checkbox"/>	Berlin	Amazon Tap	15
<input type="checkbox"/>	Berlin	Echo (2nd Gen)	19
<input type="checkbox"/>	Berlin	Echo Dot	12
<input type="checkbox"/>	Berlin	Echo Look	10
<input type="checkbox"/>	Berlin	Echo Plus	0
<input type="checkbox"/>	Berlin	Echo Show	18

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23:43  
14/07/2023

Wk9: ACA Module 13 Guided Lab - x Module 13 Guided Lab - Imple... x Details | Topics | Amazon SNS x Inventory System x Wk9: ACA Module 13 Guided Lab - x +

us-east-1.console.aws.amazon.com/sns/v3/home?region=us-east-1#/topic/amawsnsus-east-1-694723111327-NoStock

Amazon SNS

Dashboard  
Topics  
Subscriptions

▼ Mobile  
Push notifications  
Text messaging (SMS)  
Origination numbers

Topic NoStock created successfully.  
You can create subscriptions and send messages to them from this topic.

Amazon SNS > Topics > NoStock

NoStock

Edit Delete Publish message

Details

Name NoStock	Display name -
ARN arn:aws:sns:us-east-1:694723111327-NoStock	Topic owner 694723111327
Type Standard	

Subscriptions Access policy Data protection policy Delivery policy (HTTP/S) Delivery status logging Encryption Tags Integrations

Subscriptions (0)

Edit Delete Request confirmation Confirm subscription Create subscription

No subscriptions found  
You don't have any subscriptions to this topic.

Create subscription

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Wk9: ACA Module 13 Guided Lab - x Module 13 Guided Lab - Imple... x Details | Subscriptions | Amazon SNS x Inventory System x Wk9: ACA Module 13 Guided Lab - x +

us-east-1.console.aws.amazon.com/sns/v3/home?region=us-east-1#/subscription/amawsnsus-east-1-694723111327-NoStock:23d824b1-3ec0-4df3-9605-adc4257dbd61

Amazon SNS

Dashboard  
Topics  
Subscriptions

▼ Mobile  
Push notifications  
Text messaging (SMS)  
Origination numbers

Important changes for sending text messages (SMS) to US destinations  
US mobile carriers have recently changed their regulations, and will require that all toll-free numbers (TFNs) complete a registration process with a regulatory body before September 30, 2022. If you currently have a toll-free number you must register your toll-free number by September 30, 2022 or you will no longer be able to use the toll-free number. [Learn more](#)

View origination numbers

Subscription to NoStock created successfully.  
The ARN of the subscription is arn:aws:sns:us-east-1:694723111327-NoStock:23d824b1-3ec0-4df3-9605-adc4257dbd61.

Amazon SNS > Topics > NoStock > Subscription: 23d824b1-3ec0-4df3-9605-adc4257dbd61

Subscription: 23d824b1-3ec0-4df3-9605-adc4257dbd61

Edit Delete

Details

ARN arn:aws:sns:us-east-1:694723111327-NoStock:23d824b1-3ec0-4df3-9605-adc4257dbd61	Status Ⓢ Pending confirmation
Endpoint ainchan29@gmail.com	Protocol EMAIL
Topic NoStock	
Subscription Principal arn:aws:iam::694723111327:role/voclabs	

Subscription filter policy Redrive policy (dead-letter queue)

Subscription filter policy [Info](#)  
This policy filters the messages that a subscriber receives.

No filter policy configured for this subscription.



Simple Notification Service

### Subscription confirmed!

You have successfully subscribed.

Your subscription's ID is:  
arn:aws:sns:us-east-1:694723111327:NoStock:23682401-3e08-44f3-9805-  
a0c42572b961

If it was not your intention to subscribe, [click here to unsubscribe](#).

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Cả mây rải rác

Wk9: ACA Module 13 Guided L... x Module 13 Guided Lab - Imple... x Create function - Lambda x Inventory System x Wk9: ACA Module 13 Guided L... x AWS Notification - Subscription... x Subscription confirm x

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/create/function

AWS Services Search [Alt+S]

**AWS Lambda**

- Dashboard
- Applications
- Functions
- ▼ Additional resources
  - Code signing configurations
  - Layers
  - Replicas
- ▼ Related AWS resources
  - Step Functions state machines

### Basic information

**Function name**  
Enter a name that describes the purpose of your function.  
  
Use only letters, numbers, hyphens, or underscores with no spaces.

**Runtime** Info  
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.  

Python 3.7

**Architecture** Info  
Choose the instruction set architecture you want for your function code.  

☒ x86\_64

☐ arm64

**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-Check-Stock-Role

  
[View the Lambda-Check-Stock-Role role](#) on the IAM console.

► **Advanced settings**

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us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/Check-Stock/newfunction=true&tab=code

Services Search [Alt+S]

Successfully updated the function Check-Stock.

**Check-Stock**

+ Add trigger + Add destination

Description  
-  
Last modified  
3 seconds ago  
Function ARN  
arn:aws:lambda:us-east-1:694723111327:function:Check-Stock  
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

lambda\_function.py

```
16 store = record['dynamodb']['NewImage']['Store']['S']
17 item = record['dynamodb']['NewImage']['Item']['S']
18 # Construct message to be sent
19 message = store + ' is out of stock of ' + item
20 print(message)
21 # Connect to SNS
22 sns = boto3.client('sns')
23 alertTopic = 'NoStock'
24 snsTopicArn = [t['TopicArn'] for t in sns.list_topics()['Topics']
25                  if t['TopicName'].lower() == alertTopic.lower()][0]
26 # Send message to SNS
27 sns.publish(
28     TopicArn=snsTopicArn,
29     Message=message,
30     Subject='Inventory Alert!',
31     MessageStructure='raw'
32 )
33 # finished!
34 return 'Successfully processed {} records.'.format(len(event['Records']))
```

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Wk9: ACA Module 13 Guided L... x Module 13 Guided Lab - Impl... x Add triggers - Lambda x Inventory System x Wk9: ACA Module 13 Guided L... x AWS Notification - Subscription x Subscription confirm x

us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/add/relationship?focus=aws%2Flambda&target=arn%3Aaws%3Alambda%3Aus-east-1%3A694723111327%3Afunction%3ACheck-Stock&targetType=aws%2Flambda&type=tri...

Services Search [Alt+S]

Lambda > Add trigger

**Add trigger**

**Trigger configuration** [info](#)

DynamoDB  
aws database nosql

DynamoDB table  
Choose or enter the ARN of a DynamoDB table.  
am:aws:dynamodb:us-east-1:694723111327:table/Inventory

☒ **Activate trigger**  
Select to activate the trigger now. Keep unchecked to create the trigger in a deactivated state for testing (recommended).

**Batch size**  
The number of records in each batch to send to the function.  
100

**Starting position**  
The position in the stream to start reading from. For more information, see [ShardIteratorTypes](#) in the Amazon Kinesis API Reference.  
Latest

**Batch window - optional**  
The maximum amount of time to gather records before invoking the function, in seconds.

**Additional settings**

In order to read from the DynamoDB trigger, your execution role must have proper permissions.

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Wk9: ACA Module 13 Guided L...Module 13 Guided Lab - Imple...S3 Management ConsoleInventory SystemWk9: ACA Module 13 Guided L...AWS Notification - Subscription...Subscription confirm

s3.console.aws.amazon.com/s3/upload/inventory-14072023?region=us-east-1

ServicesSearch[Alt+S]

Globalvocalbox/user2555392-104177513@student.swin.edu.au @ 6947-2311...

Upload succeededView details below.

Upload: statusClose

The information below will no longer be available after you navigate away from this page.

Summary

Destination

s3://inventory-14072023

Succeeded

1 file, 150.0 B (100.00%)

Failed

0 files, 0 B (0%)

Files and foldersConfiguration

Files and folders (1 Total, 150.0 B)

Find by name

Name	Folder	Type	Size	Status	Error
labs.vocareum_com_web_2555392_1795497.0_ASNLIB_public_scripts_inventory-calcutta.csv	-	text/csv	150.0 B	Succeeded	-

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Search

ENG14/07/2023

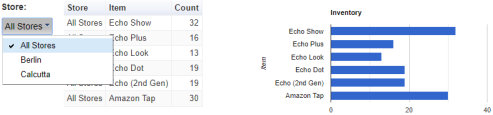
Wk9: ACA Module 13 Guided L...Module 13 Guided Lab - Imple...S3 Management ConsoleInventory SystemWk9: ACA Module 13 Guided L...AWS Notification - Subscription...Subscription confirm

aws-tc-largeobjects.s3-us-west-2.amazonaws.com/LT-TF-200-ACACAD-20-EN/mod13-guided/web/inventory.htm?region=us-east-1&poolid=us-east-16ee87ea7-6951-4e4d-babe-9f9d2970b20e

GoogleYouTubeMaps

# Inventory Dashboard

Choose a store to view current inventory levels.



This page uses an Amazon Cognito identity to retrieve data directly from Amazon DynamoDB.



