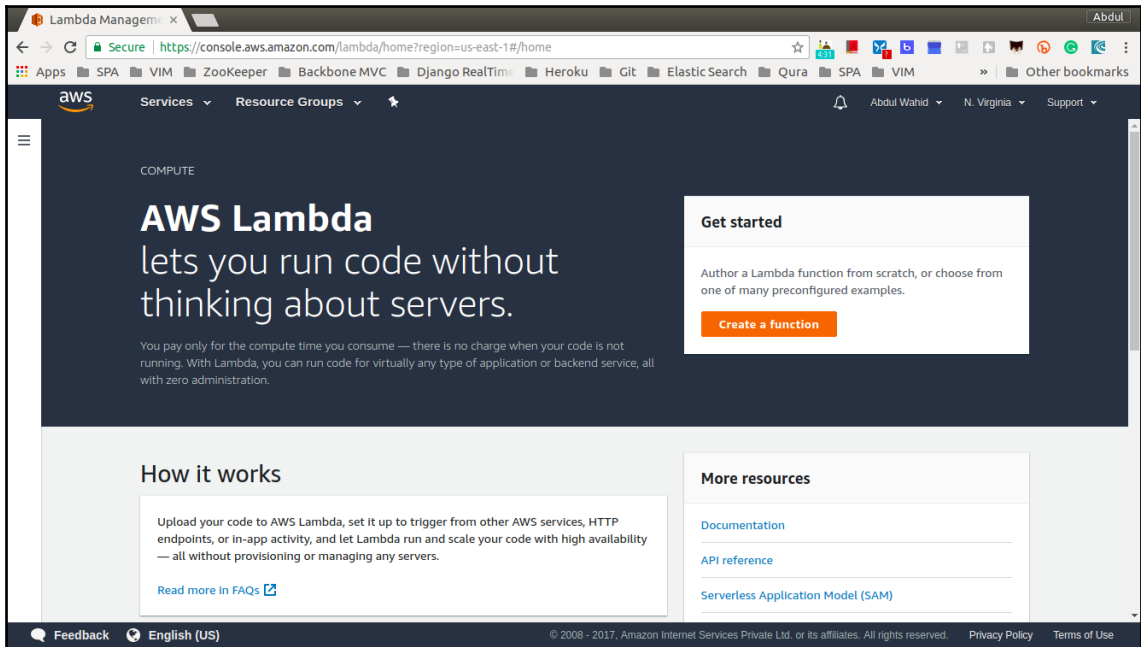


Chapter 1: Amazon Web Services for Serverless



aws Services Resource Groups

Abdul Wahid Ohio Support

Lambda > Functions > Create function

Create function

Author from scratch

Start with a simple "hello world" example.

Blueprints

Choose a preconfigured template as a starting point for your Lambda function.

Serverless Application Repository

Find and deploy serverless apps published by developers, companies, and partners on AWS.

Blueprints info Export

Q Add filter ?

keyword: hello-world ⊗ < 1 >

greengrass-hello-world

Deploy this lambda to a Greengrass core where it will send a hello world message to a topic

python · greengrass · iot · hello world

hello-world

A starter AWS Lambda function.

nodejs

hello-world-python

A starter AWS Lambda function.

python2.7

hello-world-python3

A starter AWS Lambda function.

python3.6

greengrass-hello-world-nodejs

Deploy this lambda to a Greengrass core where it will send a hello world message to a topic

nodejs6.10 · greengrass · iot · hello world

Cancel Configure

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aws Services Resource Groups

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Lambda > Functions > Create function > Using blueprint hello-world-python

Basic information Info

Name

Role
Defines the permissions of your function. Note that new roles may not be available for a few minutes after creation. [Learn more](#) about Lambda execution roles.

Existing role
You may use an existing role with this function. Note that the role must be assumable by Lambda and must have Cloudwatch Logs permissions.

Lambda function code

Code is pre-configured by the chosen blueprint. You can configure it after you create the function.

Runtime
Python 2.7

```
1 from __future__ import print_function
2
3 import json
4
5 print('Loading function')
6
7
8 def lambda_handler(event, context):
9     #print("Received event: " + json.dumps(event, indent=2))
10    print("value1 = " + event['key1'])
11    print("value2 = " + event['key2'])
12    print("value3 = " + event['key3'])
13    return event['key1'] # Echo back the first key value
14    #raise Exception('Something went wrong')
15
```

* These fields are required.

Cancel Previous **Create function**

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[AWS](#)
[Services](#)
[Resource Groups](#)

[Add AWS](#)
[CM](#)
[Support](#)

[Lambda](#) > [Functions](#) > HelloWorld

 ARN: arn:aws:lambda:us-east-2:042373592390:functions:HelloWorld

Throttle
Qualifiers
Actions
Select a test event...
Test
Save

✔ Congratulations! Your Lambda function "HelloWorld" has been successfully created. You can now change its code and configuration. Click on the "Test" button to input a test event when you are ready to test your function.

Configuration
Monitoring

Designer

Add triggers
 Click on a trigger from the list below to add it to your function.

Add triggers from the list on the left

HelloWorld

Amazon CloudWatch Logs

Amazon S3

Resources the function's role has access to will be shown here

Function code [info](#)

Code entry type: Edge code inline
 Runtime: Python 2.7
 Handler: lambda_function.lambda_handler

```

1  from __future__ import print_function
2  import base64
3  print('Loading function')
4
5  def lambda_handler(event, context):
6      # This code only prints "hello world" to the console
7      print('hello world')
8      # You can also return a string value
9      return 'hello world'
10
11 # Make sure the first key value
12 # is the function name!
  
```

Environment variables

You can define Environment Variables as key-value pairs that are accessible from your function code. These are useful to store configuration settings without the need to change function code. [Learn more](#).

key Value Remove

Tags

You can use tags to group and filter your functions. A tag consists of a case-sensitive key-value pair. [Learn more](#).

lambda-console-blueprint Remove

hello-world-python Remove

key Value Remove

Execution role

Define the permissions of your function. Note that new roles may not be available for this region after creation. [Learn more about Lambda](#).

Choose an existing role

Existing role

You may use an existing role with this function. Note that the role must be assumable by Lambda and must have CloudWatch Logs permissions.

service-role/BasicS3Permissions

Basic settings

Description
 A starter AWS Lambda function.

Memory (MB) info
 Your function is allocated CPU proportional to the memory configured.
 128 MB

Timeout info
 0 min 3 sec

Network

VPC info
 Select a VPC that your function will access.
 No VPC

Concurrency

Unreserved account concurrency 1000

Use unreserved account concurrency

Reserve concurrency

Debugging and error handling

DLO Resource info
 Choose the AWS service to send event payload to after exceeding maximum errors.
 None

Enable active tracing [info](#)

Auditing and compliance

This function's invocations can be logged by CloudTrail for operational and risk auditing, governance, and compliance. Visit the [CloudTrail console](#) to get started.

[Feedback](#)
[English \(US\)](#)

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aws Services Resource Groups

Abdul Wahid Ohio Support

Lambda > Functions > HelloWorld

ARN - arn:aws:lambda:us-east-2:042373950390:function:HelloWorld

Throttle Qualifiers Actions test Test Save

Configuration **Monitoring**

CloudWatch metrics at a glance View traces in X-Ray

Invocation count Last 24 hours

[Jump to Metrics](#) [Jump to Logs](#)

Count

Invocation duration Last 24 hours

[Jump to Metrics](#) [Jump to Logs](#)

Max Milliseconds
Avg Milliseconds
Min Milliseconds

Invocation errors Last 24 hours

[Jump to Metrics](#) [Jump to Logs](#)

Count

Throttled invocations Last 24 hours

[Jump to Metrics](#) [Jump to Logs](#)

Count

Iterator age Last 24 hours

[Jump to Metrics](#) [Jump to Logs](#)

Max Milliseconds

DLQ errors Last 24 hours

[Jump to Metrics](#) [Jump to Logs](#)

Count

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Configure test event ✕

A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

Create new test event
 Edit saved test events

Event template
Hello World ▼

Event name

```
1 - {}  
2   "key3": "value3",  
3   "key2": "value2",  
4   "key1": "value1"  
5 }
```

HelloWorld

Qualifiers ▼

Actions ▼

helloworld ▼

Test

✔ Execution result: succeeded (logs)

▼ Details

The area below shows the result returned by your function execution.

```
"Hello World"
```

Summary

Code SHA-256
dvnFe0sFFIq9UWZJHo
dSjDU33qVeu/DUE760
RUO+WkA=

Request ID
c5d856fa-cd65-11e7-
bf1e-31311818bcd5

Duration
0.40 ms

Billed duration
100 ms

Resources configured
128 MB

Max memory used
18 MB

Log output

The area below shows the logging calls in your code. These correspond to a single row within the CloudWatch log group corresponding to this Lambda function. [Click here](#) to view the CloudWatch log group.

```
START RequestId: c5d856fa-cd65-11e7-bf1e-31311818bcd5 Version: $LATEST
Received event: {
  "key3": "value3",
  "key2": "value2",
  "key1": "value1"
}
value1 = value1
value2 = value2
value3 = value3
```

HelloWorld

Qualifiers ▼

Actions ▼

helloworld ▼

Test

❌ Execution result: failed (logs)

▼ Details

The area below shows the result returned by your function execution.

```
{
  "stackTrace": [
    [
      "/var/task/lambda_function.py",
      10,
      "lambda_handler",
      "raise Exception('Exception raised manually.')"
    ]
  ],
  "errorType": "Exception",
  "errorMessage": "Exception raised manually."
}
```

Summary

Code SHA-256
of359p5Ah1hFM0m9
OqDsy6d6ct8lfr6Lvto
a9W7wp9s=

Request ID
73d23bef-cd68-11e7-
9316-375cf87697ef

Duration
0.79 ms

Billed duration
100 ms

Log output

The area below shows the logging calls in your code. These correspond to a single row within the CloudWatch log group corresponding to this Lambda function. [Click here](#) to view the CloudWatch log group.

```
START RequestId: 73d23bef-cd68-11e7-9316-375cf87697ef Version: $LATEST
Received event: {
  "key3": "value3",
  "key2": "value2",
  "key1": "value1"
}
Exception raised manually.: Exception
Traceback (most recent call last):
  File "/var/task/lambda_function.py", line 10, in lambda_handler
    raise Exception('Exception raised manually.')
```

```
lambda_function.py
1  from __future__ import print_function
2
3  import json
4  from datetime import datetime
5
6  print('Loading function')
7
8
9  def lambda_handler(event, context):
10     current_time = datetime.now()
11     print ("Hello World with Request ID {0}".format(context.aws_request_id))
12     print ("Function executed on {0}"\
13           .format(current_time.strftime('%d-%b-%Y at %H:%M:%S') ))
14
```

[8]

aws Services Resource Groups

Abdul Wahid Ohio Support

Lambda > Functions > HelloWorld

ARN - arn:aws:lambda:us-east-2:042373950390:function:HelloWorld

Throttle Qualifiers Actions Select a test event. Test Save

Configuration Monitoring

Designer

API Gateway

AWS IoT

CloudWatch Events

CloudWatch Logs

CodeCommit

Cognito Sync Trigger

DynamoDB

CloudWatch Events Configuration required

Amazon CloudWatch Logs

Amazon S3

Resources the function's role has access to will be shown here

Configure triggers

Rule

Pick an existing rule, or create a new one.

Create a new rule

Select or create a new rule

Rule name*

Enter a name to uniquely identify your rule.

hello-world-every-minute

Rule description

Provide an optional description for your rule.

Say hello world every minute

Rule type

Trigger your target based on an event pattern, or based on an automated schedule.

Event pattern

Schedule expression

Schedule expression*

Self-trigger your target on an automated schedule using Cron or rate expressions. Cron expressions are in UTC.

rate(1 minute)

e.g. rate(1 day), cron(0 17 ? * MON-FRI *)

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

Enable trigger

Enable the trigger now, or create it in a disabled state for testing (recommended).

Cancel Add

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Secure https://console.aws.amazon.com/cloudwatch/home?region=us-east-1#logs:

Services Resource Groups

CloudWatch > Log Groups

Create Metric Filter Actions

Filter: Log Group Name Prefix x

Log Groups	Expire Events After	Metric Filters	Subscriptions
<input type="radio"/> /aws/apigateway/welcome	Never Expire	0 filters	None
<input type="radio"/> /aws/lambda/GenerateConjurorInvoice	Never Expire	0 filters	None
<input type="radio"/> /aws/lambda>HelloWorld	Never Expire	0 filters	None
<input type="radio"/> /aws/lambda>HelloWorldCLI	Never Expire	0 filters	None
<input type="radio"/> /aws/lambda/homejoy-backend-develop	Never Expire	0 filters	None
<input type="radio"/> API-Gateway-Execution-Logs_gszsyla6a9/prod	Never Expire	0 filters	None

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Time (UTC +00:00)	Message
2017-11-20	No older events found at the moment. Retry .
21:08:04	Loading function
21:08:04	START RequestId: e6296dfc-ce36-11e7-bac9-3f8e6deaa7e8 Version: \$LATEST
21:08:04	Hello World with Request ID e6296dfc-ce36-11e7-bac9-3f8e6deaa7e8
21:08:04	Function executed on 20-Nov-2017 at 21:08:04
21:08:04	END RequestId: e6296dfc-ce36-11e7-bac9-3f8e6deaa7e8
21:08:04	REPORT RequestId: e6296dfc-ce36-11e7-bac9-3f8e6deaa7e8 Duration: 0.36 ms Billed Duration: 100 ms Memory Size: 128 MB Max Memory Used: 18 MB
21:09:05	START RequestId: 0a616f35-ce37-11e7-9f62-59345c32daa8 Version: \$LATEST
21:09:05	Hello World with Request ID 0a616f35-ce37-11e7-9f62-59345c32daa8
21:09:05	Function executed on 20-Nov-2017 at 21:09:05
21:09:05	END RequestId: 0a616f35-ce37-11e7-9f62-59345c32daa8
21:09:05	REPORT RequestId: 0a616f35-ce37-11e7-9f62-59345c32daa8 Duration: 0.55 ms Billed Duration: 100 ms Memory Size: 128 MB Max Memory Used: 18 MB
21:10:04	START RequestId: 2da8f4b8-ce37-11e7-b64d-6f3aad17b10b Version: \$LATEST
21:10:04	Hello World with Request ID 2da8f4b8-ce37-11e7-b64d-6f3aad17b10b
21:10:04	Function executed on 20-Nov-2017 at 21:10:04
21:10:04	END RequestId: 2da8f4b8-ce37-11e7-b64d-6f3aad17b10b
21:10:04	REPORT RequestId: 2da8f4b8-ce37-11e7-b64d-6f3aad17b10b Duration: 51.24 ms Billed Duration: 100 ms Memory Size: 128 MB Max Memory Used: 19 MB
21:11:05	START RequestId: 51e53be6-ce37-11e7-aa37-2785a702ebce Version: \$LATEST
21:11:05	Hello World with Request ID 51e53be6-ce37-11e7-aa37-2785a702ebce
21:11:05	Function executed on 20-Nov-2017 at 21:11:05
21:11:05	END RequestId: 51e53be6-ce37-11e7-aa37-2785a702ebce
21:11:05	REPORT RequestId: 51e53be6-ce37-11e7-aa37-2785a702ebce Duration: 39.17 ms Billed Duration: 100 ms Memory Size: 128 MB Max Memory Used: 19 MB
21:12:04	START RequestId: 7545c85d-ce37-11e7-97ff-e51d75a5e5a1 Version: \$LATEST
21:12:04	Hello World with Request ID 7545c85d-ce37-11e7-97ff-e51d75a5e5a1
21:12:04	Function executed on 20-Nov-2017 at 21:12:04
21:12:04	END RequestId: 7545c85d-ce37-11e7-97ff-e51d75a5e5a1
21:12:04	REPORT RequestId: 7545c85d-ce37-11e7-97ff-e51d75a5e5a1 Duration: 28.00 ms Billed Duration: 100 ms Memory Size: 128 MB Max Memory Used: 19 MB
	No newer events found at the moment. Retry .

lambda_function.py

```
1 from __future__ import print_function
2
3 import json
4
5 print('Loading function')
6
7
8 def lambda_handler(event, context):
9     data = {"message": "Hello World returned in JSON"}
10    headers = {"Content-Type": "application/json"}
11    return {"statusCode": 200, \
12           "headers": headers, \
13           "body": json.dumps(data)}
```

aws Services Resource Groups Abdul Wahid Ohio Support

Lambda > Functions > HelloWorld ARN - arn:aws:lambda:us-east-2:042373950390:function:HelloWorld

Throttle Qualifiers Actions test Test Save

Configuration Monitoring

Designer

Add triggers
Click on a trigger from the list below to add it to your function.

- API Gateway
- AWS IoT
- CloudWatch Events
- CloudWatch Logs
- CodeCommit
- Cognito Sync Trigger

CloudWatch Events Saved

API Gateway Configuration required

Amazon CloudWatch Logs

Amazon S3

Add triggers from the list on the left

Resources the function's role has access to will be shown here

Configure triggers

We'll set up an API Gateway endpoint with a **proxy integration type** (learn more about the **input** and **output** format). Any method (GET, POST, etc.) will trigger your integration. To set up more advanced method mappings or subpath routes, visit the [Amazon API Gateway console](#).

API
Pick an existing API, or create a new one.

Create a new API

API name
Enter a name to uniquely identify your API.

LambdaMicroservice

Deployment stage
The name of your API's deployment stage.

prod

Security
Configure the security mechanism for your API endpoint.

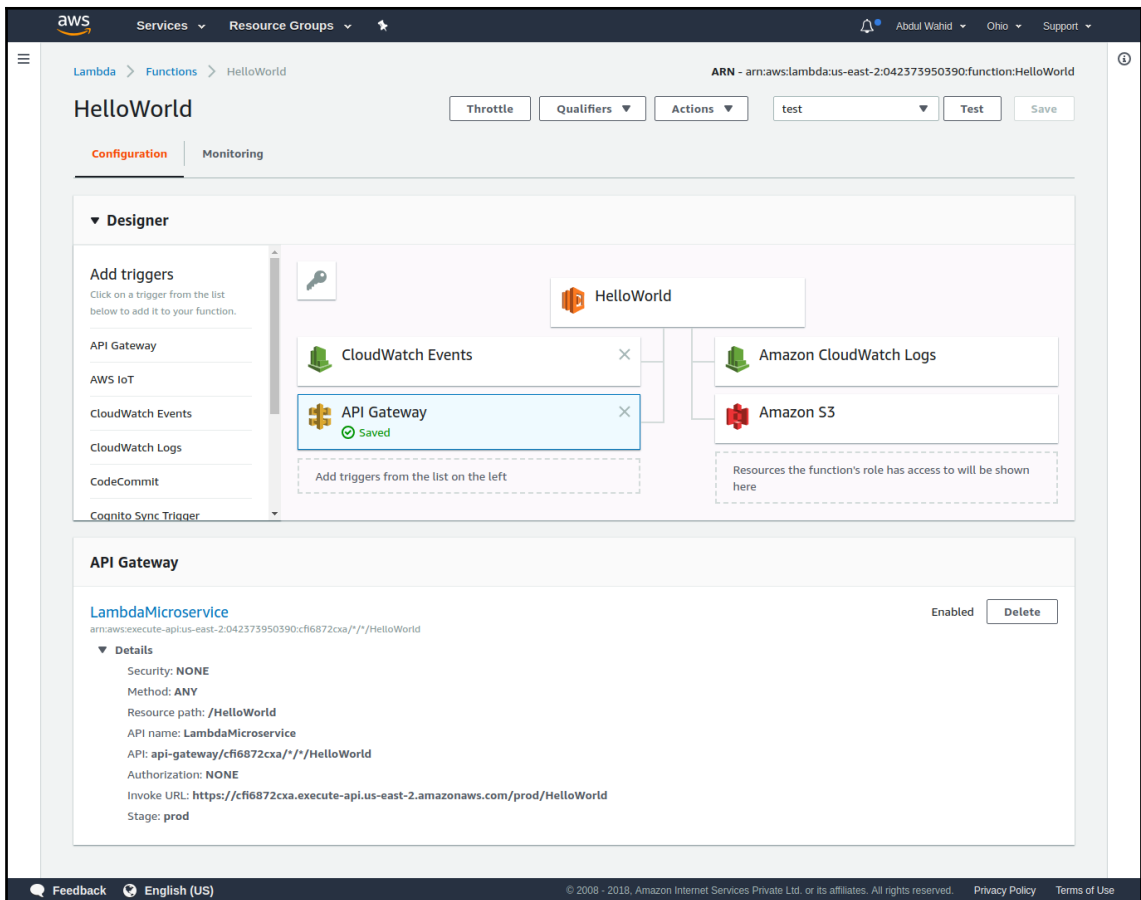
Open

Warning: Your API endpoint will be publicly available and can be invoked by all users.

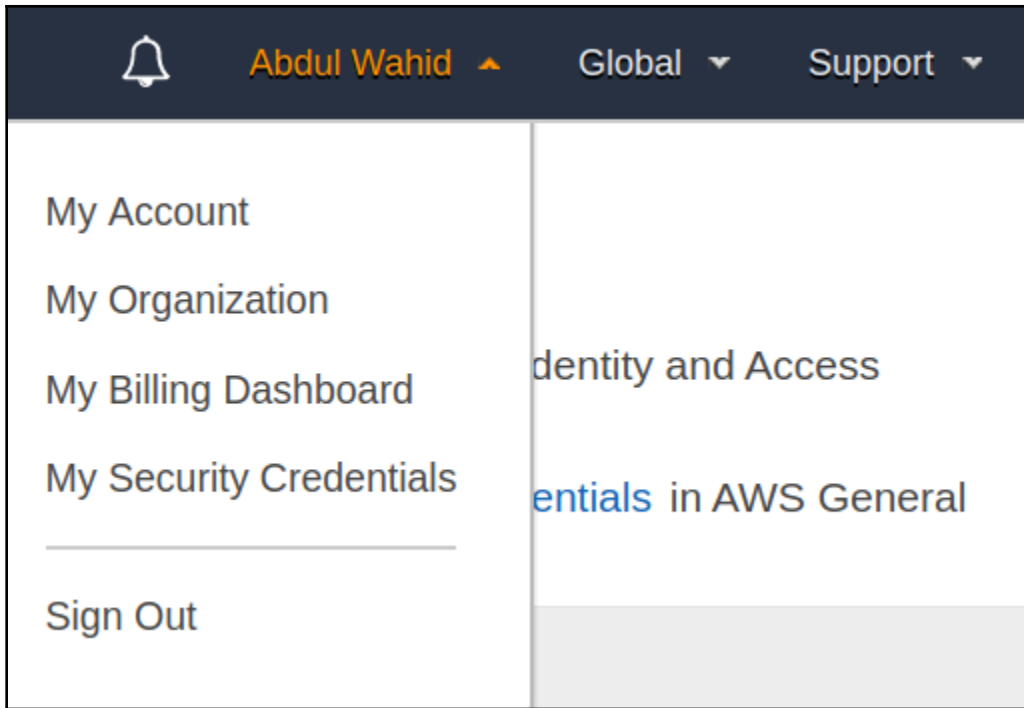
Lambda will add the necessary permissions for Amazon API Gateway to invoke your Lambda function from this trigger. [Learn more](#) about the Lambda permissions model.

Cancel Add

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```
(.env) abdulw@ULTP-711:~/workspace/lambda_poc$ aws configure
AWS Access Key ID [*****QAPA]:
AWS Secret Access Key [*****u98V]:
Default region name [ap-south-1]:
Default output format [json]:
(.env) abdulw@ULTP-711:~/workspace/lambda_poc$ █
```



```
handler.py x
1  from __future__ import print_function
2
3  print('Loading function')
4
5
6  def lambda_handler(event, context):
7      return "Hello World ! Response by lambda function."
8
```

```

abdulw@ULTP-711:~/workspace/lambda_poc$ ls
handler.py
abdulw@ULTP-711:~/workspace/lambda_poc$ cat handler.py
from __future__ import print_function

print('Loading function')

def lambda_handler(event, context):
    return "Hello World ! Response by lambda function."

abdulw@ULTP-711:~/workspace/lambda_poc$ zip -r hello_world_package.zip handler.py
adding: handler.py (deflated 22%)
abdulw@ULTP-711:~/workspace/lambda_poc$ ls
handler.py  hello_world_package.zip
abdulw@ULTP-711:~/workspace/lambda_poc$ █

```

```

abdulw@ULTP-711:~/workspace/lambda_poc$ aws lambda create-function --function-name HelloWorldCLI
--description 'Hello world lambda function created from AWS CLI' --runtime python2.7 --handler
'handler.lambda_handler' --role arn:aws:iam::042373950390:role/service-role/SimpleMicroservicePe
rmission --zip-file fileb://hello_world_package.zip
{
  "FunctionName": "HelloWorldCLI",
  "Role": "arn:aws:iam::042373950390:role/service-role/SimpleMicroservicePermission",
  "LastModified": "2017-11-22T15:53:43.821+0000",
  "Description": "Hello world lambda function created from AWS CLI",
  "Version": "$LATEST",
  "CodeSize": 297,
  "Timeout": 3,
  "FunctionArn": "arn:aws:lambda:us-east-1:042373950390:function:HelloWorldCLI",
  "MemorySize": 128,
  "Runtime": "python2.7",
  "CodeSha256": "UQU7I97Ldui98qE9NIGm4KoyBhk7vYXgAUWKvLDEhdK=",
  "Handler": "handler.lambda_handler"
}
abdulw@ULTP-711:~/workspace/lambda_poc$ █

```

Lambda > Functions

Functions (2)  Actions ▾ Create function

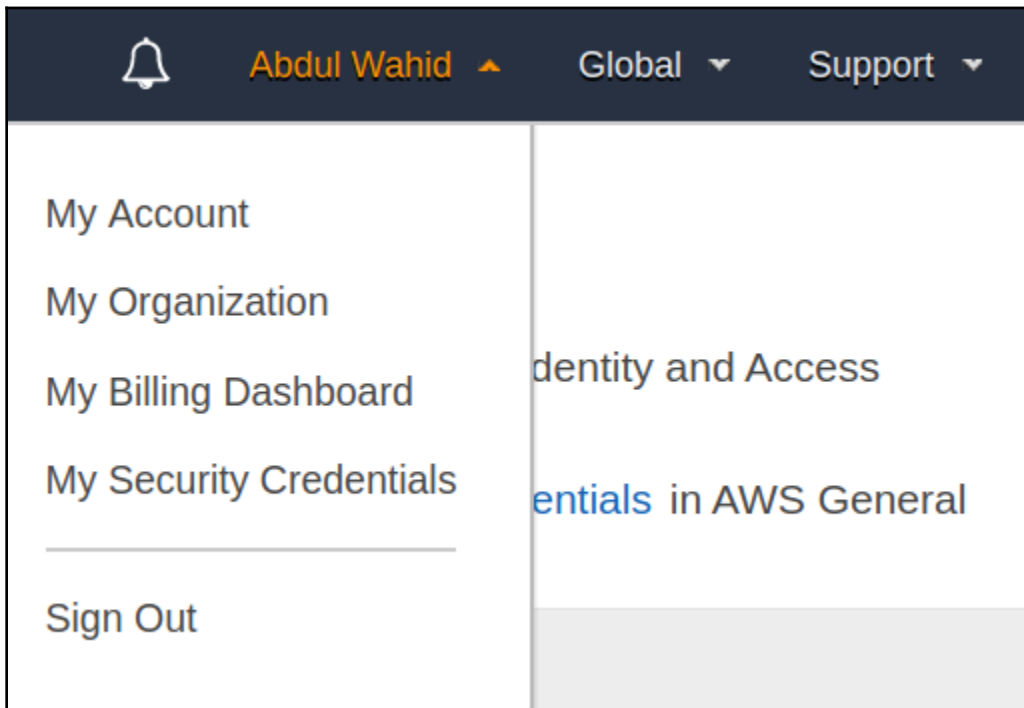
🔍 Filter by tags and attributes or search by keyword ? < 1 > ⚙️

	Function name ▾	Description	Runtime ▾	Code size ▾	Last Modified ▾
<input type="radio"/>	HelloWorldCLI	Hello world lambda function created from AWS CLI	Python 2.7	297 bytes	14 seconds ago
<input type="radio"/>	HelloWorld	A starter AWS Lambda function.	Python 2.7	350 bytes	2 days ago

```
abdulw@ULTP-711:~/workspace/lambda_poc$ ls
handler.py  hello_world_package.zip
abdulw@ULTP-711:~/workspace/lambda_poc$ aws lambda invoke --function-name HelloWorldCLI lambda_output.txt
{
  "StatusCode": 200
}
abdulw@ULTP-711:~/workspace/lambda_poc$ ls
handler.py  hello_world_package.zip  lambda_output.txt
abdulw@ULTP-711:~/workspace/lambda_poc$ cat lambda_output.txt && echo
"Hello World ! Respecho by lambda function."
abdulw@ULTP-711:~/workspace/lambda_poc$ █
```

Chapter 2: Getting Started with Zappa

```
(.env) abdulw@ULTP-711:~/workspace/lambda_poc$ aws configure
AWS Access Key ID [*****QAPA]:
AWS Secret Access Key [*****u98V]:
Default region name [ap-south-1]:
Default output format [json]:
(.env) abdulw@ULTP-711:~/workspace/lambda_poc$ █
```



```
hello.py x
1 from bottle import Bottle, run
2
3 app = Bottle()
4
5 @app.route('/hello')
6 def hello():
7     return "Hello World!\n"
8
```

```
(env) abdulw@ULTP-711:~/workspace/lambda_bottle_poc$ ls
env hello.py
(env) abdulw@ULTP-711:~/workspace/lambda_bottle_poc$ zappa init

ZAPPA

Welcome to Zappa!

Zappa is a system for running server-less Python web applications on AWS Lambda and AWS API Gateway.
This 'init' command will help you create and configure your new Zappa deployment.
Let's get started!

Your Zappa configuration can support multiple production stages, like 'dev', 'staging', and 'production'.
What do you want to call this environment (default 'dev'):
```

```

AWS Lambda and API Gateway are only available in certain regions. Let's check to make sure you have a profile set up in one that will work.
Okay, using profile default!

Your Zappa deployments will need to be uploaded to a private S3 bucket.
If you don't have a bucket yet, we'll create one for you too.
What do you want call your bucket? (default 'zappa-2o2zd8dg4'):
```

```

What's the modular path to your app's function?
This will likely be something like 'your_module.app'.
Where is your app's function?: hello.app

You can optionally deploy to all available regions in order to provide fast global service.
If you are using Zappa for the first time, you probably don't want to do this!
Would you like to deploy this application globally? (default 'n') [y/n/(p)/rimary]:
```

```

Okay, here's your zappa_settings.json:

{
  "dev": {
    "app_function": "hello.app",
    "aws_region": "ap-south-1",
    "profile_name": "default",
    "project_name": "lambda-bottle-p",
    "runtime": "python3.6",
    "s3_bucket": "zappa-2o2zd8dg4"
  }
}

Does this look okay? (default 'y') [y/n]: y

Done! Now you can deploy your Zappa application by executing:

$ zappa deploy dev

After that, you can update your application code with:

$ zappa update dev

To learn more, check out our project page on GitHub here: https://github.com/Miserlou/Zappa
and stop by our Slack channel here: https://slack.zappa.io

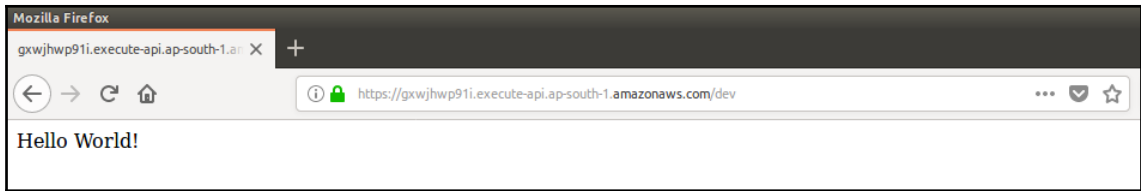
Enjoy!,
~ Team Zappa!
(env) abdulw@ULTP-711:~/workspace/lambda_bottle_poc$
```

Chapter 3: Building a Flask Application with Zappa

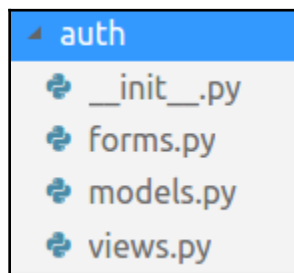
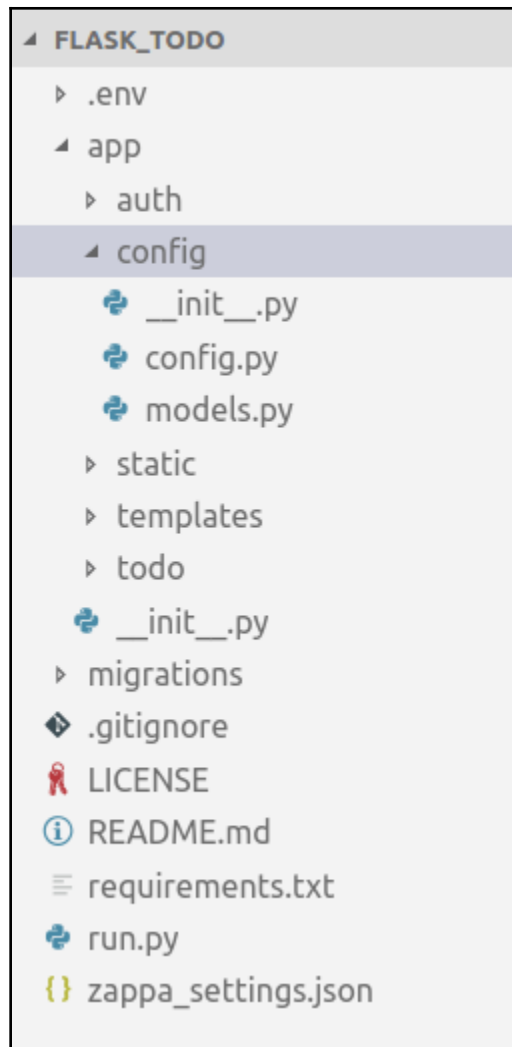
```
abdulw@ULTP-711:~$ mkdir flask_todo
abdulw@ULTP-711:~$ cd flask_todo/
abdulw@ULTP-711:~/flask_todo$ virtualenv .env -p python3.6
Running virtualenv with interpreter /usr/bin/python3.6
Using base prefix '/usr'
New python executable in /home/abdulw/flask_todo/.env/bin/python3.6
Also creating executable in /home/abdulw/flask_todo/.env/bin/python
Installing setuptools, pip, wheel...done.
abdulw@ULTP-711:~/flask_todo$ █
```



```
(.env) abdulw@ULTP-711:~/flask_todo$ zappa deploy dev
Calling deploy for stage dev..
Creating flask-todo-dev-ZappaLambdaExecutionRole IAM Role..
Creating zappa-permissions policy on flask-todo-dev-ZappaLambdaExecutionRole IAM Role.
Downloading and installing dependencies..
- sqlite==python36: Using precompiled lambda package
Packaging project as zip.
Uploading flask-todo-dev-1514664256.zip (5.6MiB)..
100% |██████████████████████████████████████████████████████████████████████████| 5.86M/5.86M
[00:02:00:00, 2.52MB/s]
Scheduling..
Scheduled flask-todo-dev-zappa-keep-warm-handler.keep_warm_callback with expression rate(4 minutes)!
Uploading flask-todo-dev-template-1514664316.json (1.6KiB)..
100% |██████████████████████████████████████████████████████████████████████████| 1.62K/1.62K
[00:00:00:00, 4.40KB/s]
Waiting for stack flask-todo-dev to create (this can take a bit)..
100% |██████████████████████████████████████████████████████████████████████████| 4/4 [
00:12:00:00, 4.29s/res]
Deploying API Gateway..
Deployment complete!: https://gxwjhwp91i.execute-api.ap-south-1.amazonaws.com/dev
(.env) abdulw@ULTP-711:~/flask_todo$ █
```

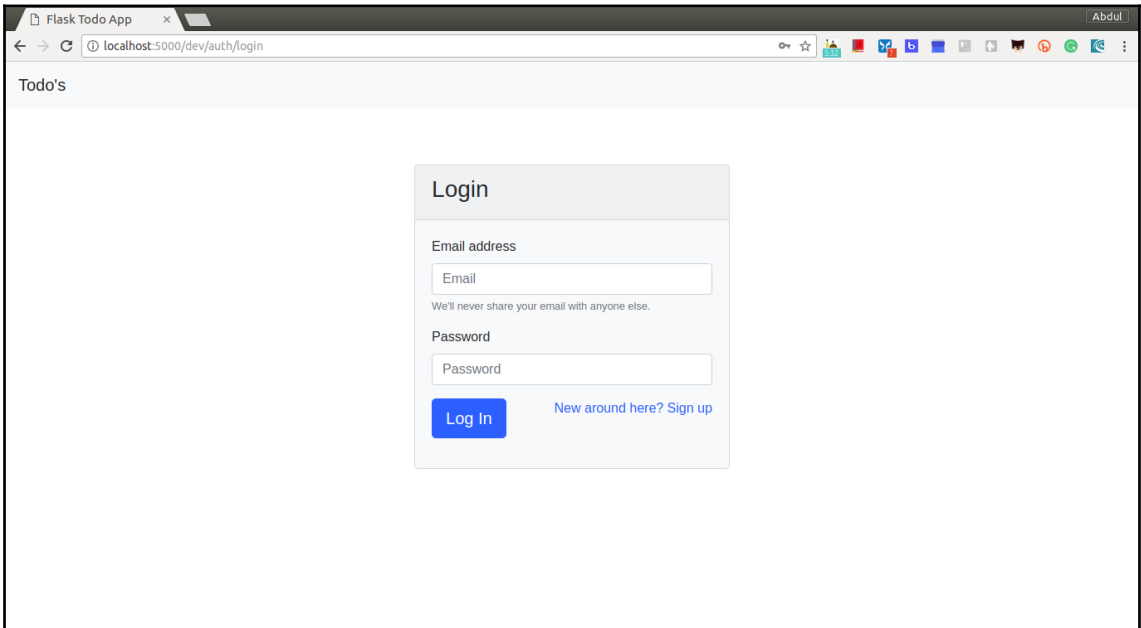
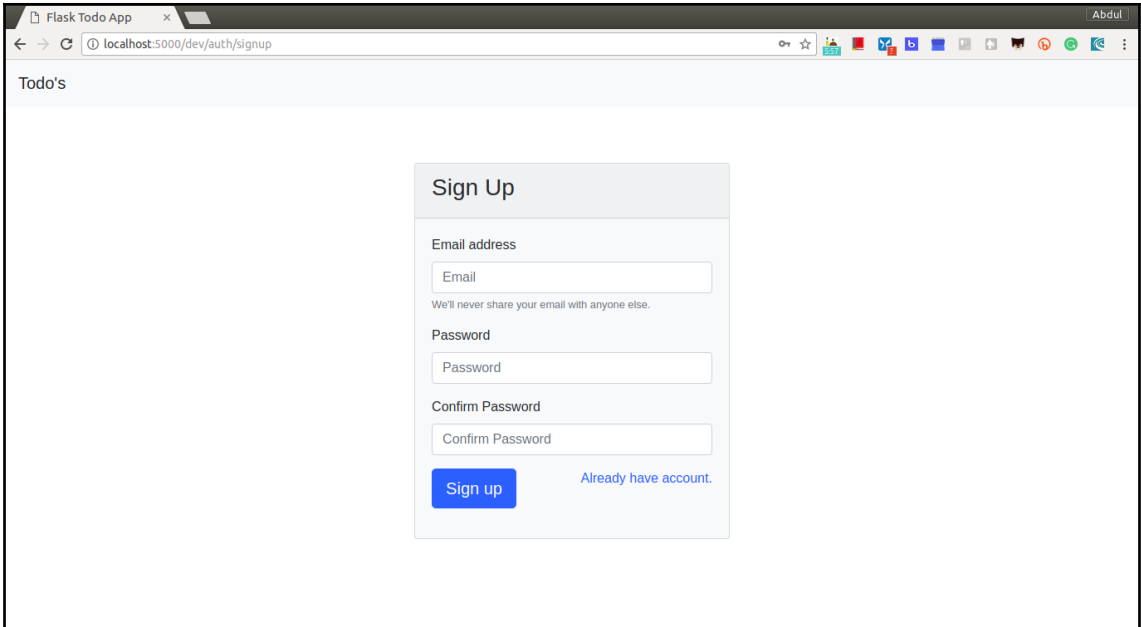


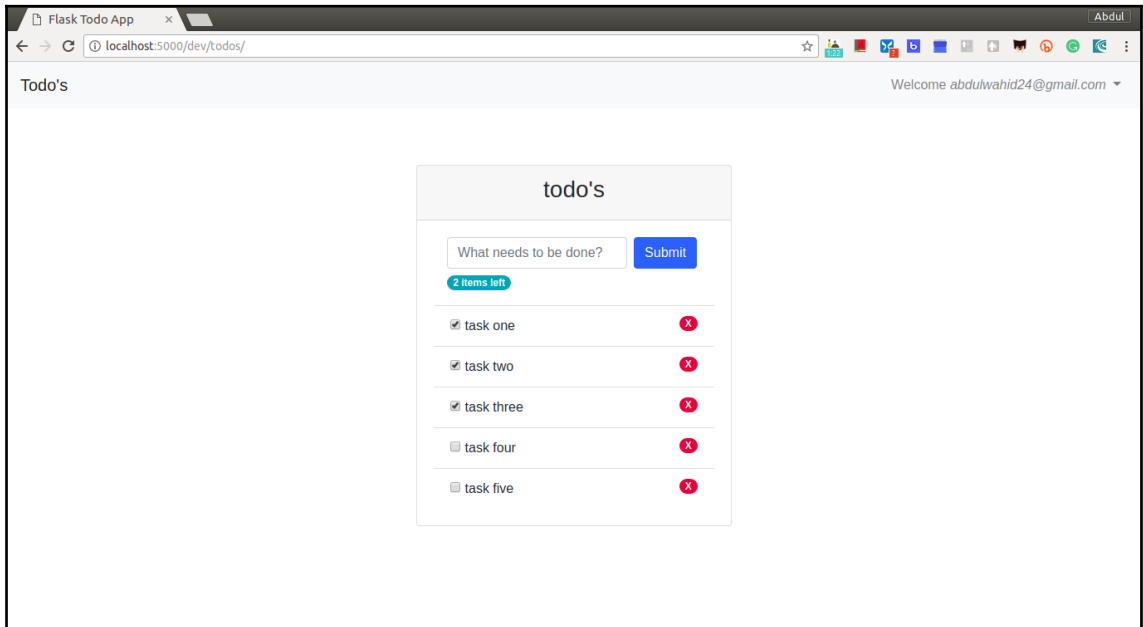
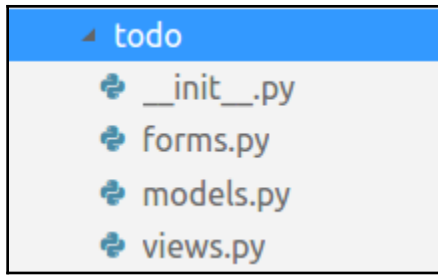
```
abduw@ULTP-711:~/workspace/flask_todo(master)$ virtualenv .env -p python3.6
Running virtualenv with interpreter /usr/bin/python3.6
Using base prefix '/usr'
New python executable in /home/abduw/workspace/flask_todo/.env/bin/python3.6
Also creating executable in /home/abduw/workspace/flask_todo/.env/bin/python
Installing setuptools, pip, wheel...done.
abduw@ULTP-711:~/workspace/flask_todo(master)$ source .env/bin/activate
(.env) abduw@ULTP-711:~/workspace/flask_todo(master)$
```



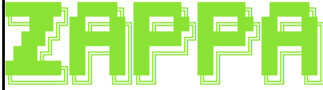
```
└─ templates
  └─ auth
    <> login.html
    <> signup.html
  └─ todo
    <> list.html
  <> base.html
  <> navbar.html
```

```
└─ static
  └─ bootstrap
    └─ css
      # bootstrap.min.css
      # bootstrap.min.css.map
    └─ js
      JS bootstrap.min.js
      JS bootstrap.min.js.map
  └─ jquery
    JS jquery-3.3.1.min.js
  └─ popper
    JS popper.min.js
  └─ todo
    JS list.js
```





```
(.env) abdulw@ULTP-711:~/workspace/flask_todo(master)$ zappa init
```



Welcome to Zappa!

Zappa is a system for running server-less Python web applications on AWS Lambda and AWS API Gateway. This 'init' command will help you create and configure your new Zappa deployment. Let's get started!

Your Zappa configuration can support multiple production stages, like 'dev', 'staging', and 'production'. What do you want to call this environment (default 'dev'):

AWS Lambda and API Gateway are only available in certain regions. Let's check to make sure you have a profile set up in one that will work. Okay, using profile **default**!

Your Zappa deployments will need to be uploaded to a **private S3** bucket. If you don't have a bucket yet, we'll create one for you too. What do you want call your bucket? (default 'zappa-zfluekck'):

It looks like this is a **Flask** application. What's the **modular path** to your app's function? This will likely be something like 'your_module.app'. We discovered: **app.__init__.app**. Where is your app's function? (default 'app.__init__.app'): run.app

You can optionally deploy to **all available regions** in order to provide fast global service. If you are using Zappa for the first time, you probably don't want to do this! Would you like to deploy this application **globally**? (default 'n') [y/n/(p)rietary]: n

Okay, here's your **zappa_settings.json**:

```
{
  "dev": {
    "app_function": "run.app",
    "aws_region": "ap-south-1",
    "profile_name": "default",
    "project_name": "flask-todo",
    "runtime": "python3.6",
    "s3_bucket": "zappa-zfluekck"
  }
}
```

Does this look **okay**? (default 'y') [y/n]: y

Done! Now you can **deploy** your Zappa application by executing:

```
$ zappa deploy dev
```

After that, you can **update** your application code with:

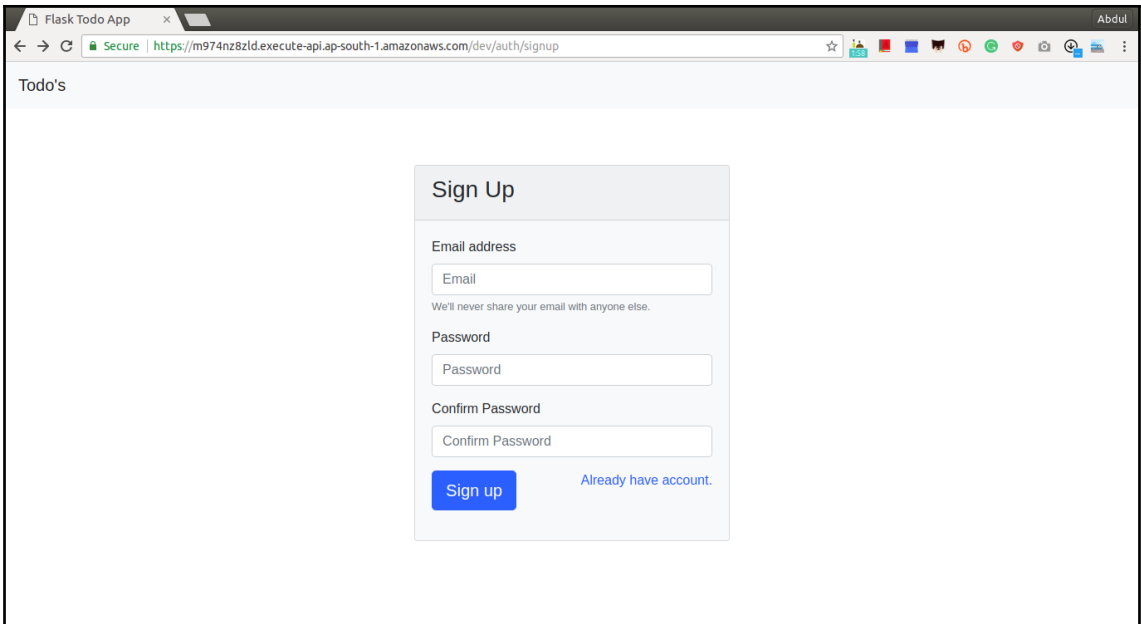
```
$ zappa update dev
```

To learn more, check out our project page on **GitHub** here: <https://github.com/Miserlou/Zappa> and stop by our **Slack** channel here: <https://slack.zappa.to>

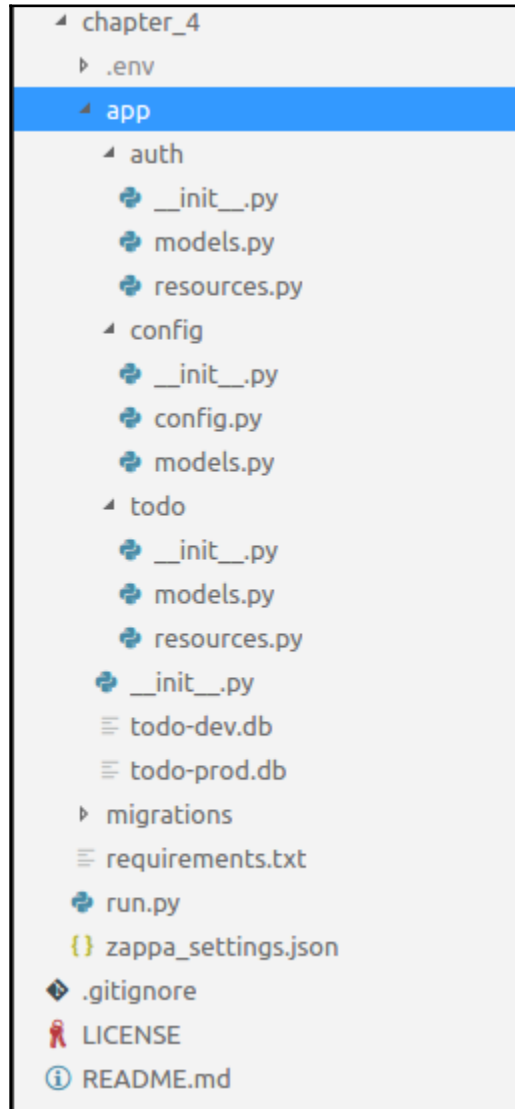
Enjoy!,

~ Team Zappa!

```
(.env) abdulw@ULTP-711:~/workspace/flask_todo(master)$
```



Chapter 4: Building a Flask-Based REST API with Zappa



Request

Method: POST Request URL: <https://jrzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/auth/signup> SEND

Parameters

Headers	Body	Variables
Body content type: application/json	Editor view: JSON visual editor	
email		abdul.wahid24@gmail.com
password		abdul123

+ ADD PROPERTY

200 OK 342.70 ms DETAILS

```
{
  "message": "Sign up successfully"
}
```

Selected environment: Default

Request

Method: POST Request URL: <https://jrzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/auth/login> SEND

Parameters

Headers	Body	Variables
Body content type: application/json	Editor view: JSON visual editor	
email		abdul.wahid24@gmail.com
password		abdul123

+ ADD PROPERTY

200 OK 482.80 ms DETAILS

```
{
  "token": "eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJleHAiOiE1MjkzODExNTU5Imh0eSI6MTUyOTM4MDg1NSwiYm9iIjoxNTI5Mzg5ODU1LCJpZGVudG8eSI6MjE6ATy4Rgq_gqNdd1Holjgk1gbRwX4cCRyHVIby7UEnfJ3"
}
```

Selected environment: Default

Request

Method: GET Request URL: <https://jrzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/> SEND

Parameters ^

Headers Variables

Toggle source mode Insert headers set

Header name	Header value	
Content-Type	application/json	X ✎ ?

ADD HEADER

Headers size: 30 bytes

401 Unauthorized 190.90 ms DETAILS

```

{
  "description": "Request does not contain an access token",
  "error": "Authorization Required",
  "status_code": 401
}

```

Selected environment: Default

Request

Method: GET Request URL: <https://jrzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/> SEND

Parameters ^

Headers Variables

Toggle source mode Insert headers set

Header name	Header value	
Content-Type	application/json	X ✎ ?
Authorization	JWT eyJ0eXAI0iJKV1QILCJhbGciOiJIUzI1NiJ9.eyJleHAiOiE1MjkzODE0NDQsImhhdCI6MTUyOTM4MTE0NCw	X ✎ ?

ADD HEADER

Headers size: 218 bytes

200 OK 164.50 ms DETAILS

```

[Array[0]]

```

Selected environment: Default

Request

Method: POST Request URL: <https://jrjzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/> SEND

Parameters

Body content type: application/json Editor view: JSON visual editor

title: task one

201 Created 256.50 ms

```
{
  "id": 3,
  "title": "task one",
  "created_by": "abdul.wahid24@gmail.com",
  "status": "open"
}
```

Selected environment: Default

Request

Method: POST Request URL: <https://jrjzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/> SEND

Parameters

Body content type: application/json Editor view: JSON visual editor

400 Bad Request 154.10 ms

```
{
  "-message": {
    "title": "Missing required parameter in the JSON body or the post body or the query string"
  }
}
```

Selected environment: Default

Request

Method: GET Request URL: <https://jrzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/5/> SEND

Parameters

Headers Variables

Toggle source mode Insert headers set

Header name	Header value	
Content-Type	application/json	X ✎ ?
Authorization	JWT eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJleHAiOiE1MjkzODE4MTEsImhhdC6MTUyOTM4MTUxMSw	X ✎ ?

ADD HEADER

Headers are valid Headers size: 218 bytes

200 OK 174.50 ms DETAILS

id	title	created_by	status
5	task one	abdul.wahid24@gmail.com	open

Selected environment: Default

Request

Method: PATCH Request URL: <https://jrzw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/5/> SEND

Parameters

Headers Body Variables

Body content type: application/json Editor view: JSON visual editor

status: completed ✎

ADD PROPERTY

202 Accepted 485.90 ms DETAILS

```

{
  "id": 5,
  "title": "task one",
  "created_by": "abdul.wahid24@gmail.com",
  "status": "completed"
}

```

Selected environment: Default

Request

Method: PATCH Request URL: <https://jrzlw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/5/> SEND

Parameters

Body content type: application/json Editor view: JSON visual editor

ADD PROPERTY

400 Bad Request 167.60 ms DETAILS

```
{
  "message": {
    "status": "Bad choice: Missing required parameter in the JSON body or the post body or the query string. Valid choices are 'open' or 'completed'."
  }
}
```

Selected environment: Default

Request

Method: DELETE Request URL: <https://jrzlw1zpd.execute-api.ap-south-1.amazonaws.com/dev/todos/5/> SEND

Parameters

Body content type: application/json Editor view: JSON visual editor

ADD PROPERTY

204 No Content 273.90 ms DETAILS

Selected environment: Default

Chapter 5: Building a Django Application with Zappa

```
abdulw@ULTP-711:~/workspace/book/chapter_5(master)$ pipenv
Usage: pipenv [OPTIONS] COMMAND [ARGS]...

Options:
  --update      Update Pipenv & pip to latest.
  --where       Output project home information.
  --venv        Output virtualenv information.
  --py          Output Python interpreter information.
  --envs        Output Environment Variable options.
  --rm          Remove the virtualenv.
  --bare        Minimal output.
  --completion Output completion (to be eval'd).
  --man         Display manpage.
  --three / --two Use Python 3/2 when creating virtualenv.
  --python TEXT Specify which version of Python virtualenv should use.
  --site-packages Enable site-packages for the virtualenv.
  --jumbotron   An easter egg, effectively.
  --version     Show the version and exit.
  -h, --help   Show this message and exit.

Usage Examples:
  Create a new project using Python 3.6, specifically:
  $ pipenv --python 3.6

  Install all dependencies for a project (including dev):
  $ pipenv install --dev

  Create a lockfile containing pre-releases:
  $ pipenv lock --pre

  Show a graph of your installed dependencies:
  $ pipenv graph

  Check your installed dependencies for security vulnerabilities:
  $ pipenv check

  Install a local setup.py into your virtual environment/Pipfile:
  $ pipenv install -e .

Commands:
  check    Checks for security vulnerabilities and against PEP 508 markers
           provided in Pipfile.
  graph    Displays currently-installed dependency graph information.
  install  Installs provided packages and adds them to Pipfile, or (if none
           is given), installs all packages.
  lock     Generates Pipfile.lock.
  open     View a given module in your editor.
  run      Spawns a command installed into the virtualenv.
  shell    Spawns a shell within the virtualenv.
  uninstall Un-installs a provided package and removes it from Pipfile.
  update   Uninstalls all packages, and re-installs package(s) in [packages]
           to latest compatible versions.
```

```

abdulw@ULTP-711:~/workspace/book/chapter_5(master)$ pipenv --python python3.6
Virtualenv already exists!
Removing existing virtualenv...
Creating a virtualenv for this project...
Using /usr/bin/python3.6 to create virtualenv...
!Running virtualenv with interpreter /usr/bin/python3.6
Using base prefix '/usr'
New python executable in /home/abdulw/.local/share/virtualenvs/chapter_5-N1x3-kJk/bin/python3.6
Also creating executable in /home/abdulw/.local/share/virtualenvs/chapter_5-N1x3-kJk/bin/python
Installing setuptools, pip, wheel...done.

Virtualenv location: /home/abdulw/.local/share/virtualenvs/chapter_5-N1x3-kJk
Creating a Pipfile for this project...

abdulw@ULTP-711:~/workspace/book/chapter_5(master)$ pipenv install django
Installing django...
Collecting django
  Downloading Django-2.0.3-py3-none-any.whl (7.1MB)
Collecting pytz (from django)
  Using cached pytz-2018.3-py2.py3-none-any.whl
Installing collected packages: pytz, django
Successfully installed django-2.0.3 pytz-2018.3

Adding django to Pipfile's [packages]...
Locking [dev-packages] dependencies...
Locking [packages] dependencies...
Updated Pipfile.lock (374a8f)!

(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5(master)$ django-admin.py startproject imageGalleryProject
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5(master)$ ls
imageGalleryProject  Pipfile  Pipfile.lock
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5(master)$ cd imageGalleryProject/
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ ls
imageGalleryProject  manage.py
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ python manage.py startapp gallery
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ ls
gallery  imageGalleryProject  manage.py
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ tree
.
├── gallery
│   ├── admin.py
│   ├── apps.py
│   ├── __init__.py
│   ├── migrations
│   │   └── __init__.py
│   ├── models.py
│   ├── tests.py
│   └── views.py
├── imageGalleryProject
│   ├── __init__.py
│   ├── pycache__
│   │   └── __init__.cpython-36.pyc
│   ├── settings.cpython-36.pyc
│   ├── settings.py
│   ├── urls.py
│   └── wsgi.py
└── manage.py

4 directories, 14 files
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ █

```

```
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ python manage.py makemigrations
Migrations for 'gallery':
  gallery/migrations/0001_initial.py
    - Create model PhotoGallery
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, gallery, sessions
Running migrations:
  Applying gallery.0001_initial... OK
(chapter_5-N1x3-kJk) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ █
```

Django administration WELCOME, ABDULWAHID [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Gallery > Photo albums > Add photo album

Add photo album

Album name:

PHOTOS

IMAGE	IMAGE THUMBNAIL	DELETE?
<input type="button" value="Choose file"/> No file chosen		

[+ Add another Photo](#)

Django administration WELCOME, ABDULWAHID [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Gallery > Photo albums

✔ The photo album "Sample Screenshots" was added successfully.

Select photo album to change

Action: 0 of 1 selected

PHOTO ALBUM
<input checked="" type="checkbox"/> Sample Screenshots

1 photo album

Django administration WELCOME, ABDULWAHID VIEW SITE / CHANGE PASSWORD / LOG OUT

Home · Gallery · Photo albums · Sample Screenshots

Change photo album HISTORY

Album name:

PHOTOS

IMAGE	IMAGE THUMBNAIL	DELETE?
Screenshot_from_2018-03-07_14-35-19.png Currently: Sample Screenshots/Screenshot_from_2018-03-07_14-35-19.png Change: <input type="button" value="Choose file"/> No file chosen		<input type="checkbox"/>
Screenshot_from_2018-02-21_15-58-41.png Currently: Sample Screenshots/Screenshot_from_2018-02-21_15-58-41.png Change: <input type="button" value="Choose file"/> No file chosen		<input type="checkbox"/>

No file chosen

[+ Add another Photo](#)

AWS CloudFront M x Abdul

Secure | <https://console.aws.amazon.com/cloudfront/home?region=ap-south-1#>

Services · Resource Groups · *

Abdul Wahid · Global · Support

Distributions

What's New ★

Reports & Analytics

- Cache Statistics
- Monitoring and Alarms
- Popular Objects
- Top Referrers
- Usage
- Viewers

Security

- How-to Guide
- Origin Access Identity
- Public key
- Field-level encryption

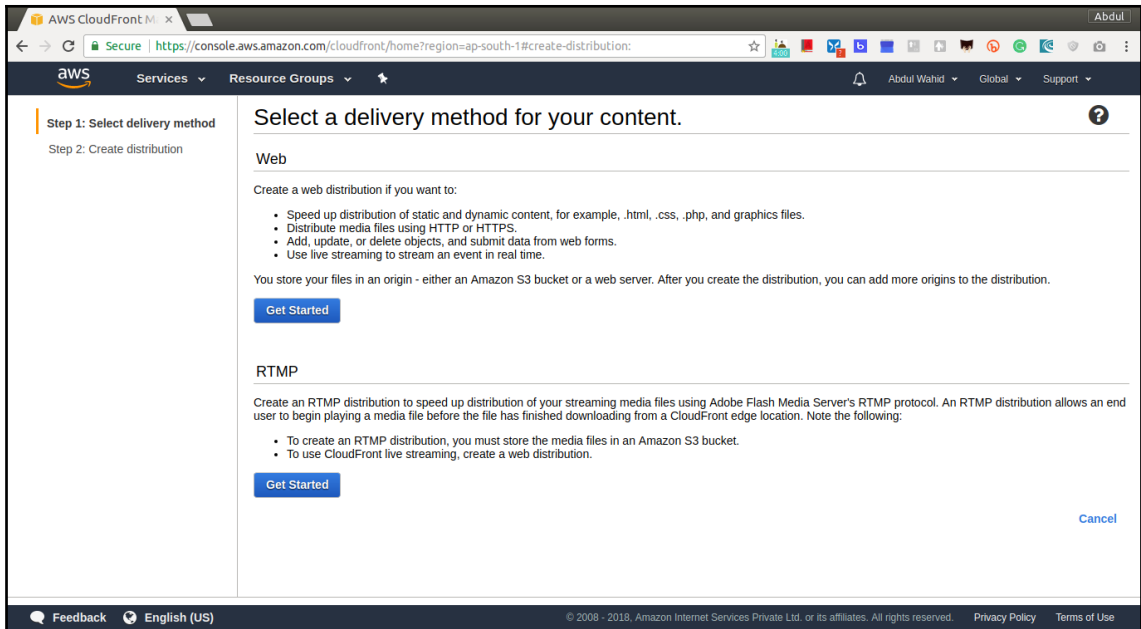
CloudFront Distributions

Viewing: Any Delivery Method | Any State | << Viewing 1 to 1 of 1 Items >>

	Delivery Method	ID	Domain Name	Comment	Origin	CNAMEs	Status	State	Last Modified
<input type="checkbox"/>	Web	E3R0PUFQH5PHGH	dys62g3nirogi.clou	-	qa.conjuror.in,	-	Deployed	Enabled	2018-02-14 03:02

<< Viewing 1 to 1 of 1 Items >>

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aws Services Resource Groups
Abdul Wahid Global Support

Step 1: Select delivery method

Step 2: Create distribution

Create Distribution

Origin Settings

Origin Domain Name ⓘ

Click on the field and specify the domain name for your origin - the Amazon S3 bucket or web server from which you want CloudFront to get your web content. The domain has to be the AWS resource associated with the current AWS account. To use a resource from a different AWS account, type the domain name of the resource. For example, for an Amazon S3 bucket, type the name in the format bucketname.s3.amazonaws.com. The host to your origin must be publicly reachable.

Origin Path ⓘ

Origin ID ⓘ

Origin Custom Headers	Header Name	Value
	<input type="text"/>	<input type="text"/>

Default Cache Behavior Settings

Path Pattern ⓘ

Viewer Protocol Policy HTTP and HTTPS ⓘ

Redirect HTTP to HTTPS ⓘ

HTTPS Only ⓘ

Allowed HTTP Methods GET, HEAD ⓘ

GET, HEAD, OPTIONS ⓘ

GET, HEAD, OPTIONS, PUT, POST, PATCH, DELETE ⓘ

Field-level Encryption Config ⓘ

Cached HTTP Methods ⓘ

Cache Based on Selected Request Headers ⓘ

[Learn More](#)

Object Caching Use Origin Cache Headers ⓘ

Customize ⓘ

[Learn More](#)

Minimum TTL ⓘ

Maximum TTL ⓘ

Default TTL ⓘ

Forward Cookies ⓘ

Query String Forwarding and Caching ⓘ

Smooth Streaming Yes ⓘ

No ⓘ

Restrict Viewer Access (Use Signed URLs or Signed Cookies) Yes ⓘ

No ⓘ

Compress Objects Automatically Yes ⓘ

No ⓘ

[Learn More](#)

Lambda Function Associations	Event Type	Lambda Function ARN
	<input type="text"/>	<input type="text"/>

Distribution Settings

Price Class ⓘ

AWS WAF Web ACL ⓘ

Alternate Domain Names (CNAMEs) ⓘ

SSL Certificate Default CloudFront Certificate (*) ⓘ

Choose this option if you want your users to use HTTPS or HTTP to access your content with the CloudFront domain name (such as https://d111111abcdef01.cloudfront.net/obj). Important: If you choose this option, CloudFront requires that browsers or devices support TLSv1 or later to access your content.

Custom SSL Certificate (example.com) ⓘ

Choose this option if you want your users to access your content by using an alternate domain name, such as https://www.example.com/obj. You can use a certificate stored in AWS Certificate Manager (ACM) in the US East (VA, Virginia) Region, or you can use a certificate stored in IAM.

ⓘ

Request or Import a Certificate with ACM

[Learn more about using custom SSL/TLS certificates with CloudFront.](#)
[Learn more about using ACM.](#)

Supported HTTP Versions HTTP/2, HTTP/1.1, HTTP/1.0 ⓘ

HTTP/1.1, HTTP/1.0 ⓘ

Default Root Object ⓘ

Logging On ⓘ

Off ⓘ

Bucket for Logs ⓘ

Log Prefix ⓘ

Cookie Logging On ⓘ

Off ⓘ

Enable IPv6 ⓘ

[Learn more](#)

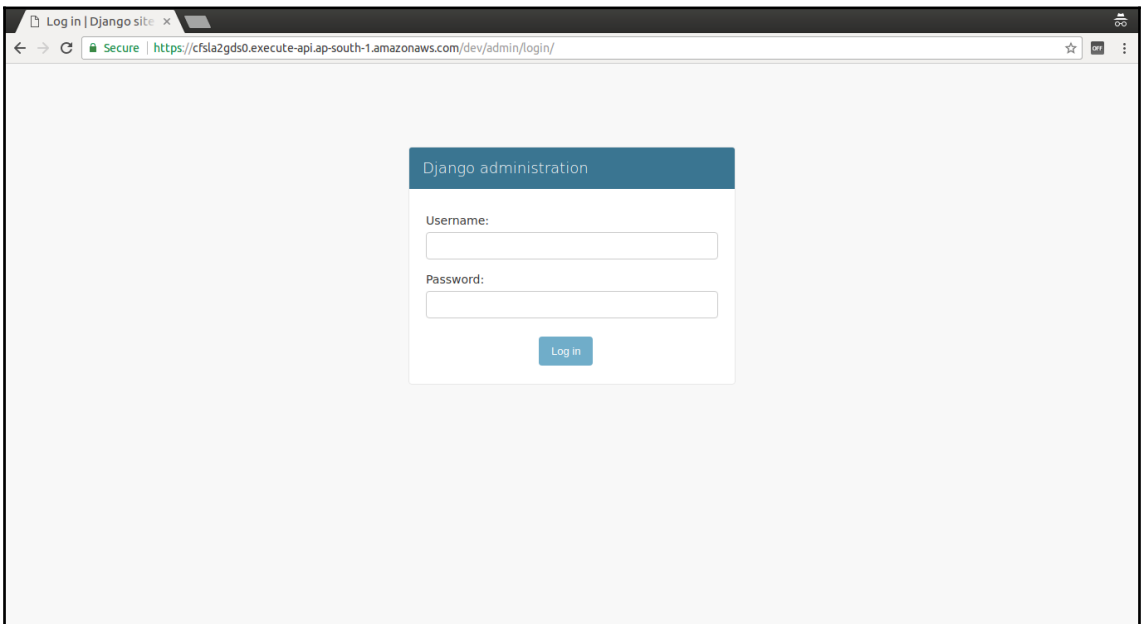
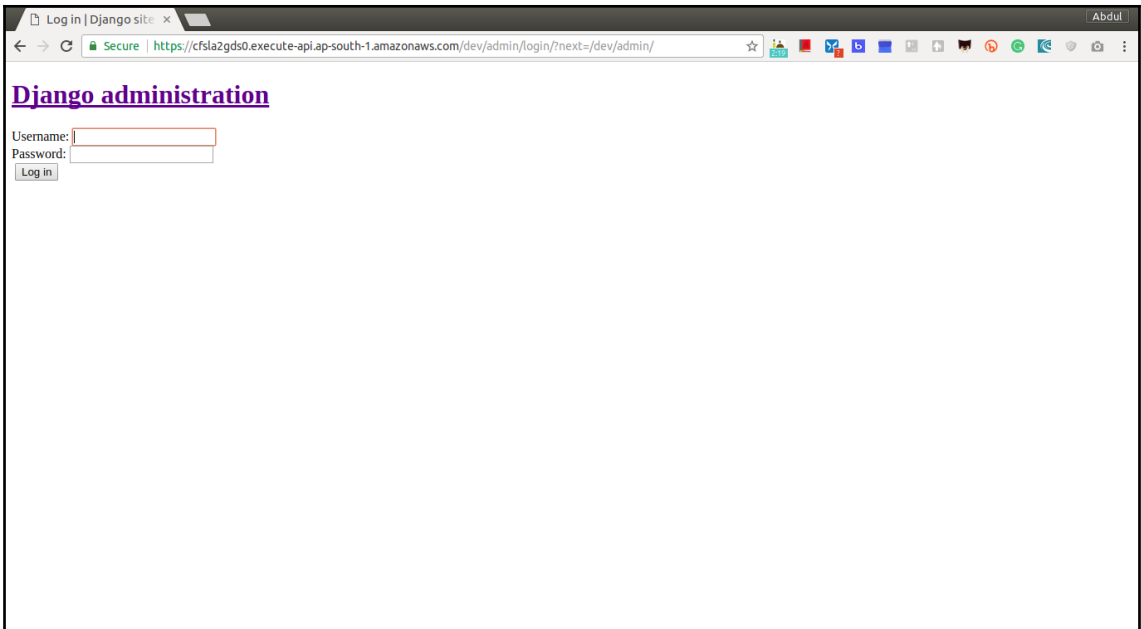
Comment ⓘ

Distribution State Enabled ⓘ

Disabled ⓘ

Cancel Back Create Distribution

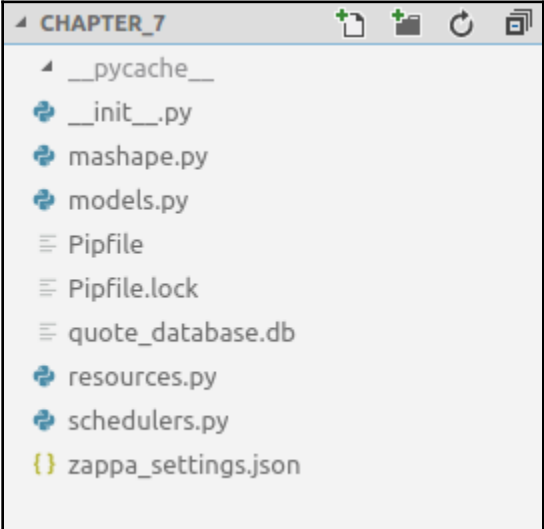
Feedback English (US) © 2018–2019, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use



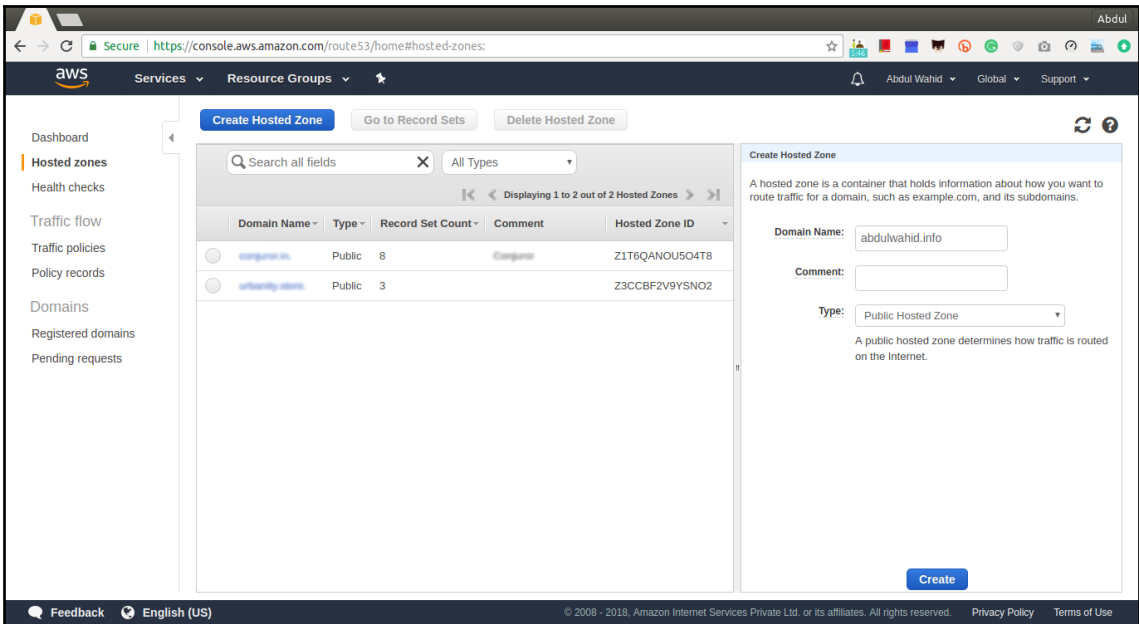
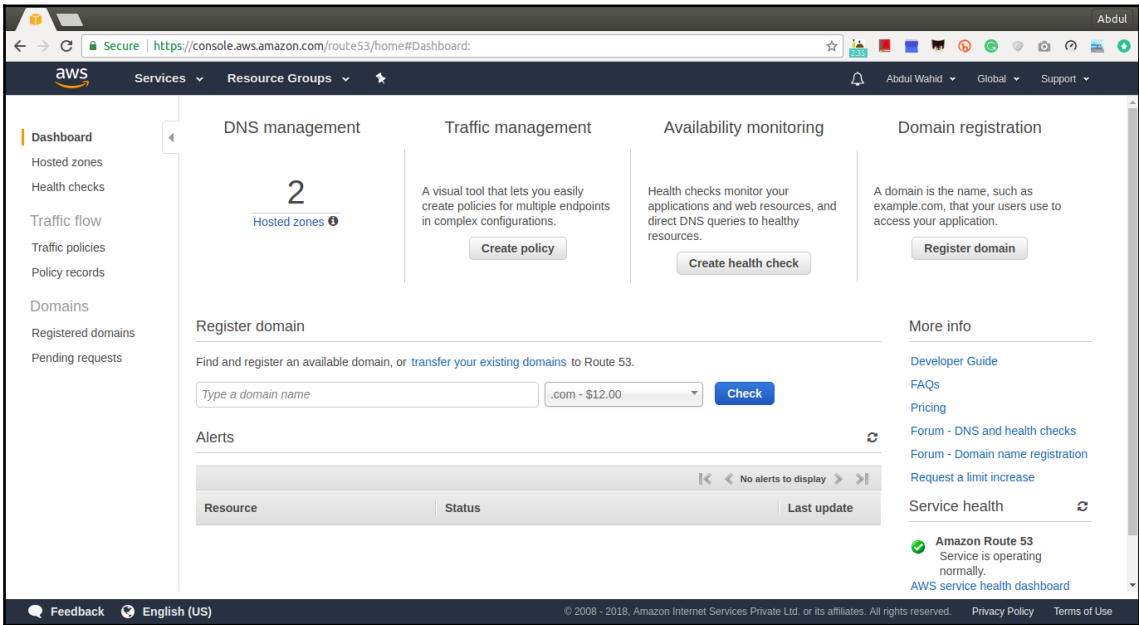
```
(imageGalleryProject-KAW6aJSD) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ zappa manage dev showmigrations admin
[START] RequestId: bcc908da-3bde-11e8-8f67-bb3b239cecd6 Version: SLATEST
[DEBUG] 2018-04-09T10:14:07.141Z bcc908da-3bde-11e8-8f67-bb3b239cecd6 Zappa Event: {'manage': 'showmigrations admin'}
admin
[X] 0001_initial
[X] 0002_logentry_remove_auto_add
[END] RequestId: bcc908da-3bde-11e8-8f67-bb3b239cecd6
[REPORT] RequestId: bcc908da-3bde-11e8-8f67-bb3b239cecd6
Duration: 174.89 ms
Billed Duration: 200 ms
Memory Size: 512 MB
Max Memory Used: 81 MB
(imageGalleryProject-KAW6aJSD) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ █
```

```
(imageGalleryProject-KAW6aJSD) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ zappa invoke dev "print (1 + 2 + 3)" --raw
Calling invoke for stage dev..
[START] RequestId: 8a119b48-3be1-11e8-92c4-85e7ddd61bb Version: SLATEST
[DEBUG] 2018-04-09T10:34:10.531Z 8a119b48-3be1-11e8-92c4-85e7ddd61bb Zappa Event: {'raw_command': 'print (1 + 2 + 3)'}
6
[END] RequestId: 8a119b48-3be1-11e8-92c4-85e7ddd61bb
[REPORT] RequestId: 8a119b48-3be1-11e8-92c4-85e7ddd61bb
Duration: 20.11 ms
Billed Duration: 100 ms
Memory Size: 512 MB
Max Memory Used: 80 MB
(imageGalleryProject-KAW6aJSD) abdulw@ULTP-711:~/workspace/book/chapter_5/imageGalleryProject(master)$ █
```

Chapter 7: Building a Falcon Application with Zappa



Chapter 8: Custom Domain with SSL



The screenshot shows the AWS Management Console interface for the 'Hosted zones' section. The breadcrumb navigation includes 'Back to Hosted Zones', 'Create Record Set', 'Import Zone File', 'Delete Record Set', and 'Test Record Set'. A search bar is present with 'Record Set Name' and 'Any Type' filters. A table lists two record sets for the domain 'abdulwahid.info':

Name	Type	Value	Evaluate Target Health
abdulwahid.info	NS	ns-1296.awsdns-34.org. ns-1745.awsdns-26.co.uk. ns-756.awsdns-30.net. ns-248.awsdns-31.com.	-
abdulwahid.info	SOA	ns-1296.awsdns-34.org. awsdns-hostmaster.amazo	-

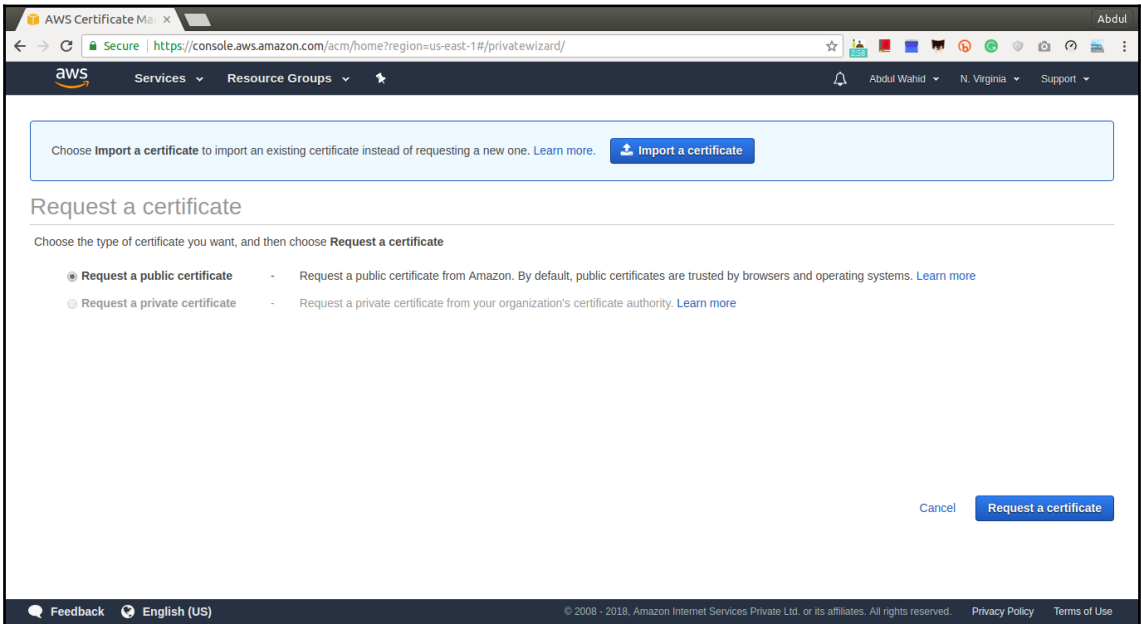
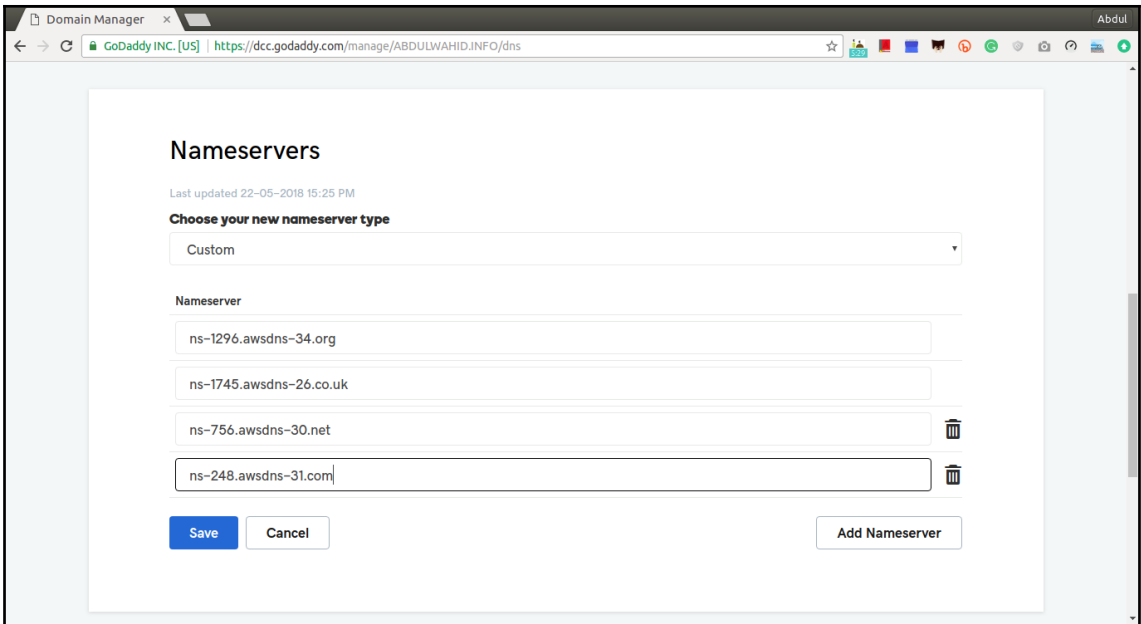
On the right side, there is a message: 'To get started, click Create Record Set button or click an existing record set.' The footer includes 'Feedback', 'English (US)', and copyright information for Amazon Internet Services Private Ltd.

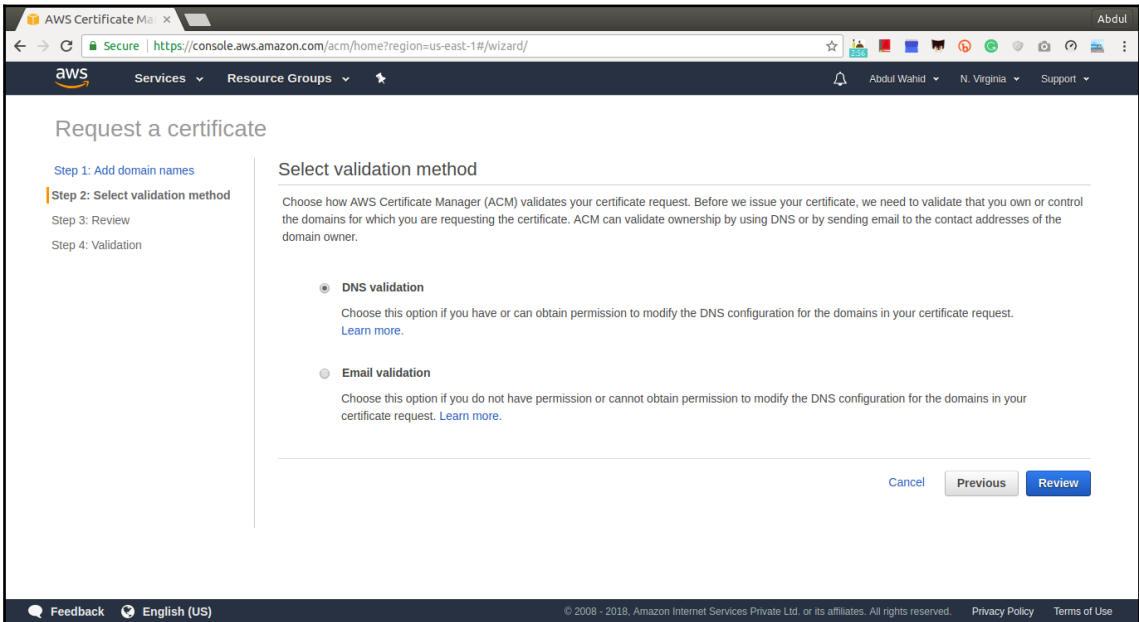
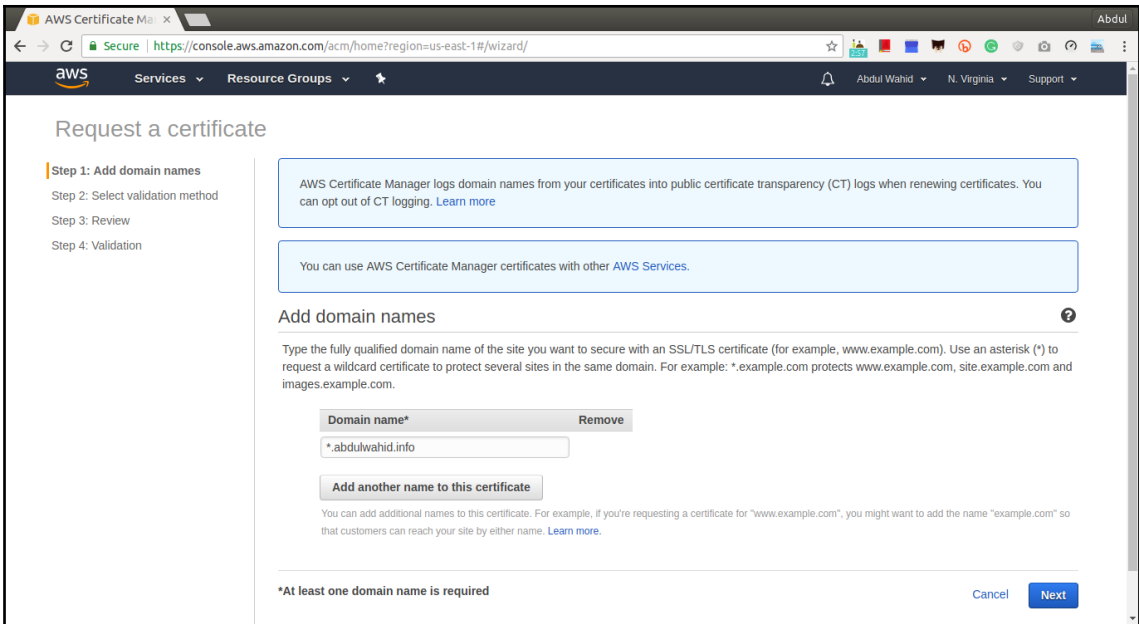
The screenshot shows the GoDaddy Domain Manager interface for the domain 'ABDULWAHID.INFO'. The main heading is 'Nameservers', with a sub-heading 'Using default nameservers' and a 'Change' button. Below this, two nameservers are listed:

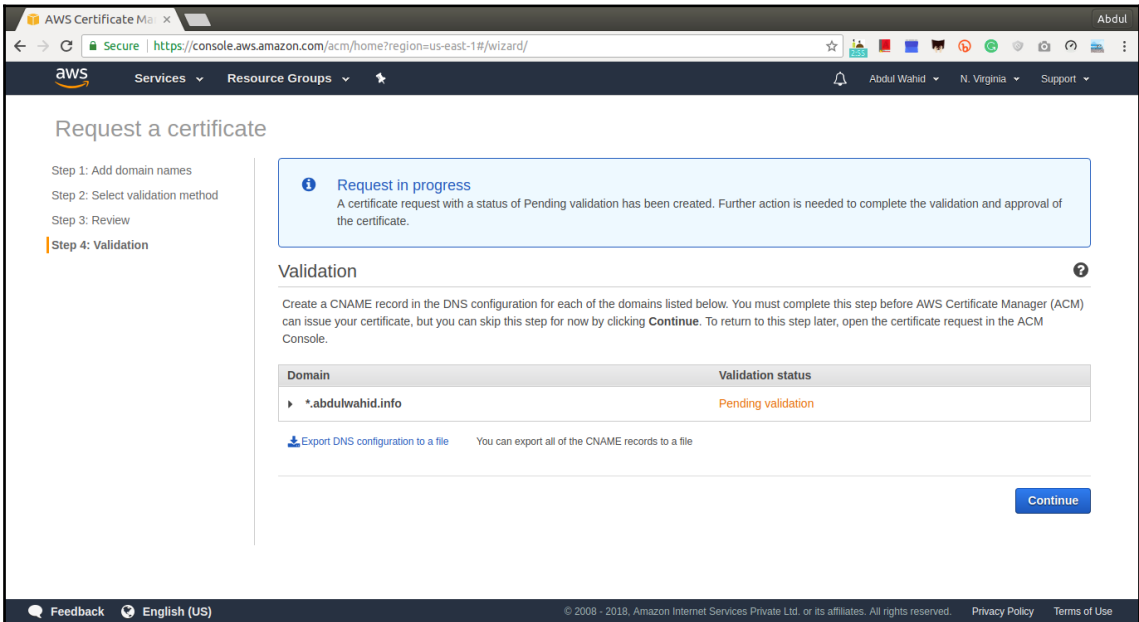
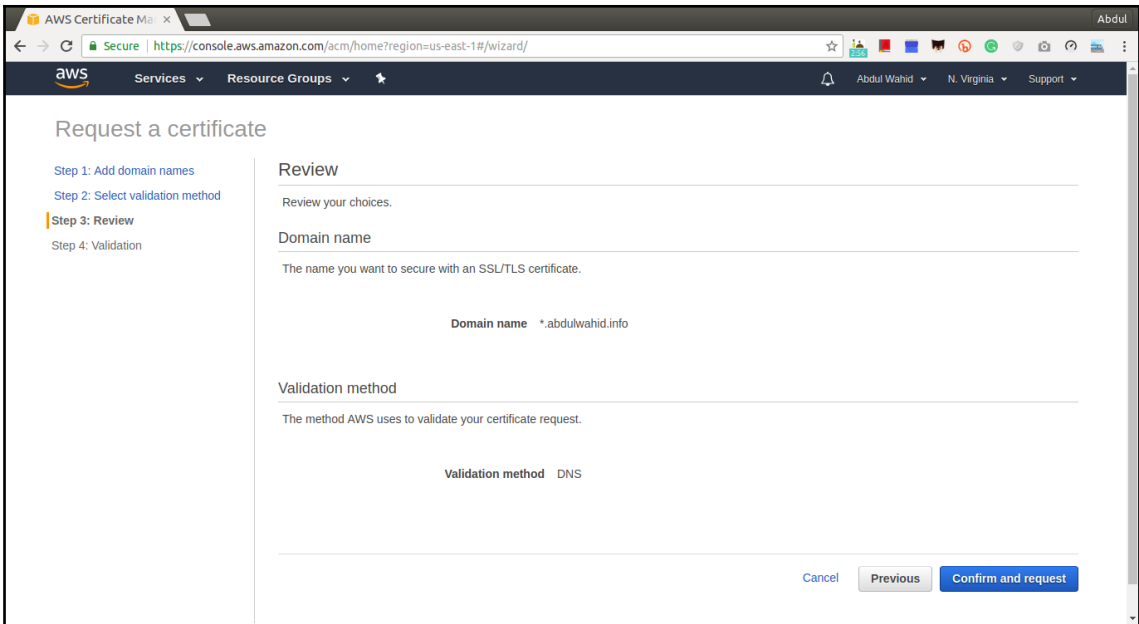
- ns59.domaincontrol.com
- ns60.domaincontrol.com

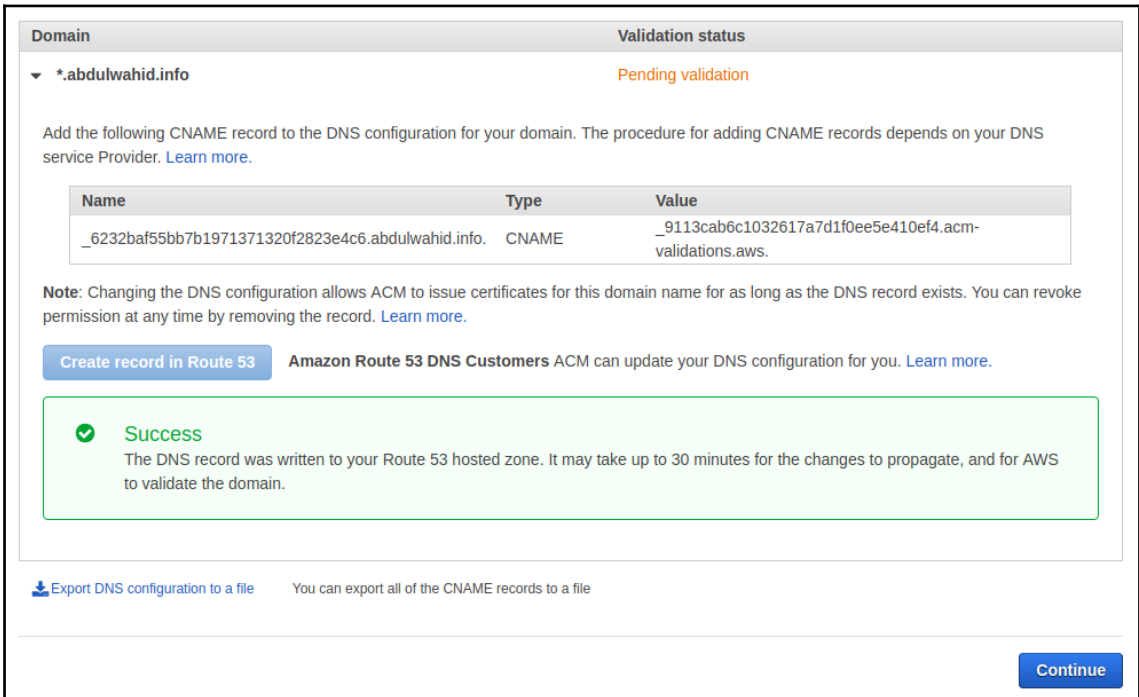
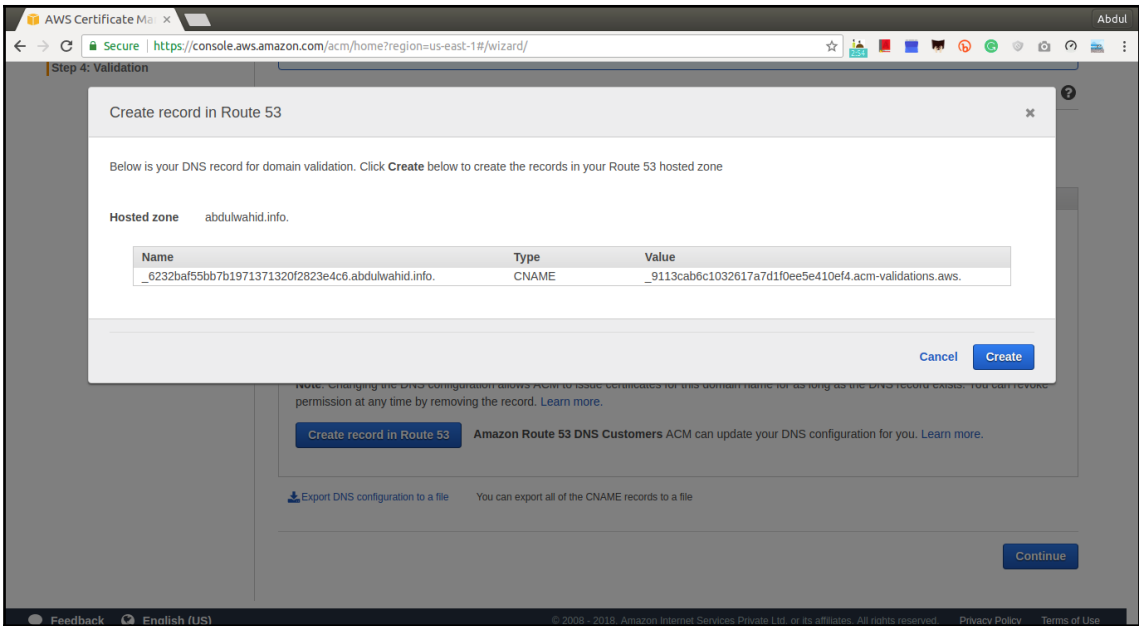
Below the nameservers section, there are two main panels:

- Advanced Features:** Includes links for 'Manage Templates', 'Export Zone File (Unix)', 'Export Zone File (Windows)', 'Import Zone File', and 'DNSSEC'.
- Forwarding:** Shows options for 'DOMAIN' and 'SUBDOMAIN', both currently 'Not set up' with an 'ADD' button next to each.









AWS Certificate Manager console screenshot showing a certificate for *.abdulwahid.info.

Certificates

AWS Certificate Manager logs domain names from your certificates into public certificate transparency (CT) logs when renewing certificates. You can opt out of CT logging. [Learn more](#)

Request a certificate | Import a certificate | Actions

Name	Domain name	Additional names	Status	Type	In use?	Renewal eligibility
<input type="checkbox"/>	*	abdulwahid.info	Issued	Amazon Issued	No	Ineligible

Status

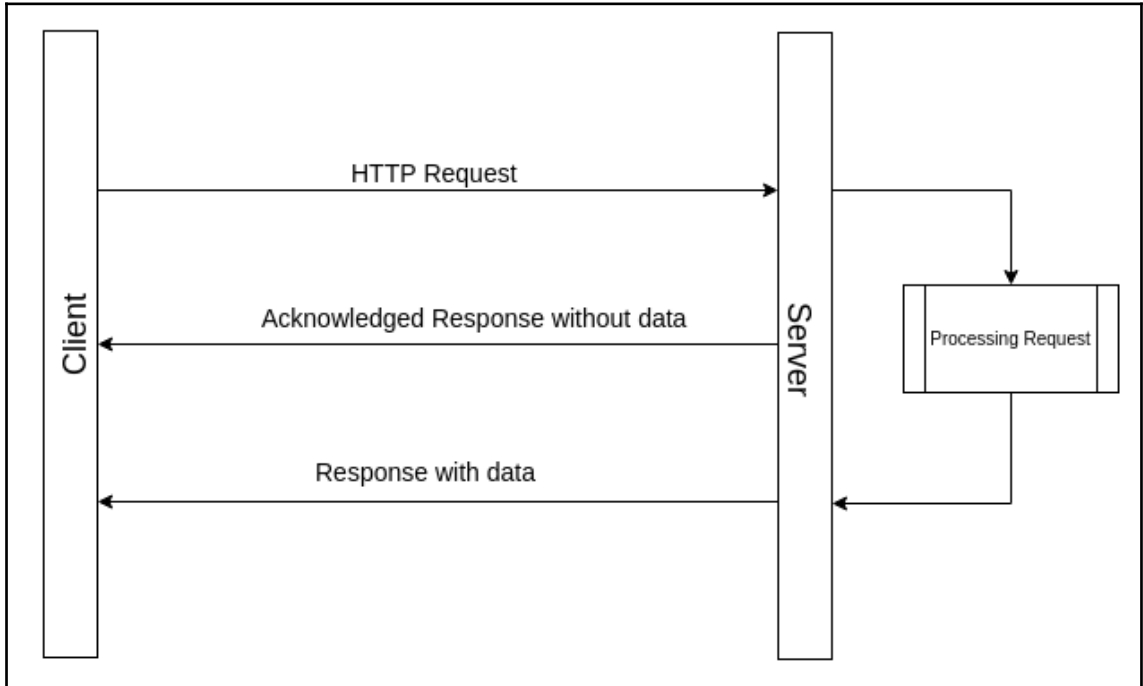
Status Issued
 Detailed status The certificate was issued at 2018-05-24T10:42:04UTC

Domain	Validation status
*.abdulwahid.info	Success

[Export DNS configuration to a file](#) You can export all of the CNAME records to a file

Domain	Validation status																												
▼ *.abdulwahid.info	Success																												
<p>Add the following CNAME record to the DNS configuration for your domain. The procedure for adding CNAME records depends on your DNS service Provider. Learn more.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>_6232baf55bb7b1971371320f2823e4c6.abdulwahid.info.</td> <td>CNAME</td> <td>_9113cab6c1032617a7d1f0ee5e410ef4.acm-validations.aws.</td> </tr> </tbody> </table> <p>Note: Changing the DNS configuration allows ACM to issue certificates for this domain name for as long as the DNS record exists. You can revoke permission at any time by removing the record. Learn more.</p> <p>Create record in Route 53 Amazon Route 53 DNS Customers ACM can update your DNS configuration for you. Learn more.</p> <p>Export DNS configuration to a file You can export all of the CNAME records to a file</p>		Name	Type	Value	_6232baf55bb7b1971371320f2823e4c6.abdulwahid.info.	CNAME	_9113cab6c1032617a7d1f0ee5e410ef4.acm-validations.aws.																						
Name	Type	Value																											
_6232baf55bb7b1971371320f2823e4c6.abdulwahid.info.	CNAME	_9113cab6c1032617a7d1f0ee5e410ef4.acm-validations.aws.																											
<h3>Details</h3> <table border="0"> <tbody> <tr> <td>Type</td> <td>Amazon Issued</td> <td>Requested at</td> <td>2018-05-24T10:40:22UTC</td> </tr> <tr> <td>In use?</td> <td>No</td> <td>Issued at</td> <td>2018-05-24T10:42:04UTC</td> </tr> <tr> <td>Domain name</td> <td>*.abdulwahid.info</td> <td>Not before</td> <td>2018-05-24T00:00:00UTC</td> </tr> <tr> <td>Number of additional names</td> <td>0</td> <td>Not after</td> <td>2019-06-24T12:00:00UTC</td> </tr> <tr> <td>Identifier</td> <td>af0796fa-3a46-49ae-97d8-90a6b5ff6784</td> <td>Public key info</td> <td>RSA 2048-bit</td> </tr> <tr> <td>Serial number</td> <td>08:0b:2d:f0:06:dd:ab:73:e3:f6:0a:4c:40:d f:f9:9d</td> <td>Signature algorithm</td> <td>SHA256WITHRSA</td> </tr> <tr> <td></td> <td></td> <td>ARN</td> <td>arn:aws:acm:us-east-1:042373950390:certificate/af0796fa-3a46-49ae-97d8-90a6b5ff6784</td> </tr> </tbody> </table>		Type	Amazon Issued	Requested at	2018-05-24T10:40:22UTC	In use?	No	Issued at	2018-05-24T10:42:04UTC	Domain name	*.abdulwahid.info	Not before	2018-05-24T00:00:00UTC	Number of additional names	0	Not after	2019-06-24T12:00:00UTC	Identifier	af0796fa-3a46-49ae-97d8-90a6b5ff6784	Public key info	RSA 2048-bit	Serial number	08:0b:2d:f0:06:dd:ab:73:e3:f6:0a:4c:40:d f:f9:9d	Signature algorithm	SHA256WITHRSA			ARN	arn:aws:acm:us-east-1:042373950390:certificate/af0796fa-3a46-49ae-97d8-90a6b5ff6784
Type	Amazon Issued	Requested at	2018-05-24T10:40:22UTC																										
In use?	No	Issued at	2018-05-24T10:42:04UTC																										
Domain name	*.abdulwahid.info	Not before	2018-05-24T00:00:00UTC																										
Number of additional names	0	Not after	2019-06-24T12:00:00UTC																										
Identifier	af0796fa-3a46-49ae-97d8-90a6b5ff6784	Public key info	RSA 2048-bit																										
Serial number	08:0b:2d:f0:06:dd:ab:73:e3:f6:0a:4c:40:d f:f9:9d	Signature algorithm	SHA256WITHRSA																										
		ARN	arn:aws:acm:us-east-1:042373950390:certificate/af0796fa-3a46-49ae-97d8-90a6b5ff6784																										

Chapter 9: Asynchronous Task Execution on AWS Lambda



aws Services Resource Groups

Abdul Wahid N. Virginia Support

SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

Topics

Publish to topic Create new topic Actions

Filter

<input type="checkbox"/>	Name	ARN
<input type="checkbox"/>	DailyQuoteSubscription	arn:aws:sns:us-east-1:042373950390:DailyQuoteSubscription

Total Items: 1
Selected Items: 0

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aws Services Resource Groups

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SNS dashboard

- Topics
- Applications
- Subscriptions
- Text messaging (SMS)

Text messaging preferences

Default message type: Transactional ⓘ

Account spend limit: 1 USD ⓘ

IAM role for CloudWatch Logs access: arn:aws:iam::042373950390:role/SNSSuccessFeedback ⓘ Change | Clear

Default percentage of success to sample: 100

Default sender ID: QUOTE ⓘ

Reports storage: Name of an S3 bucket ⓘ

Cancel Update preferences

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aws Services Resource Groups

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SNS dashboard
Topics
Applications
Subscriptions
Text messaging (SMS)

Subscriptions

Create subscription Request confirmations Actions

Filter

Subscription ARN	Proto...	Endpoint	Topic ARN
arn:aws:sns:us-east-1:042373950390:DailyQuoteSubscription:c455205f-59bf-4973-85ef-12...	sms	+919028790411	arn:aws:sns:us-east-1:0...

Total Items: 1
Selected Items: 0

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aws Services Resource Groups

Abdul Wahid N. Virginia Support

SNS dashboard
Topics
Applications
Subscriptions
Text messaging (SMS)

Subscriptions

Create subscription Request confirmations Actions

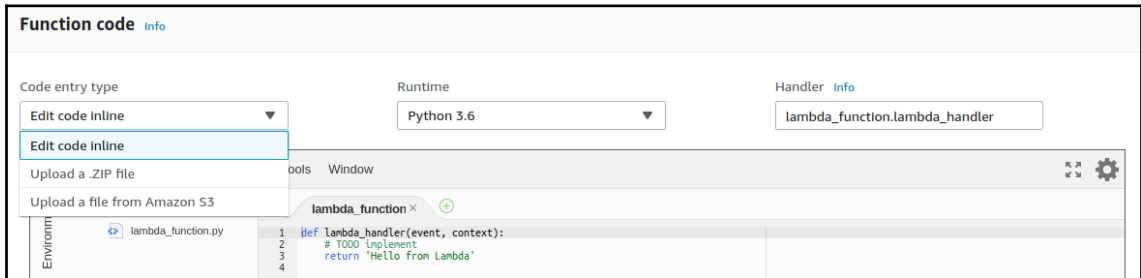
Filter

Subscription ARN	Proto...	Endpoint	Topic ARN
------------------	----------	----------	-----------

Total Items: 0
Selected Items: 0

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Chapter 10: Advanced Zappa Settings



```
abdu lw@ULTP-711:~/workspace/book/Chapter09(master)$ zappa
certify      --help      package     status      unschedule
--color      init        rollback    tail         update
deploy       invoke      schedule    template    -v
-h           manage     shell       undeploy    --version
```

Chapter 11: Securing Serverless Applications with Zappa

The screenshot displays the AWS API Gateway console interface. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information (Abdul Wahid, Mumbai, Support). The breadcrumb trail shows 'APIs > chapter11-dev (laqdydyrg3) > Stages > dev'. The left sidebar contains a navigation menu with categories like 'Resources', 'Stages', 'Authorizers', 'Gateway Responses', 'Models', 'Resource Policy', 'Documentation', 'Dashboard', 'Settings', 'Usage Plans', and 'API Keys'. The main content area is titled 'dev Stage Editor' and features a 'Delete Stage' button. Below the title, the 'Invoke URL' is shown as 'https://laqdydyrg3.execute-api.ap-south-1.amazonaws.com/dev'. A horizontal menu includes 'Settings', 'Logs', 'Stage Variables', 'SDK Generation', 'Export', 'Deployment History', and 'Documentation History'. The 'Settings' tab is active, showing 'Canary' settings. The 'Cache Settings' section includes an 'Enable API cache' checkbox. The 'Default Method Throttling' section includes an 'Enable throttling' checkbox, a 'Rate' input field set to '10000' requests per second, and a 'Burst' input field set to '5000' requests. The 'Client Certificate' section includes a 'Certificate' dropdown menu set to 'None'. The 'Tags' section includes a table with 'Key' and 'Value' columns and an 'Add Stage Tag' button. A 'Save Changes' button is located at the bottom right of the settings area. The footer contains 'Feedback', 'English (US)', and copyright information: '© 2008 - 2018, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use'.

aws Services Resource Groups Abdul Wahid Mumbai Support

Amazon API Gateway API Keys > Create

APIs

- chapter-3-dev
- chapter-4-dev
- chapter-8-dev
- chapter-9-dev
- flask-todo-dev
- homejoy-backend-prod
- imagegallerypro-dev
- Usage Plans
- API Keys**
- Custom Domain Names
- Client Certificates
- VPC Links
- Settings

API Keys Actions Create API Key

Create API key Import API keys

Name* Chapter11_APIKEY

API key* Auto Generate Custom

Description

* Required

Save

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aws Services Resource Groups Abdul Wahid Mumbai Support

Amazon API Gateway API Keys > dev_laqdydyrg3

APIs

- chapter-3-dev
- chapter-4-dev
- chapter-8-dev
- chapter-9-dev
- chapter11-dev
- flask-todo-dev
- homejoy-backend-prod
- imagegallerypro-dev
- Usage Plans
- API Keys**
- Custom Domain Names
- Client Certificates
- VPC Links
- Settings

API Keys Actions dev_laqdydyrg3 Delete API Key

Search... dev_laqdydyrg3

ID zp0snz9tk

Name dev_laqdydyrg3

API key yEddw9WeMH2UIZXHcaHQb1WvbindovrB55Rf4eAW

Description Api Key for laqdydyrg3

Enabled Enabled ⓘ

Edit

Associated Usage Plans

Add to Usage Plan

Usage Plan	API	Stage	
Chapter 11 Basic Usage Plan	chapter11-dev	dev	⊗

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aws Services Resource Groups

Abdul Wahid Mumbai Support

Amazon API Gateway Usage Plans > Create

Show all hints ?

APIs

- chapter-3-dev
- chapter-4-dev
- chapter-8-dev
- chapter-9-dev
- flask-todo-dev
- homejoy-backend-prod
- imagegallerypro-dev

Usage Plans

API Keys

Custom Domain Names

Client Certificates

VPC Links

Settings

Create Usage Plan

Usage Plans help you meter API usage. With Usage Plans, you can enforce a throttling and quota limit on each API key. Throttling limits define the maximum number of requests per second available to each key. Quota limits define the number of requests each API key is allowed to make over a period.

Name* Chapter 11 Basic Usage Plan

Description

Throttling

Enable throttling

Rate* 10 requests per second

Burst* 20 requests

Quota

Enable quota

100 requests per Month

* Required

Next

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aws Services Resource Groups

Abdul Wahid Mumbai Support

Amazon API Gateway Usage Plans > Chapter 11 Basic Usage Plan (9bjs15)

Show all hints ?

APIs

- chapter-3-dev
- chapter-4-dev
- chapter-8-dev
- chapter-9-dev
- chapter11-dev
- flask-todo-dev
- homejoy-backend-prod
- imagegallerypro-dev

Usage Plans

API Keys

Custom Domain Names

Client Certificates

VPC Links

Settings

Chapter 11 Basic Usage Plan

Chapter 11 Basic Usage Plan

Details API Keys Marketplace

Edit

ID 9bjs15

Name Chapter 11 Basic Usage Plan

Description No description.

Rate 10 requests per second

Burst 20 requests

Quota 100 requests per month starting on the 1st day

Associated API Stages

Add API Stage

API	Stage	Method Throttling	
chapter11-dev	dev	No Methods Configured	Configure Method Throttling

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AWS Notification Message Inbox x Updates x ⌵ 🖨 🗑


AWS Notifications no-reply@sns.amazonaws.com [via](#) amazonses.com 4:20 AM (31 minutes ago) ☆ ↶ ⋮
 to me ▾


```
{
  "task_path": "resources.async_task",
  "capture_response": false,
  "response_id": null,
  "args": [],
  "kwargs": {},
  "command": "zappa.async.route_lambda_task"
}
```

--


If you wish to stop receiving notifications from this topic, please click or visit the link below to unsubscribe:
<https://sns.ap-south-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:ap-south-1:042373950390:UnhandledException:2b084dd2-a692-40c1-b09b-a9bad7a9dac8&Endpoint=abdulwahid24@gmail.com>


Please do not reply directly to this email. If you have any questions or comments regarding this email, please contact us at <https://aws.amazon.com/support>


 **chapter11-dev-iam**


 **CloudWatch Events** ✕

Add triggers from the list on the left

 **AWS Lambda**

 **AWS XRay**

 **Amazon CloudWatch Logs**


 **Amazon DynamoDB**

AWS XRay

Below is a summary of the AWS XRay resources and API calls your function's code has access to, as configured by its execution role. Visit the [IAM console](#) to manage these permissions.

By action | **By resource**

Resource	Actions
All resources	Allow: xray:PutTraceSegments Allow: xray:PutTelemetryRecords

 This information was sourced from the following policy statements:
 Inline policy zappa-permissions, statement 2

aws Services Resource Groups

Abdul Wahid Mumbai Support

AWS X-Ray

Getting started

Service map

Traces

Configuration

Encryption

Enter service name, annotation, trace ID. Or click the Help icon for additional details. Last 5 minutes

Service map Updated on 2018/07/16 03:26:20 (UTC +05:30) Map legend

```
graph LR; Clients --> S1((avg. 525ms  
0.4 t/min  
chapter11-dev-xray  
AWS::Lambda)); S1 --> S2((avg. 509ms  
0.4 t/min  
chapter11-dev-xray  
AWS::Lambda::Function));
```

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Network


VPC [Info](#)

Select a VPC that your function will access.

Default vpc-4730872e (172.31.0.0/16) ▼


Subnets*


Select the VPC Subnets that Lambda should use to set up your VPC configuration. Format: "subnet-id (cidr-block) | az name-tag".

 Please select at least 1 subnet.

Security Groups*

Select the VPC Security Groups that Lambda should use to set up your VPC configuration. Format: "sg-id (sg-name) | name-tag". The table below will show the inbound and outbound rules for the security groups you have selected.

 Please select at least 1 security group.

 When you enable VPC, your Lambda function will lose default internet access. **If you require external internet access for your function, ensure that your security group allows outbound connections and that your VPC has a NAT gateway.**

Inbound rules

Outbound rules

Security group ID	Ports	Source
None	-	-

aws Services Resource Groups Abdul Wahid Mumbai Support

VPC Dashboard

Filter by VPC: Select a VPC

Virtual Private Cloud

Your VPCs

- Subnets
- Route Tables
- Internet Gateways
- Egress Only Internet Gateways
- DHCP Options Sets
- Elastic IPs
- Endpoints
- Endpoint Services
- NAT Gateways
- Peering Connections

Security

- Network ACLs
- Security Groups

VPN Connections

- Customer Gateways
- Virtual Private Gateways
- VPN Connections

Create subnet Actions

Filter by tags and attributes or search by keyword

Name	Subnet ID	State	VPC	IPv4 CIDR	Available IPv4	IPv6 CIDR	Availability Zone	Route table
	subnet-1b10a072	available	vpc-4730872e	172.31.16.0/20	4091	-	ap-south-1a	rtb-29229e40
	subnet-6303f22e	available	vpc-4730872e	172.31.0.0/20	4089	-	ap-south-1b	rtb-29229e40

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aws Services Resource Groups

Abdul Wahid Mumbai Support

VPC Dashboard

Filter by VPC: Select a VPC

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

NAT Gateways

Peering Connections

Security

Network ACLs

Security Groups

VPN Connections

Customer Gateways

Virtual Private Gateways

VPN Connections

Create Security Group Security Group Actions

Filter All security groups default

Name tag	Group ID	Group Name	VPC	Description
<input checked="" type="checkbox"/>	sg-892c4be0	default	vpc-4730872e	default VPC security group

sg-892c4be0

Summary Inbound Rules Outbound Rules Tags

Group name: default VPC: vpc-4730872e

Group ID: sg-892c4be0 Group description: default VPC security group

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Chapter 12: Zappa with Docker

